

City of Coquille - URA

Coos County, Oregon

Contract Documents

VOLUME 1 – Front End Documents

FOR THE CONSTRUCTION OF

City of Coquille URA North Adams Streetscape Improvements Phase 1: Underground Improvements

February 2025
Engineering Project No. 2204-298

Civil West

Engineering Services, Inc.



Prepared By:
Civil West Engineering Services, Inc.
HGE Architects, Inc.
Sandow Engineering, LLC

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ARCHITECTS

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ADVERTISEMENT FOR BIDS

Notice is hereby given that sealed bids for **City of Coquille URA - North Adams Streetscape Improvements - Phase 1: Underground Improvements** project, will be received by the City of Coquille no later than the bid closing time of **2:00 P.M., Tuesday, April 22, 2025**.

Bids shall be submitted to the City of Coquille URA by mail/hand delivery: Coquille City Hall, 851 N Central Blvd., Coquille, OR 97423. Bids shall be identified as: BID for City of Coquille URA - Phase 1: North Adams Streetscape Improvements. Bids will be publicly opened and read aloud immediately following the bid closing time at 2:00 P.M in the Coquille City Hall Council Chambers, 851 N Central Blvd., Coquille, OR 97423.

Phase 1 work on this Project consists of the removal of overhead utilities along North Adams Street from the intersection at Highway 42 through the intersection of E. 3rd Street. Improvements include placing overhead utilities underground, electrical service upgrades to existing buildings, upgrades to the existing sanitary sewer system, upgrades to the existing water system, and other improvements to accommodate the preparation of the complete buildout for Phase 2 improvements.

Contract Documents for this work, including Instructions to Bidders and Bid Form, may be examined at the Office of the Landscape Architect, HGE Architects, Inc., 333 South 4th Street, Coos Bay, Oregon, phone: 541- 269-1166, email: general@hge1.com, and at the following locations: Coquille City Hall, various Plan Centers, and on the HGE website at <http://www.hge1.com/bidding-area/>. General Contractors are encouraged to contact HGE ARCHITECTS, INC., by phone or email and register their interest in submitting a bid and to be included in the plan holders' list.

One set of large format drawings, specifications and contract documents may be obtained by prime bidders from HGE ARCHITECTS, INC., upon refundable deposit of \$100.

A mandatory pre-bid meeting and walk-through will be held at the job site on March 18, 2025, at 10:00 a.m. Contractors shall meet near the project site, at the Coquille Public Library at 259 N. Adams Street, Coquille, Oregon for the pre-bid meeting, immediately followed by the site walk-through. Contractors and subcontractors are encouraged to attend.

The Owner reserves the right to reject any and all bids, and to waive any technicalities or informalities in connection therewith. No bidder may withdraw his bid after the hour set for the opening thereof until the lapse of thirty (30) days from the bid opening.

By: Forrest Neuerburg, City Manager
City of Coquille

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SECTION 00200

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 - DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below.
- A. **Engineer** - Refers to CIVIL WEST ENGINEERING SERVICES, INC.
 - B. **Issuing Office** - Refers to HGE ARCHITECTS, INC.; the office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - C. **Lowest Responsible Bidder** - Bidder who submits the lowest bonafide bid complying with the requirements and instructions in the Bidding Requirements and is considered by the Owner to be fully responsible and qualified, per ORS 279C.375(2), to perform the work for which the bid is submitted.
 - D. **Owner** - Refers to **CITY OF COQUILLE – URBAN RENEWAL AGENCY**.
 - E. **Project Manual** - The bound documentary information prepared for bidding and constructing the Work, including Bidding Requirements and Contract Documents.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents, including Bidding Requirements and Contract Documents, in the number and for the non-refundable payment stated in the Advertisement for Bids may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.04 Owner has established a Bidding Documents Website as indicated in the Advertisement to Bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner / Issuing Office.
- 2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Issuing Office. Owner is not responsible for omissions in Bidding Documents or other

documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 Bidders must be licensed by Construction Contractor=s Board per ORS 701.035 to 701.055.

A. In accordance with ORS 279C.863 all independent contractors working on qualifying public works projects, with a contract price exceeding \$100,000 must obtain and file with the Construction Contractors Board (CCB) a public works bond with a corporate surety authorized to do business in Oregon for the amount of \$30,000 before starting work on a contract or subcontract for a public works project.

3.02 Prequalification of Bidders

A. Not required.

B. The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to properly complete the Work contemplated therein.

ARTICLE 4 - PRE-BID CONFERENCE

4.01 A **MANDATORY** Pre-Bid Conference will be held at the time and location indicated in the Advertisement to Bid. Representatives of Owner and Engineer will be present to discuss the Project. Proposals will not be accepted from Bidders who do not attend the conference. It is each Bidder's responsibility to sign in at the pre-bid conference to verify its participation. Bidders must sign in using the name of the organization that will be submitting a Bid. A list of qualified Bidders that attended the pre-bid conference and are eligible to submit a Bid for this Project will be issued in an Addendum.

4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-bid conference. Information presented and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

5.01 Site and Other Areas

A. Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities,

construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 Existing Site Conditions

- A. Subsurface and Physical Conditions; the Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents, if any.
 - 2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents, if any.
- B. Copies of reports and drawings referenced above will be made available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

5.02 Underground Facilities

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

5.04 Hazardous Environmental Condition

- A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, the ENGINEER has used in preparing the Bidding Documents.
- B. Copies of reports and drawings referenced above will be made available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

5.05 Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraph

5.03, 5.04 and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in Contract Documents due to any Hazardous Environmental conditions uncovered or revealed at the Site which was not shown or indicated on the Drawings or Work, appear in Paragraph 5.04 of the General Conditions.

5.06 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

5.07 Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work, if any, that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

5.08 It is responsibility of each Bidder before submitting a Bid to:

- A. Examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda;
- B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. Become familiar with and satisfy Bidder as to all federal, state, and local laws and regulations that may affect cost, progress, or performance of the Work;
- D. Carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures, if any, at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 5.02 of the General Conditions, and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site which have been identified in the Supplementary Conditions as provided in Paragraph 5.06 of the General Conditions;
- E. Obtain and carefully study (or accept consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
- F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid

for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

- G. Become aware of the general nature of the work, if any, to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 - H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
 - I. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
 - J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 5.09 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 2, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 6 – BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certificates in Bid Form, Agreement

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Issuing Office / Engineer in writing and to be given consideration must be received seven (7) days prior to the date for opening Bids. Interpretations or clarifications

considered necessary by Engineer in response to such questions will be issued by Addenda emailed to all parties recorded by Issuing Office as having received the Bidding Documents. Prospective Bidders will be sent Addenda by email with return receipt requested no later than five (5) days prior to the date for opening Bids. Questions received less than seven (7) days prior to the date for opening bids will not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.
- 7.03 No Addenda will be issued later than five (5) days prior to the date for opening bids except an Addenda, if necessary, to postpone the date for receipt of bids or withdrawing the Request for Bids.
- 7.04 Requests to clarify the source of materials, equipment suppliers, or any other such matter which does not modify, change, increase, or decrease the scope of work will be answered by Engineer up to the date of opening bids. No written responses will be made.

ARTICLE 8 - BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of ten (10) percent of Bidder=s maximum Bid price and in the form of a cashier=s or certified check or a Bid bond (EJCDC No. C-430, 2002 Edition) issued by a surety meeting the requirements of Article 6 of the General Conditions.
- 8.02 The Attorney-In-Fact (Resident Agent) who executes the Bid bond on behalf of the Surety must attach a notarized copy of his Power-Of-Attorney as evidence of Agent=s authority to bind the Surety on the date of execution of the Bid bond.
- 8.03 The Bid security of the apparent Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required Contract security and met the other conditions of the Notice of Award whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited per ORS 279C.385.
- 8.04 The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven (7) days after the Effective Date of the Agreement or sixty-one (61) days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.05 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven (7) days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

- 9.01 The number of days within which the Work is to be ready for final payment are set forth in the Bid Form.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE AND AOR-EQUAL@ ITEMS

11.01 The Contract for the Work, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or Aor-equal@ materials and equipment as defined in Paragraph 7.05 of the General Conditions, or those substitute materials and equipment approved by the Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or Aor-equal@ item. Request for Engineer=s clarification of materials and equipment considered Aor-equal@ prior to the Effective Date of the Agreement must be received by the Engineer at least five (5) days prior to the date for receipt of Bids. No item of material or equipment will be considered by Engineer as a substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least fifteen (15) days prior to the date for receipt of Bids. Each request shall conform to the requirements of Paragraph 7.06 of the General Conditions. The burden of proof of the merit of the proposed item is upon the Bidder. Engineer=s decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

11.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-bid approvals of “or – equal” pr substitution requests are made at the Bidder’s sole risk.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 Disclosure of First-Tier Subcontractors

- A. In accordance with ORS 279C.370, if Bidder’s bid on a public improvement project exceed \$100,000, the Bidder shall, within two working hours after the Bid Closing Time, submit to the Owner, on a Proposed First-Tier Subcontractors Disclosure Form (see Section 00440) provided by the Owner, a disclosure identifying any first-tier subcontractors that will furnish labor or labor and materials and whose contract value is equal to or greater than:
 - 1. Five (5) percent of the total bid amount, but at least \$15,000, or
 - 2. \$350,000 regardless of the percentage of the total bid amount.

- B. For each Subcontractor listed, Bidders shall state:
 - 1. The name of the Subcontractor;
 - 2. The Subcontractor’s Construction Contractor’s Board Number;

3. The dollar amount of the subcontract; and
 4. The category of Work that the Subcontractor would be performing.
- C. If no subcontracts subject to the above disclosure requirements are anticipated, a Bidder shall so indicate by entering ANONE@. For each Subcontractor listed, Bidders shall provide all requested information. An incomplete form will be cause for rejection of the Bid.
- D. The Subcontractor Disclosure Form may be submitted either:
1. By filling out the Subcontractor Disclosure Form included in the Bidding Documents and submitting it together with the Bid at the time and place designated for receipt of Bids.
 2. By removing or copying it from the Bid Documents, filling it out and submitting it separately to the Owner.
- E. Bidder=s failure to complete and submit a first-tier Subcontractor Disclosure Form in accordance with ORS 279C.370 and with the instructions in this Article 12 will result in the Bid being declared non-responsive and the contract will not be awarded to that Bidder.
- 12.02 If requested by Owner or Engineer, the apparent Successful Bidder will within seven (7) days after the day of the Bid opening submit to Owner and Engineer an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual or entity. If Owner or Engineer after due investigation has reasonable objection to any proposed Subcontractor, Supplier, individual or entity, Owner may before giving the Notice of Award request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price.
- 12.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner and Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 7.06 of the General Conditions.
- 12.04 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.
- 12.05 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in Supplementary Conditions 7.07.

ARTICLE 13 - PREPARATION OF BID

- 13.01 The Bid Form(s) and Exhibits are included in the Bidding Documents.

- 13.02 All blanks on the Bid Form and Exhibits shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each bid or unit price item listed therein, or the words ANo Bid,@ ANo Change,@ or ANot Applicable@ entered.
- 13.03 A Bid by an individual shall show the Bidder=s name and business address.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The business address of the partnership shall be provided on the Bid Form.
- 13.05 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporation business address and state of incorporation shall be provided on the Bid Form.
- 13.06 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The business address of the joint venture must be provided on the Bid Form.
- 13.07 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the business address of the firm must be provided on the Bid Form.
- 13.08 All names shall be typed or printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers and dates of which shall be filled in on the Bid Form.
- 13.10 Postal and email addresses and telephone number for communication regarding the Bid must be shown.
- 13.11 Pursuant to ORS 279C.365 (1)(K) Owner may not receive or consider a bid unless the bidder is licensed by the Construction Contractors Board of the State of Oregon. All bidders must complete the certificate of licensing by the Construction Contractors Board included in the Bid Documents (Section 00460) and submit with their bids on or before the time scheduled for the opening of bids. Failure to do so will result in the Bid being non-responsive.
- 13.12 The Bidder shall indicate, in the space provided, as to whether the Bidder is a Resident Bidder as defined in ORS 279A.120.
- 13.13 The Bidder, by executing the Bid, certifies that the provisions required by ORS 279C.840 relating to prevailing wage rates shall be included in this Contract, are understood by the Bidder and will be complied with during the duration of the Work. A separate statement from the Bidder is not required.
- 13.14 Pursuant to ORS 279C.505 (2) all Bidders must certify with their bids that they have an employee drug testing program in place. All bidders must complete the Employee Drug Certification (Section 00462) included in the Bid Documents and submit with their bids on or before the time scheduled for the opening bids.

- 13.15 Pursuant to ORS 279A.110 (4) all bidders must certify with their bids that they have not discriminated against any minority, women or emerging small business enterprises. All bidders must complete the Non-Discrimination Certification (Section 00463) included in the Bid Documents and submit that along with their bids on or before the time scheduled for the opening of bids. Failure to do so will result in the Bid being non-responsive.
- 13.16 All Bidders must complete the Certification of Compliance with Oregon Tax Laws included in the Bid Documents (Section 00464) and submit with their bids on or before the time scheduled for the opening of bids. Failure to do so will result in the Bid being non-responsive.
- 13.14 The Bidder, by executing the Bid, certifies that the provisions required by ORS 279C.836, unless exempt under Sections (4), (7), (8) or (9), before starting Work on this Contract, or any subcontract hereunder, Contractor and all subcontractors shall have on file with the Construction Contractor=s Board a public works bond with a corporate surety authorized to do business in the State of Oregon in the amount of \$30,000.
- 13.15 Bids conditioned in any means will not be accepted by the Owner.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 Unit Price

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The “Bid Price” (sometimes referred to as the extended price) for each unit price Bid item will be the product of the “Estimated Quantity”, which Owner or its representative has set forth in the Bid Form, for the item and the corresponding “Bid Unit Price” offered by the Bidder. The total of all unit price Bid items will be the sum of these “Bid Prices”; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.02 Allowances

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 - SUBMITTAL OF BID

- 15.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and

submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.

- 15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement for Bids and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation ABID ENCLOSED.@ When using the mail or other delivery system, the Bidder is totally responsible for the mail or other delivery system delivering the Bid at the place and prior to the time indicated in the Advertisement for Bid. A mailed Bid shall be addressed to Owner at address in Article 1.01 of Bid Form.
- 15.03 Oral, telephonic, telephonic facsimile or e-mail Bids or modifications of any Bid will not be accepted or receive consideration.
- 15.04 Bids received after the date and time prescribed for the opening of bids or not submitted at the correct location as indicated in the Advertisement for Bids, or in the designated manner, will not be accepted or receive consideration and will be returned to the bidder unopened.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

- 16.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to the Bid Opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 No Bidder may withdraw its bid after the time set for the receipt of bids, and thereafter during the period the bids remain open, except as provided in Paragraph 16.04 of the Instructions to Bidders.
- 16.04 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid or negotiated, that Bidder will be disqualified from further bidding on the Work. This provision to withdraw a Bid without forfeiting the Bid security does not apply to Bidder=s errors in judgment in preparing the Bid.

ARTICLE 17 - OPENING OF BIDS

- 17.01 Bids will be publicly opened at the time and place indicated in the Advertisement for Bids and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts

of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form.

ARTICLE 19 - EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner may reject any Bid not in compliance with all prescribed public bidding procedures and requirements and may reject for good cause, any and all Bids upon a finding of the Owner that it is in the public interest to do so. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, Owner will award the Contract to the responsible Bidder whose Bid, conforming with all the material terms and conditions of the Instructions to Bidders, is lowest, price and other factors considered.

1. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

19.07 If the Contract is to be awarded, Owner will provide written Notice of Intent to Award to all Bidders of the Owner=s intent to award the Contract. Owner=s award shall not be final until the later of the following:

1. Five (5) days after the date of the Notice of Intent; or
2. The Owner provides a written response to all timely-filed protests that denies the protest and affirms the award.

ARTICLE 20 - BONDS AND INSURANCE

- 20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by such bonds and certificates of insurance coverage.
- 20.02 When the Successful Bidder delivers the executed Agreement, Performance and Payment Bonds, Certificates of Insurance to Issuing Office for Owner's signature, it shall be accompanied by proof that the Successful Bidder has an Employee Drug Testing Program in place per ORS 279C.505. Such proof may include a copy of the Successful Bidder's adopted policy or program for employee drug testing.

ARTICLE 21 - SIGNING OF AGREEMENT

- 21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by at least four (4) copies of the Project Manual, including unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto and a copy of the original submitted Bidding Requirements. Within 15 days thereafter, Successful Bidder shall sign and deliver the four (4) counterparts of the Agreement and attached document requirements to Engineer for review and forwarding to Owner. Within ten (10) days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder with appropriate identification, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.
- 21.02 The date indicated in the Agreement, between Owner and Contractor, on which the Agreement becomes effective, will be initially set at thirty (30) days after the date the Contract is awarded. The effective date may be modified by mutual consent of the Owner and Contractor.

ARTICLE 22 - CODE OF CONDUCT

- 22.01 No member, officer, or employees of the Owner, or its designees or agents, no member of the governing body of Owner and no other public official of Owner who exercises any functions or responsibilities with respect to this Contract during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in Work to be performed in connection with this Contract. All Contractors shall incorporate, or cause to be incorporated, in all subcontracts a provision prohibiting such interest.

ARTICLE 23 - CONTRACTOR SUBMITTALS

- 23.01 As noted in Article 2.05A of the General Conditions, required pre-construction Contractor submittals shall be delivered to the Engineer within ten (10) days after the effective date of the Agreement. These shall include schedules of estimated progress and expected submissions/submittals.

ARTICLE 24 - BIDDER=S CERTIFICATION

24.01 QUALIFICATIONS OF BIDDERS. Each Bidder shall certify that they are skilled, experienced and regularly engaged in the general class and type of work called for in these Contract Documents; that they are familiar with the hazards associated with such work; and that they can satisfactorily perform such work. By completing and signing of the Bid Form, Bidders are certifying that they possess all of the above qualifications.

ARTICLE 25 - PROCUREMENT PROTEST PROCEDURES

25.01 Protests of procurement procedures based upon an alleged violation of the procurement requirements set forth in ORS Chapter 279C or federal regulations found at 40 CFR SS 33.001 through 33.1030 shall conform to the OWNER PROCUREMENT PROTEST PROCEDURES.

ARTICLE 26 - NOTICE OF SPECIAL CONDITIONS

26.01 Bidder's attention is directed to the following sections and requirements contained elsewhere in these Contract Documents:

1. Inspection and Testing of Materials.
2. Contractor's Insurance Requirements.
3. BOLI Prevailing Wage Rates for Public Works Contracts in Oregon, ORS 279C.800 to 279 C.870.

ARTICLE 27 - PRECONSTRUCTION CONFERENCE

27.01 Within thirty (30) days after the Effective Date of the Agreement, or within ten (10) days after the Engineer receives the Contractor=s submittals (see Article 23 above), whichever is later; a preconstruction conference will be held as stated in Article 2.04 of the General Conditions to discuss the work and specific requirements. The preconstruction conference shall be held prior to issuance of the Notice to Proceed. The Contractor will be notified of the date, time and location at least five (5) days prior to the preconstruction conference.

ARTICLE 28 - NOTICE TO PROCEED

28.01 The Notice to Proceed shall be issued within thirty-five (35) days after the effective date of the Agreement unless the Owner and Contractor mutually agree to a time extension.

28.02 Construction may not commence until the Notice to Proceed is issued. If the Notice is not issued within ninety (90) days after the bid opening, or within the period set by mutual agreement, the Contractor may terminate the agreement without further liability on the part of either the Contractor or Owner, unless Contractor causes the delay in issuance of the Notice to Proceed.

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BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

City of Coquille - URA

City Hall

851 N Central Blvd, Coquille OR, 97423

Oregon, 97496

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid Security (C-430, Bid Bond)
- B. List of Proposed First-Tier Subcontractors (C-440, First-Tier Subcontractors Disclosure Form) *(within two hours of bid closing)*
- C. Bidders Qualification Statement (C-451, Qualification Statement) *(unless prequalified per Section 3.02 of Instructions to Bidders)*
- D. Bidder Responsibility Certification (Section 00460, Contractors Responsibility Certification)
- E. Residency Statement (Section 00461, Residency Statement)
- F. Employee Drug Certification (Section 00462, Employee Drug Certification)
- G. Non-Discrimination Certification (Section 00463, Non-Discrimination Certification)
- H. Certificate of Compliance with Oregon Tax laws (Section 00464, State Tax Law Compliance Certification)
- I. Certificate of Licensing by the Construction Contractors Board (Section 00465, CCB License Certification)

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Unit Price Bids*

A. Bidder will perform the following Work at the indicated unit prices:

1. Base Bid:

1	Mobilization - Bonds & Insurance	ls	1		
2	Construction Facilities & Temporary Controls	ls	1		
3	Demolition & Site Preparation	ls	1		
4	Construction Staking	ls	1		
Surface Repair & Restoration					
5	Traffic & Pedestrian Control	ls	1		
6	Foundation Stabilization	cy	100		
7	Asphalt Concrete Pavement - Level 3	ton	500		
8	Standard Curb & Gutter/ Vertical Curb	lf	150		
9	Standard Concrete Sidewalk Repair w/ AB	sf	750		
10	Concrete Driveway/Pedestrian Ramp Repair w/ AB	sf	100		
11	Striping Repair	ls	1		
12	Site Restoration	ls	1		
Drainage Improvements					
13	18" PVC SD Piping - Class B Backfill	lf	938		
14	48" SD Manhole	ea	5		
15	G2 Catch Basin	ea	1		
Sanitary Sewer Improvements					
16	8" PVC SS Piping - Class B Backfill	lf	573		
17	12" PVC SS Piping - Class B Backfill	lf	89		
18	Bypass Pumping	ls	1		
19	Sanitary Sewer Lateral Connection, Complete, 4 or 6"	ea	11		
20	Sanitary Sewer Lateral Cleanout - 4"	ea	1		
21	Sanitary Sewer Lateral Cleanout - 6"	ea	6		
22	Sanitary Sewer Lateral Service, Complete, 4"	lf	42		

23	Sanitary Sewer Lateral Service, Complete, 6"	lf	248		
24	48" SS Manhole	ea	6		
Water Improvements:					
25	10" C900 Waterline Piping, Class B Backfill, All Fittings, Elbows, Tees, Transitions, Testing, Complete	lf	918		
26	10" Gate Valve	ea	8		
27	New HDPE Water Service, Connection, Complete to Existing Angle Stop or as Otherwise Shown, 1"	ea	10		
28	New HDPE Water Service, Connection, Complete to Existing Angle Stop or as Otherwise Shown, 2"	ea	2		
Electrical & Lighting Improvements:					
29	4" PVC Conduit, Class B Backfill, Complete, All Installation Methods	lf	2874		
30	6" PVC Conduit, Class B Backfill, Complete, All Installation Methods	lf	1838		
31	Oldcastle 444 Vault w/ 6" AB, Installed, Complete	ea	19		
32	Oldcastle 575 Vault w/ 6" AB, Installed, Complete	ea	7		
33	Oldcastle 644 Vault w/ 6" AB, Installed, Complete	ea	1		
34	Service Upgrades per Cedar Electric Report	ls	1		
35	Light Pole - VI-A7-G1-APM90-F/20', Dual Arm w/ Foundation, Complete	ea	15		
36	Light Pole VI-A7-G1-F/20', Post Top w/ Foundation, Complete	ea	11		
37	Post Top Acorn Light Fixture, 40W, 3000K	ea	26		
38	Top Mounted Acorn Light Fixture, 40W, 3000K	ea	15		
39	Junction Box Type-1 17"x10"x12"	ea	24		
40	1/2" Conduit, Complete, All Installation Methods	lf	1500		

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.02 *Total Bid Price (Lump Sum and Unit Prices, Both Schedules Combined)*

Total Bid Price (Total of all Lump Sum and Unit Price Bids)	\$
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ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder's Representations*

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no 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.
8. Bidder 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 Bidding Documents.
9. Bidder has given Engineer or Landscape Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer or Landscape Architect is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

- A. The Bidder certifies the following:
 1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
 3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
 4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

- a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
- b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
- c. 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.
- d. 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.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

00430 - BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Coquille - URA Address <i>(principal place of business)</i> : 851 North Central Blvd. Coquille, Oregon 97420	Bid Project <i>(name and location)</i> : City of Coquille URA – North Adams Streetscape Improvements Phase 1: Underground Improvements Bid Due Date: April 22, 2025
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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SECTION 00440 – FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM

Project Name: **City of Coquille – URA, North Adams Streetscape Improvements Phase 1: Underground Improvements**

Bid Closing Date: _____

A. Subcontractor List

1. Bidder shall list below the name, address, Construction Contractor’s Board (CCB) number, description of work and dollar value of the subcontract for each subcontractor performing work in excess of the amount specified in the Instructions to Bidders, Section 00200, Article 12. If no subcontractor will be performing work on this project in excess of the amount specified in the Instructions to Bidders, Section 00200, Article 12, Bidders shall enter “NONE” in the first line below.

<u>Name</u>	<u>Address</u>	<u>CCB #</u>	<u>Description of Work</u>	<u>\$ Value of Subcontract</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

2. Total value of work provided by all subcontractors including those listed above is \$ _____.

Signature of Bidder Printed Name of Bidder Title Company Submitting

*This form must be submitted at the location specified in the Advertisement for Bids or Invitation to Bid on the bid closing date and within **Two (2)** working hours after bid closing time.*

Qualifications Statement

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business’s organizational structure:

Form of Business:	<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation		
<input type="checkbox"/> Limited Liability Company <input type="checkbox"/> Joint Venture comprised of the following companies:			
1.			
2.			
3.			
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Pending	

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

Qualifications Statement

1.04 Provide information regarding the Business’s officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Limit of Authority:	\$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business’s Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
<input type="checkbox"/> Disadvantaged Business Enterprise		
<input type="checkbox"/> Minority Business Enterprise		
<input type="checkbox"/> Woman-Owned Business Enterprise		
<input type="checkbox"/> Small Business Enterprise		
<input type="checkbox"/> Disabled Business Enterprise		
<input type="checkbox"/> Veteran-Owned Business Enterprise		
<input type="checkbox"/> Service-Disabled Veteran-Owned Business		
<input type="checkbox"/> HUBZone Business (Historically Underutilized) Business		
<input type="checkbox"/> Other		
<input type="checkbox"/> None		

Qualifications Statement

ARTICLE 4—SAFETY

4.01 Provide information regarding Business’s safety organization and safety performance.

Name of Business’s Safety Officer:			
Safety Certifications			
Certification Name	Issuing Agency	Expiration	

4.02 Provide Worker’s Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

5.01 Provide information regarding the Business’s financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:			
Business address:			
Date of Business’s most recent financial statement:		<input type="checkbox"/> Attached	
Date of Business’s most recent audited financial statement:		<input type="checkbox"/> Attached	
Financial indicators from the most recent financial statement			
Contractor’s Current Ratio (Current Assets ÷ Current Liabilities)			
Contractor’s Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)			

Qualifications Statement

ARTICLE 6—SURETY INFORMATION

6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Is surety listed in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

7.01 Provide information regarding Business’s insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider	Type of Policy (Coverage Provided)		
Are providers licensed or authorized to issue policies in the Project location?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Does provider have an A.M. Best Rating of A-VII or better?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

Qualifications Statement

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

8.02 Provide information regarding the Business’s previous contracting experience.

Years of experience with projects like the proposed project:		
As a general contractor:		As a joint venturer:
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:		
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been barred from contracting by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been released from a bid in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Defaulted on a project or failed to complete any contract awarded to it? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Refused to construct or refused to provide materials defined in the contract documents or in a change order? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been a party to any currently pending litigation or arbitration? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Provide full details in a separate attachment if the response to any of these questions is Yes.		

8.03 List all projects currently under contract in Schedule A and provide indicated information.

8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business’s experience with projects similar in type and cost of construction.

8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business’s key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

- A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
- B. Diverse Business Certifications if required by Paragraph 3.01.
- C. Certification of Business’s safety performance if required by Paragraph 4.02.
- D. Financial statements as required by Paragraph 5.01.

Qualifications Statement

- E. Attachments providing additional information as required by Paragraph 8.02.
- F. Schedule A (Current Projects) as required by Paragraph 8.03.
- G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
- H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
- I. Additional items as pertinent.

Qualifications Statement

This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address: _____

Phone: _____

Email: _____

Qualifications Statement

Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Qualifications Statement

Qualifications Statement

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Qualifications Statement

Qualifications Statement

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Qualifications Statement

Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment	Percent of time used for this project	Estimated project completion date	
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment	Percent of time used for this project	Estimated project completion date	
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Qualifications Statement

Qualifications Statement

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

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SECTION 00460

BIDDER RESPONSIBILITY CERTIFICATION

**This page must be completed, signed, and returned with the Bid Schedule.
Failure to do so will result in bid rejection.**

This certifies that the below named Bidder meets the standards of responsibility as provided by ORS 279C.375. The below named Bidder certifies that:

1. It has the appropriate financial, material, equipment, facility and personnel resources and expertise necessary to meet all contractual responsibilities as required by this contract.
2. It has a satisfactory record of performance for other public contracts.
3. It has a satisfactory record of integrity for other public contracts.
4. It is qualified legally to contract with the City of Yachats (City) for this project.
5. It will supply all required information requested by the City in connection with its bid for this Project, including, but not limited to, satisfactory responses to all information and certifications requested by the City in Section 00400 of the Contract concerning the Bidder's responsibility.

CERTIFICATION:

Contractor certifies that it meets the Standards of Responsibility as provided by ORS 279C.375.

Signature: _____ Title: _____

Name: _____ (Print or Type)

Firm: _____

Telephone: _____ Date: _____

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SECTION 00461

OREGON BIDDER RESIDENCY STATEMENT

**This page must be completed, signed, and returned with the Bid.
Failure to do so will result in bid rejection.**

279A.120 Preference for Oregon goods and services; non-resident bidders.

(1) *As used in this section:*

- (a) *“Non-resident bidder” means a bidder who is not a resident bidder.*
- (b) *“Resident bidder” means a bidder that has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid, has a business address in this state and has stated in the bid whether the bidder is a “resident bidder” under this paragraph.*

(2) *For the purposes of awarding a public contract, a contracting agency shall:*

- (a) *Give preference to goods or services that have been manufactured or produced in this state if price, fitness, availability and quality are otherwise equal; and*
- (b) *Add a percent increase to the bid of a nonresident bidder equal to the percent, if any, of the preference given to the bidder in the state in which the bidder resides.*

“Resident Bidder” means a Bidder that has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the Bid, has a business address in this state and has stated in the Bid whether the Bidder is a “resident Bidder”.

“Non-resident Bidder” means a Bidder who is not a “resident Bidder” as defined in ORD 279A.120.

a. Check one: Bidder is a () resident Bidder () non-resident Bidder

b. If a resident Bidder, enter your Oregon business address:

c. If a non-resident Bidder, enter state of residency: _____

d. If a non-resident Bidder, do you or your firm receive, or are you or your firm eligible for, any preference in award of contracts with your state’s government or with governmental bodies in your state?

Check one: () Yes () No

If yes: state the preference percentage: _____ %

If yes, but not a percentage of Bid price, describe the preference:

If yes, state the law or regulation that allows the preference described (legal citation):

Bidder certifies that the information provided herein is true and accurate.

Signature: _____ Title: _____

Name: _____ (Print or Type)

Firm: _____

Telephone: _____ Date: _____

SECTION 00462

BIDDER DRUG TESTING PROGRAM CERTIFICATION

**This page must be completed, signed, and returned with the Bid.
Failure to do so will result in bid rejection.**

This certifies that the below named Bidder has an employee drug testing program in place as required by ORS 279C.505 (2).

CERTIFICATION:

Bidder certifies that it has an employee drug testing program in place as required by ORS 279C.505 (2).

Signature: _____ Title: _____

Name: _____ (Print or Type)

Firm: _____

Telephone: _____ Date: _____

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SECTION 00463

NON-DISCRIMINATION CERTIFICATION

**This page must be completed, signed, and returned with the Bid Schedule.
Failure to do so will result in bid rejection.**

279A.110 Discrimination in subcontracting prohibited; remedies.

- (1) *A bidder or proposer who competes for or is awarded a public contract may not discriminate against a subcontractor in the awarding of a subcontract because the subcontractor is a minority, women or emerging small business enterprise certified under ORS 200.055.*
- (2) *A contracting agency may debar or disqualify, under ORS 279B.130 or 279C.440, as appropriate, a bidder or proposer if the contracting agency finds that the bidder or proposer has violated subsection (1) of this section in the awarding of a subcontract in connection with a contract advertised by the contracting agency or a contract between the contracting agency and the bidder or proposer. A debarred or disqualified bidder or proposer may appeal the debarment or disqualification under ORS 279B.425 or ORS 279C.445 and 279C.450, as appropriate.*
- (3) *A contracting agency may not allege an occurrence of discrimination in subcontracting as a basis for debarring or disqualifying a bidder or proposer under subsection (2) of this section more than three years after the alleged discriminatory conduct occurred or more than three years after the contracting agency, in the exercise of reasonable diligence, should have discovered the conduct, whichever is later.*
- (4) *A bidder or proposer shall certify in the documents accompanying the bidder's or proposer's offer to enter into a public contract that the bidder or proposer has not discriminated and will not discriminate, in violation of subsection (1) of this section, against any minority, women or emerging small business enterprise in obtaining any required subcontract.*
- (5) *After a contractor is awarded a public contract, if the contractor violates the certification made under subsection (4) of this section, the contracting agency may regard the violation as a breach of contract that permits:*
 - (a) *Termination of the contract; or*
 - (b) *The contracting agency to exercise any remedies for breach of contract that are reserved in the contract.*

CERTIFICATION:

Contractor certifies that it has not discriminated and will not discriminate, in violation of ORS 279A.110 (1), against any minority, women or emerging small business enterprise in obtaining any required subcontract

Signature: _____ Title: _____

Name: _____ (Print or Type)

Firm: _____

Telephone: _____ Date: _____

Blank Page

SECTION 00464

State Tax Law Compliance Certification

CERTIFICATE OF COMPLIANCE WITH OREGON TAX LAWS

**This page must be completed, signed, and returned with the Bid.
Failure to do so will result in bid rejection.**

I, the undersigned, hereby swear or affirm under penalty of perjury that:

I am authorized to act in behalf of bidder, that I have authority and knowledge regarding the payment of taxes, and that bidder is, to the best of my knowledge, not in violation of any Oregon tax laws.

For purposes of this certificate, 'Oregon tax laws' means those programs listed in ORS305.380 (4). Examples include the state inheritance tax, personal income tax, withholding tax, corporation income and excise taxes, amusement device tax, timber taxes, cigarette tax, other tobacco tax, 9-1-1 emergency communications tax, the elderly rental assistance program and local taxes administered by the Department of Revenue.

Signature: _____ Title: _____

Name: _____ (Print or Type)

Firm: _____

Telephone: _____ Date: _____

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SECTION 00465

CCB License Certification

**CERTIFICATION OF LICENSING BY OREGON CONSTRUCTION
CONTRACTORS BOARD**

**This page must be completed, signed, and returned with the Bid.
Failure to do so will result in bid rejection.**

This certifies that the below named Bidder is licensed by the State of Oregon Construction Contractor's Board required by ORS 279C.365 (1) (k).

CERTIFICATION:

Bidder hereby certifies that it is licensed by the State of Oregon Construction Contractor's Board and is not disqualified by the Board from performing a public improvement contract, as required by ORS 279C.365 (1) (k).

Signature: _____ Title: _____

Name: _____ (Print or Type)

Firm: _____

Telephone: _____ Date: _____

Blank Page

NOTICE OF AWARD

Date of Issuance:

Owner:

Owner’s Project No.:

Engineer:

Engineer’s Project No.:

Project:

Contract Name:

Bidder:

Bidder’s Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

[Describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is \$**[Contract Price]**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

[Number of copies sent] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **[number of copies sent]** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder’s compliance]**

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 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **[Full formal name of Owner]**

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

Copy: Engineer

Blank Page

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **[name of contracting entity]** (“Owner”) and **[name of contracting entity]** (“Contractor”).

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

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: **[Brief description of Work]**

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **[Brief description of Project]**

ARTICLE 3—ENGINEER

Guidance Notes—If an entity or individual other than the design engineer will serve as Owner’s representative during construction, then make appropriate revisions and additions to this Agreement, the General Conditions, the Supplementary Conditions, and other Contract Documents regarding the construction-phase roles and duties of the design engineer and such other entity or individual. Such revisions may include using a designation other than “Engineer” for the representative named in Paragraph 3.01 below, and expressly naming the design firm (for example, “ABC Engineering, Inc.”) instead of referring to “Engineer” in Paragraph 3.02.

3.01 The Owner has retained **[insert name of engineering firm]** (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by **[insert “Engineer” if an entity has been identified as such in Paragraph 3.01, and that same entity prepared the design; or indicate by name the entity other than Engineer that prepared the design]**.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is 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.

Notes to User

Select one of the two Contract Times paragraphs (either Paragraph 4.02 or Paragraph 4.03), and delete the other. The first option, Paragraph 4.02, uses dates for the time of completion; Paragraph 4.03 uses

number of days. (References in these Notes will be to paragraph numbers as published—the final numbering will change as paragraphs, such as either 4.02 or 4.03, are deleted during the finalization process.)

1. Paragraph 4.04, which establishes binding intermediate Milestones, may be used with either Paragraph 4.02 or Paragraph 4.03; or Paragraph 4.04 may be deleted if the Contract does not impose Milestone requirements.
2. In the common case in which Owner elects to predetermine fixed dates or a fixed number of days for completion of the Work, such dates or number of days should be inserted in the selected Contract Times paragraph (either Paragraph 4.02 or Paragraph 4.03) below prior to the bidding or other contractor selection process. If the time for completion will be determined through negotiation or a bidding process that allows bidders to specify the time for completion (for example, a price-plus-time—A + B—award process), then leave the blanks below open until the Contract is finalized (typically after the Successful Bidder has been determined and its proposed completion time accepted).
3. If the Work is divided into individual sections that have differing completion dates (or number of days for completion), then the selected Contract Times paragraph (either Paragraph 4.02 or Paragraph 4.03) below should be expanded to specify the completion dates (or number of days) for each section. Such completion dates may be categorized as Milestones under Paragraph 4.04.

4.02 *Contract Times: Dates*

- A. The Work will be substantially complete on or before **[date]**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **[date]**.

4.03 *Contract Times: Days*

- A. The Work will be substantially complete within **[number]** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **[number]** days after the date when the Contract Times commence to run.

Notes to User

1. “Milestone” in Paragraph 4.04 is a defined term.
2. For each Milestone, indicate the event that must be attained, such as “Substantial Completion of Lift Station 1” and the date or number of days from commencement by which the event must be attained.
3. In Paragraph 4.04 use a specific date for attainment of the Milestone if Paragraph 4.02 above (Contract Times: Date) has been selected; use the number of days from commencement of Contract Times for the Milestone if Paragraph 4.03 (Contract Times: Days) has been selected.
4. If the Contract does not include Milestones, delete Paragraph 4.04.

4.04 *Milestones*

- A. Parts of the Work must be substantially completed on or before the following Milestone(s):
 1. Milestone 1 **[event & date/days]**

2. Milestone 2 [event & date/days]
3. Milestone 3 [event & date/days]

Guidance Notes—Liquidated Damages

1. Liquidated damages are commonly used to address unexcused late completion of the Work. The topic is discussed in the Commentary. Delete Paragraph 4.05, Liquidated Damages, if such damages will not be established in the specific Contract.
2. At Substantial Completion, the Owner is able to use the Work for its intended purpose, by definition. See General Conditions, Paragraph 1.01.A. Achieving Substantial Completion is typically a critical deadline, and the associated damages for missing this deadline are typically significant. Paragraph 4.05.A.1 is the location for stating a liquidated amount for such damages, usually on a per-day basis.
3. The subsequent failure to complete the punch list tasks and bring the Work to a complete close by the final completion date may also result in some degree of damages to Owner—though typically these damages are significantly less than the daily damages for not achieving Substantial Completion on time. Some users may choose to establish liquidated damages only for the failure to achieve Substantial Completion. If that is the case, delete Paragraph 4.05.A.2 below.
4. If failure to achieve a Milestone on time is of such consequence that the assessment of liquidated damages is warranted for the failure to reach the Milestone on time, then retain and complete Paragraph 4.05.A.3; if not, delete it. Add additional similar paragraphs for any additional Milestones subject to a liquidated damages assessment. Liquidated damages for Milestones might, in some cases, be additive to liquidated damages for failing to timely attain Substantial Completion; if so Paragraphs 4.05.A.3 and 4.05.A.4 should be revised accordingly.

4.05 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 and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. 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):
 1. *Substantial Completion*: Contractor shall pay Owner \$[number] for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$[number] for each day that expires after such time until the Work is completed and ready for final payment.
 3. *Milestones*: Contractor shall pay Owner \$[number] for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial

Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.

4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

Notes to Users—If early completion would be a benefit to Owner, then consider retaining and completing the bonus clause below as Paragraph 4.05.C. The daily bonus for early completion need not be exactly the same as the daily post-Substantial Completion liquidated damages amounts, but presumably the two amounts will be reasonably compatible. If no bonus will be offered, then delete 4.05.C.

- C. *Bonus*: Contractor and Owner further recognize the Owner will realize financial and other benefits if the Work is completed prior to the time specified for Substantial Completion. Accordingly, Owner and Contractor agree that as a bonus for early completion, Owner shall pay Contractor \$[number] for each day prior to the time specified above for Substantial Completion (as duly adjusted pursuant to the Contract) that the Work is substantially complete. The maximum value of the bonus will be limited to \$[number].

Guidance Notes—Special Damages

If liquidated damages are used to address late completion by Contractor, EJCDC recommends developing daily liquidated damages amounts that comprehensively account for the full range of Owner's damages, including but not limited to loss of beneficial use; extended financing expenses; costs of additional engineering, construction observation, inspection, and administrative services; and potential fines or penalties. This comprehensive approach is well established and generally enforceable. If the recommended and conventional path is followed, and a comprehensive daily liquidated damages amount has been established in Paragraph 4.05 above, then delete the clause that follows, Paragraph 4.06, Special Damages, and rely solely on Paragraph 4.05, Liquidated Damages, to cover the full scope of damage done by late Contractor completion.

1. Some Owners prefer to charge a Contractor that has not completed the Work on schedule for Owner's additional hard-dollar costs in specified categories, such as regulatory fines and penalties, or extended engineering, construction observation, inspection, and administrative services; these charges (referred to here as "special damages") are levied on top of the daily liquidated damages amount. Those users that choose the "liquidated damages plus specified actual hard dollar costs" (special damages) approach may use the following Paragraph 4.06, Special Damages, revised as needed to reflect the intended scope of the special damages, together with the liquidated damages provisions in Paragraph 4.05, Liquidated Damages, above. It is very important if this approach is followed to be certain that the liquidated damages amount does not already include or rely in part on the potential for incurring these very same special damages costs.
2. Finally, note that Paragraph 4.06.B below does not refer to fines or penalties imposed by third parties. In the typical case, such fines and penalties are linked to Substantial Completion, and are not applicable to delays in final completion of the Work.

4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

Guidance Notes—Contract Price

1. Depending upon the particular Contract's pricing structure, use Paragraph 5.01.A alone (lump sum with no Unit Price Work items); Paragraphs 5.01.A, 5.01.B, and 5.01.C together (lump sum plus Unit Price items); Paragraph 5.01.B alone (Unit Prices for all Work); or Paragraph 5.01.D alone (price based on contents of incorporated Contractor's Bid), and delete those not used and renumber accordingly. If Paragraph 5.01.D is used, Contractor's Bid is attached as an exhibit and listed as a Contract Document in Article 7 below.
2. With respect to Paragraph 5.01.B concerning Unit Prices, if adjustment prices for variations from stipulated Base Bid or other baseline quantities have been agreed to, insert appropriate provisions.
3. Performance Requirements and Damages. In some cases, the construction contract will contain performance requirements that must be met by the equipment, systems, or facilities constructed or furnished by Contractor. Performance provisions most commonly will be located in the Specifications. On some projects the Owner and Contractor may contractually stipulate specific damages for failure to meet the performance requirements. It may be useful to provide a cross-reference to such provisions here in Article 5 of the Agreement (as a new Paragraph 5.02), or in some cases to expressly state the stipulated damages amounts here because of their importance to the pricing of the Contract, which is one of the primary subjects of the Agreement.

In addition to, or as an alternative to imposition of stipulated damages to compensate Owner for not receiving its full contractual performance entitlement, the performance provisions in the Specifications may identify other Owner remedies for Contractor's failure to meet the performance requirements, such as rejection of the items in question; correction remedies; exercise of warranty rights; recovery of actual damages; and acceptance of the underperforming items coupled with a reduction in Contract Price.

Typical damages for underperformance might be for reduced production or treatment, or for the costs of increased electricity or chemical consumption over the life of the equipment. It is important when drafting damages provisions to clarify whether the availability of underperformance damages is

meant to close off other potential remedies that will be owed in the event of specific levels of underperformance.

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

A. For all Work other than Unit Price Work, a lump sum of \$[number].

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$[number].

D. 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 15 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 the basis of Contractor’s Applications for Payment on or about the [ordinal number, such as 5th] day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the

Contract. All such payments will be measured by the Schedule of Values established as provided in 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 elsewhere in the Contract.

Guidance Notes—Retainage

1. In Paragraph 6.02.A.1.a, the percentage stated should be that percentage to be paid to Contractor. Thus, if retainage is 10%, indicate “90” in Paragraph 6.02.A.1.a.
2. Paragraph 6.02.A.1.a(1) provides that after the Work is 50% complete (based on value of Work completed), Owner will no longer take retainage from progress payments, if performance of the Work has been satisfactory. This practice rewards and incentivizes good work and compliance with the schedule. If Owner is not able or willing to offer this incentive, delete Paragraph 6.02.A.1.a(1).
3. Although Paragraph 6.02.A.1.a(1), if utilized, provides for retainage to be reduced after 50% of the Work is complete, the standard provisions in Paragraph 6.02 do not provide for an early return of retainage—Contractor’s first opportunity to receive retained funds occurs at Substantial Completion (see Paragraph 6.02.B). If a specific project involves partial utilization of a portion of the Work or other special factors, the user may wish to include a supplemental provision that allows for a partial early return of retainage, under specified conditions.
4. As an alternative to retainage, some Owners allow the Contractor to receive 100% of each progress payment, provided that the Contractor has provided an irrevocable letter of credit or similar instrument that allows the Owner access to the Contractor’s funds under prescribed conditions. Any such alternative mechanism requires custom drafting and participation of legal counsel.

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 Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. **[number]** percent of the value of the Work completed (with the balance being retainage).
 - 1) If 50 percent or more of the Work has been 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. **[number]** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

Notes to Users—Typical values used in Paragraph 6.02.B are 100 percent and 200 percent respectively, subject to Laws and Regulations specific to the Project.

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **[number]** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **[number]**

percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of **[number]** percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:

Notes to Users—If any of the items listed below are not to be included as Contract Documents, remove such item from the list and renumber the remaining items.

1. This Agreement.
2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
3. General Conditions.
4. Supplementary Conditions.
5. Specifications as listed in the table of contents of the project manual (copy of list attached).

Notes to Users—Use either Paragraph 6 or 7, delete the paragraph not used.

6. Drawings (not attached but incorporated by reference) consisting of **[number]** sheets with each sheet bearing the following general title: **[title on Drawings]**.
7. Drawings listed on the attached sheet index.

Notes to Users—In the following paragraph list the numbers and dates of those Addenda that modified the Contract Documents; do not list Addenda that only affected the Bidding Requirements, and therefore should not be Contract Documents. See EJCDC® C-001 Commentary on the 2018 EJCDC Construction Documents (2018).

8. Addenda (numbers **[number]** to **[number]**, inclusive).

Guidance Notes—Exhibits that are Contract Documents

1. In the following paragraph list exhibits (if any) to the Agreement that merit the status of Contract Documents.
2. As noted in the introduction to this Agreement, in the typical case bidding-related documents such as the Instructions to Bidders and Bid are not included as Contract Documents. Include Contractor's Bid as a Contract Document here only as a matter of necessity, for example if the Bid contains numerous line items and their prices, and rekeying such information would be burdensome and susceptible to error.
3. List other required attachments (if any), such as documentation submitted by Contractor prior to Notice of Award and documents required by funding or lending agencies.
4. If Contractor is required in this Contract to accept assignment of a procurement contract, previously entered into by Owner (as "Buyer") with a manufacturer or distributor (as "Seller") for the direct purchase of goods (most commonly equipment) and related special services, include the procurement contract as a Contract Document by listing it as a lettered item under Paragraph 7.01.A.9—"Assigned Procurement Contract between Owner (Buyer) and Seller, dated [date]." The contractual wording governing the assignment of a procurement contract should be located in the Supplementary Conditions; see Supplementary Conditions, Paragraph SC-18.08.B. For additional information on assigning a procurement contract, refer to EJCDC® P-001, Commentary on the EJCDC Procurement Documents.
5. If a Geotechnical Baseline Report or a Geotechnical Data Report is used, include these reports as Contract Documents by listing them as lettered items under Paragraph 7.01.A.9. For a further discussion of GBRs and GDRs see EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. **[list exhibits]**
 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.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 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

Notes to Users—Modify the following representations to suit the specific Project. For example: change or delete Paragraph 8.01.A.2 if Contractor was restricted from visiting the Site prior to entering into the Contract; change or delete Paragraph 8.01.A.4 and 5 if there are no reports or drawings of the type referred to.

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Contractor has considered the information known to Contractor itself; 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 Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no 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.
 8. 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.

9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *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 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything 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.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

8.04 *Other Provisions*

- A. Pursuant to ORS 279C.505(1) – Contractor shall make payment promptly, as due, to all persons supplying the Contractor with labor or materials for the performance of the work provided for in the contract. Contractor shall pay all contributions or amounts due the Industrial Accident Fund from the contractor or subcontractor incurred in the performance of the contract. Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished.
- B. Pursuant to ORS 279C.505 (2) – Contractor certifies that it has an employee drug testing program in place.

- C. If the Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the contractor or a subcontractor by any person in connection with the public improvement contract as the claim becomes due, 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 the contractor by reason of the contract. Other provisions of ORS 279C.515 and ORS 279C.580 concerning payments also apply.
- D. Contractor shall comply with hours of labor rules Pursuant to ORS 279C.520, 279C.540, and 279C.545.
- E. Per ORS 279C.530, Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the contractor, of all sums that the contractor agrees to pay for the services and all moneys and sums that the contractor collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services. All subject employers working under the contract are either employers that will comply with ORS 656.017 (Employer required to pay compensation and perform other duties) or employers that are exempt under ORS 656.126 (Coverage while temporarily in or out of state).
- F. Contractor certifies, and it shall be a condition of the Contractor's bond as provided by ORS 279C.800 to 279C.870, that in performing the Agreement Contractor will pay and cause to be paid not less than the prevailing wages as of the date of the bid, per hour, per day and per week, for each and every person who may be employed in the performance of this Agreement.
- G. Public Works Bond – Contractor shall have a public works bond filed with the Oregon Construction Contractors Board before starting Work on the Project unless exempt under ORS 279C.836. Contractor shall include in every subcontract a provision requiring every subcontractor to have a public works bond filed with the Oregon CCB before starting Work on the project unless exempt under ORS 279C.836.
- H. Contractor shall defend, hold harmless and indemnify Owner, its officers, agents, engineers, attorneys and employees from any and all losses, liability, damages, costs, expenses (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), claims, suits or actions whatsoever in nature, including intentional acts, resulting from or arising out of the activities of the Contractor or its subcontractors, agents, or employees under this Agreement.
- I. The terms of this Agreement shall not be waived, altered, modified, supplemented, or amended, in any manner whatsoever, except by written instrument. Such waiver, alteration, modification, supplementation, or amendment, if made, shall be effective only in the specific instance and for the purpose given, and shall be valid and binding only if it is signed by all parties to this Agreement. The failure of Owner to enforce any provision of this Agreement shall not constitute a waiver by the Owner of that or any other provision.
- K. This Agreement shall be governed by and construed in accordance with the laws of the State of Oregon. Any litigation between the Owner and the Contractor arising out of or related to this Agreement which is not resolved pursuant to SGC 16.01 shall be brought and

maintained solely and exclusively in the Circuit Court of the State of Oregon for Curry County. Provided, if any litigation arising under the Agreement must be brought in a federal forum, it shall be brought and maintained solely and exclusively in the United States District Court for the District of Oregon in Eugene, Oregon. Contractor hereby consents to the personal jurisdiction of all courts within the State of Oregon.

L. Merger. This Agreement, which includes all Contract Documents as identified herein, constitutes the entire agreement between the parties. There are no understandings, agreements, or representations, oral or written, regarding this Agreement, except as specified or referenced herein. Contractor, by the signature below of its authorized representative, hereby acknowledges that it has read this Agreement, understands it, and agrees to be bound by its terms and conditions.

M. This Agreement may be executed in counterparts, each of which shall be an original, and all of which shall constitute but one and the same instrument.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Guidance Notes—Signing and Dating Agreement:

1. See Article 20 of the Instructions to Bidders and correlate procedures for format and signing of the documents.
2. The Effective Date of the Contract stated above and the dates of any construction performance bond (EJCDC® C-610, Performance Bond (2018) or other) and construction payment bond (EJCDC® C-615, Payment Bond (2018) or other) should be the same, if possible. In no case should the date of any bonds be earlier than the Effective Date of the Contract.

Owner:

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Contractor:

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address: _____

Phone: _____

Email: _____

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

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address: _____

Phone: _____

Email: _____

License No.: _____
(where applicable)

State: _____

NOTICE TO PROCEED

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

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____ pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement: **[Select one of the following two alternatives, insert dates or number of days, and delete the other alternative.]**

The date by which Substantial Completion must be achieved is **[date for Substantial Completion, from Agreement]**, and the date by which readiness for final payment must be achieved is **[date for readiness, from Agreement]**.

[or]

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **[number of days, from Agreement]** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: _____
By *(signature)*: _____
Name *(printed)*: _____
Title: _____
Date Issued: _____
Copy:

Blank Page

PERFORMANCE BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>
<p>Owner</p> <p>Name: City of Coquille - URA</p> <p>Mailing address <i>(principal place of business)</i>: 851 Central Blvd. Coquille, Oregon 97423</p>	<p>Contract</p> <p>Description <i>(name and location)</i>: North Adams Streetscape Improvements Phase 1: Underground Improvements</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the 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 periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

PAYMENT BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>
<p>Owner</p> <p>Name: [Full formal name of Owner]</p> <p>Mailing address (<i>principal place of business</i>): [Address of Owner's principal place of business]</p>	<p>Contract</p> <p>Description (<i>name and location</i>): [Owner's project/contract name, and location of the project]</p> <p>Contract Price: [Amount, from Contract]</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the 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.
 - 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
 18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

Contractor's Application for Payment

Owner: _____	Owner's Project No.: _____
Engineer: _____	Engineer's Project No.: _____
Contractor: _____	Contractor's Project No.: _____
Project: _____	
Contract: _____	
Application No.: _____	Application Date: _____
Application Period: From _____	to _____

1. Original Contract Price	\$	-
2. Net change by Change Orders	\$	-
3. Current Contract Price (Line 1 + Line 2)	\$	-
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	\$	-
5. Retainage		
a. _____ X \$ _____ - Work Completed	\$	-
b. _____ X \$ _____ - Stored Materials	\$	-
c. Total Retainage (Line 5.a + Line 5.b)	\$	-
6. Amount eligible to date (Line 4 - Line 5.c)	\$	-
7. Less previous payments (Line 6 from prior application)		
8. Amount due this application	\$	-
9. Balance to finish, including retainage (Line 3 - Line 4)	\$	-

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(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 the Work covered by prior Applications for Payment;

(2) Title to 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 the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____

Signature: _____ **Date:** _____

Recommended by Engineer	Approved by Owner
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____
Approved by Funding Agency	
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner: _____
 Engineer: _____
 Contractor: _____
 Project: _____
 Contract: _____

Owner's Project No.: _____
 Engineer's Project No.: _____
 Contractor's Project No.: _____

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A Item No.	B Description	C Scheduled Value (\$)	D + E Work Completed		F Materials Currently Stored (not in D or E) (\$)	G Work Completed and Materials Stored to Date (D + E + F) (\$)	H % of Scheduled Value (G / C) (%)	I Balance to Finish (C - G) (\$)
			(D + E) From Previous Application (\$)	This Period (\$)				
Original Contract								
			-			-		-
						-		-
						-		-
						-		-
						-		-
						-		-
						-		-
						-		-
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						-		-
						-		-
						-		-
	Original Contract Totals	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner: _____
 Engineer: _____
 Contractor: _____
 Project: _____
 Contract: _____

Owner's Project No.: _____
 Engineer's Project No.: _____
 Contractor's Project No.: _____

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I
Item No.	Description	Scheduled Value (\$)	Work Completed		Materials Currently Stored (not in D or E) (\$)	Work Completed and Materials Stored to Date (D + E + F) (\$)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) (\$)
			(D + E) From Previous Application (\$)	This Period (\$)				
Change Orders								
						-		-
						-		-
						-		-
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						-		-
						-		-
Change Order Totals		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders								
Project Totals		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner: _____
 Engineer: _____
 Contractor: _____
 Project: _____
 Contract: _____

Owner's Project No.: _____
 Engineer's Project No.: _____
 Contractor's Project No.: _____

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Original Contract											
					-		-		-		-
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					-		-		-		-
					-		-		-		-
Original Contract Totals					\$	-		\$	-	\$	-

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner: _____
 Engineer: _____
 Contractor: _____
 Project: _____
 Contract: _____

Owner's Project No.: _____
 Engineer's Project No.: _____
 Contractor's Project No.: _____

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Change Orders											
					-		-		-		-
					-		-		-		-
					-		-		-		-
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Change Order Totals					\$ -		\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders											
Project Totals					\$ -		\$ -	\$ -	\$ -		\$ -

Stored Materials Summary

Contractor's Application for Payment

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

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A Item No. (Lump Sum Tab) or Bid Item No. (Unit Price Tab)	B Supplier Invoice No.	C Submittal No. (with Specification Section No.)	D Description of Materials or Equipment Stored	E Storage Location	F Application No. When Materials Placed in Storage	Materials Stored			Incorporated in Work			M Materials Remaining in Storage (I-L) (\$)	
						G Previous Amount Stored (\$)	H Amount Stored this Period (\$)	I Amount Stored to Date (G+H) (\$)	J Amount Previously Incorporated in the Work (\$)	K Amount Incorporated in the Work this Period (\$)	L Total Amount Incorporated in the Work (J+K) (\$)		
													J
								-			-	-	
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						Totals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____

This Preliminary Final Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

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 Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. 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.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: None As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: None As follows:

[List amendments to Contractor's Responsibilities]

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

[List attachments such as punch list; other documents]

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.

Engineer

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice 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.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *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.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *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.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *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 of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* 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 Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. 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 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. 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 Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;
 - 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.

2.04 *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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, 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 and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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 therefor.
 - 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 the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
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 part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 versions, or 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; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract 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 Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.

- 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 permanent improvements are to be made 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.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on 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;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. 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 Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on 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;
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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond 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 must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, 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.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is 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; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the 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, risks, 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 Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, 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.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. 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 all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *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 maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) 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;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) 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
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *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 an 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 will be disclosed 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.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *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.

7.11 *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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and 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 such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *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.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. 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, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (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).
- E. 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.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. 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.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 *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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must 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 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall 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 7.16.C.
 3. 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. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

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.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 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 is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, 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.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
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;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 7.18.A will 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.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. 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.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
 - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
 - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *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.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *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 (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- 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.
 - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.07. 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.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in 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;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *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.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will 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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of 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, 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.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed 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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. 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.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 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*: Contractor agrees that:
1. 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
 2. 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 for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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 with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages 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. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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 will 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.

14.07 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 defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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.
 - 2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, 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; 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;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- 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 preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. 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 punch list.

15.04 *Partial Use or Occupancy*

- 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. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.04 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, 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. Contractor shall pay all 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. 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.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.

- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 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; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 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 16.03.
- 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, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is 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.

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary 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 which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the same meanings stated in the General Conditions.

SC-1.01.A.3 Add the following language to the end of Paragraph 1.01.A.3:

The Application for Payment Form to be used on this project is EJCDC No. C-620.

SC-1.01.A.9 Add the following language to the end of Paragraph 1.01.A.9:

The Change Order Form to be used on this project is EJCDC No. C-941.

SC-1.01.A.34 Delete Paragraph 1.01.A.34 in its entirety and insert the following in its place:

1.01.A.34 Project Manual - The bound documentary information prepared for bidding and constructing the Work, including the Bidding Requirements and Contract Documents.

SC-1.01.A.45 Delete Paragraph 1.01.A.45 in its entirety and insert the following:

1.01A.45 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 Asubstantially complete@ and Asubstantially completed@ as applied to all or part of the Work refer to Substantial Completion thereof.

SC-1.01.A.53 Add the following new paragraph.

1.01.A.53 Final Acceptance - The time at which the Final Application for Payment has been approved by all of the following: Contractor, Engineer, Owner and Agency; if any.

SC-2.02.A Delete Paragraph 2.02.A in its entirety and insert the following in its place:

2.02.A. Owner shall furnish to Contractor without charge, complete sets of Drawings and Project Manuals according to the following schedule:

<u>Contract Amount</u>	<u>No.</u>	<u>of</u>	<u>Sets</u>
\$ 0 to \$200,000	4		
\$200,000 to \$500,000	6		
More than \$500,000	10		

(Additional sets or larger size Drawings, if original Drawings furnished were 11" x 17", will be furnished upon request at the cost of reproduction.)

SC-2.03.A Delete Paragraph 2.03.A in its entirety and insert the following in its place:

2.02.A The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty-five (35) days after the effective date of the Agreement.

SC-2.07.A Add the following language at the end of the first sentence of Paragraph 2.07.A:

Engineer may waive conference and allow schedules to be submitted by mail.

SC-2.07.A.1 Add the following new paragraph immediately after Paragraph 2.07.A.1:

a. If any work task on the progress schedule is not completed within 10 days as listed on the accepted schedule, the Contractor shall update and resubmit a revised progress schedule.

SC-3.01.A.1 Add the following paragraph(s) immediately after Paragraph 3.01.A:

1. 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 Contract Documents is in the following sequence.
 - a. Addenda and modifications by Change Order, Field Order or Work Change Directive to the Drawings and Specifications take precedence over the original Construction Documents.
 - b. In the Drawings, the precedence shall be Drawings of larger scale over those of 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 Specifications, the Engineer shall decide which stipulation will provide the best installation and his decision shall be final.

SC-3.02.B Add the following new paragraph immediately after Paragraph 3.02.A.2:

3.02.B Referenced standards are a part of these specifications. If choices or options are contained therein, selection will be by the Engineer.

SC-3.03.B Add the following paragraph(s) immediately after Paragraph 3.03.B.1:

3.03.B.2 Before executing the Agreements, the Contractor shall thoroughly familiarize himself with all specified products and submit written notice to Engineer if Contractor objects to the proposed use of any product.

3.03.B.3 Whenever 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 work.

3.03.B.4 These Specifications are of the abbreviated or AStreamlined@ type and frequently include incomplete sentences. Words such as Ashall@, Ashall be@, Athe Contractor shall@ and similar phrases shall be supplied by inference.

SC-3.06.B **Modify Paragraph 3.06.B as follows:**

§ First Sentence - change A60" to A30".

§ Second Sentence - change A30" to A60".

SC-4.02 **Add the following new paragraph(s) immediately after Paragraph 4.02.B:**

C. No reports of explorations or tests or subsurface conditions have been performed at the site.

SC-4.03.A.4 **Amend fifth line of Paragraph 4.03.A.4. to read as follows:**

...Contractor shall, within 24 hours after becoming aware...

SC-4.04.A.3 **Add the following new paragraph immediately after Paragraph 4.04.A.2:**

4.04.A.3 Oregon law requires Contractor to follow rules adopted by the Oregon Utility Notification Center. The rules are set forth in OAR 952-001-010 through 952-001-0090. Oregon Utility Notification Center may be contacted at 1-800-332-2344 for utility locates. Copies of the rules may be obtained from the Center at 1-503-232-1987.

SC-4.05.A **Delete Paragraph 4.05.A. in its entirety and insert the following in its place:**

4.05.A Reference points, lines and grades shall be furnished by the Contractor. Engineer will establish two (2) temporary benchmarks for Contractor=s use at the site of work.

SC-4.05.B **Add the following new paragraph immediately after Paragraph 4.05.A:**

4.05.B Existing Survey Monuments.

1. The Contractor shall be responsible for the preservation of all survey monuments, including established property corner markers, and if such monuments are disturbed or destroyed by the construction work, it shall be the Contractor=s responsibility to engage a registered land surveyor to replace the monuments.
2. If construction requires removal and replacement of any existing public land survey corner and accessories or any survey monument of record in the office of the County Surveyor or County Clerk, notice shall be given to the County Surveyor and the monument replaced by a registered professional land surveyor in accordance with ORS 209.140 and 209.150.
3. Cost of Replacement. If survey corners or survey monuments are disturbed, destroyed or remove, costs or replacement shall be paid by the Contractor.

SC-4.06 **Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following in their place:**

4.06.A No reports, exploration or tests of subsurface conditions relating to hazardous environmental conditions at or contiguous to the site are known to the Owner or Engineer.

4.06.B Not used.

SC-4.06.C Add the following language to the end of Paragraph 4.06.C.

Contractor shall be responsible for any Hazardous Environmental Condition which was shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of Work.

SC-4.06.C.1 Add the following new paragraph immediately after Paragraph 4.06.C:

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

SC-4.06.G Amend the first two lines of Paragraph 4.06.9.G to read as follows:

Subject to the Oregon Constitution, applicable laws and regulations, and to the limits of the Oregon Tort Claims Act, Owner shall indemnify and hold harmless...

SC-4.07 Add the following new paragraph immediately after Paragraph 4.06.I.

4.07 Historical or archaeological finds.

A. Where historical objects of archaeological or paleontological nature are encountered during the course of construction, (including but not limited to ruins, sites, building, artifacts, and fossils) the Contractor shall suspend operations in the area, preserve all such objects from disturbance and shall consult with the State Historical Preservation Officer for recovery of the items.

Reference: National Historic Preservation Act of 1966 (80 Stat 915, 16 USC 470) and Executive Order No. 11593 of May 31, 1971.

B. No additional costs shall be paid the Contractor for delays or required movement of manpower, materials and equipment to other portions of the project or any other costs resulting from the discovery of historical finds.

SC-5.01.B Add the following new paragraphs immediately after Paragraph 5.01.B:

5.01.B.1 Bonds shall be accompanied by name, address and telephone number of the agent for the surety who is authorized to receive Notice of Claims against the bonds.

5.01.B.2 If the Contractor submits a cashiers check or a certified check in lieu of a performance bond pursuant to ORS 279C.380(a), the Owner will hold the check for a period of 180 days beyond the date of final acceptance of the Work. If the Owner receives a notice of claim under ORS 279C.600-279C.625, the Owner will hold an amount sufficient to cover the claim for a period of two years following final acceptance of Work.

SC-5.02.A Add the following new paragraph immediately after Paragraph 5.02.A:

5.02.A.1 Bonds and insurance shall be written by companies licensed to transact business in the State of Oregon and satisfactory to the Owner and Agency, if any.

SC-5.03.C Add the following new paragraph immediately after Paragraph 5.03.B:

5.03.C *Additional insureds shall include Owner, Engineer, and Engineer=s Consultants.*

Failure of the Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of the Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor=s obligation to maintain such insurance.

SC-5.04.B.1.a Add the following new paragraph immediately after Paragraph 5.04.B.1:

5.04.B.1.a In addition to Owner and Engineer, additional insured parties shall include: 1) Engineer=s Consultants its officers, agents and employees, except as to claims against applicant, for personal injury to its officers, agents and employees, or damage to any of its or their property.

SC-5.04.C Add the following new paragraph immediately after Paragraph 5.04.B.7.a:

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:

1. Workers= Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal (e.g., Longshoreman=s): Statutory
 - c. Employer=s Liability: \$500,000
2. Contractor=s General Liability under Paragraphs 5.04.A.3 through 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 Contractor:
 - a. General Aggregate \$2,000,000
 - b. Products - Completed Operations Aggregate \$1,000,000
 - c. Personal and Advertising Injury \$1,000,000
 - d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
 - e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.
 - f. Excess or Umbrella Liability

1)	General	Aggregate
	\$5,000,000	
2)	Each	Occurrence
	\$5,000,000	
3.	Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:	
a.	Bodily Injury:	
	Each person	\$1,000,000
	Each Accident	\$1,000,000
b.	Property Damage:	
	Each Accident	\$1,000,000
c.	Combined Single	
	Limit of	\$1,000,000
4.	The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:	
a.	Bodily Injury:	
	Each Accident	\$2,000,000
	Annual Aggregate	\$2,000,000
b.	Property Damage:	
	Each Accident	\$2,000,000
	Annual Aggregate	\$2,000,000

SC-6.03.B Add the following new paragraphs immediately after Paragraph 6.03.B:

6.03.B.1 Contractor agrees to prefer goods or services that have been manufactured or produced in the State of Oregon if price, fitness, availability or quality are otherwise equal.

6.03.B.2 Material Furnished by the Owner. The Owner may furnish specific material as shown on the Plans or indicated in the Specifications. The fact that the Owner is to furnish material is conclusive evidence of its acceptability for the purpose intended and the Contractor may continue to use it until otherwise directed. If the Contractor discovers any defect in material furnished by the Owner, Contractor shall immediately notify the Engineer.

Unless otherwise noted or specifically stated, materials furnished by the Owner which are not of local occurrence are considered to be FOB the nearest freight station. The Contractor shall be prepared to unload and properly protect all such material from damage or loss. The Contractor shall be responsible for material lost or damaged after receipt of material at the point of delivery.

SC-6.05.C Amend the paragraph by making it a subparagraph under the Title C Engineer=s Evaluation. The General Condition paragraph is retitled A6.05.C.2 after effective date of Agreement.@

SC-6.05.C.1 Add the following new paragraphs immediately before retitled Paragraph 6.05.C.2:

6.05.C.1.a Prior to Bid Opening. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or Aor-equal@ materials and equipment as defined in Paragraph 6.05 of the General Conditions, or those substitute materials and equipment approved by the Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function, and quality to be met by any proposed substitute or Aor-equal@ item. Request for Engineer=s clarification of materials and equipment considered Aor-equal@ prior to the Effective Date of the Agreement must be received by the Engineer at least 5 days prior to the date for receipt of Bids.

6.05.C.1.b For requests prior to Bid Opening, no item of material or equipment will be considered by Engineer as a substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon the Bidder. Engineer=s decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

SC-6.06 Add the following new paragraphs immediately after Paragraph 6.06.G:

6.06.H The Contractor shall not award work valued at more than fifty (50%) percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

6.06.I First-Tier Subcontractors

1. Within two working hours of the date and time of the deadline when public improvement bids are due, a bidder is required to submit a disclosure of any Afirst-tier@ subcontractors that will be furnishing labor or labor and materials in connection with the public improvement, whose contract value is equal to or greater than either: (1) 5% of the project bid, but at least \$15,000, or (2) \$350,000 regardless of the percentage of the total project bid.
2. The disclosure is required to include the name and address of each subcontractor, the registration number assigned to the subcontractor by the Construction Contractors= Board (if such registration is required), the amount of the subcontractor=s contract, and the category of work. If no subcontractors are to be utilized the disclosure must be written as ANONE@.
3. Bidder=s failure to complete and submit a First-Tier Subcontractor Disclosure form in accordance with ORS 279C.370 and Article 12 of the Instructions to Bidders will result in the Bid being declared non-responsive and rejected.

SC-6.09.D Add the following new paragraph immediately after Paragraph 6.09.C:

6.09.D Contractor, subcontractor(s) and all persons doing or contracting to do any work shall comply with all provisions of Oregon Public Contracting Laws and Regulations, as further specified in AExhibit A@ attached hereto and incorporated herein by reference.

SC-6.17.D.1 Delete first sentence of paragraph in its entirety and insert the following in its place:

Shop Drawings and samples shall be submitted by the Contractor in sufficient time to allow the Engineer not less than 20 days to review the data for compliance.

SC-6.20.A Amend the fifteenth line of Paragraph 6.20.A by deleting the following word:

ANegligent@

SC-6.20.D Add the following new paragraph immediately after Paragraph 6.20.C.2:

6.20.D. The Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner in connection with this Contract and agrees to assume full responsibility for their satisfaction should any lien or claim be filed.

SC-8.02.A Delete Paragraph 8.02.A in its entirety and insert the following:

8.02.A In case of termination of the employment of Engineer, Owner shall appoint an Engineer, whose status under the Contract Document shall be that of the former Engineer.

SC-9.03.A.1 Add the following new paragraph immediately after Paragraph 9.03.A:

9.03.A.1 The Engineer may provide a Resident Project Representative (services) for portions of this Project. This assistant will be assigned to various portions of the Work by the Engineer whether employed by the Owner or 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.

SC-9.04.A Amend Paragraph 9.04.A by deleting the last sentence in the paragraph in its entirety.

SC-12.03.D Add the following language to the end line of Paragraph 12.03.D:

..., or delays caused by or within control of Contractor.

SC-13.03.A.1 Add the following new paragraph immediately after Paragraph 13.03.A:

13.03.A.1 ATimely Notice@ for inspection, tests, or approvals shall mean not less than 48 hours prior to the time when inspection, tests, or approval is required.

SC-13.07.A Amend the first four lines of Paragraph 13.07.A to read as follows:

If within one year after the date of Final Acceptance (or such longer period of time as may be prescribed laws or regulations or by the terms of any applicable guarantee required by the Contract Documents) or by any ...

SC-14.02.A.3 Delete Paragraph 12.02.A.3 in its entirety and insert the following:

14.02.A.3 The amount of retainage withheld with respect to progress payments will be five (5) percent (%) of work completed.

Add the following new paragraphs immediately after Paragraph 14.02.A.3:

14.02.A.3.a A percentage of the amount requested on each payment application will be withheld as retainage until final acceptance of the Work by the Owner.

14.02.A.3.b Substitution of Bonds and Securities for payment withheld, reduction of retainage, deposit of retainage in interest bearing accounts for the benefit of the Contractor, and other provisions regarding the disposition of payments withheld shall be in accordance with the provisions of ORS 279C.550 to 279C.570.

SC14.02.B.1 Add the following language at the end of Paragraph 14.02.B.1:

The Engineer may recommend payment of an amount different than the amount indicated on the Contractor=s application for payment, if returning the application to the Contractor for revisions would unnecessarily delay payment.

SC-14.02.C. Delete Paragraph 14.02.C.1 in its entirety and insert 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. If both the Owner and the involved Agencies find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraphs 14.02.B.5 and 14.02.D will 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.

SC-14.02.D.1 Add the following new paragraphs immediately after Paragraph 14.02.D.1.d:

14.02.D.1.e Third party claims filed or evidence indicating probable filing of such claims.

14.02.D.1.f Failure of Contractor to make payments properly or promptly to sub-contractors for material, labor, or equipment.

14.02.D.1.g Damage to Owner or others.

SC-14.02.D.2.a Add the following new paragraph immediately after Paragraph 14.02.D.2:

14.02.D.2.a The Owner may make payment at any time to Contractor under protest, stating generally the reason for the protest. Such payment may be made with respect to the matters described in 14.02.D.1, with respect to matters described or referenced in 9.08, or with respect to any other claim or demand of Contractor. The Owner may then make a claim against Contractor, in the method described in this agreement, for recovery of the amount paid under protest, together with interest at the statutory rate per annum.

SC-14.04.A.1 and 2 Add the following new paragraphs immediately after Paragraph 14.04.A:

14.04.A.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.

14.04.A.2 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. 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 experience 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.

SC-14.07.A.4 Add the following new paragraph immediately after Paragraph 14.07.A.3:

14.07.A.4 Final payment will not be made to the Contractor until Contractor files with the Owner the fully completed and signed notarized Compliance Statement Affidavit included in Section 00630 of the Project Manual. Contractor shall request a blank copy from the Engineer for submission with Final Application for Payment.

SC-14.07.C.1 Add the following language to the end of Paragraph 14.07.C.1:

Final payment shall include all amounts withheld as retainage.

SC-14.08.A Add the following language to the end of 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.

SC-14.09.A.1 Delete Paragraph 14.09.A.1 in its entirety and insert the following:

14.09.A.1.A 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.

SC-16.01 Delete Paragraphs 16.01.A, 16.01.B, and 16.01.C in their entirety and insert the following:

A. **Arbitration.** 1. All claims, disputes, and other matters in question between Owner and Contractor arising out of, or relating to the Contract

Documents, or the breach thereof except for claims which may have been waived by the making or acceptance of final payment, may be decided by arbitration in accordance with the rules of ORS Chapter 36 and those mutually agreed to by both parties. Owner shall have the sole discretion as to whether or not a dispute will be decided by arbitration rather than through the court process.

2. No demand for arbitration of any claimed dispute or other matter shall be effective until after a claim or demand is made to Engineer and Engineer has rendered a written decision with respect thereto denying the claim or demand. No demand for arbitration of any such claim, dispute, or other matter shall be made later than thirty (30) days after the date on which Engineer has rendered a written decision in respect herein. Failure to demand arbitration within said thirty (30) days shall result in Engineer's decision being binding upon Owner and Contractor.

3. Notice of demand for arbitration shall be filed in writing with the other party to the agreement. The demand for arbitration shall be made within the 30-day period specified above. Owner, if not the party demanding arbitration, has the option of allowing the matter to proceed with arbitration, or rejecting arbitration and requiring the other party to proceed through the courts for relief. If arbitration is allowed, the parties agree that the award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modifications or appeal except to the extent permitted by Oregon Law.@

B. Attorney Fees. 1. If either party commences any legal action, suit, arbitration or proceeding against the other to enforce, interpret or rescind the terms of this contract, the parties agree that the prevailing party shall be awarded reasonable attorney's fees and costs incurred in any such action, suit or proceeding and in any later appeals filed as a consequence thereof. Such costs shall bear interest at the maximum legal rate from the date incurred, until the date paid by losing party.@

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WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Date Issued: _____ Effective Date of Work Change Directive: _____

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

Non-agreement on pricing of proposed change. Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**

Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

Lump Sum Unit Price Cost of the Work Other

Recommended by Engineer

Authorized by Owner

By: _____

Title: _____

Date: _____

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CHANGE ORDER NO.: [Number of Change Order]

Owner: _____ Owner's Project No.: _____
 Engineer: _____ Engineer's Project No.: _____
 Contractor: _____ Contractor's Project No.: _____
 Project: _____
 Contract Name: _____
 Date Issued: _____ Effective Date of Change Order: _____

The Contract is modified as follows upon execution of this Change Order:

Description:

[Description of the change]

Attachments:

[List documents related to the change]

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order] : \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Authorized by Owner

By: _____
 Title: _____
 Date: _____

Authorized by Owner

Approved by Funding Agency (if applicable)

By: _____
 Title: _____
 Date: _____

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FIELD ORDER NO.: [Number of Field Order]

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Date Issued: _____ Effective Date of Field Order: _____

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s): _____

Drawing(s) / Details (s): _____

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____

Title: _____

Date: _____

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City of Coquille - URA

Coos County, Oregon

Contract Documents

VOLUME 2 – Technical Specifications

FOR THE CONSTRUCTION OF

City of Coquille URA North Adams Streetscape Improvements Phase 1: Underground Improvements

February 2025

Engineering Project No. 2204-298

Civil West

Engineering Services, Inc.



Prepared By:

Civil West Engineering Services, Inc.

HGE Architects, Inc.

Sandow Engineering, LLC

HGE
ARCHITECTS

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SECTION 01010

SUMMARY OF THE WORK

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, equipment, and materials necessary to complete all work in accordance with the Contract Documents.
- B. The work shall be performed for the City of Coquille - URA, Coos County, Oregon. Coquille is located on Highway 101.
- C. The Project Scope is briefly described below:

Furnish all labor, equipment, and materials as required for the City of Coquille URA North Adams Streetscape Improvements Phase 1: Underground Improvements project consisting of the construction and placement of new underground electrical infrastructure, storm sewer, sanitary sewer, waterlines, and all associated improvements.
- D. Work shall not begin on any part of this project until Engineer has issued the *Notice to Proceed* to the Contractor. Contract forms and equipment purchases may proceed.

1.02 PROJECT INSPECTION

- E. Project inspection will be provided by Civil West Engineering Services, HGE Architects, and th
- F. The Project Inspector will perform inspection services as the Project Engineer's and Landscape Architect's authorized representative. However, all engineering decisions will be made by the Project Engineer, Landscape Architect or Project Manager.
- G. At completion of the project, the Project Inspector will certify in writing to the Owner and the Department of Environmental Quality (Department) that construction was inspected by him/her and found to be in accordance with the Plans and Specifications, including any changes therein approved by the Engineer and Department.
- H. Record Drawings will be prepared at the conclusion of all construction activities.

1.03 WORK PROGRESS

- I. It is the intent of these Contract Documents that the Work precedes in a systematic manner so that a minimum of inconvenience to the public and city personnel results in the progression of the work. Suitable equipment will be required to properly execute the work with the least amount of disruption to services and access through the work area. Contractor shall contain operations to within the designated public properties, rights-of-way and within any construction easements obtained for this project.
- J. Order and schedule delivery of materials in ample time to avoid delays in construction. If any item is found to be unavailable, notify the Engineer immediately to permit the Engineer's selection of suitable substitute. Timely delivery of all materials and equipment is Contractor's responsibility. No extensions in Contract Time will be allowed due to delays caused by late delivery of items. Availability of items should be determined during bidding.

- K. The Contractor shall protect the work and materials from damage due to the nature of the work, the elements, carelessness of others, or from any other cause until the completion and final acceptance of the work. All loss or damage arising out of the nature of the work to be done under these Contract Documents, or from any unseen obstruction or defects which may be encountered in the execution of the work, or from the action of the elements, shall be sustained by the Contractor.
- L. The Contractor shall remove completely all materials designated for removal, to the extent specified and/or indicated in the drawings. For such materials, removal, hauling, disposal (including providing disposal location), and applicable precautions are entirely the Contractor's responsibility. Allow no excess accumulation of non-reusable material at job site(s).
- M. Contractor is responsible for the protection of all existing improvements that are to remain in place. This includes, but is not necessarily limited to: existing utilities (water, sewer, gas, electric, phone, etc.), roads, driveways, drainage ditches, culverts, fencing, shrubbery, and all landscaping structures and vegetation. Temporary enclosures, walls, covers, or other protection shall be provided and maintained by the Contractor as required. Contractor shall cooperate with the owners of such improvements, and shall restore and/or replace all damaged items as directed, without any additional expense to the Owner or payments to the Contractor.
- N. The location and depth shown on the drawings for the existing underground facilities are approximate only and are not guaranteed to be accurate or complete. As-builts are not available for existing improvements.
- O. Existing water meters, clean outs and other utility locations are not specifically indicated on the plans but do exist throughout the project, the Contractor shall field locate all utilities prior to the start of construction. Pothole all utility crossings prior to construction as necessary to avoid conflicts. Contractor shall keep existing utilities in service and protect them during construction. Contractor is responsible for any damage to existing utilities. Portions of utilities which are to be abandoned in place may be removed by the Contractor to the extent necessary to accomplish the construction.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.04 SUMMARY

- A. Wherever in these Specifications an article, device or piece of equipment is referred to in the singular, such reference shall include as many such items as are shown on the Drawings or are required to complete the installation.
- B. Miscellaneous items required in the project that do not have a corresponding Section in the Bid Form are to be considered incidental costs to the project. Compensation for such items and/or work shall be incorporated into other related bid items or total costs. No separate measurement and payment will occur for such incidental costs.

END OF SECTION

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SECTION 01025 – II

MEASUREMENT AND PAYMENT II

PART 1 GENERAL

5. RELATED REQUIREMENTS

- A. Document 00410 – Bid Form
- B. Document 00700 – General Conditions: Payments to Contractor
- C. Document 00800 – Supplementary General Conditions: Payments to Contractor

6. SUMMARY

- A. Measurement and payment for bid items listed on the Bid Form shall be paid as described in the following section.

7. BID ITEMS

1. Mobilization – Bonds & Insurance

- a. Payment for this, and all items, shall be included within the total lump sum price as shown on the bid form. Progress payments will be made based on the progress complete percentage of the schedule of values, as approved by the Engineer.

2. Construction Facilities & Temporary Controls

- a. Payment for this, as described within the Project Plans and Specifications, shall be included within the total lump sum price as shown on the bid form. Progress payments will be made based on the progress complete percentage of the schedule of values, as approved by the Engineer.

3. Demolition & Site Preparation

- a. Payment for Demolition and Site Prep shall be included within the total lump sum price for the amount as stated on the Bid Form. Payment shall include compensation for all Demolition and Site Preparation shown on the Project Plans and described in the Specifications. No additional payment shall be made.

4. Construction Staking

- a. Payment for Construction Staking shall be made on a lump sum basis and shall include all staking that the Contractor determines is necessary to complete the work as shown and described in the Plans and Specifications and in accordance with Section 01500.

5. Traffic & Pedestrian Control

- a. Measurement and Payment for Traffic and Pedestrian Control shall be paid on a lump sum basis as stated on the bid form. This includes compensation for all equipment, labor, and materials required to provide continuous traffic and pedestrian control during the site improvements as

shown on the Plans. All work shall conform to the standards of the current MUTCD.

6. Foundation Stabilization

- a. Payment for Foundation Stabilization shall be made on a cubic yard basis at the amount stated on the Bid Form. Payment shall include compensation for materials, hauling, placing, compacting, testing, and all other incidental work as required for a complete installation. Payment shall be paid for a cubic yardage in place basis as determined by the Engineer.

7. Asphalt Concrete Pavement – Level 3

- a. Payment for Asphalt Concrete Pavement-Level 3 shall be paid for at the per ton amount as stated on the Bid form. Payment shall include compensation for all work necessary to prepare, lay, compact and otherwise fully complete the new asphalt concrete pavement surface. There will be no separate measurement of bituminous cements or additives contained in the mixture or used otherwise in the work. Payment will be made only for material incorporated into the specified limits.
- b. The cost for sawcutting existing pavement or concrete adjacent to new improvements shall be considered incidental to the work. No additional compensation will be allowed for this item.

8. Standard Curb & Gutter/Vertical Curb

- a. Measurement and Payment for Standard Curb and Gutter/Vertical Curb shall be paid per lineal foot for the amount as stated on the Bid Form. Measurement shall be taken at the face of the curb at flow line; curb and gutter or vertical curb within the area of pedestrian ramps or driveway aprons will be paid for under the square footage of that line item. Payment shall include but is not limited to compensation for material cost and placement of aggregate base material, formwork, material cost and placement of concrete, expansion joints, finishing, curing, backfilling, testing, and all other items necessary for a complete installation of Standard Curb and Gutter/Vertical Curb.

9. Standard Concrete Sidewalk Repair W/ AB

- a. Payment for Standard Concrete Sidewalk W/ Aggregate Base shall be on a square foot basis for the amount as stated on the Bid Form. Measurement shall be from back of curb to back of walk for the total lineal footage of the sidewalk. Sidewalk along the back of pedestrian ramps or driveway aprons shall be paid for under the square footage of that line item. Payment shall include compensation for all labor and materials necessary for the excavation, preparation and placement of aggregate base materials pertaining to sidewalks, all necessary formwork, backfilling, placement of concrete, expansion joints, finishing, curing, sealant, and all else required for complete construction of new sidewalks.

10. Concrete Driveway/Pedestrian Ramp Repair W/ AB

- a. Payment for Concrete Driveway/Pedestrian Ramp Repair W/ Aggregate Base shall be on a square foot basis for the amount as stated on the Bid Form for each type regardless of thickness. Measurement shall be from lip of gutter to back of sidewalk for the width of the repair section. Payment shall include compensation for all labor and materials necessary for the excavation, preparation and placement of aggregate base materials pertaining to driveways, all necessary formwork, backfilling, placement of concrete, expansion joints, finishing, curing, sealant, and all else required for complete placement of new concrete.
- b. This project does not intend to replace any ADA ramps to current requirements. This Bid Item is intended for minor repair to ramps in the event that improvements require a small amount of demolition, or if inadvertent damage occurs. Full ADA improvements will be constructed as part of Phase II of this project.

11. Striping Repair

- a. Payment for Striping Repair shall be made on a lump sum basis for the amount as stated on the Bid Form. Payment will include all materials, labor and equipment required for layout and application of durable pavement striping as described in Section 02760 and as shown on the Plans to restore the site to original condition. No separate payment shall be made.

12. Site Restoration

- a. Payment for Site Restoration will be made on a lump sum basis as stated on the Bid Form, and shall include topsoil, seed, bark, mulch, landscape shrubs/trees, gravel shoulder, site cleanup and all other materials and work required to complete the work to replace landscaping and the greater worksite to a level which is equal to that prior to construction in the opinion of the Engineer.

13. 18" PVC SD Piping

- a. Payment for 18" PVC Storm Drain Piping shall be made on a lineal foot basis for the amount as stated on the Bid Form. Measurement and Payment for this item shall be based on the horizontal length and shall be measured from the outside edge of structures where applicable. Payment shall include backfill up to the finished surface, and that the surface be maintained until paving takes place. If paving cannot take place immediately, contractor shall be responsible for more durable surfacing such as cold patch pavement or temporary paving.
- b. Payment for fittings and appurtenances installed on the storm drain, including but not limited to Tees, Elbows, Couplings, Reducers, Adapters and Sleeves shall be included within the lineal foot cost for Storm Drain Piping. No separate or additional payment will be made for nuts, bolts, washers and other fitting related hardware or supplies. Payment for fittings shall include compensation for connection to existing storm drain lines.
- c. Payment for connecting new storm drain piping to new storm drain manholes and/or catch basins shall be included within the unit price for

each manhole and catch basin and all associated appurtenance items. Price shall include compensation for all materials, equipment and labor for a complete water-tight connection including, but not limited to; coring or jack hammering, flexible rubber boot or water stop ring, grout, transition coupling and appurtenances for a complete installation and connection.

14. 48" SD Manhole

- a. Payment for 48" SD Manhole and Appurtenances at all depths and types shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill around manholes, all precast components, grouting and shaping of base channels, pipe adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation.

15. G2 Catch Basin

- a. Payment for G2 Catch Basin shall be on a unit price basis per each as stated on the Bid Form. Payment shall include precast catch basin, top, frame and grate(s), cast-in-place concrete, reinforcing steel, aggregate base, excavation and backfill and all other related work for a complete installation and connection of storm drain piping as shown on the Project Plans
- b. Minor revisions to new catch basins may be required to allow for adjustment and installation of new storm drain pipes. The Contractor shall not be entitled to any additional compensation for revising precast catch basins.

16. 8" PVC SS Piping

- a. Payment for Sanitary Sewer Piping shall be made on a lineal foot basis for the amount as stated on the Bid Form for each size, type and backfill class. Measurement and Payment for this item shall be based on the horizontal length and shall be measured from the outside edge of structures where applicable. Payment shall include all testing and requirements as outlined in the Plans and Specifications. Payment shall include backfill up to the finished surface, and that the surface be maintained until paving takes place. If paving cannot take place immediately, contractor shall be responsible for more durable surfacing such as cold patch pavement or temporary paving.

17. 12" PVC SS Piping

- a. Payment for Sanitary Sewer Piping shall be made on a lineal foot basis for the amount as stated on the Bid Form for each size, type and backfill class. Measurement and Payment for this item shall be based on the horizontal length and shall be measured from the outside edge of structures where applicable. Payment shall include all testing and requirements as outlined in the Plans and Specifications. Payment shall include backfill up to the finished surface, and that the surface be maintained until paving takes place. If paving cannot take place

immediately, contractor shall be responsible for more durable surfacing such as cold patch pavement or temporary paving.

18. Bypass pumping
 - a. Payment for Bypass Pumping shall be made on a lump sum basis for the amount stated on the Bid Form and shall include all labor, equipment, and materials to adequately control stormwater, groundwater, or sewer during the installation of improvements in accordance with all applicable laws and requirements and to allow for a complete installation of the improvements as shown in the Plans and Specifications.
19. Sanitary Sewer Lateral Connection, Complete, 4 or 6"
 - a. Payment for Sanitary Sewer Lateral Connection, Complete shall be made on a per each basis for the amount shown on the Bid Form and shall include all labor and materials required to make a connection to the sewer main, regardless of connection type or material. Payment shall include all required for a complete installation as shown on the Plans.
20. Sanitary Sewer Lateral Cleanout – 4"
 - a. Payment for Sanitary Sewer Lateral Cleanout, Complete shall be made on a per each basis for the amount shown on the Bid Form and shall include all labor and materials required to install a sanitary sewer cleanout with all provisions shown on the Plans and as described in the Specifications.
21. Sanitary Sewer Lateral Cleanout – 6"
 - a. Payment for Sanitary Sewer Lateral Cleanout, Complete shall be made on a per each basis for the amount shown on the Bid Form and shall include all labor and materials required to install a sanitary sewer cleanout with all provisions shown on the Plans and as described in the Specifications.
22. Sanitary Sewer Lateral Service, Complete, 4"
 - a. Payment for Sanitary Sewer Lateral Service, Complete shall be made on a lineal foot basis for the amount shown on the Bid Form, and shall include all labor and materials required including fittings, piping, bedding, backfill, compaction, testing, and all else required for a complete installation.
23. Sanitary Sewer Lateral Service, Complete, 6"
 - a. Payment for Sanitary Sewer Lateral Service, Complete shall be made on a lineal foot basis for the amount shown on the Bid Form, and shall include all labor and materials required including fittings, piping, bedding, backfill, compaction, testing, and all else required for a complete installation.
24. 48" SS Manhole
 - a. Payment for 48" SS Manhole and Appurtenances at all depths and types shall be made on a unit price basis per each at the stated price on the

Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill around manholes, all precast components, grouting and shaping of base channels, pipe adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation.

25. 10" C900 Waterline Piping, Class B Backfill, All Fittings, Elbows, Tees, Transitions, Testing, Complete
 - a. Payment for 10" C900 Waterline Piping shall be made on a lineal foot basis for the amount stated on the Bid Form. Payment shall include compensation for excavation, all equipment, backfill up to finish grade as well as maintenance, pipe zone material, compaction, toning wire, flushing, testing, disinfection, and all else required for a complete installation.
 - b. All fittings shown such as tees, elbows, transition couplings, reducing couplers, and similar shall be included within a portion of the amount for the 10" C900 Waterline Piping line item. A separate payment shall not be made.

26. 10" Gate Valve
 - a. Measurement and payment for 10" Gate Valve will be made on a unit price basis for each size and type of valve specified and installed, for the unit price stated on the Bid Form. Payment for valves will include valve box, restraint glands, and installation complete. No separate or additional payment will be made for nuts, bolts, washers, valve boxes, stem extensions, concrete blocking or other valve related hardware or supplies.

27. New HDPE Water Service, Connection, Complete to Existing Angle Stop or as Otherwise Shown, 1"
 - a. Measurement and payment for the above shall be made on a unit price basis for each service, as stated on the Bid Form. Payment for new services shall include compensation for placement of meter box, compensation for the service saddle, corporation stop and angle meter valve (where indicated), as well as for service lateral piping for each size and type of lateral. The unit price shall also include compensation for all associated trench excavation, horizontal directional drilling, pipe bedding, pipe, pipe fittings, backfill, connection to corporation and meter stop valves at each end of the new lateral, and all other work required for a complete installation as shown in the plans and specified herein.

28. New HDPE Water Service, Connection, Complete to Existing Angle Stop or as Otherwise Shown, 2"
 - a. Measurement and payment for the above shall be made on a unit price basis for each service, as stated on the Bid Form. Payment for new services shall include compensation for placement of meter box, compensation for the service saddle, corporation stop and angle meter valve (where indicated), as well as for service lateral piping for each size and type of lateral. The unit price shall also include compensation for all associated trench excavation, horizontal directional drilling, pipe bedding, pipe, pipe fittings, backfill, connection to corporation and meter stop

valves at each end of the new lateral, and all other work required for a complete installation as shown in the plans and specified herein.

29. 4" PVC Conduit, Class B Backfill, Complete, All Installation Methods
- a. Payment for Conduit shall be made on a lineal foot basis for the amount as stated on the Bid Form. Measurement and Payment for this item shall be based on the horizontal length and shall be measured from the outside edge of structures where applicable. Payment shall include excavation, backfill, testing, and ell else required for a complete installation and conforming to Pacific Power Specifications.
 - b. It is assumed that conduit in sidewalk and other concrete areas will be bored. In the event that the Contractor elects to perform installation in these areas via open trench, no separate payment shall be made for surface restoration and it shall be considered incidental to the line item.
30. 6" PVC Conduit, Class B Backfill, Complete, All Installation Methods
- a. Payment for Conduit shall be made on a lineal foot basis for the amount as stated on the Bid Form. Measurement and Payment for this item shall be based on the horizontal length and shall be measured from the outside edge of structures where applicable. Payment shall include excavation, backfill, testing, and ell else required for a complete installation and conforming to Pacific Power Specifications.
 - b. It is assumed that conduit in sidewalk and other concrete areas will be bored. In the event that the Contractor elects to perform installation in these areas via open trench, no separate payment shall be made for surface restoration and it shall be considered incidental to the line item.
31. Oldcastle 444 Vault w/ 6" AB, Installed, Complete
- a. Payment for Vaults at all depths and types shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill around vaults, all precast components, grouting and sealing, adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation. Installation shall be completed to Pacific Power Specifications.
32. Oldcastle 575 Vault w/ 6" AB, Installed, Complete
- a. Payment for Vaults at all depths and types shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill around vaults, all precast components, grouting and sealing, adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation. Installation shall be completed to Pacific Power Specifications.
33. Oldcastle 644 Vault w/ 6" AB, Installed, Complete

- a. Payment for Vaults at all depths and types shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill around vaults, all precast components, grouting and sealing, adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation. Installation shall be completed to Pacific Power Specifications.
- 34. Service Upgrades per Cedar Electric Report
 - a. Payment for Service Upgrades shall be paid on a lump sum basis for the amount stated on the Bid Form and shall include all work described in the report to bring services up to compliance with the proposed underground electrical improvements.
- 35. Light Pole – VI-A7-G1-APM90-F/20’, Dual Arm w/ Foundation, Complete
 - a. Payment for Light Poles shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill, foundation and reinforcement, anchor bolts, grouting and sealing, adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation.
- 36. Light Pole – VI-A7-G1-F/20’, Post Top w/ Foundation, Complete
 - a. Payment for Light Poles shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill, foundation and reinforcement, anchor bolts, grouting and sealing, adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections and as required for a complete installation.
- 37. Post Top Acorn Light Fixture, 40W, 3000K
 - a. Payment for Light Fixtures shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation as described in the project plans and specifications.
- 38. Top Mounted Acorn Light Fixture, 40W, 3000K
 - a. Payment for Light Fixtures shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation as described in the project plans and specifications.
- 39. Junction Box Type-1 17”x10”x12”
 - a. Payment for Junction Boxes shall be made on a unit price basis per each at the stated price on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill, grouting and sealing, adapters, testing, temporary hard

surfacing, and all else related to this item not paid under other sections and as required for a complete installation.

40. 1/2" PVC Conduit, Class B Backfill, Complete, All Installation Methods

- a. Payment for Conduit shall be made on a lineal foot basis for the amount as stated on the Bid Form. Measurement and Payment for this item shall be based on the horizontal length and shall be measured from the outside edge of structures where applicable. Payment shall include excavation, backfill, testing, and all else required for a complete installation and conforming to Pacific Power Specifications.
- b. It is assumed that conduit in sidewalk and other concrete areas will be bored. In the event that the Contractor elects to perform installation in these areas via open trench, no separate payment shall be made for surface restoration and it shall be considered incidental to the line item.

END OF SECTION

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SECTION 01028

CHANGE ORDER PROCEDURE

PART 1 GENERAL

1.01 SUMMARY

- A. Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as described by Change Orders signed by the Owner, Engineer or Landscape Architect, and the Contractor.
- B. See also applicable sections of the General Conditions and applicable portions of the Supplementary General Conditions.
- C. Work outside the scope of the original Contract Document intent will not be paid for by Owner or Engineer unless an approved Change Order precedes such work.

1.02 PROCESSING CHANGE ORDERS

- A. Change Orders will be numbered in sequence and dated. The Change Order will describe the changes and will be signed by the Owner, Engineer or Landscape Architect and the Contractor. Request for estimates for possible changes are not to be considered Change Orders or direction to proceed with the proposed changes.
- B. Change Orders will be prepared by the Engineer Landscape Architect.
- C. Contractor may request that the Owner consider a Change Order by sending a written Change Order Request to both Owner and Engineer or Landscape Architect to initiate the Change Order process. Any increase in cost or time requested by Contractor shall be reasonable and based on the provisions in the Contract Documents.
- D. When requested, Contractor shall provide written evidence substantiating cost changes including receipts, cost proposals from suppliers, and wage forms showing labor used for a particular change.
- E. Change Orders will be processed using the form shown in these Contract Documents.
- F. Change Order may include changes for costs, time, material selections, or other changes to the Contract Documents as necessary.

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SECTION 01040

COORDINATION

PART 1 GENERAL

1.01 SUMMARY

- A. Restrict work to within public rights-of-way and easements obtained for this project.
- B. The Contractor shall coordinate his/her work with the following:
 - 1. City of Coquille - URA
 - 2. Oregon Department of Transportation
 - 3. School Districts
 - 4. Pacific Power Corp.
 - 5. NW Natural
 - 6. CenturyLink, Frontier, Charter Communications or other affected communications
 - 7. Private Property Owners and general public
 - 8. Other affected utilities and agencies
- C. Permit and maintain access for the Owner and/or residents to any adjacent facilities that are not part of work included within the project.
- D. An ODOT encroachment permit is required for interruptions to Hwy 101 Traffic.
- E. Coordinate with Owner to determine the locations of underground piping, vaults, valves and other items that could be damaged during construction.
- F. Restoration and cleanup work shall be completed with each phase of the construction project. Parking lots and properties shall be maintained and kept clean and clear of excess excavation, debris, dirt and other materials.

END OF SECTION

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SECTION 01046

PROTECTION OF EXISTING IMPROVEMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Where Contractor's operations are near utility systems, structures, or are adjacent to other property, no work shall be started until Contractor has made all arrangements necessary for protection thereof. Contractor shall exercise all possible precautions to prevent damage to existing structures, improvements, and underground utilities which are to remain.
- B. Approximate locations of known underground utilities are shown on the Plans. Exact location or extent of such utilities is not guaranteed, and utilities may exist which are not shown on the Plans. Contractor shall call for utility locates prior to any digging. Contractor shall also pothole as required ahead of the work to verify the location and depths of affected utilities. No additional compensation will be given for such work or for utilities being different from as shown on the plans.
 - 1. All trench excavations and structure excavations within two (2) feet of any existing underground utility shall be performed by hand methods in accordance with state laws.
- C. The Contractor shall be solely and directly responsible to the owners and operators of such properties and services for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the carrying out of the work to be done under this Contract.
- D. Restoration of Existing Improvements. Except as shown on the Plans or as provided elsewhere in these specifications, the Contractor shall, at their own expense, repair and/or replace all utilities, services, landscaping, structures, substructures and other improvements damaged by the operations associated with this project, as directed. These repairs and replacements shall all be suitable and proper for intended use and in every respect acceptable to the Owner, Engineer or Landscape Architect and appropriate governing body or owner of such improvement. At minimum, restoration will be required to match the existing adjacent structure/improvement in thickness, finish, quality, quantity, and aesthetics.
- E. In the event of interruption of domestic water, electric, telephone, sewer, or other utility services, the Contractor shall promptly notify the proper authority and the Owner. The Contractor shall cooperate with the proper authority in restoration of service as promptly as possible and shall bear all costs of repair. In no case shall interruption of any water, sewer, or utility service be allowed to exist outside working hours unless prior approval is received from said authority and Owner.
- F. The Contractor shall pothole existing waterlines or other utilities ahead of the Contractor's work so that potential conflicts can be minimized or that minor relocation of the new waterline routes can be made. Potholing is defined as exploratory excavation of existing waterlines or other utilities to verify their depth and location.

1.02 INTERFERING STRUCTURES, IMPROVEMENTS AND LANDSCAPING

- A. It shall be entirely the responsibility of the Contractor to locate and protect all existing structures, landscaping, and other improvements in advance of the work. Neither the Owner, Engineer or Landscape Architect, nor any of their officers or agents shall be responsible to the Contractor for damages as a result of any structures or improvements

being located differently than indicated in the drawings, nor which exist and are not indicated on the drawings.

- B. If interfering power poles, telephone poles, guy wires, or anchors are encountered, the Contractor shall notify the affected utility and the Engineer or Landscape Architect at least seven (7) days in advance of construction to permit arrangements for protection or relocation of the structure. However, failure of utility to respond shall create no obligation on Owner, and Contractor shall protect all utilities against damage, or shall stand all costs involved thereof.
- C. Landscaping, Tree and Plant Protection. Provide adequate protection of existing landscaping against damage from construction operations, including all structures and vegetation. Protect roots, trunk and foliage of existing and new shrubs and trees from all damage including that possible from compaction and dust. Contractor shall be entirely responsible to remove and replace all property which is damaged by work related to the project. Contractor shall bear all costs associated with replacement of existing landscaping, and shall cooperate with the owner of such improvements, the Owner, and the Engineer or Landscape Architect in all protection and restoration/replacement that is required. In specific circumstances, Contractor may make special arrangements with property owners for removal of landscaping without replacement. Copies of written agreements for all such arrangements shall be furnished to the Engineer.
- D. When construction operations will affect the property of a private citizen (such as driveways, landscaping, etc.), even when such improvements are in the road right-of-way, the Contractor shall notify the owner of such property and the Owner, at least seven (7) days in advance of any affecting Work, so that any desired preparations can be made.

1.03 ROADS AND ACCESS

- A. All work shall be conducted to minimize damage to existing roadways, easements and parking lots, including limiting wheel loads to acceptable levels. At all times keep roadways, shoulders, and ditches free from excess materials and debris.
- B. Spillage of soil, dust, rock, mud, etc. on all roads (including State, County, City and private roads) used by the Contractor (and any working for Contractor) during construction, shall be prevented as much as possible. If spillage cannot be prevented, an hourly patrol shall be provided by the Contractor to police and sweep clean all spillage. At the conclusion of each workday, such traveled areas shall be left completely clean and free from all extraneous materials. Contractor is entirely responsible to prevent such spills and follow all related laws and regulations. If spillage of hazardous material occurs, Contractor shall immediately notify the proper authorities and remove the spill in the proper manner. Owner will not be liable for any additional costs due to spillage of any kind.
- C. All damaged gravel, concrete and/or asphaltic concrete surfaces shall be repaired as required to conditions acceptable to the governing body and Engineer or Landscape Architect. No cleated or crawl-type equipment shall be operated on paved surfaces, except to cross a road when adequate protection of the surface is provided.
- D. During construction, the Contractor shall take necessary measures to avoid and abate excessive dust. Sprinkling of roadways and sites may be necessary and shall be conducted carefully to avoid over wetting while keeping dust to a minimum.
- E. Contractor is responsible for constructing, maintaining, and removing any additional access that Contractor deems necessary for the Work. Contractor must notify Owner and Engineer or Landscape Architect, and must obtain written consent from the governing body, prior to construction of additional access not shown on the drawings. All applicable regulations shall be followed in such access construction, including obtaining any required permits.

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SECTION 01050
FIELD ENGINEERING

PART 1 GENERAL

1.01 SUMMARY

- A. Contractor is solely responsible for all stakeout.

- B. It shall be the responsibility of the Contractor to maintain and preserve the construction stakeout as provided. The Contractor will not be allowed time extensions or damages caused by the loss of control stakes. If control is lost and/or disturbed and in the judgment of the Engineer or Landscape Architect requires replacement, such replacement will be at the expense of the Contractor.

- C. It is expected that minor revisions of the stakeout may be required during the course of construction. These revisions and modifications shall be made only as directed by the Engineer or Landscape Architect. The Contractor shall not be entitled to any additional compensation for minor revisions or modifications.

- D. Contractor shall maintain proper equipment on site as necessary to ensure horizontal and vertical control and proper location of improvements.

END OF SECTION

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SECTION 01060

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall at all times observe and comply with all federal and state laws and lawful regulations issued and local laws, ordinances and regulations which in any manner affect the activities of the Contractor under this contract and further shall observe and comply with all orders or decrees as exist as present and those which may be enacted later by bodies or tribunals having any jurisdiction or authority over such activities of the Contractor.

- B. The Contractor shall be responsible and liable for all accidents, damage or injury to any person or property resulting from any activity, duty and obligation of the Contractor under this Contract for which the Contractor may be legally liable. The contractor shall hold blameless and harmless and shall indemnify the Owner and its officers, employees against any and all claims, demands, loss injury, damage, actions and cost of actions whatsoever which they or any may sustain by reason of any act, omission or neglect of the Contractor or employees, agents, representatives or assignees of the Contractor in connection with the activities, duties and obligations of the Contractor under this Contract.

END OF SECTION

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SECTION 01100

REFERENCE STANDARDS

PART 1 GENERAL

1.05 SUMMARY

A. Abbreviations and Acronyms. Whenever the following abbreviations are used in these specifications or in the drawings, the following definitions apply. Unless otherwise designated, all reference to the following standards, specifications and methods shall imply the latest adopted revision in effect at the time of bid opening. Such standards, except as modified herein, shall have full force and effect as though printed in the specifications.

1. AASHTO American Association of State Highway and Transportation Officials
2. ACI American Concrete Institute
3. AIA American Institute of Architects
4. AISC American Institute of Steel Construction
5. ANSI American National Standards Institute
6. APWA American Public Works Association
7. ASCE American Society of Civil Engineers
8. ASME American Society of Mechanical Engineers
9. ASTM American Society of Testing Materials
10. AWWA American Water Works Association
11. EPA United States Environmental Protection Agency
12. DEQ Department of Environmental Quality (both Federal and State)
13. DWP Oregon Dept. of Human Services, Drinking Water Program
14. FM Factory Mutual
15. NEC National Electric Code
16. NEMA National Electric Manufacturers Association
17. NFPA National Fire Protection Association
18. NSF National Sanitation Foundation
19. OAR Oregon Administrative Rules
20. ODOT Oregon Department of Transportation
21. ORS Oregon Revised Statutes

- 22. OSHA Occupational Safety and Health Act (both Federal and State)
- 23. UL Underwriters' Laboratories
- 24. USDA United States Department of Agriculture
- 25. SSPC Steel Structures Painting Council or, The Society for Protective Coatings

1.06 The abbreviation of "N.I.C." if shown on the plans or specifications represents work that is "Not in Contract". This work is to be completed at a later date by Owner or others and for which the Contractor will not be responsible.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

- A. This section outlines in general the items the Contractor must prepare or assemble during the progress of the work, including technical submittals, O&M data, record drawings, and substitution requests. Submittals are required for each piece of equipment or material even when the item being proposed for use is the same as specified.

1.02 RELATED SECTIONS

- A. General Conditions – Article 7.04, “*Or Equals*”, as modified in Supplementary Condition SC-7.04
- B. General Conditions – Article 7.05, *Substitutes*, as modified in Supplementary Condition SC-7.05
- C. General Conditions – Article 7.16, *Shop Drawings, Samples and Other Submittals*, as modified in Supplementary Condition SC-7.16
- D. Section 01630 – Product Substitutions
- E. Section 01700 – Contract Closeout
- F. Section 01730 – Operation and Maintenance Manuals
- G. Section 01780 – Project Record Drawings
- H. Various sections requiring submittals for equipment and materials

1.03 TECHNICAL PRE-BID SUBMITTAL

- A. Some of the major equipment items may require approval prior to bid, even when a specific manufacturer and model is specified, and contractor plans to use the specified item. For items requiring pre-bid submittals, a complete submittal package must be received by the Engineer or Landscape Architect no later than 14 days prior to bid opening. Only items that have been approved in writing by the Engineer or Landscape Architect will be used in the project, and substitution requests for these items will not be considered. Engineer or Landscape Architect will either approve or reject such items at least 5 days prior to bid date. Items in the specifications that require pre-bid submittals are noted as such and listed below for convenience:

- 1. N/A

1.04 SUBSTITUTION REQUESTS

- A. Refer to the General Conditions, 7.05 regarding substitutions, the costs of review, and the responsibility of the Contractor relating to substitution requests.
- B. Where the specifications state “or-equal”, “or approved equal”, or similar statement, the Engineer or Landscape Architect alone will determine if the proposed substitute item is allowed.

- C. Requests for substitution for items specified by manufacturer or manufacturer's model number as specified throughout the Contract Documents shall be in writing and be accompanied with sufficient information to allow the Engineer or Landscape Architect to identify the nature and scope of the request. Information to be provided shall include:
1. Reason the substitution request is being made.
 2. All submittal information required for the specified item or equipment, including all deviations from the specified requirements necessitated by the proposed substitution.
 3. Reproducible contract drawings, marked up to illustrate the alterations to all structural, architectural, mechanical and electrical systems required to accommodate the proposed substitution.
- D. If the substitution requires any mechanical, electrical or structural changes, the Contractor will be responsible for costs in evaluating a requested substitution. The cost for such an evaluation will be determined on a case-by-case basis, after receipt of written request. The Engineer or Landscape Architect will notify the Contractor in writing of said cost. If the Contractor wishes to proceed, the contractor shall advise the Engineer in writing and submit additional information as may be requested. Final approval of a substitution must be made by both the Engineer or Landscape Architect and Owner.
- E. No additional costs of any kind will be incurred by the Owner or Engineer or Landscape Architect by approval or rejection of any substitution request.

1.05 SUBMITTALS

- A. Technical submittals
1. Technical submittals covered by these specifications include manufacturer's information, shop drawings, test procedures, test results, samples, request for substitutions and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, piping and conduit details, and lead time required for delivery to job site.
 2. Contractor's Responsibilities
 - a. The Contractor shall furnish all drawings, specifications, descriptive data, certifications, dimensional drawings, samples, tests, methods, schedules and manufacturers installation and other instructions as required by the contract documents, or the Engineer or Landscape Architect, to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents.
 - b. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements.
 - c. The Contractor shall ensure that there is no conflict with other submittals and notify the Engineer or Landscape Architect in each case where the Contractor's submittal may affect the work as shown on the Plans.

- d. The Contractor shall coordinate submittals among his/her subcontractors and suppliers.
- e. Submittals shall coordinate with the work so that work will not be delayed. Coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals.
- f. The Contractor shall not proceed with work related to a submittal until the submittal process is complete.
- g. The Contractor shall certify on each submittal document that the Contractor has reviewed the submittal, verified final conditions and complied with the contract documents. The Contractor may authorize in writing a material or equipment supplier to deal directly with the Engineer or Landscape Architect. This interaction shall be limited to contract interpretations to clarify and expedite the work.
- h. Charges will be documented and the Contractor will be charged for review of multiple non-conforming submittals for any one (1) item in excess of two (2) times.

1.06 RECORD DRAWINGS

- A. During the course of construction, Contractor shall maintain a marked-up set of the project drawings. See Section 01780.

1.07 OPERATION AND MAINTENANCE (O&M) MANUALS

- A. Contractor shall collect O&M data from all equipment and material suppliers for all items provided in the project. See Section 01730.

1.08 ENGINEER/LANDSCAPE ARCHITECT'S REVIEW

- A. Review shall not extend to means, methods techniques, sequences or procedures of construction, or to verify quantities, dimensions, weights or gages, or to fabrication processes, except when specifically indicated or required by the contract documents, or to safety precautions or programs.
- B. The Contractor shall submit electronic copies of all submittal material to Engineer or Landscape Architect.
- C. Unless otherwise specified, within 14 calendar days after receipt of submittal, the Engineer will return the marked-up copies. The Contractor shall take appropriate action if the submittal needs to be resubmitted. If specified submittal material is to be used for O&M data, all corrections shall be made and new clean copies shall be submitted with the O&M data.
- D. Review of contract documents, method of work or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his/her responsibilities for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or Landscape Architect or Owner. The Contractor shall have no claim under the Contract on account of failure or partial failure of the method of work, material or equipment so reviewed.

1.09 OTHER SUBMITTALS

- A. Other Submittals required by other sections of these specifications may include traffic control plan and a bypass pumping system.

END OF SECTION

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULES

PART 1 GENERAL

1.01 SUMMARY

- A. This section specifies detailed scheduling requirements and procedures including interim and overall schedules.

1.02 PROGRESS OF WORK

- A. 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 time established by the Contract.

1.03 INTERIM SCHEDULE

- A. Contractor shall submit within 10 days after award of Contract, but before any scheduled pre-construction conference, an Interim Schedule setting forth all activities for the first two (2) months of construction.
- B. Review comments by the Engineer or Landscape Architect concerning the Interim Schedule shall be considered in developing the Overall Schedule.
- C. The Contractor shall submit three (3) copies of the Interim Schedule.

1.04 OVERALL SCHEDULE

- A. For Contract Periods exceeding 60 days, the General Contractor shall prepare and submit, within 30 days after the award of Contract, an Overall Schedule composed of all construction operations in connection with the Contract.
- B. 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.
- C. Contractor shall submit three (3) copies to the Engineer or Landscape Architect for his/her review. Within seven (7) days after receipt of the submittal, the Engineer or Landscape Architect shall review the submitted schedule and return one copy of the marked-up original to the Contractor. If the Engineer or Landscape Architect 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.

1.05 SCHEDULE CONTENT

- A. Schedules 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:
 - 1. Each subcontractor's items of work
 - 2. Temporary provisions for continued service
 - 3. Installation of specific major items

4. Submittals from Contractor to Engineer or Landscape Architect for review and return to the Contractor. Material and equipment order, manufacture and delivery
5. Dates for performance of all testing procedures
6. Dates for tie-ins to existing systems
7. Final cleanup and Start-Up
8. Allowance for inclement weather
9. The schedule duration of each activity shall be based on the work being performed during the normal 40-hour work week with allowances made for legal holidays and normal weather conditions.
10. Schedule shall be updated each month as required, and more often if changes in scheduling are required or if the original schedule is no longer valid.
11. After each revision, the Contractor shall submit the revised schedule to the Engineer or Landscape Architect.
12. The Contractor shall consider all critical systems and coordinate existing, temporary, and new construction to ensure continuous production of water.

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. Work shall conform to these specifications and the standards of quality contained herein.
1. Only new items of recent manufacturer and quality specified, free from defects, will be permitted on the Work, unless items are specifically noted as existing to be reutilized. Remove rejected items immediately from the Work and replace with items of quality specified. Failure to remove rejected materials and equipment shall not relieve the Contractor from responsibility for quality and character of items used, nor from any other obligation imposed by the Contract.

 2. No work defective in construction or quality, or deficient in any requirement of the drawings and specifications will be acceptable in consequence of the Owner's or the Engineer's/Landscape Architect's failure to discover or to point out defects or deficiencies during construction; nor will the presence of Resident Project Representatives on the work relieve the Contractor from responsibility for securing the quality and progress of work as required by the Contract. Defective work revealed within the time required by guarantees shall be replaced by the Contractor by work conforming to the intent of the Contract. No payment, whether partial or final, shall be construed as an acceptance of defective work or improper materials.

END OF SECTION

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SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes mobilization, temporary utilities, temporary construction, safety requirements, temporary environmental controls, and other temporary controls.
- B. Submittals
 - 1. Plans for disposal of waste materials and excavated material not required for fill, including permits as required.
- C. Permits. Contractor shall secure and pay for all permits and fees required pertaining to temporary facilities and all other work.
- D. Mobilization shall include de-mobilization and consist of preparatory 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 the Contractor must incur before beginning work on the project and after completion of the project.
- E. Access of Government Officials. Authorized representatives of the Federal, State and Local Governments shall at all times have safe access to the Work, whenever in preparation or in progress, and Contractor shall provide proper facilities for such access and inspections.

1.02 MATERIALS

- A. Contractor shall provide all materials necessary for all work this Section.

1.03 WORKMANSHIP

- A. During all construction operations, the Contractor shall construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to their place of business or residence, unless the Contractor has made special arrangements with the affected persons and has notified Engineer or Landscape Architect and Owner. All temporary facilities shall be removed by the Contractor upon completion of the Work.
- B. Temporary Utilities
 - 1. Electric Power and Telephone
 - a. Electrical power. Power requirements should be confirmed by the Contractor for any special power needs. Arrangements for power shall be the responsibility of the Contractor.
 - b. Phone service shall be the responsibility of the Contractor
- C. Sanitary Facilities

1. The Contractor shall provide chemical toilets of suitable types and maintain them in a sanitary condition at all times, conforming to code requirements and acceptable to the health authorities. They shall be of watertight construction so that no contamination of the area can result from their use. Arrangements shall be made for frequent emptying of the toilets. Upon completion of the work, toilets shall be removed and the area restored to its original condition.
2. Portable toilet facilities shall be located only at locations approved by the Owner.

D. Safety Requirements

1. Proper traffic control shall be provided in accordance with Section 01570.
2. Access for Police, Fire, and School Bus Service
 - a. Notify the fire department, police department and, when applicable, the School District before closing any street or portion thereof, and no closing shall be made without the Engineer or Landscape Architect's approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to any area, such as consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, unless the Contractor obtains special written permission from the chief of the fire department. Conduct operations so as to cause the least interference with any fire station access and at no time prevent such access.
 - b. The Contractor shall furnish a list of emergency telephone numbers to both the Engineer or Landscape Architect and the Owner so that contact may be made easily at all times in cases of emergencies.
3. Fire Prevention. Contractor shall perform all work in a fire-safe manner. Contractor shall supply and maintain on site all fire-fighting equipment, supplies, and capable personnel for extinguishing incipient fires as required by all Federal, State and local laws and regulations. Each piece of internal combustion engine-driven equipment shall be equipped with a fire extinguisher in accordance with the appropriate recommendation of the National Fire Protection Association (NFPA). All engines shall be equipped with functional spark arrestors and sound suppression devices.

E. Temporary Environmental Controls

1. The Contractor shall maintain affected areas from the Contractor's construction free from environmental pollution that would be in violation of federal, state or local regulations.
2. Air Pollution Control
 - a. Minimize air pollution likely to occur from construction operations by wetting down bare soils to control dust and requiring proper combustion emission control devices on construction vehicles.
 - b. Give unpaved streets, roads, and detours or haul roads in the construction area a dust preventative treatment or periodically water to prevent dust. Strictly adhere to applicable environmental regulations for dust prevention.
3. Water Pollution Control and Erosion Control

- a. Erosion control measures shall be maintained as necessary to ensure their continued effectiveness.
- b. Dispose of water removed during dewatering in accordance with local and state laws.
- c. Petroleum products, chemicals, or other deleterious materials shall not be allowed to enter the water.

F. Material Transport Issues (Haul)

- 1. The Contractor shall be responsible for the planning and execution of the import and export of material to and from the project sites. This will include planning the routes, traffic control, roadway cleanup, and any permitting that may be required.
- 2. The Contractor will plan routes that will avoid creating negative traffic impacts whenever possible.
- 3. The haul routes shall be maintained and kept free of dirt, dust, and other debris that will result in unfavorable conditions for the residents of the area. The contractor shall sweep, wash, and otherwise clean the local routes, on a regular basis, if tracking of dirt on the roadways cannot be avoided.
- 4. The Contractor shall seek to keep heavy equipment off the roads, including track driven equipment, in an effort to avoid damage and breakup of local pavement structures. The Contractor will be responsible for the repair of roads that are damaged due to negligence or if the damage could have been avoided. Care shall be taken to avoid allowing dirt, gravel, sand, or other deleterious materials from entering storm drains, ditches, and waterways.
- 5. Temporary roads, parking, site access, and staging areas
- 6. The Contractor shall submit plans describing the plan for accessing the site, any temporary roads that will be, and staging and spoils areas.
- 7. Parts of the project site may be encumbered by wetlands and must not be impacted. Any damage to or encroachment into wetland areas will be the responsibility of the Contractor including all reporting, cleanup, mitigation, and fines that may be required by the interested agencies.
- 8. If staging of materials and equipment is required, it can take place on or near the site. The Contractor should carefully consider the location for staging of materials and equipment and ensure that wetlands are not impacted or encroached upon. If necessary, the Contractor will secure off-site staging and storage areas near the site. The Contractor will be responsible for any rent, payment, or agreements made with other land owners for this purpose.

G. Material Storage and Handling Provisions

- 1. The Contractor shall make provisions for the storage and handling of all materials and equipment to be used on the project. This shall be done in such a way to protect and preserve the materials and equipment until they can be installed.
- 2. When needed, provisions shall be made to keep materials dry and out of the weather. Alternatively, some materials should be protected from UV exposure. Regardless of the material or equipment, care should be taken to protect and preserve them in like new condition.

3. Handling of materials and equipment shall also be done in such a way to protect them from damage, neglect, or harm. Appropriate methods to strap, tie-down, cushion, cover, or otherwise protect the material when being moved or handled shall be employed.
4. The Engineer or Landscape Architect shall review and inspect the provisions for material storage and handling. If any material or equipment is determined to be damaged or in any other condition than new, the Contractor shall repair or replace the material or equipment before it is installed on the project.

1.04 MEASUREMENT AND PAYMENT

- A. Payment for this item shall be on a lump sum basis at the amount stated on the Bid Form for “Mobilization, Overhead, Bonds” and shall include all activities related to mobilization and demobilization on the project, insurance and bonding costs, costs related to scheduling, coordination, submittals, preparatory work, temporary construction facilities, project offices, miscellaneous equipment, project closeout, building permits (as required), other agency fees, other facilities and equipment necessary and all other Division 1 activities within the scope of work not designated with individual payment items for work on the project.
- B. Construction Facilities and Temporary Controls - Payment for work in this item shall be on a lump sum basis at the amount stated on the Bid Form and shall include all temporary construction facilities, project offices, miscellaneous equipment, costs related to scheduling, coordination, submittals, and all other Division 1 activities within the scope of work not designated with individual payment items shall be included within this item.

END OF SECTION

SECTION 01570

TRAFFIC REGULATION

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes traffic control related safety requirements as may be required for the project.
- B. Contractor shall comply with all rules and regulations of County, State, City, and Federal authorities regarding the closing, detouring, and loading of all public streets or highways.
- C. No road (public or private) shall be closed or detoured by the Contractor to the public, except by express written permission of the Engineer or Landscape Architect and entity governing such roadways. Traffic must be kept open on all roads and streets where no detour is possible. The Contractor shall, at all times, conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. The convenience of the general public and residents, safety, and the protection of property is of prime importance and shall be provided for by the Contractor in an adequate and satisfactory manner.
- D. Submittals
 - 1. If road closures, lane closures, or detours are required, Contractor shall prepare, and submit for approval a Traffic Control Plan to the appropriate governing body of such road.
 - 2. Contractor shall submit a traffic control plan and signing plan.

1.02 MATERIALS

- A. Contractor shall furnish all flaggers, barricades, lead cars, warning signs, lights, signals, etc. as required to comply with regulations and provide safety.
- B. All signs, lights, flags and other warning and safety devices shall meet the current ODOT safety manual affecting the location of construction, or to applicable City/County standards.
- C. Barricades shall conform to the Standard Specifications for Highway Construction of the State Highway Department affecting the location of construction, or to City or County Standards where applicable.

1.03 WORKMANSHIP

- A. Contractor shall, at their own expense, and without further or other order, provide, erect and maintain at all times during the progress or temporary suspension of the work, suitable barricades, fences, signs or other adequate warnings or protection and shall provide, keep and maintain such danger lights, signals, and flaggers as may be necessary or as may be ordered by the Engineer to insure the safety of the public as well as those engaged in connection with the work.
- B. Failure of the Engineer or Landscape Architect to notify the Contractor to maintain barricades, barriers, lights, flares, danger signals, or watchmen, shall not relieve the Contractor from this responsibility. All barricades and obstructions shall be protected at night by signal lights which shall be suitably distributed and kept burning from sunset to sunrise. Barricades shall be of substantial construction and shall be suitably painted to increase their visibility at night.
- C. Whenever the Contractor's operations create a hazardous condition, Contractor shall furnish flagmen and guards as necessary, or as directed, to give adequate warning to the

public of any dangerous conditions to be encountered. Contractor shall furnish, erect, and maintain approved fences, barricades, lights, signs, and any other devices that may be necessary to prevent accidents and to avoid damage and injury to the public. Flaggers and guards, while on duty and assigned to give warning to the public, shall be equipped with approved red wearing apparel and a red flag which shall be kept clean and in good repair.

- D. 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.
- E. 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.
- F. 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.
- G. If, in the opinion of the Engineer or Landscape Architect or other governing traffic authority, traffic control is lacking or otherwise unsafe or deficient, the Engineer may require that all work be halted until the traffic control measures can be improved to an acceptable level.

END OF SECTION

SECTION 01610

STORAGE AND PROTECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Protect products scheduled for use in the Work by means as described in this Section and as recommended by the manufacturer.

1.02 MANUFACTURER'S RECOMMENDATIONS

- A. Except as otherwise approved by the Owner, determine and comply with manufacturers' instructions on product handling, storage and protection.

1.03 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container, with the labels intact and legible.
- B. Maintain packaged materials with seals unbroken and labels intact until time of use.
- C. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements at no additional cost to the Owner.
- D. The Owner may reject as non-complying such material and products that do not bear identification satisfactory to the Owner as to the manufacturer, grade, quality and other pertinent information.

1.04 STORAGE

- A. Store materials on-site in coordination with the Owner to provide suitable site access and clearance.
- B. Do not store unnecessary materials that will not be incorporated into the work.

1.05 PROTECTION

- A. Protect stored materials from moisture and temperature, and unauthorized handling.
- B. Provide protection for finished surfaces.
- C. Maintain finished surfaces clean, unmarred and suitably protected until accepted by the Owner.
- D. Provide proper protection for all workers.

1.06 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the Owner and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Owner to justify an extension of the Contract Time of Completion.
- C. Repair all scratches and damage to painted surfaces promptly with proper color and material.

END OF SECTION

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SECTION 01630

PRODUCT SUBSTITUTIONS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section describes procedures for securing approval of proposed product substitutions.

1.02 PRODUCT OPTIONS

- A. The Contract is based on standards of quality established in the Contract Documents.
- B. See Section 01300 Submittals, General Conditions (Section 7.04 & 7.05) and Supplementary General Conditions (Section SC-7.04 & SC-7.05) for additional information on submittals and substitutions.
- C. In agreeing to the terms and conditions of the Contract, the Contractor has accepted the responsibility to verify that the specified products will be available and to place orders for all required materials in such a timely manner as is needed to meet the Contractor's agreed construction schedule.
- D. The Owner has not agreed to the substitution of materials or methods called for in the Contract Documents, except as they may specifically otherwise state in writing.
- E. Where materials and methods are specified by naming one single manufacturer or model number, without stating that equal products will be considered, only the material and method named is approved for incorporation into the Work.
- F. Where materials and methods are specified by name or product number, followed by the words "or equal approved in advance", materials and methods proposed by the Contractor to be used in lieu of the named materials and methods shall in all ways be equal or exceed the qualities of the named materials and methods. For consideration as an "equal approved in advance", complete detailed submittals (4 copies) must be received by the Engineer or Landscape Architect at least fourteen (14) days prior to the bid opening date. Approved substitute items will be listed by addendum prior to bid opening.
- G. Where the phrase "or equal," or "or approved equal," occurs in the Contract Documents, do not assume that the materials, equipment or methods will be approved as equal unless the item has been specifically so approved for this Work. Prepare detailed submittal and submit to Engineer or Landscape Architect. Substitutes will not be incorporated into the work unless submittal is approved by the Owner via the Engineer or Landscape Architect.
- H. Submittals shall include all technical information and diagrams as necessary to allow Engineer to evaluate the proposed substitution. Any/all differences between the specifications or specified equipment and the proposed substitution shall be clearly noted in the submittal. Submittals shall clearly indicate the specific model numbers, part numbers, and options of the proposed substitution.

1.03 DELAYS

- A. Delays in construction arising because of the time required for approval of substitution requests will not be considered by the Owner as justifying an extension of the agreed Time of Completion.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes procedures and requirements for finalizing and closing out the Project(s).
- B. Final clean-ups and restorations shall be done prior to requesting final inspections.

1.01 RELATED DOCUMENTS

- C. Section 01740 – Warranties

1.03 RESTORATION AND CLEAN-UP

- A. Upon completion of any portion of the work, promptly remove temporary facilities generated by that portion of the work, including surplus materials, equipment and machinery unless directed otherwise by the Engineer or Landscape Architect or the Owner. All construction work by the Contractor shall be clean and free of rubbish, dirt, overspray, and extraneous materials to the satisfaction of the Engineer before acceptance of the work.
- B. Street/Road Cleanup. All roadways affected during construction shall be cleaned and restored. All ditches and culverts shall be cleaned and re-graded for proper drainage. Culverts broken or damaged by construction activities shall be restored to their original condition and location. Immediately following construction, remove all dirt, mud, rock, gravel, and other foreign material at the completion of the day or as otherwise required by the Engineer or Landscape Architect.
- C. Site Restoration and Cleanup. Restore or replace any ground covering (e.g., bark chips, cinders, gravel, river rock, etc.) to the original condition or better. Replace top-soiled areas, rake and grade to conform to their original contours. Replace any damaged landscaping or plantings to prior conditions in manner acceptable to Owner. Reseed grass areas as approved. Seed and protect any disturbed slopes.

1.04 CERTIFICATIONS

- A. Contractor to prepare on Contractor's letterhead with project title and number clearly identified. Submit to Engineer or Landscape Architect with application for Final Payment.
- B. A written certification that Contractor has fully completed the Work in strict compliance with the Contract Documents, and requesting final inspections.
- C. Written certification that all subcontractors and suppliers who have furnished work or materials as part of this project have been paid in full.
- D. Written certification that Contractor will replace all materials and workmanship that prove defective within one-year after the date of Final Acceptance. Date Engineer or Landscape Architect signs Final Payment Certificate is date of Final Acceptance and starts the Contractor's one-year guarantee period.
- E. Submission of a signed State or Federal approved Wage Certification Form certifying that Contractor has paid not less than the Prevailing Wage Rate as required by law, and that

Contractor has timely submitted the required payroll certificates to the appropriate state or federal wage division.

- F. One-Year Warranty Inspection. On the 11th month following final project completion and acceptance, Contractor shall be available to be present during the on-site warranty inspection. Any defects identified in materials or workmanship shall be corrected within 30 days by the Contractor at the Contractor's own expense.

END OF SECTION

SECTION 01730

OPERATION AND MAINTENANCE MANUALS

PART 1 GENERAL

1.01 SUMMARY

- A. This section outlines in general the format and content of O&M Manuals required on the project.
- B. Contractor shall collect O&M data from all equipment and material suppliers for all items provided in the project. Data shall be specific to the actual equipment used with specific model numbers and options highlighted. General cut-sheets that do not clearly indicate the specific parts and options provided on this job will not be accepted.

1.02 RELATED SECTIONS

- A. Section 01300 – Submittals
- B. Section 01700 – Contract Closeout
- C. Various sections requiring operation and maintenance data

1.03 SUBMITTALS

- A. The Contractor shall submit two (2) copies of the complete manuals to Engineer or Landscape Architect by 50% construction, which will be reviewed, revised and approved prior to start-up per OAR 340-52-0040(4). The manuals will be reviewed by the Engineer or Landscape Architect. If complete and acceptable without corrections, Engineer or Landscape Architect will notify the Contractor in writing and one (1) additional set will be sent to the Engineer or Landscape Architect by the Contractor.
- B. If changes, corrections, or additional information is required, the Engineer or Landscape Architect will notify the Contractor and may either return one (1) copy, return portions marked-up, or request additional data. Contractor will then resubmit two (2) copies of the corrected manuals. Contractor shall keep copies for their records. This process will continue until Engineer or Landscape Architect has two complete approved sets.
- C. When the manuals are complete and approved by the Engineer or Landscape Architect, the Contractor will then provide one (1) additional complete set so that Engineer or Landscape Architect can retain one set and two sets can be delivered to the Owner.
- D. Final payment will not be issued until all approved O&M manuals are received.

1.04 QUALITY ASSURANCE

- A. Instructions and data shall be prepared by personnel experienced in maintenance and operation of described products.

1.05 FORMAT

- A. Data shall be prepared in the form of an instructional manual providing clear information on operational procedures, periodic maintenance requirements, repair procedures, and troubleshooting procedures.

- B. Binders shall be commercial quality, 8-1/2 x 11 inch three-ring binders with hardback plastic covers. Maximum binder ring size is 2 inches and multiple volumes will be used as required. Covers shall have a clear outer shell to allow insertion of cover sheet.
- C. Each binder shall be identified with a cover that is typed with the title "OPERATION AND MAINTENANCE INSTRUCTIONS", the title of the project, the name of the Owner, and the date of project completion.
- D. Each binder shall include a table of contents and tabbed dividers either color coded or with printed labels. Labels shall be permanently affixed. Manual contents shall be arranged by systems and process flow under section numbers and sequence of table of contents.
- E. Text shall be manufacturer's printed data or typewritten data on 20-pound bond paper. Drawings shall be provided with reinforced punched binder tab, bound with text, and folded as necessary to the size of text pages.

1.06 CONTENT

- A. The first sheet inside the cover shall provide the title of project; names, addresses and telephone numbers of the Engineer; names, addresses and telephone numbers of the general contractor with the names of responsible parties.
- B. For each product or system, provide the names, addresses, and telephone numbers of subcontractors and suppliers, including local sources of supplies and replacement parts.
- C. Product Data: Section sheet shall clearly identify specific products, component parts, and data applicable to the installation.
- D. Drawings shall supplement product data to illustrate relations of component parts of equipment and systems to show control and flow diagrams.

1.07 MATERIALS AND FINISHES

- A. Building products, applied materials, and finishes shall include product data with catalog number, size, composition, and color and texture designations.
- B. Instruction for care and maintenance shall include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and schedule for cleaning and maintenance.

1.08 Equipment and Systems

- A. For each item of equipment and each system, a description of the unit or system component parts, identification of function, normal operating characteristics, and limiting conditions; and performance curves, engineering data and tests, and complete nomenclature and commercial number for replaceable parts.
- B. Electrical service characteristics, controls, and communications for panelboard circuits. Color coded wiring diagrams as installed.
- C. Operating procedures. Start-up, break-in, and routine normal operating instructions; regulation, control, stopping, shut-down, and emergency instructions; and any special operating instructions.
- D. Maintenance Requirements. Routine procedures and guide for troubleshooting, disassembly, repair, and reassembly instructions; and alignment, adjusting, and checking instructions.

1. Servicing and lubrication schedules and list of lubricants required.
2. Manufacturer's printed O&M instructions
3. Sequence of operation by controls manufacturer
4. Parts lists, illustrations, assembly drawings and diagrams
5. Control diagrams
6. Charts of valve tag numbers
7. List of manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage
8. Additional data requirements as specified in individual product sections.

END OF SECTION

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SECTION 01740

WARRANTIES

PART 1 GENERAL

1.01 SUMMARY

- A. Installed Materials Warranties. Prior to 75% completion and payment for work under this Contract, the Contractor shall furnish the Owner through the Engineer or Landscape Architect, all warranty and/or guarantee forms normally furnished by the manufacturer of equipment. Warranty form shall include the specific equipment installed, the duration of the warranty, details of the warranty, and the installer's name, address and phone number. Installation date will be filled in by the Owner and will coincide with date of substantial completion of the work under this contract. All such warranties shall name the Owner as the warranted party.
- B. Attention is directed to various other sections of the Contract Documents where specific material or installation warranties may be required for items specified.
- C. Contractor shall guarantee the Work for a period of one (1) year from the date of Final Acceptance. All materials and workmanship that prove defective within the one-year guarantee period shall be promptly replaced or corrected with no additional cost to the Owner. Written certification that Contractor will replace all materials and workmanship that prove defective within one-year after the date of Final Acceptance is required for project close-out and shall accompany application for Final Payment.

1.02 RELATED DOCUMENTS

- A. Section 01700 – Contract Closeout

END OF SECTION

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SECTION 01780

PROJECT RECORD DRAWINGS

PART 1 GENERAL

1.01 SUMMARY

- A. This section outlines in general the Contractor requirements for preparing and maintaining Record Drawings of the project.
- B. Contractor shall provide access to the Record Drawings to the Engineer and Owner throughout construction and shall finalize and submit complete record drawings upon completion of the work.
- C. Accurate Record Drawings or “As-Builts” are considered extremely important and it shall be entirely the Contractor’s responsibility to maintain a complete and accurate record of all details of the project as the Contractor constructs and installs equipment and materials.
- D. Engineer or Landscape Architect or Owner may stop work if it is determined that Contractor is not properly recording details in record drawings and require correction and accurate documentation of all previous work before additional work proceeds.
- E. Engineer or Landscape Architect must accept and approve the drawings prior to recommending final payment.

1.02 RELATED SECTIONS

- A. General Conditions – Article 7.11, Record Documents

1.03 SUBMITTALS

- A. Submit two complete sets of initial marked-up Record Drawings immediately upon completion of construction work. Engineer or Landscape Architect will review for completeness and either approve or return one set with comments and corrections.
- B. If initial submittal required corrections, submit one complete set of corrected marked-up Record Drawings to Engineer or Landscape Architect with or before request for final payment.

PART 2 PRODUCTS

2.01 RECORD DRAWINGS

- A. Maintain one set of black-line prints of the Contract Drawings. Mark-up drawings using erasable red-colored pencil. Use additional colors as necessary to clearly document changes from original drawings for different categories of work at the same location.
- B. Use clear original or copy of project drawings for mark-up. Use shop drawings for markup when they are more capable of showing actual physical conditions completely and accurately.
- C. All deviations or differences from the original drawings, including dimensional, location, layout, material, and other details shall be noted clearly. Any additional information discovered during construction shall also be noted including location and depth of buried utilities and structures not shown in the original drawings.

2.02 FORMAT

- A. Organize Record Drawings into manageable sets using plans and shop drawings as applicable. Keep sets bound and protected.

- B. Keep on-site during construction and clearly identify as “Record Drawing” on cover.

PART 3 EXECUTION

3.01 RECORDING AND MAINTENANCE

- A. Record data as soon as possible after obtaining it. Do not wait until the end of the job or a portion of the job to record data.
- B. Give particular attention to information concealed that would be difficult to identify or measure and record later. Record and check the markup before enclosing concealed installations.
- C. Require the individual who installed or constructed the portion of the work, or otherwise obtained the record data, to prepare that portion of the marked-up record print.
- D. Incorporate changes and additional information previously marked on Record Drawings, erase, redraw, and add details and notations where applicable.
- E. Refer instances of uncertainty to Engineer for resolution.

END OF SECTION

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SECTION 02320	BY-PASS PUMPING
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APPENDIX B	PACIFIC POWER SPECIFICATIONS

END OF SECTION

SECTION 02230

CLEARING & GRUBBING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. The work to be performed under this section shall include all labor, equipment, and materials necessary for the removal of vegetation and organic matter including, trees, logs, stumps, roots, shrubs, brush, grass and other organic materials as specified herein and as necessary to complete the proposed improvements. This work shall also include the preservation and protection from injury or defacement of all vegetation and objects designated to remain, hauling and disposal of all resulting materials, backfilling of all voids resulting from clearing and grubbing operations, and grading of areas along the project alignment which are not included elsewhere in grading.
- B. Clearing and grubbing work shall be performed in strict compliance with all City, County, State and Federal laws and requirements pertaining to clearing, disposal, erosion control, and other related operations.
- C. Extra care shall be taken when construction occurs on private property. For areas within easements the Contractor shall coordinate with the Owner and private property owners prior to removal or trimming of any vegetation.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 CLEARING

- A. Clearing shall consist of the felling, trimming or cutting of trees, stumps, shrubs, brush and branches, and the clearing of downed timber, vines, grass and other vegetation to the limits specified herein, with the exception of items designated either on the Plans or within these Specifications to remain. The ground surface shall be cleared completely of all growth and organic matter as specified. Some trees may be designated in the project drawings to be removed. These will be removed at a minimum. Other trees not shown in the project drawings may have to be removed in order to complete the work at no additional cost to the Owner.
- B. The owners of the property that have trees or anything else removed have all rights to trees and anything cleared from their property. If the property owner wants the trees or anything else, the contractor will move said items to the property owner's desired location not extending beyond the property boundaries of the property it was removed from. Anything not wanted by the property owner will be disposed of at the contractor's expense.
- C. Trees of which less than one-half (1/2) of the lower portion of the trunk is within the area to be cleared may be left in place unless they are so situated that they interfere with other work to be completed under this contract, in which case they shall be removed.

- D. Trimming
 - 1. Tree branches hanging within the zone extending from the ground surface to 13-feet above the finished roadway grade, or 9-feet above other areas, shall be cut off to the boles in a workmanlike manner in conformance with tree surgeon practice, as directed.
 - 2. The Contractor shall remove additional tree branches as directed by the Engineer or Landscape Architect in such a manner that the tree presents a balanced appearance.
 - 3. Scars resulting from trimming of branches shall be treated with an approved tree sealant.
- E. Clearing Limits
 - 1. Clearing shall be performed within the limits shown in the project drawings, and as directed.

3.02 GRUBBING

- A. Grubbing shall consist of the removal of all embedded wood and other organic matter. Materials to be removed include stumps, trunks, buried logs, roots one-inch (1") in diameter and larger and other objectionable material.
- B. Grubbing Limits
 - 1. Grubbing shall be performed within all clearing area limits, as specified above, to a depth of subgrade.
 - 2. At all trenches and other excavations, grubbing shall be conducted to six-inches subgrade. All stumps shall be completely removed to firm undisturbed soils.

3.03 DISPOSAL

- A. All materials and debris resulting from clearing and grubbing operations shall become property of the Contractor at the place of origin, and shall be hauled away and disposed of by the Contractor.
- B. Materials resulting from clearing and grubbing operations shall not be disposed of on lands owned or controlled by the Owner except by written permission. If so permitted, the Contractor shall place materials only at locations and in such manner as directed by the Owner.
- C. The Contractor shall obtain written permission from the owner of any property upon which clearing and grubbing materials are to be disposed. Copies of the agreement between the property owner and the Contractor shall be furnished to the Owner and Engineer or Landscape Architect.
- D. No burning of materials shall be allowed at the project site unless approved by the Owner in writing. No excess accumulation of materials shall be allowed at the project site.

3.04 PRESERVATION OF EXISTING VEGETATION

- A. The Contractor shall protect from injury all trees, shrubs, vines, plants, grasses and other vegetation outside of areas to be cleared and grubbed, or which are designated by the Engineer or Landscape Architect to be preserved. Operations which may damage such vegetation to remain shall be conducted in areas where damage will not result.
- B. All items designated to remain which are damaged by the Contractor's operations shall be restored or replaced by the Contractor to as nearly as possible original condition and location at no cost to the Owner.

3.05 COMPLIANCE WITH LAWS AND REGULATIONS

- A. The clearing and grubbing work shall be performed in strict compliance with all City, County, State and Federal laws and requirements pertaining to clearing, hauling, disposal, erosion control, and related operations.

3.06 BACKFILLING AND GRADING

- A. Stump holes and other excavations which result from clearing and grubbing operations shall be backfilled with suitable material and compacted in accordance with Section 02315.
- B. Holes in areas to be excavated or trenched at a later time may be temporarily backfilled or covered as approved to provide for public safety until completion of final backfill.
- C. Areas subject to Clearing and Grubbing shall be smoothed and reshaped to blend to surrounding grades.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Payment for Clearing & Grubbing shall be included within the Lump Sum price for Demolition & Site Preparation for the amount stated on the Bid Form. Payment shall include compensation for the removal and disposal of all cleared debris and materials and labor required to complete the work described herein.

END OF SECTION

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SECTION 02240
CONTROL OF WATER

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers the control of surface water runoff, dewatering of trenches and structural excavations, and other elements required for control of water as dictated by the site conditions during construction.

- B. The design, installation, and operation of the temporary pumping system shall be the Contractor's responsibility. The Contractor assumes all liability for operation of the dewatering system and shall man the system during its operation. The dewatering system and discharge shall meet the requirements of all codes and regulatory agencies having jurisdiction of the system operation.

- C. Contractor shall inspect the construction site and consult with the City and applicable regulatory agencies to determine the best applicable method of dewatering, discharge filtration, and available options for receiving bodies. Contractor shall be responsible for all applicable permits.

- D. Submittals
 - 1. Prior to performing any excavation, the Contractor shall submit a dewatering plan to the Engineer or Landscape Architect for review. The submittal shall include method of installation, method and location of discharge, method of discharge filtration, and general details of the proposed dewatering system.

1.02 MATERIALS

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

- B. Piping/Hose
 - 1. Contractor shall provide discharge piping constructed of rigid pipe with positive restrained joints.

 - 2. Provide water tight pipe system.

1.03 WORKMANSHIP

- A. The necessary machinery, appliances and equipment shall be furnished, installed, operated and maintained 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, inconvenience or a menace to the public. Sufficient pumping equipment and machinery in good working condition shall be provided for all emergencies including power outage, and sufficient workmen shall be available at all times for the operation of the pumping equipment. The dewatering systems shall not be shut down between shifts, on holidays or weekends, or during work stoppages without written permission from the Engineer or Landscape Architect.

- B. The control of surface runoff and 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 or Landscape Architect 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. 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 foundation 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. Provisions shall be made to take care of surplus water, mud, silt or other runoff pumped from excavations and trenches or resulting from slicking or other operations. Siltation of 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.
- G. 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.
- H. The Contractor shall comply with all applicable local, State, and Federal laws and regulations pertaining to erosion control and discharge of water off-site.
- I. Necessary filtering media, bags, or other methods shall be used to ensure that turbidity limits in the receiving bodies are not exceeded during dewatering activities.

1.04 PAYMENT

- A. Control of Water and other work in this section shall be considered incidental to the work for any item requiring Control of Water. No separate measurement or payment will be made.

END OF SECTION

SECTION 02250

DEMOLITION AND SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

- A. The work in this section includes the furnishing of all labor, equipment, materials, incidentals, and performing all work required for the removal and disposal of concrete, asphalt, miscellaneous structures, piping as designated for removal, debris and other items or improvements of manmade origin, in accordance with the Plans and these Specifications.
- B. The removal work described herein does not include the removal or disposal of items or improvements designated to remain.
- C. The area in which removal work, under these Specifications, is to be performed shall be confined to the minimum dimensions, within the public right-of-way or easements, which will permit proper construction of the proposed improvements, or as otherwise indicated.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Trench Excavation and Backfill shall comply with Section 02315.
- B. Landscape restoration and reseeding shall be as specified in Section 02900.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Pavements, Curbs, Walks and Driveways
 - 1. Where construction operations require the removal of pavements and other concrete flatwork or structures, bituminous pavements or portions thereof, the area to be removed shall be neatly sawcut. Just prior to placement of hot ac pavement final sawcuts shall be made 12-inches outside the limits of the trench on each side or as directed by the Owner or Engineer or Landscape Architect. All cuts shall be clean, vertical cuts made true to lines designated or approved by the Engineer or Landscape Architect . See Detail drawings for further clarification.
 - 2. The Contractor shall remove and dispose of all pavement and structures, or portions thereof, which lie within the limits of excavation.
 - 3. Pavements and/or structures designated to remain but damaged as a result of the Contractor's operations shall be sawcut and removed as described above, and replaced or restored at the sole expense of the Contractor.

- B. Demolition Adjacent to Proposed Retaining Walls
1. Demolition adjacent to proposed retaining walls shall include sufficient removal of trees, root balls, stumps, and associated material to provide a clean and finished product upon installation of the retaining wall.
- C. Salvaged Materials
1. Metal riser rings, manhole lids and other reusable materials removed shall remain the property of the City and shall be salvaged as directed by the City Engineer and delivered to the City's storage yard by Contractor.
 2. Other salvageable materials shall become the property of the Contractor and shall be disposed of by the Contractor away from the site.
 - a. Salvaged materials of any kind shall not be reused in new work without the written approval of the Engineer or Landscape Architect.
- D. All items and materials designated to remain shall be protected against damage as required. Damage to items or materials not intended for removal shall be repaired promptly by the Contractor to the satisfaction of the affected property owner. If the Engineer or Landscape Architect determines it necessary, repairs shall consist of complete replacement of the affected items or materials. All such repairs and replacements shall be made by the Contractor without compensation.
- E. Disposal of Materials
1. All materials, except those determined by the Engineer or Landscape Architect or Owner to be reusable, shall become property of the Contractor at the place of origin and shall be disposed of by the Contractor in conformance with all laws, regulations and rules legally imposed on such activities.
 - a. Contractor shall make every effort to salvage or recycle construction demolition items and debris as is feasible.
 2. Materials shall not be disposed of on City owned or City controlled lands except by written permission of the City, and if so permitted, the materials shall be placed only at such locations and in such manner as the City may direct. Materials may be disposed of on private properties only with written permission of the property owner(s) involved, and with copies of the agreement furnished to the City and Engineer or Landscape Architect.
- F. All existing ditches damaged by the Contractor by his operations and incidental ditching shall be re-constructed as required as to maintain existing drainages and ditches. The Contractor shall maintain channel width and side slopes of existing conditions.
- G. Existing piping and structures being removed shall be disposed of by the Contractor in accordance with all applicable State and Federal laws, regulations and rules legally imposed on such activities. Existing storm and sewer mainline and lateral piping shall be abandoned in place where applicable. All existing pipelines scheduled for replacement and exposed during excavation for installation of the new pipe shall be removed. All existing piping to be abandoned in place shall be slurry filled.

END OF SECTION

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SECTION 02260

SHORING, BRACING AND REACTION WALL

PART 1 GENERAL

1.01 SUMMARY

- A. This section specifies requirements for shoring and bracing of trenches and other excavations as required to furnish safe and acceptable working conditions, protect existing and new structures and vegetation and maintain existing slopes, fills and open excavations.
- B. The Contractor shall have sole responsibility to determine the construction means and methods required to satisfy the requirements of this section. The Contractor shall design sheeting, shoring, reaction wall and bracing in accordance with Oregon Occupational Safety and Health Act (OSHA).
- C. The Contractor shall furnish a safe place of work pursuant to the provisions of OSHA and the subsequent amendments and regulations and for the protection of the work, structures and other improvements.
- D. Shoring and bracing shall include all necessary sheeting, sloping and other means and procedures such as draining and recharging groundwater and routing and disposing of surface runoff, required to maintain the stability of soils.
- E. Slope Stability
 - 1. OSHA Health and Safety Standards for Excavation, 29 CFR Part 1926, or successor regulations shall be strictly enforced and, if they are not followed, the Contractor and/or earthwork and utility subcontractor could be liable for penalties.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. General
 - 1. The construction of sheeting, shoring, reaction wall and bracing shall not disturb the state of soil adjacent to the excavation or below the excavation bottom. Sheeting, shoring and bracing shall be removed after placement and compaction of initial backfill, except as otherwise specified.
- B. Structure and Existing Piping
 - 1. The Contractor shall provide support of existing and new structures where shown, specified and at all other locations where excavation infringes on a 1:1 slope extending from the bottom of the footing. Existing piping shall be protected with shoring and bracing where excavation could expose the pipe and/or cause damage to the pipe.

C. Damages

1. Any damages to new or existing structures occurring through settlements, water or earth pressures, or other causes due to failure or lack of sheeting, shoring or bracing, or through negligence or fault of the Contractor shall be repaired by the Contractor at his own expense.

PART 4 SPECIAL PROVISIONS

4.01 Measurement and Payment

- A. Shoring, Bracing and Reaction Wall and other work in this section shall be considered incidental to the work for any item requiring Shoring and Bracing. No separate measurement or payment will be made.

END OF SECTION

SECTION 02270

EROSION CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. Temporary erosion control shall consist of, but not be limited to, constructing such facilities and taking such measures as are necessary to prevent, control and abate water, mud, and erosion damage to public and private property as a result of the construction of this project. Contractor shall re-seed and re-plant all disturbed areas upon completion of Project per provisions of these Special Provisions and the Plans.
- B. If erosion control permitting is required, it shall be the sole responsibility of the Contractor to obtain and abide by those permits.
- C. Temporary erosion control features as are necessary to provide sediment control shall be constructed and functioning prior to the commencement of construction. The Contractor shall construct such supplementary temporary erosion control facilities as are necessary to protect adjacent private and public property.
- D. Temporary erosion control measures shall conform to the current "Construction Stormwater Erosion and Sediment Control Manual" published by the Oregon Department of Environmental Quality and includes, but is not limited to the following:
 - 1. The Contractor shall conduct his operations in such a manner that storm runoff will be contained within the project or channeled into the storm drain system which serves the runoff area. Storm runoff from one area shall not be allowed to divert to another runoff area.
 - 2. Drainage structures and other devices shall be provided to channel storm runoff water into the respective permanent drainage systems during construction. Mud and silt shall be settled out of the storm runoff before said runoff enters the existing drainage system.
 - 3. Excavation areas, while being brought to grade, shall be protected from erosion and the resulting siltation of downstream facilities and adjacent areas by the use of various temporary erosion control measures. These measures may include, but shall not be limited to: straw wattles; silt fences; check dams; confined ponding areas to de-silt the runoff; and protection, around existing drainage facilities.
- E. Fiber Rolls (sediment logs or wattles): Contractor shall provide fiber rolls as temporary structural practice to minimize erosion and sediment runoff. Fiber rolls shall be properly placed and installed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in an area between a ridge and drain, fiber rolls shall be placed as work progresses; fiber rolls shall be removed/replaced/relocated as needed for work to progress in the drainage area.) Areas where fiber rolls are to be used are shown on the drawings. Final removal of fiber roll barriers shall be upon approval by the City.

1.02 MATERIALS

- A. Fiber Rolls (Sediment Logs or Wattles): Composed of bio-degradable fibers stuffed in a photo-degradable open weave netting. Fiber rolls are porous and allow water to filter through fibers and trap sediment.
- B. The Contractor shall use wooden stakes for fiber roll installation. Wooden stakes utilized for fiber roll installation, shall have a minimum cross section of 1 inch by 2 inches, or as suggested by the fiber roll manufacturer.

1.03 WORKMANSHIP

A. Installation

1. Fine grade the subgrade by hand dressing where necessary to remove local deviations and to remove larger stones or debris that will inhibit intimate contact of the fiber roll with the subgrade. Prior to roll installation, contour a concave key trench 2 to 4 inches deep along the proposed installation route. Soil excavated in trenching should be placed on the uphill or flow side of the roll to prevent water from undercutting the roll.
2. Place fiber rolls into the key trench and stake on both sides of the roll within 6 feet of each end. Spacing for stakes shall be 3 to 5 feet. Stakes are typically driven in on alternating sides of the roll. Stakes shall be buried 12 inches minimum.
3. When more than one fiber roll is placed in a row, the rows should be abutted securely to one another to provide a tight joint, not overlapped. Fiber rolls shall be placed in a single row, lengthwise on the contour, with ends of adjacent rolls tightly abutting one another.

B. Maintenance

1. The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.
2. Silt Fence Maintenance. Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be re-vegetated.
3. Fiber Roll Maintenance. Fiber roll barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged rolls, end runs and undercutting beneath rolls. Necessary repairs to barriers or replacement of rolls shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Roll rows

used to retain sediment shall be turned uphill at each end of each row. When a fiber roll barrier is no longer required, it shall be removed. The immediate area occupied by the roll and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be re-vegetated.

C. Inspections

1. General: The Contractor shall inspect disturbed areas of the construction site, area used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days, within two (2) calendar days of forecasted rains, and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.
2. Inspection Details: Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.
3. Inspection Reports: For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the Engineer or Landscape Architect within 24 hours of the inspection as a part of the Contractor's work. A copy of the inspection report shall be maintained on the job site.

1.04 PAYMENT

- A. Erosion Control and other work in this section shall be included in the price stated in the Bid Form for Construction Facilities & Temporary Controls.

END OF SECTION

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SECTION 02315

TRENCH EXCAVATION, BEDDING, & BACKFILL

PART 1 GENERAL

1.01 SUMMARY

- A. This work consists of furnishing all labor, materials, incidentals and equipment, as well as performing all work required for excavation, foundation stabilization, trench backfill, compaction, final grading, hauling and disposal of material resulting from the construction of utility piping, all related appurtenances and construction methods. Included also is the locating and protecting of existing utilities and other improvements (see Division 1), shoring, and bracing, excepting only such work as is covered and included under other sections of this Division, or other Divisions of these Contract Documents.
- B. Excavation must be in accordance with ORS 757.541 to 757.571 and all other applicable laws and regulations.

1.02 REFERENCES

- A. Oregon Standard Specifications (OSS) – The 2008 Oregon Department of Transportation/APWA Oregon Chapter Standard Specifications for Construction.

1.03 DEFINITIONS

- A. Trench Excavation – Trench excavation consists of the removal of all material encountered in the trench to the limits shown on the Plans or as directed. Trench excavation shall be classified as either common excavation or rock excavation.
 - 1. Common excavation is defined as the removal of all material as required to complete the planned improvements, regardless of type, nature or condition of materials encountered, except that which is designated as rock excavation.
 - 2. Rock excavation is defined as the removal of boulders composed of igneous, sedimentary or metamorphic stone material which have a least dimension of 36-inches or more, or a displacement of one cubic yard or more; or the removal of solid ledge rock which, in the opinion of the Engineer or Landscape Architect, requires for its removal drilling and blasting, wedging, sledging, barring or breaking with power operated tools.
 - a. No soft or disintegrated rock; hard-pan or cemented gravel that can be removed with a hand pick or power operated excavator or shovel; no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere; and no rock outside of the minimum limits of measurement allowed, which may fall into the excavation, will be measured or allowed.
 - b. When solid rock layers have an overburden of non-rock material (common material) which cannot practically be stripped and handled separately, and/or when solid rock is interspersed with non-rock material, the entire mass will be classified as solid rock if the actual solid rock fraction exceeds 85% of the entire volume.

- B. Trench Foundation – Trench foundation is defined as the bottom of the trench on which the pipe bedding is to lay and which provides support for the pipe.
- C. Foundation Stabilization – Foundation stabilization is defined as the furnishing, placing and compacting of specified materials for any unsuitable material removed from the bottom of an excavation, as directed by the Engineer or Landscape Architect, to provide a firm trench foundation.
- D. Rip-Rap Slope Protection – Rip-rap slope protection is defined as the furnishing and placement of the specified material as an embankment or channel slope protection on exposed slopes or channels for slope protection and erosion control applications.
- E. Pipe Bedding – Pipe bedding is defined as the furnishing, placing, and compacting of specified materials on the trench foundation so as to uniformly support the barrel of the pipe. The total bedding depth shall be as shown on the Contract Drawings.
- F. Pipe Zone – Pipe zone is defined as the furnishing, placing, and compacting of specified materials for the full width of the trench and extending from the top of the bedding to a level above the top outside surface of the barrel of the pipe as shown on the Contract Drawings.
- G. Trench Backfill – Trench backfill is defined as the furnishing, placing and compacting of material in the trench extending from bottom of the trench to the finished grade. Plans generally show locations for each type of backfill class.
- H. Drain Rock – Drain rock is defined as the furnishing, placing and compacting of specified free draining material for the full width of the drain trench (perforated pipe drains) and extending to a level as specified above the top outside surface of the pipe barrel.

1.04 SUBMITTALS

- A. Certifications, test results, source, and samples for all imported material proposed to be used in the work. Samples of materials to be used shall be submitted 2 weeks in advance of use. Samples shall consist of 0.5 cubic feet of each type of material. Samples of Class E material are not required.
- B. Drawings, tabular product data, and method of installation and removal of all sheeting, sheet piling, shoring, and bracing.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Trench Foundation – The trench foundation shall be undisturbed native material when suitable. Where ground water or other unstable conditions exist and the native material cannot properly support the pipe, additional excavation may be required. The trench shall be stabilized with foundation stabilization material when such conditions are present in the opinion of the Engineer or Landscape Architect.
- B. Foundation Stabilization – Foundation Stabilization: 1½”-0 or 3”-0 aggregate base rock meeting OSS Sections 00641 and 02630. Required when native trench foundation material contains groundwater or is unsuitable to provide a firm foundation in the opinion of the Engineer or Landscape Architect.
- C. Rip Rap Slope Protection – Material for Rip Rap Slope Protection shall Class 50 as specified in the Oregon Department of Transportation Hydraulics manual.

- D. Pipe Bedding – Material for trench foundation shall be clean, hard, sound, durable, well-graded, ¾"-0 crushed rock, free from organic matter. Engineer or Landscape Architect must approve material prior to use.
- E. Pipe Zone – Material for pipe zone shall be the same material used for bedding.
- F. Trench Backfill
 - 1. Class "A" Backfill: Native or common excavated material, free from deleterious material, free from rock larger than 3-inches, and which meets the characteristics required for the specific surface loading or other criteria of the backfill zone in the opinion of the Engineer or Landscape Architect.
 - 2. Class "B" Backfill: 1"-0 or ¾"-0 dense-graded aggregate, uniformly graded from coarse to fine and meeting OSS Section 00641 and Section 02630.10.
 - 3. Class "C" Backfill: Clean sand with no particles larger than ¼-inch.
 - 4. Class "D" Backfill: Pit run or bar run material, well graded from coarse to fine, with maximum aggregate size of 3 inches.
 - 5. Class "E" Backfill (CLSM or CDF): Controlled Low-Strength Material (cement slurry) conforming to OSS Section 00442.
 - a. Slurry shall consist of a highly flowable lean concrete mix; mixture of Portland cement, fly ash, fine aggregates, water and admixtures as required for a mixture that results in a hardened, dense, non-settling, hand excavatable fill.
 - b. Slurry backfill shall be used anywhere cover over the top of the pipe is equal to or less than 24", or as directed by the Engineer or Landscape Architect.

PART 3 EXECUTION

3.01 GENERAL

- A. Remove, haul, and dispose of all formations and materials, natural or man-made, irrespective of nature or conditions encountered, within lines and grades shown on the Plans or defined herein, and as necessary for completion of the proposed improvements. The method of excavation shall be as determined by the Contractor, and as required for protection of existing improvements. Special care shall be taken to avoid over excavation below subgrades. Store and protect materials suitable for use as backfill where applicable. Clearing & Grubbing and Removal of Structures and Obstructions to be completed prior to excavation.
- B. Coordinate and provide all utility locates prior to any excavation as required by local state and federal laws and regulations. When the precise location of subsurface structures and/or utilities is unknown, locate such items by hand excavation prior to utilizing mechanical excavation equipment. Use hand excavation when mechanical equipment might damage existing improvements which are to remain undisturbed. See Division 1 for other requirements.
- C. Incidental to excavation shall be the furnishing, installing and removal of all shoring, sheeting, bracing as required to support adjacent earth banks and structures, keep

excavations free from water, and to provide for the safety of the public and all personnel working in excavations.

3.02 EXCAVATION

- A. Excavate to the lines and grades shown on the project Plans, allowing for forms, shoring, working space and gravel base. Provide a minimum clearance around pipe barrel in all directions or greater in accordance with the standard trench detail drawing.
- B. Shoring and Bracing
 - 1. Sheet and brace excavation as necessary to prevent caving and to protect adjacent structures, property, workers and the public.
 - 2. The design, planning, installation and removal of all sheeting, shoring, sheet piling, lagging and bracing shall be accomplished in such a manner as to maintain the required excavation or trench section and to maintain the undisturbed state of the soil below and adjacent to the excavation.
 - 3. Horizontal strutting below the barrel of a pipe and the use of pipe as support are not acceptable.
 - 4. All sheeting, shoring and bracing shall conform to safety requirements of OSHA and other Federal, State and local agencies.
- C. Dewatering
 - 1. Furnish, install and operate all necessary machinery, appliances and equipment to keep excavations free from water during digging and initial backfilling. Dispose of water in such a manner as to prevent damage to public or private property, or nuisance or menace to the public.
 - 2. At all times have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outage. Have available, at all times, competent workers for operation of the equipment.
 - 3. Control surface runoff to prevent entry or collection of water within excavations. All excavations shall be kept free of water during placement of backfill and/or concrete placement.
 - 4. Comply with all laws regarding stormwater runoff, protection of natural resources, and other applicable laws and regulations.

3.03 FOUNDATION STABILIZATION

- A. The contractor shall overexcavate the trench to firm undisturbed soils or rock when, in the opinion of the Engineer or Landscape Architect, the trench foundation materials are not suitable for the support of the pipe. Foundation Stabilization materials, as specified, shall be placed and compacted in lifts not exceeding 6-inches in compacted thickness to the required grade. Each lift shall be compacted to at least 95% of the maximum dry density in accordance with ASTM D698.

3.04 RIP RAP SLOPE PROTECTION

- A. Remove any brush, trees, stumps and other organic material from slopes and channels to be protected by rip rap and dress to a smooth surface. Remove all unsuitable material to the depth as shown or as directed and replace with approved material.

3.05 DISPOSAL OF EXCESS MATERIALS

- A. Excavated materials not suitable or required for backfill shall be hauled away and disposed of on approved sites arranged by the Contractor. No site shall be used for disposal of materials without written approval of the property owner. All costs associated with the hauling and disposal of materials shall be borne by the Contractor. The Contractor shall be entitled to any proceeds received from the sale of excess materials.

3.06 TEMPORARY STOCKPILING

- A. Place excavated materials suitable for use as backfill (and not excess material) only within construction easements, right-of-way, or approved work area. Stockpiles shall be placed in such manner as to provide the minimum inconvenience to the public.
- B. The Contractor shall obtain written permission from any property owners prior to placement of stockpiles on private property. Provide copies to the Owner and Engineer or Landscape Architect
. Remove stockpiles as soon as possible and restore sites to affected property owners' satisfaction.
- C. Access to all fire hydrants, water valves and meters shall be maintained. Stockpiles shall not be permitted to block any stormwater drainage ditches, gutters, drain inlets, culverts or natural water courses.
- D. Protect stockpiled material which is to be later incorporated into the work so that excessive wetting or drying of the material does not occur. Material shall be brought to near optimum moisture content prior to placement and compaction. Depending on the moisture content of stockpiled materials, necessary processing may include aeration, mixing and/or wetting. No additional payment will be allowed for protecting or preparing native backfill materials.
- E. If approved native materials become unsuitable (too wet or mixed with unsuitable materials) due to negligence by the Contractor, then imported granular materials may be required for backfilling at the subject location at no additional cost to the Owner.
- F. Provide necessary protection for stockpiled materials so that silt-laden runoff does not occur during rain events and to prevent wind-blown dust from stockpiles.

3.07 PIPE ZONE AND TRENCH BACKFILL

- A. Place and compact pipe bedding material before placing pipe in the trench. Dig depression for pipe bells to provide uniform bearing along the entire pipe length. Thoroughly compact bedding material to at least 95% of the maximum dry density in accordance with ASTM D698.
- B. Place materials in the pipe zone in layers not greater than 6 inches thick and in a manner that equalizes the pressure on the pipe and minimizes stress. As required under the haunches of pipe and areas not accessible to mechanical tampers or to testing, compact with hand methods to ensure thorough contact between the material and the pipe. Before placing the pipe zone material, condition, aerate, or wet the material so that the moisture content of each layer is within minus 4% to plus 2% of optimum moisture content.

- C. When backfilling is complete, the Contractor shall finish the surface area as specified.

END OF SECTION

SECTION 02320
BYPASS PUMPING

PART 1 GENERAL

1.01 SUMMARY

- A. This work in this section includes the furnishing of all labor, equipment, materials, incidentals, and performing all work required to implement a temporary bypass pumping system for the purpose of diverting both storm and sanitary sewer flows around the designated work zone for the project duration.

- B. The operation, design and installation of the temporary bypass pumping system shall be the responsibility of the Contractor. The Contractor assumes all liability for the operation of the bypass pumping system and shall man the system during its operation. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction of the systems operation.

- C. Submittals
 - 1. Prior to the start of any excavation the Contractor shall submit a bypass pumping plan to the Engineer or Landscape Architect for review. The submittal shall include the method of installation and details of the proposed bypass pumping system.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials and equipment required for the bypass pumping equipment shall be furnished and maintained as required to perform the storm drain and sewer line replacement.

- B. Pumps
 - 1. Bypass pumps shall be fully automatic, solids handling, self priming units.
 - 2. Contractor shall supply all necessary start/stop controls for each pump.
 - 3. Backup pumps shall be available on site in the case of a primary pump failure.

- C. Piping/Hose
 - 1. Contractor shall provide temporary bypass discharge piping constructed of ridged pipe with positive restrained joints.
 - 2. Aluminum irrigation type piping shall NOT be allowed.
 - 3. Use of discharge hose may be allowed for short sections with prior Engineer or Landscape Architects review and approval.
 - 4. Discharge piping system shall be watertight. Contractor shall perform pressure and leakage tests on the bypass pumping system prior to start of operation of the system.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. It is essential to the operation of the existing sanitary sewer system that there will be no interruption in the flow of sewage during the duration of the project. Operation of the bypass pumping system shall maintain the sanitary sewer flows around the work area in such a manner as not to cause surcharging of upstream and downstream sewers, damage to existing sewers, and will protect both public and private property from flooding and damage.
- B. Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, primary pumping equipment, back up pumping equipment, bypass piping and all necessary power, labor and equipment as required to intercept the storm or sewage flow prior to interfering with the work area. Flows shall be conveyed past the work area and returned to the existing system at a point downstream of the work area.
 - 1. After projects completion and installed plugging is no longer required, plugging shall be removed in such a manner that permits flow to return to normal without surcharging downstream the existing system.
- C. The Contractor shall provide the design, installation and operation of the temporary bypass pumping system. The Contractor shall assume responsibility of such bypass pumping system. Bypass system shall meet the requirements of the Oregon Department of Environment Quality (DEQ) and any other State, County or local agencies having jurisdiction over the operation of such facilities.
- D. The Contractor will not be permitted to stop flows under any circumstances without prior approval from the City or the Engineer or Landscape Architect
- E. The Contractor shall assume liability for providing all necessary means to convey flows past the work area.
- F. All water resources, wetlands and other natural resources shall be protected from discharge of polluted water.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Measurement and payment for Bypass Pumping and other work in this section shall be included within the lineal foot price for each size and class of piping as shown on the Bid Form. No other payment shall be made.

END OF SECTION

SECTION 02321
COMPACTION TESTING

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall retain and pay for the service of an approved, recognized independent testing laboratory to conduct laboratory tests on materials and field testing to determine the relative compaction of trench backfill, subgrades, embankments, gravel surfacing, aggregate base and asphalt concrete pavement, as indicated. The approved Testing Agency shall recommend methods of compaction to Contractor and issue final report to the Owner, through the Engineer or Landscape Architect, regarding compaction testing results and material compliance with the specifications.

- B. These specifications call for field compaction efforts to achieve a specified relative compaction for each of the indicated classes of backfill. Determination of in-place density shall be made by means of non-destructive nuclear probe method testing in accordance with ASTM D2922-01 and ASTM D3017-01 test methods.

1.02 DEFINITIONS

- A. Relative Compaction -- The ratio, expressed as a percentage, of the in-place density of the backfill material to the maximum density of the same material as determined by the ASTM D698 Standard Test Method.

PART 2 PRODUCTS

2.01 APPROVED TESTING AGENCIES

- A. Foundation Engineering; 820 N.W. Cornell Ave.; Corvallis, OR 97330; (541) 757-7645

- B. Western Testing; 3329 N.E. Stephens; Roseburg, OR 97470; (541) 957-1233

- C. Western Testing; 2455 Maple Leaf, Bay #4; North Bend, OR 97459; (541) 266-9875

- D. Carlson Testing; 89970 Hwy 99N; Eugene, OR 97402; (541) 345-0289

- E. SHN Consulting Engineers & Geologists, Inc.; 275 Market Ave, Coos Bay, OR 97420; (541) 266-9890

- F. Other certified private testing laboratory approved by Engineer or Landscape Architect

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Field Testing
 - 1. Testing to determine the relative compaction of materials placed and compacted by the Contractor shall be performed a short distance behind construction. Tests shall be taken on each lift of the material prior to placement of the succeeding lift to ensure proper compaction is obtained. The Testing Agency shall perform

testing at such locations and elevations as to be representative of the entire material and area being compacted. The Engineer or Landscape Architect shall have authority to require testing at times and locations he deems necessary.

2. A sufficient number of density tests shall be taken on the first section of subgrade and trench backfill placed by the Contractor to establish the effectiveness of the Contractor's compactive efforts. If tests indicate that the specified relative compaction for a given material is not being achieved, the Contractor shall modify compaction methods in order to obtain the specified results.
 3. A minimum of 2 tests will be required to be taken at each site visit. It is estimated that the following number of site visits will be required:
 - a. A minimum of two (2) site visits shall be required along pipeline routes.
 - b. A minimum of two (2) site visits shall be required for roadway sections.
 4. Additional site visits or tests may be required to prove Contractor is meeting compaction requirements or as requested by the Owner, Engineer or Landscape Architect, and other affected utilities.
- B. Failing Tests – For areas failing to meet the specified compaction, the Contractor shall be responsible to perform all additional work necessary to achieve specified compaction at no additional cost to the Owner. Additional work may include further compactive effort, moisture treatment, other compaction methods, removal and replacement of failing materials, or other processes required to obtain the specified results.
- C. Any subsequent settlement of backfilled areas during the one-year warranty period shall be considered to be the result of insufficient compaction, and shall be promptly repaired by the Contractor at no additional cost to the Owner.
- D. The Contractor shall not be allowed any additional compensation for down time incurred as a result of compaction testing or waiting for test results.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Payment for Compaction Testing shall be included within a portion of the unit amount for all line items requiring it. A separate payment will not be made for these items.
1. Only Compaction Tests with results meeting the requirements of these Specifications will be accepted. All costs associated with or arising from additional work required due to failing compaction test results, including removal and replacement of material, shall be borne by the Contractor.
 2. Contractor must submit invoice from Testing Agency clearly identifying Project, location and date of testing, material tested, test method, test results, specified compaction, maximum dry density of material tested, and number of tests taken. Only tests directed by the Engineer or Landscape Architect and which obtain passing results will be paid for.

END OF SECTION

SECTION 02510

WATER DISTRIBUTION PIPING

PART 1 GENERAL

1.01 SUMMARY

- A. This work consists of furnishing all labor, materials, incidentals and equipment, and performing all work for the furnishing, installation and testing of waterlines required for the completion of the proposed improvements. Valves, hydrants and other fittings and appurtenances shall be as specified in Section 02515.

PART 2 PRODUCTS

2.01 MATERIALS

- A. 4" – 12" Polyvinyl Chloride (C.I.O.D. PVC)
 - 1. Rigid PVC pipe, 4-inch through 12-inch nominal diameter, shall be made from quality PVC resin compounded to provide physical and mechanical properties that equal or exceed cell class 12454 as defined in ASTM D1784. Pipe shall be designated for use as water supply and distribution pressure pipe, and shall conform to the outside diameters of cast iron pipe. Pipe furnished shall be Pressure Class 235 (DR 18) conforming to all requirements of AWWA C900, Polyvinyl Chloride Pressure Pipe.
 - 2. Pipe shall be furnished in 20-foot laying lengths with integral wall-thickened bell ends. The bell shall consist of an integral wall section with a bonded-in elastomeric gasket manufactured in conformance with the requirements of ASTM F477. Gaskets shall be Rieber type to resist rolling during installation. The bell section shall be designed to be at least as hydrostatically strong as the pipe wall and meet the requirements of AWWA C900 and ASTM D3139.
 - a. A non-toxic vegetable soap lubricant shall be supplied by the pipe manufacturer with pipe.
 - b. Pipe shall be as manufactured by JM Eagle, CertainTeed, North American Pipe Corp, or approved equal.
- B. 14" and larger Polyvinyl Chloride (C.I.O.D. PVC)
 - 1. Rigid PVC pipe, 14-inch and larger nominal diameter, shall be made from quality PVC resin compounded to provide physical and mechanical properties that equal or exceed cell class 12454 as defined in ASTM D1784. Pipe shall be designated for use as water supply and distribution pressure pipe, and shall conform to the outside diameters of cast iron pipe. Pipe furnished shall be Pressure Class 235 (DR18) conforming to all requirements of AWWA C905, Polyvinyl Chloride Pressure Pipe.
 - 2. Pipe shall be furnished in 20-foot laying lengths with integral wall-thickened bell ends. The bell shall consist of an integral wall section with a bonded-in elastomeric gasket manufactured in conformance with the requirements of ASTM F477. Gaskets shall be Rieber type to resist rolling during installation. The bell

section shall be designed to be at least as hydrostatically strong as the pipe wall and meet the requirements of AWWA C905 and ASTM D3139.

- a. A non-toxic vegetable soap lubricant shall be supplied by the pipe manufacturer with pipe.
 - b. Pipe shall be as manufactured by JM Eagle, CertainTeed, North American Pipe Corp, or approved equal.
- C. Buried Solvent Weld PVC Pipe – Buried rigid PVC pipe shall be Schedule 40 solvent weld pressure pipe, conforming to ASTM D1785. PVC material shall consist of Type I, Grade I compound, Cell classification 12454-B per ASTM D1784. Pipe shall be as manufactured by Harvel Plastics, Inc., JM Eagle, or approved equal.
- D. Exposed ½” – 6” Solvent Weld PVC Pipe – Exposed rigid PVC pipe, ½-inch through 6-inch nominal diameter, shall be Schedule 80 solvent weld pressure pipe, conforming to ASTM D1785. PVC material shall consist of Type I, Grade I compound, Cell classification 12454-B per ASTM D1784. Pipe shall be as manufactured by Harvel Plastics, Inc., JM Eagle, or approved equal.
- E. 4” And Larger High Density Polyethylene (HDPE) Pipe
1. Black PE materials used for the manufacture of polyethylene pipe and fittings shall be PE 4710 high density polyethylene meeting ASTM D 3350 cell classification 445574C (formerly PE 3408 meeting 345464C per ASTM D3350-02) and shall be Listed in the name of the pipe and fitting Manufacturer in PPI (Plastics Pipe Institute) TR-4 with a standard grade HDB rating of 1600 psi at 73°F. Color material, when used, shall be the same except for meeting ASTM D 3350 cell classification 445574E.
 2. The material shall be listed and approved for potable water in accordance with NSF/ANSI 61. The pipe shall meet the requirements of AWWA C906.
 3. Pipe shall be DR11, Pressure Class 200 minimum, IPS Size, and shall be manufactured to the requirements of ASTM F714 and AWWA C906-99 (IPS) and shall be of standard pipe lengths (40 or 50 foot).
 4. HDPE pipe shall be DriscoPlex 4100 IPS HDPE pipe; Isco industries or approved equal.
 5. Pipe shall be provided with a continuous mark made of durable printing containing the following:
 - a. Name and/or trademark of pipe manufacture, nominal pipe size and dimension ratio.
 - b. The manufacturing standard reference ASTM F714 and polyethylene grade per ASTM D3350.
- F. 4” – 16” Ductile Iron Pipe – Ductile iron pipe shall be Class 52 minimum thickness, conforming to ANSI/AWWA C151/A21.51 under method of design outlined in ANSI/AWWA C150/A21.50. Pipe shall be cement mortar lined in accordance with ANSI/AWWA C104/A21.4. External pipe coating shall be an asphaltic coating in accordance with ANSI/AWWA C151/A21.51. Use only where shown.
- G. ½” – 3” High Density Polyethylene (HDPE) Pipe – as specified in Section 02515.

- H. Restrained Joint Piping – Where Plans call for Restrained Joints, all joints within the designated area shall be formally restrained with mechanical restraints designed for pipe restraint. CertainTeed Certa-Lok C900/RJ or restraint harness at regular slip-on joints rated at full pressure of pipe such as EBAA Iron Series 1900. Joints at fittings shall be restrained using MEGALUG or approved equal.
- I. All water pipe materials shall be NSF approved for use in potable water systems, and shall be UL listed and FM approved.
- J. Fusible Polyvinylchloride C900 & C905 Pipe
 - 1. Fusible polyvinylchloride pipe shall conform to AWWA C900, AWWA C905, ASTM D2241 or ASTM D1785 for standard dimensions, as applicable. Testing shall be in accordance with the referenced AWWA standards for all pipe types.
 - 2. Pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
 - 3. Pipe shall be manufactured in a standard 40' nominal length, or custom lengths as specified and shall be blue in color for potable water use.
 - 4. Pipe shall be marked as follows:
 - a. Name and/ or trademark of pipe manufacture, nominal pipe size and dimension ratio.
 - 5. Pipe shall be as manufactured by Underground Solutions, Inc.

PART 3 EXECUTION

3.01 GENERAL

- A. Materials shall not be distributed on the job faster than can be used to good advantage. Sites shall be maintained clean and safe at all times. The Contractor shall supply all necessary signing and flagging to provide for a safe working environment.
- B. Remove from the job site material which, according to the judgment of the Engineer or Landscape Architect, is damaged beyond repair or otherwise has been rejected. Payment will not be made for damaged or rejected materials, their removal, or for repairs to such materials.
- C. Excavate and prepare trench as specified in Section 02315. Place any required foundation stabilization and compact pipe bedding prior to laying pipe.

3.02 PIPE INSTALLATION

- A. PVC pipe shall be installed and handled in accordance with the JM Eagle Blue Brute Installation Guide, the Uni-Bell Uni-PUB-09, and these specifications. The Contractor shall have on site all proper tools and equipment to properly and safely install the pipe.
- B. Properly prepare trench and trench bedding. Do not construct trench in a manner which requires bending of the pipe. Utilize fittings rather than bending pipe.
- C. Provide concrete thrust blocking at all bends, valves, tees and other fittings in accordance with the Plans, as required to prevent movement due to thrust.

- D. Prior to lowering pipe into the trench, the Engineer or Landscape Architect will check for damage to the pipe. The Contractor shall repair or replace, as directed, all damaged or flawed pipe prior to installation.
- E. Thoroughly clean inside the pipe before laying. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Keep debris, tools, rags or other materials out of the pipe at all times. When pipe laying is not in progress, cover the exposed end of the pipe using a watertight expanding plug, or by other approved means to prevent entry of trench water or other foreign materials into the pipe.
- F. Lay pipe with bell ends facing the direction of laying. For lines on an appreciable slope, face bells up-grade unless otherwise directed by the Engineer or Landscape Architect.
- G. At no time shall pipe be deflected, either in the vertical or horizontal plane, in excess of the maximum deflection recommended by the pipe manufacturer. Maximum deviation from grade shall not exceed ½-inch. No deflection is allowed at push-on joints.
- H. Where new water pipe is installed near existing or new sanitary sewer lines, all provisions of current OAR 333-61-050 (Crossings – Sanitary sewers and waterlines), regarding placement of pipe near, under, or over sanitary sewer lines shall be followed.
- I. When existing water service lines are in direct conflict with the new waterline improvements and appurtenances and minor field revisions in the alignment and grade of the new improvements cannot avoid direct conflict then existing service lines shall be temporarily adjusted to allow for the proposed improvements.
- J. Existing driveway culvert pipes or other drainage structures that are removed for ease of construction shall be replaced with the same pipe size without additional cost to the Owner. Existing pipe may be reused if not damaged and approved by the Engineer or Landscape Architect.
- K. Cutting of pavement for service line placement shall be kept to a minimum; Contractor shall minimize impact to existing roadway surfaces. All 1-inch service lines shall be pushed under existing pavements. Exceptions must be approved by the Engineer or Landscape Architect.
- L. Pipe Jointing
 - 1. Thoroughly clean the ends of the pipe to remove all foreign matter from the pipe joint. Lubricate the bell and spigot ends with NSF approved pipe lubricant, as recommended by the manufacturer.
 - 2. Furnish the gaskets required for the joint being assembled. Install the gasket with uniform tension around the joint groove before placing the pipe in the trench.
 - 3. Solvent weld joints shall be installed according to ASTM D2855-90.
 - 4. No deflection is allowed at pipe joints.

3.03 HDPE PIPE INSTALLATION

- A. Fusion
 - 1. Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and

shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and an interfacial fusion pressure of 75 PSI. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.

2. Mechanical joining will be used where the butt fusion method cannot be used. Mechanical joining will be accomplished by either using a HDPE flange adapter with a Ductile Iron back-up ring or HDPE Mechanical Joint adapter with a Ductile Iron back-up ring. Method of mechanical joining shall be as indicated on the Plans.
 3. Socket fusion, hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.
- B. Inspection – Inspect the pipe for defects before installation and fusion. Defective, damaged or unsound pipe will be rejected.

3.04 FILLING AND FLUSHING

- A. After installation of water piping, fill pipes slowly while venting all air. Fill with potable water at a maximum rate to maintain 2 fps or less. Take all required precautions to prevent entrapping air in the pipes. Flush all sections of pipe to remove any solids or material that may be in the pipe. If no hydrant is installed at the end of the main, provide a tap large enough to develop sufficient flow rates to achieve a velocity between 3 to 5 feet per second in the main. Control and dispose flushing water in a proper manner to avoid erosion, flooding, property damage, and discharge of chlorinated water in an unacceptable manner.
- B. All waterlines shall be flushed as specified herein as to remove any foreign material. The contractor shall provide all fittings and backflow preventions as required to perform the flushing.
- C. In addition to flushing, all waterlines six (6) inches and larger the Contractor may elect to “Pig” the waterlines as specified herein to remove any foreign mater.
1. “Pigging” shall be accomplished prior to hydrostatic testing and disinfection.
 2. A minimum of three (3) pigs shall be flushed through the waterlines. The Contractor has the option of running all three pigs at the same time or running the pigs one at a time. Identify individual pigs if all three pigs are to be ran simultaneously.
 3. Pigs shall be polyurethane form as manufactured by Knapp Poly Pig, Inc. or as approved by Engineer or Landscape Architect.
 4. It shall be the responsibility of the Contractor to flush the pigs through the waterlines and retrieving pigs after the test. If one or more pigs fails to run the complete length of the waterline, Contractor shall be responsible for retrieving the pigs and repeating the test.

5. Contractor shall provide erosion control as required to prevent damage to surrounding vegetation and existing ground.
6. The Contractor shall re-pig the waterlines as required if after pigging and disinfection of the treated waterlines, the bacteriological test fails.
7. Contractor shall notify Engineer or Landscape Architect and Owner a minimum of 24-hours prior to pigging the waterlines. Engineer or Landscape Architect can require waterlines to be re-pigged if excessive foreign material is encountered during pigging.
8. The contractor shall be required to temporarily remove and replace any reducers, pipe spools and fittings as required placing and removing pigs for the flushing.

3.05 PRESSURE TESTING

- A. Hydrostatic pressure testing shall be conducted after the waterline has been flushed.
- B. All waterlines and service lines shall be subjected to hydrostatic pressure testing. Testing shall be conducted by the Contractor in the presence of the Engineer or Landscape Architect or Owners representative. Engineer or Landscape Architect and Owner shall be notified at least 2 working days in advance.
- C. Testing shall not be commenced until all thrust blocking has been in place for not less than 5 days and sufficient backfill has been placed to prevent pipe movement.
- D. Furnish and operate all pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test. Provide certifications of accuracy for gauges from an approved laboratory when requested.
- E. Perform pressure testing with hydrant auxiliary gate valves open and pressure against the hydrant valve. After the pipe test is completed, test each gate valve in turn by closing it and relieving the pressure beyond. This test of the gate valve is acceptable if there is no immediate loss of pressure
- F. All visible leaks on new waterlines shall be repaired, regardless of the amount of leakage.
- G. Test Procedure – Rigid Piping (PVC, D.I.)
 1. The test section shall be slowly filled with water and all air expelled from the pipe prior to testing. Owner will provide water for testing at a time of day when sufficient quantities of water are available for normal system operation.
 2. All valves isolating the test section shall be securely closed and the specified test pressure applied by means of a pump connected near the lower end of the test section.
 3. The test pressure shall be 150 psi and the duration shall be at least 2-hours at the test pressure. Provide additional pumping during the test period to continuously maintain pressure within 5 psi of that required (PVC and D.I. pipe only). Use a clean container of potable water to supply the pump.
 4. Accurately determine the quantity of water required to maintain and restore the required pressure at the end of the test by pumping through an approved positive displacement water meter.

5. The allowable leakage rate for the test section shall be determined from the following formula: $L = \frac{SD\sqrt{p}}{148,000}$
 - a. L = allowable leakage (gph)
 - b. S = length of pipe being tested
 - c. D = nominal diameter of pipe (inches)
 - d. p = average test pressure during test (psi)
6. Compare the amount of water added during the test to the allowable leakage for the test section. If the amount of water added is less than the allowable leakage, then the section shall be considered to have passed hydrostatic testing and the Contractor may proceed with disinfection. If the amount of water added to the section exceeds the allowable leakage, the Contractor shall, at his own expense, determine the source of leakage, repair or replace the defective elements, and repeat the test until the pipeline withstands the test pressure and the allowable leakage requirements have been satisfied.

H. Test Procedure – Non-Rigid Piping (HDPE)

1. Conduct per ASTM F 2164. The test section shall be slowly filled with water and all air expelled from the pipe prior to testing. Owner will provide water for testing at a time of day when sufficient quantities of water are available for normal system operation. Procedure involves an initial expansion, and test phases.
2. All valves isolating the test section shall be securely closed and the specified test pressure applied by means of a pump connected near the lower end of the test section.
3. Apply initial pressure of 160 psi and allow to stand for 3 hours to allow for diametric expansion or pipe stretching to stabilize. Add make-up water as required to maintain the pressure for the 3-hour period.
4. After this equilibrium period, apply the specified test pressure and turn the pump off.
5. The test pressure shall be 150 psi and the duration shall be at least 1 hour at the test pressure. If after the 1-hour test period the pressure remains steady (within 5%), leakage is not indicated.
6. If leaks are discovered, depressurize the test section before repairing leaks. Correctly made fusion joints do not leak. *Leakage at a butt fusion joint may indicate imminent catastrophic rupture. Depressurize the test section immediately if butt fusion leakage is discovered.* Leaks at fusion joints require the fusion joint to be cut out and redone.
7. Depressurize test section of pipe and conclusion of testing period by utilizing a controlled release of the testing liquid. If the test is not completed due to leakage, equipment failure, or for any other reason, that section of line being tested shall be depressurized completely and allowed to relax at least eight (8) hours before pressurizing the test section of pipe.

3.06 DISINFECTION

- A. All potable water distribution lines installed or modified under this Contract shall be sterilized prior to connection to the existing system, in accordance with the following

procedure, AWWA Standards C651 through C654, and current OAR 333-61-050 (Disinfection of Facilities).

- B. Flushing and passing hydrostatic testing must be accomplished prior to disinfection.
- C. The Contractor shall have the option of utilizing either a liquid chlorine gas-water mixture, direct fed chlorine gas, or a calcium hypochlorite and water mixture for disinfection.
- D. Disposal of chlorinated water from the pipelines shall be performed in conformance with the most recent draft or edition of *Best Management Practices for the Disposal of Chlorinated Water* by the Oregon Department of Environmental Quality. Chlorinated water used for disinfection of waterlines and service lines shall not be directly disposed of into or impair the waters of the State (i.e. lakes, creeks, streams and wetlands).
- E. The Contractor shall provide all equipment, materials, and workmanship required to complete the flushing and disinfection of waterlines and appurtenances. Engineer or Landscape Architect shall be notified 2 working days in advance of planned disinfection procedures.
- F. Disinfection Procedure
 - 1. The Contractor shall inject chlorine solution into the waterline. Solution shall have a free chlorine residual of at least 25 mg/L, but not more than 100 mg/L. All entrapped air shall be discharged from the line and all surfaces shall be wetted. Chlorinated water shall be retained in the pipe for at least 24-hours. A free residual of not less than 10 mg/L shall be found in all parts of the line after the 24-hour period has elapsed.
 - 2. After the 24-hour period, all valves in the mainline shall be operated and all hydrants flushed with a free residual of at least 10 mg/L being found. If the residual concentration within any part of the chlorinated section is found to be less than 10 mg/L, the Contractor shall flush, rechlorinate, and retest all sections until a 10 mg/L minimum residual is obtained.
 - 3. Upon obtaining the minimum 10 mg/L free residual following the 24-hour disinfection period, the Contractor shall flush the section with potable water until the chlorine residual is equivalent to the residual of the existing system water. A minimum of one sample shall then be collected from the pipe for microbiological analysis.
- G. Microbiological Sampling and Analysis
 - 1. The Contractor is responsible for collecting and submitting samples to a certified independent testing laboratory for microbiological analysis.
 - 2. The Engineer or Landscape Architect or District representative shall be present to witness the collection of the water samples for testing. Chain of custody procedures shall be utilized during the collection and transport of samples to the laboratory.
 - 3. The Contractor shall bear all costs associated with the required testing, including laboratory fees, materials required, and transportation costs. The Contractor also shall pay for all additional tests required as a result of failing to meet the bacterial limits.

4. If the results of the microbiological analysis indicates that the water is free of coliform organisms, the waterline may be put into service.
5. If the results of the microbiological analysis indicate that coliform organisms are present, then the waterline shall be flushed, rechlorinated, and retested until a coliform-free sample is obtained.
6. A minimum of one sample from each separable structure or pipeline shall be obtained for analysis. The presence of coliform organisms shall be determined using the Colilert 24-hour test, Method MMO-Mug, or other methods approved by the Oregon State Drinking Water Program.

3.07 CONNECTION TO EXISTING MAINS

- A. New waterlines shall not be connected to the existing system until passing microbiological testing results have been received. A physical break shall be provided (12-inch to 24-inch portion of pipe left out) and shall remain until all tests have passed. Merely leaving a valve closed is not acceptable. After disinfection has been completed satisfactorily, the tie-in may be made. Tie-in fittings and small sections of pipe shall be disinfected as specified below.
- B. Where new waterlines connect to existing lines and the tie-in requires a portion of the new construction to be brought into service immediately upon completion of the tie-in, the new piping and appurtenances shall be disinfected by liberally spraying or brushing on 1% hypochlorite solution (i.e. 1 gallon 5.25% bleach mixed with 4 gallons potable water), waiting 10 minutes, and then thoroughly flushing. This is generally limited to cut-in fittings.
- C. Upon completion of the tie-in, the new piping and appurtenances shall be flushed.

END OF SECTION

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SECTION 02511

LOCATOR WIRE & WARNING TAPE

PART 1 GENERAL

1.01 SUMMARY

- A. This section consists of furnishing all labor, material and equipment, and performing all work required for the burying of an insulated copper conductor wire and plastic underground warning tape in the trench with installed non-ferrous and/or nonconductive (plastic, etc.) water and sewer lines. See the Standard Detail Drawings for trench cross section.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Waterlines
 - 1. Tracer wire shall be No. 12 AWG minimum, solid copper with blue colored insulation. Insulation shall be 0.030-inch thick HDPE designed for direct bury.
 - 2. Underground warning tape shall be 6-inch wide, 4-mil-thick, APWA Standard Blue color, reading "CAUTION – WATER LINE BURIED BELOW."
- B. Sewer Lines
 - 1. Tracer wire shall be No. 12 AWG, solid copper with green colored insulation. Insulation shall be 0.030-inch thick HDPE designed for direct bury.
 - 2. Underground warning tape shall be 6-inch wide, 4-mil thick, APWA Standard Green color, reading "CAUTION – BURIED SEWER LINE BELOW."
- C. Horizontal Directional Drill Installations
 - 1. Tracer wire for HDD installations shall have steel core with copper cladding and HDPE insulation. Insulation shall be 0.045-inch thick. Minimum gage is 12 AWG. Colors shall be as above. Pro-Trace HDD-CCS; Copperhead SoloShot EHS; DURAttrace DD; or approved equal.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Waterlines Wire and warning tape shall be buried the entire length of the trench, placed in accordance with the Standard Detail Drawings, for all nonconductive pipelines.
 - 1. Wire shall be brought to the surface and connected at each valve box and each water meter. Distance between tracer lead access locations shall not exceed 1,000 feet. All joints and/or splices in the wire shall be made with a designed waterproof splice kit. Wire shall be taped to pipe every 5 feet and shall be run straight with a small amount of slack.

2. Warning tape shall be placed over the pipe zone material, approximately 15 to 18 inches below finish grade, in accordance with the Standard Detail Drawings. Lay tape flat and untwisted, centered over the pipe and with wording facing upwards.

B. Sewer Lines

1. Wire and warning tape shall be buried the entire length of the trench, placed in accordance with the Standard Detail Drawings, for all nonconductive pipelines.
2. Wire shall be brought to the surface and connected at each manhole and sewer cleanout. Distance between tracer lead access locations shall not exceed 1,000 feet. All joints and/or splices in the wire shall be made with a designed waterproof splice kit. Wire shall be taped to pipe every 5 feet and shall be run straight with a small amount of slack. Wire shall be routed outside each manhole or cleanout riser. Wire shall be exposed inside all cleanout covers and a minimum of 24" of wire provided. At manholes, pass wire into manhole between concrete grade ring and manhole lid frame and provide a minimum of 24" coiled wire.
3. Warning tape shall be placed over the pipe zone material, approximately 15 to 18 inches below finish grade, in accordance with the Standard Detail Drawings. Lay tape flat and untwisted, centered over the pipe and with wording facing upwards.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Payment for Locator Wire & Warning Tape shall be included within the lineal footage prices for each size and backfill class of pipe to be installed. No additional compensation will be allowed.

END OF SECTION

SECTION 02515

WATERLINE APPURTENANCES

PART 1 GENERAL

1.01 SUMMARY

- A. The work in this Section consists of furnishing all labor, materials, equipment and performing all work necessary for the proper installation of pipe appurtenances indicated on the Plans and/or required for the completion of the proposed waterline improvements.
- B. Pipe appurtenances may include, but are not necessarily limited to the following:
 - 1. Fittings (bends, tees, etc.)
 - 2. Valves and Valve Boxes
 - 3. Concrete Thrust Blocking
 - 4. Service Laterals (including saddles, valves, and other related items)
 - 5. Fire Hydrant Assemblies
 - 6. Blow-off and Combination Air Valve Assemblies
 - 7. Magnetic Master Meter
- C. All water pipe fittings and appurtenances (including rubber gaskets) shall be ANSI/NSF Standard 61 (for potable water service) approved, shall be UL listed and FM approved.
- D. Appurtenance Submittals shall be as specified in Division 1 – Section 01300.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Ductile Iron Fittings
 - 1. Bends, tees, reducers, and all other fittings required for piping systems shall be ductile iron fittings cast with tested and traceable ASTM A536 Ductile Iron, with mechanical joint (MJ), flanged ends (FE), or plain ends (PE), unless otherwise shown in the Drawings.
 - 2. Special note shall be taken of the various end configurations (MJ, FE, PE) of fittings, valves, and other appurtenances as indicated in the Drawings for various installation connections to existing and new materials. Contractor may use full body or compact mechanical joint fittings provided the minimum pressure rating and other specifications are met.
 - 3. All fittings interiors shall be Cement-Mortar Lined and Seal Coated in accordance with ANSI/AWWA C104/A21.4-08 Standard (or latest revision, typical). External finish of all fittings shall be a bituminous coating in accordance with ANSI/AWWA C104/A21.4-08. All coated fittings shall meet the requirements of NSF-61.
 - 4. Fittings shall conform to ANSI/AWWA C110/A21.10-08 Standard (full body), or ANSI/AWWA C153/A21.53 Standard (compact). Fittings up to 24-inch shall be rated at 350 psi. Fittings over 24-inch shall be rated at 250 psi.

5. Mechanical Joints and gaskets for mechanical joint fittings shall conform to ANSI/AWWA C111/A21.11-07 Standard. Furnish with **Cor-Blue** corrosion resistant, high-strength, low-alloy steel T-bolts (conforming to ANSI/AWWA C111/A21.11), which feature a baked-on ceramic filled fluorocarbon resin for additional corrosion resistance. Gasket material shall be vulcanized styrene butadiene rubber (SBR) or ethylene propylene rubber (EPDM) in accordance with ANSI/AWWA C111/A21.11.
6. Flanged fittings shall be faced and drilled to standard 125-pound template per ANSI Class 125 B16.1 Standard unless ANSI Class 250 B16.1 fittings are indicated on Drawings. Flange thickness shall conform to ANSI/AWWA C115/A21.15-05. Flange Gaskets shall be 1/8-inch thick rubber per ANSI/AWWA C111/A21.11 Appendix C, Sec. C.2 with at least (3) three bulb type rings molded into both faces of the gasket. Gaskets shall be full face style with holes for bolts. Flat rubber gaskets and/or thinner are not approved. Adapter flanges are not approved. **All flanged fittings shall be supplied with Cor-Blue low alloy nuts and bolts.**
7. MJ Joint restrainers shall be used for all MJ fittings. Joint restrainers for MJ fittings shall MEGALUG by EBAA Iron or approved equal, joint restrainers shall be designed specifically for pipe material used. Use where shown on the Plans or required by conditions.
8. Bell Restraints shall be ductile iron conforming to ASTM A536 and shall be manufactured by EBAA iron or approved equal.
9. Thrust blocking as specified shall be installed at all fittings.

B. HDPE Fittings

1. Fittings shall be PE 4710 HDPE, Cell Classification of 445574C as determined by ASTM D 3350. Butt Fusion Fittings shall have a manufacturing standard of ASTM D 3261. Electrofusion Fittings shall have a manufacturing standard of ASTM F 1055. Molded and fabricated fittings shall have the same pressure rating as the pipe and shall be tested in accordance with AWWA C 906.
2. Fabricated fittings are to be manufactured using a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the quality control records.
3. Fittings may be fused to pipe when fitting DR is within one DR of the pipe, otherwise flanges must be used.
4. Services and service taps shall be accomplished with electrofusion saddles with brass or stainless steel threaded outlet, electrofusion saddles, or sidewall fusion branch saddles. Mechanical saddles shall not be used.
5. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be used to connect HDPE pipe with other pipe materials. Flanged and Mechanical Joint Adapters shall have a manufacturing standard of AWWA C 906, ASTM D 3261.
6. HDPE Wall Anchor shall be fused to HDPE pipe at concrete wall anchor locations. HDPE wall anchor shall be IPS HDPE wall anchor as manufactured by Performance Pipe; ISCO Industries or approved equal.

C. Couplings – **All couplings shall be supplied with with Cor-Blue nuts and bolts** and other hardware conforming to nuts and bolts specified for flanged fittings. Contractor shall verify outside diameters (O.D.) of pipes to be connected prior to ordering couplings. Supply with standard shop coat enamel coating.

1. Transition, reducing, and straight couplings, 2-inch through 12-inch, shall have cast ductile iron or carbon steel body, and resilient gaskets. TPS Hymax 2000 Series; Romac 501; or approved equal.
2. End caps couplings, 3-inch through 12-inch, shall have cast ductile iron sleeves, end rings and end caps, and resilient gaskets. Smith-Blair 482; Romac EC501; or approved equal.
3. Flange coupling adapters, 3-inch through 12-inch, shall have cast iron body and end ring, and resilient flange and coupling gaskets. Smith-Blair 912; Romac FCA501; or approved equal. Use only where restraint is not required.
4. Flange by mechanical joint (Flg x MJ) adapters, 3-inch through 12-inch, shall have ductile or cast iron bodies and joints conforming to applicable fitting specifications herein. Tyler; Union Foundry Co.; or other approved pipe/fittings manufacturer.
5. Restrained flange coupling adapters shall be MEGAFLANGE by EBAA Iron, or standard flange by MJ adapters with MEGALUG restraint gland.
6. Couplings, ½-inch through 2-inch, for CTS pipe shall be compression type with rubber gaskets. Body shall be at least 3-¾inches long and constructed of galvanized carbon steel, with ASTM A47 malleable iron nuts. Smith-Blair 522; Romac 702; or approved equal.

D. Valves

1. Gate Valves
 - a. Gate valves, 2-inch through 12-inch, shall be iron body, resilient seat, non-rising stem (NRS), rubber encapsulated disc, wedge gate valves with O-ring seals. Valves shall be manufactured to open when the stem is rotated counterclockwise. Provide a 2-inch square operating nut unless otherwise specified. Valve end configurations and sizes shall be as shown on the Plans. All gate valves shall conform to AWWA C509. All valves shall be 200 psi working pressure, 400 psi test pressure.
 - b. Valve body shall have nominal 10 mil epoxy coating inside and out meeting AWWA C550 and certified to NSF 61.
 - c. Buried valves shall be furnished with a cast iron valve box as specified herein, and shall have operators designed for direct bury service. Furnish with a stem extension such that the operating nut is within 18-inches of the ground surface. Furnish hand-wheel operators for all non-buried valves, including valves in vaults.
 - d. Joint materials, nuts, and bolts for mechanical and flange joints shall be as specified in Section 02515-2.01.A.
 - e. Valves shall be as manufactured by M&H style 4067; U.S. Pipe; or approved equal.

2. Butterfly Valves (Buried Service)
 - a. Valves 8-inch and smaller shall be gate valves, 12-inch valves shall be butterfly valves. Butterfly Valves shall be rated for buried service and meet the requirements of the latest revision of Class 150B, AWWA C504. Valves shall have cast iron body, ASTM A126 Class B, resilient Buna-N rubber seat and cast iron disc with stainless steel contacting edge. Shaft shall be 18-8 type 304 stainless steel conforming to ASTM A276. Valve ends shall be mechanical joint or flanged joint as applicable. Furnish with standard 2-inch square operating nut when buried and lever operator where exposed.
- E. Valve Boxes
1. Cast iron valve boxes with PVC extensions shall be furnished and installed with all buried gate and/or butterfly valves. See standard detail drawing.
 2. Valve box shall have a single piece top section and separate cover. Box and cover shall be manufactured from ASTM A48, Class 30 cast iron and shall be rated for H20 traffic loading. Cover shall have "W" or "WATER" formed in the casting.
 3. Box shaft shall be 18-inches long with a 7-inch I.D. and 7½-inch O.D. Top flange of box shall be 12-inches in diameter. Cover shall be 7¾-inch diameter.
 4. A PVC extension shall be placed at the valve extending to within 6-inches of the ground surface. The cast iron valve box is placed over this PVC extension. The PVC section shall be 6-inch diameter PVC, ASTM D3034, SDR35.
 5. Cast iron valve boxes shall be East Jordan Iron Works Catalog No. 3639Z1 18T with 3639A1 cover; Olympic Foundry, Inc. VB-910; or approved equal.
 6. Valve Box for Combination Air Valve Assembly (CAV) – Utilize section of 18-inch diameter ADS N-12 storm drain pipe or equal of sufficient length per Detail Drawing. Lid shall be Ford Meter Box C52 Cast Iron Cover or approved equal. Provide sealant between cover and pipe to prevent dirt from entering interior.
- F. Thrust Blocks and Concrete Anchor Walls – Furnish and place thrust blocks, sized as shown on the Plans. Concrete shall conform to Oregon Standard Specifications Section 00440, Commercial Grade Concrete. Compressive field strength shall not be less than 3,000 psi at 28 days. Maximum aggregate size shall be 1½-inches. Slump shall be between 2 and 4 inches. Thrust blocking shall be placed between undisturbed earth and the waterline fitting to be anchored in such a manner that the fitting is accessible for repair and nuts and bolts are not encased. 6 mil thick plastic sheeting shall be placed between fittings and poured concrete. Thrust blocks shall be neatly formed with plywood. Contractor shall install as required to prevent lateral movement and uplift.
1. Concrete anchor walls shall be formed and centered midway within the walls as shown on the Plans, HDPE wall anchor shall be incorporated into concrete wall anchor.
 2. Reinforcing bars shall be placed as shown in the Detail drawings and Plans and shall be of deformed, billet steel conforming to ASTM A615, grade 60.

3. Adequate spacing shall be provided between the concrete cutoff wall and the nearest fitting to keep all joints, bolts and nuts free of concrete.
4. Concrete shall cure for a minimum of five (5) days prior to hydrostatic testing.

G. Fire Hydrant Assemblies

1. Fire hydrants shall conform to AWWA C502, latest revision, and shall be a breakflange traffic model type. Hydrants shall be of dry top center stem design. Hydrants shall be UL listed and FM approved.
2. Main Valve shall be 5-1/4-inch and barrel shall be 6-inch diameter.
3. Barrel length shall be sufficient for 36 inches of pipe cover, with extensions as required, by hydrant manufacturer. Include sweep-type bottom shoe with 6-inch mechanical joint inlet. Hydrant shall be installed to finish grade, with split safety flange 2-1/2 to 3-inches above adjacent ground or as shown in the Drawings.
4. Hydrant 'split break-away' safety flange and stainless steel snap ring at groundline shall allow for 360-degree rotation of the standpipe for positioning purposes.
5. Hydrants shall have "O" ring seals, rugged main valve, positive drain valve and non-kinking chains. Hydrants shall have bronze seat ring, drain ring, nozzles operating and thrust nuts and upper valve plate.
6. Main valve seat ring removal and extension of the hydrant shall be accomplished without digging.
7. Each hydrant shall be equipped with two 2 1/2 inch nozzles and one 4-1/2 inch steamer (pumper) nozzle. Operating nut shall be ductile iron 1-1/2 inch Pentagon National Standard, counterclockwise opening.
8. Hydrants shall be installed according to Drawings and shall be backed by manufacturer's 5-year warranty on materials and workmanship.
9. Hydrants shall be Fire Hydrant Yellow. Field touch-up will be required if new hydrant is scratched or marred.
10. Hydrants shall be Mueller (Super Centurion).

H. Combination Air Valves (CAV) – Single housing style combination air release and air/vacuum valves, sized as indicated on the Plans, shall be installed at high points along waterlines or at the maximum spacing recommended by the valve manufacturer. Install combination air valve assemblies per Plans and Detail Drawing.

1. Furnish and install combination air valves and complete assemblies, sized as shown on the Plans and/or Standard Detail Drawings. Valves shall be 2-inch with NPT connection unless otherwise shown.
2. All valve materials shall have NSF 61 certification. Body shall be reinforced Nylon with EPDM rolling seal design. Float shall be foamed polypropylene.
3. Valves shall be as manufactured by A.R.I., model D-040; or approved equal.

- I. Blow-Off Assembly – Blow-off assemblies shall be provided at low points along the new waterline routes as shown on the Plans and Detail Drawings.
 - 1. The blow off assembly shall include but not be limited to excavation and backfill, saddle, piping, gate valve and all other items necessary for complete installation as shown on the Plans and Detail Drawings.

- J. Red brass pipe nipples shall be seamless, M.I.P. threaded, rated for 150 psi and conforming to ASTM B43-98 and ASTM B687-99. Bronze fittings shall meet the requirements of ASTM B62-02 with NPT threaded ends conforming to ANSI/ASME B16.15. Type 304 stainless steel is approved alternate material.

- K. Service Saddles (1" – 2" taps on C900 PVC Pipe)
 - 1. Saddles with 1-inch through 2-inch taps, on 4-inch through 12-inch AWWA C900 PVC pipe shall have solid 85-5-5-5 bronze body and nuts per ASTM B62, wide stainless steel band, and Buna-N rubber gasket. Supply with F.I.P. taps. Saddles must be sized properly for pipe furnished on project and have fully factory contoured clamp to provide full support around pipe without distorting pipe, and shall be leak free. Use double strap design for taps over 1-inch. Ford Meter Box Company Style 101BS (202BSD for 1.5" and 2" tap); or approved equal.
 - 2. Corporation stops used with 1-inch through 2-inch F.I.P. tap service saddles shall be ball type, constructed of 85-5-5-5 red brass and shall conform to AWWA C800 with low or no lead composition as required for NSF 61 classification. M.I.P. inlet and pack joint for CTS outlet. Ford Meter Box Company Type FB1100 Ballcorp; or approved equal. M.I.P. inlet and F.I.P. outlet for connection to fittings as required for air valve and blow-off assemblies - Ford Meter Box Company Type FB500-7 Ballcorp; or approved equal.

- L. Service Laterals
 - 1. Service lateral piping, 1-inch through 2-inch (1-inch minimum size allowed), shall be high density polyethylene (PE 3408) pipe conforming to AWWA C901, NSF listed, ASTM 2737 SDR 9, 200 psi rating, standard CTS sizes. Pipe shall be solid blue in color or black with blue stripes. All fittings shall be standard pack joint for CTS tube. Ford Meter Box Grip Joint for CTS and Quick Joint for CTS (or equals) are also acceptable. Stainless steel internal pipe stiffeners as required at each pack joint connection.
 - 2. Meter Stops
 - a. Meter valves used with 1-inch CTS HDPE pipe laterals shall be 85-5-5-5 cast bronze per ASTM B62 conforming to AWWA C800 with low or no lead composition as required for NSF 61 classifications. Angle-style ball valves. Use only ¾-inch valves on 5/8-inch and 5/8x3/4-inch meters and 1-inch valves on 1-inch meters. Pack joint for CTS pipe inlet meter swivel nut outlet. Ford Meter Box Company BA43-3xxW; or approved equal. Contractor shall verify meter outlet size prior to ordering.
 - b. Meter valves used with 1½-inch and 2-inch CTS HDPE pipe laterals shall be 85-5-5-5 cast bronze per ASTM B62 conforming to AWWA C800 with low or no lead composition as required for NSF 61 classifications. Angle-style ball valves or straight ball valve where required. Use only 1½-inch valves on 1½-inch service lines and 2-inch valves on 2-inch

service lines. CTS pack joint inlet by meter flange outlet. Ford Meter Box Company BFA43-xxxW and BF43-xxxW; or approved equal. Contractor shall verify meter outlet size prior to ordering.

3. Couplings

- a. Utilize CTS pack joint couplings with various MIP, FIP ends as required and shown in Detail Drawings. Use straight couplings and 90 degree ell couplings as required and shown in Detail Drawings. Couplings shall be brass conforming to AWWA C800 with low or no lead composition as required for NSF 61 classifications.

4. Water Meters

- a. Utilize existing water meters when reconnecting to new service laterals, except where noted or directed to provide new meters. Meters damaged by construction operations shall be replaced at Contractor's expense. New meters shall be as required by Owner.

5. Meter Boxes

- a. Utilize existing meter boxes when reconnecting to existing meter and box. Use new meter box when relocating water meters and boxes, providing new service, or when otherwise shown on the plans. Boxes damaged by construction shall be replaced at Contractor's expense.
- b. New meter boxes shall be fiber reinforced, light-weight box with inside open dimensions of approximately 12-inch by 20-inch with 12-inch height. Boxes shall be FL12 Fiberlyte with SYN12S reading lid by Oldcastle Precast (Christy).
- c. Larger meter boxes (for 1-1/2" and 2" meters, blow-off hydrant) shall be fiber reinforced polymer body with polymer reinforced concrete ring, 10K rating, interior dimensions of approximately 17-inch by 30-inch by 12-inch height. Boxes shall be WFB1730122A0C by Newbasis. Covers shall be polymer concrete, Newbasis Part # WPC1730C02A0BWM (with hinged reader lid) for meters, and Part # WPC1730A02A0B17 (solid cover) for blow-off. Cover marked with "Water".

N. Magnetic Master Meter and Vault

1. The meter shall be magnetic type (magmeter) complete with flanged metering tube. The meter shall be McCrometer Ultra Mag, Badger ModMag M-Series, or equal.
2. The meter shall be equipped to forward analog signals to measure the instantaneous and total flow of the City's system.
3. Flow range will range from 0 to 1000 gpm for 4" ductile iron pipe.
4. Provide a spool sized to replace the flow meter in-line to allow flowmeter to be removed for service if necessary.
5. Instrument shall be factory programmed and shall include a self-diagnostic test mode, password protected configuration parameters, and a front panel keypad used change display and parameters. The converter shall be compatible with

Microsoft Windows and other software programs with built in terminal communication capabilities through an interface port.

6. The converter shall provide an isolated 4-20 mA output.
7. Grounding ring shall be 316 stainless steel or C-22 tantalum and shall be supplied with meter tube.
8. Install in accordance with manufacturer's instructions at location shown on the drawings and as directed.
9. Maintain upstream and downstream straight pipe runs as indicated in the Plans and as directed by the manufacturer.
10. Install grounding rings and gaskets as required. Ground as directed by manufacturer.
11. Meter vault shall be a pre-cast concrete vault and shall be of solid construction with H20 rating, Old Castle 644-LA vault or equal.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Fitting Installation – Install fittings at the location shown or as directed by the Engineer or Landscape Architect. Comply with AWWA C600. Handle, clean, lubricate and install fittings as specified in the appropriate sections for laying pipe. Where a cut in the pipe is necessary for inserting fittings or closure pieces, cut the pipe mechanically without damaging it or its lining and leave a smooth end at right angles to the centerline of the pipe. Dress and bevel the cut end of the pipe to remove sharp edges and projections which may damage the gasket. Repair all damaged lining and coating to the satisfaction of the Engineer or Landscape Architect. On the pipelines, securely anchor all tees, plugs and elbows as shown or directed to prevent movement due to thrust. Achieve anchorage only by use of approved thrust blocking or approved joint restraint. Maximum deflection at mechanical joints shall be 3 degrees.
- B. Valves – Set valves in the same manner as specified in Section 02510 for pipe. Clean the face of flanges thoroughly before assembling the flanged joint. Insert the gasket and tighten the nuts uniformly around the flange. Align pipe carefully on both sides of the valve before final tightening of the flanges to avoid stressing the valve body. After installation, operate the valve from full open to full closed to ensure proper operation of the valve. Correct any malfunction in the operation of the valve. Test valve joints with adjacent pipeline. Repair any leaks as observed around the valve. Backfill around valves as specified in Section 02510 for pipe.
- C. Valve Boxes – Center valve boxes and set plumb over the operating nut of the valve. Set valve boxes so they do not transmit shock or stress to the valve. Set valve box covers flush with the surface of the finished pavement or such other level as may be directed. Adjust the extensions to the proper length as required for proper installation. Backfill shall be as specified for the connecting pipeline. Correct any misalignment of valve boxes without additional expense to the Owner.
- D. Concrete Thrust Blocking and Anchor Walls
 1. Provide thrust blocking, as shown or directed by the Engineer or Landscape Architect, using concrete as specified. Place the concrete blocking between

undisturbed earth and the fitting to be anchored. The bearing surface shall be sized and located to adequately withstand the applied thrust force. Do not encase pipe joints or fittings with concrete. See the Plans for thrust block configurations.

2. Install concrete anchor walls to secure HDPE pipe in place and allow for connection to new or existing waterlines other than HDPE pipe. Secure flex restraint or wall anchor to HDPE pipe following manufactures recommendations.
 3. Thrust blocks and anchor walls shall not be backfilled for a minimum of 12 hours unless approved by Engineer or Landscape Architect. Contractor shall provide suitable steel plating and pinning as required to cover the thrust blocks and anchor walls until backfill material may be placed.
- E. Service Laterals – Replace existing lateral piping with new specified material of the same pipe diameter, unless otherwise directed.
1. Within asphalt or other paved surfaces open-cut trenching will not be permitted. Laterals shall be bored, pushed or other method preferred by the Contractor that does not require open trenching. Submit lateral installation method for approval prior to commencing.
 - a. Service laterals shall be installed with a 2-inch schedule 40 PVC casing pipe from main tap to meter box. Laterals larger than 1-inch shall have a 3-inch schedule 40 PVC casing.
 - b. Service lines pushed or placed under roadways shall consist of a continuous length of pipe. No splicing, coupling and fusing of the service line underneath the roadway will be allowed unless prior approval has been given by Engineer or Landscape Architect.
 - c. All corporation stops and all other lines being tapped shall use service saddles. Corporation stops shall be tapped at a 45-degree angle to the main and orientated in such a way as to provide adequate room for future operation and maintenance.
 2. Within gravel or other unpaved surfaces, laterals shall be installed in open-cut trenches, or other method preferred by the Contractor and approved by the Owner and Engineer or Landscape Architect.
 3. New laterals shall be installed to replace all existing service laterals along the alignment of new mainlines constructed under this Contract.
 4. Existing service laterals shall be removed from meter box to a point 5-foot from meter box, or greater if required for proper installation of new service lateral. All materials to be abandoned which are exposed during construction shall be removed from the site and disposed of by the contractor. Existing service laterals shall be capped watertight at cut end.
 5. New service laterals shall be “stubbed-out” to any parcels located along new waterline alignments which do not currently have individual water service. See Plans for new service lateral locations. Contractor shall supply new service connection, line and stub to new meter box, City shall supply new water meter to property.

F. Fire Hydrant Assemblies

1. Construction and installation of the hydrants shall conform to applicable provisions of AWWA C600, except where otherwise specified.
2. Hydrants shall be located as shown or as directed to provide complete accessibility. Improperly located hydrants shall be disconnected and reset at the Contractors expense.
3. Hydrant shall be placed on precast concrete base block set on firm, level subbase to assure uniform support. Provide concrete thrust blocking against firm undisturbed native soil.
4. Hydrants shall be carefully placed as to prevent the base blocking from breaking. After hydrant is in place and pipeline connection has been made, place temporary blocks to maintain the hydrant in a plumb position during subsequent work. New hydrants shall be set plumb and solid for acceptable installation.
5. Provide a minimum of 4-cubic feet of drain rock around base of the hydrant. Extend drain rock at least 6 inches above hydrant drain hole.
6. Flush hydrant thoroughly following installation to remove any foreign matter.
7. Provide bollards to protect hydrants where shown on the plans or as directed by the Engineer or Landscape Architect. Install in accordance with detail drawings and provide two coats of epoxy coatings on post to match fire hydrants.

G. Combination Air Release Valves

1. Install in accordance with detail drawings at locations as shown on the Plans and to manufactures recommendations.
2. Air Release Valves shall be located at high points of the system where there is a change from an upward slope to a downward slope. It is essential that a positive grade be maintained between mainline and air valve. Contractor shall field verify and coordinate location with Engineer or Landscape Architect.

H. Blow Off Assembly

1. Install in accordance with detail drawings at locations as shown on the Plans and to manufactures recommendations. All connections to pipes shall have service saddles; service saddles shall be located on the bottom of the pipe.

END OF SECTION

SECTION 02530

GRAVITY SEWER PIPE & FITTINGS

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers gravity sewer pipe materials for sewer mains and service laterals, including fittings, anchors, complete installation and testing as specified or shown on the plans.
- B. All work shall conform to the latest version of the Oregon Standard Specifications (OSS) Part 00400, except as specified herein and shown on the Plans.
- C. Submittals - The Contactor shall provide manufacturer's certification including test results for all piping and related fittings supplied.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All pipe, fittings and appurtenances shall be new and unused.
- B. 4-inch through 18-inch PVC Gravity Sewer Pipe and Fittings
 - 1. Unplasticized polyvinyl chloride (PVC) plastic gravity sewer pipe with integral wall bell and spigot joints for the conveyance of domestic sewage. Pipe shall be colored green for identification as sewer pipe. Pipe shall be furnished in 20-foot laying lengths. Pipe shall meet ASTM D3034 and have an SDR of 35.
 - 2. PVC compounds shall meet the requirements of ASTM D1784, cell classification 12454-B.
 - 3. Bells shall consist of an integral wall section with a solid cross-section rubber ring, factory assembled, and securely locked in place to prevent displacement during assembly. Spigot ends shall be supplied from the factory with beveled ends. Joints shall provide a tight flexible seal meeting the requirements of ASTM D3212. Material used for elastometric seal in push-on joints shall meet the requirements of ASTM F477.
 - 4. All fittings and accessories shall be as manufactured and furnished by the pipe supplier, or approved equal, and shall have bell and/or spigot configurations compatible with that of the pipe. Fittings shall meet the same requirements as the pipe.
 - 5. All fittings and appurtenances required to construct laterals and cleanouts shall be PVC and provided by or approved by the same manufacturer as the sewer piping. This shall include all tees, caps, wyes, couplings and other required fittings.

6. Pipe and fittings shall be Ring-Tite PVC Gravity Sewer Pipe and Fittings as manufactured by Certainteed, Simpson, PW Pipe, J-M Manufacturing Company, Inc.; or approved equal.
- C. Appurtenances
1. Transition couplings and same diameter couplings for new sewer lines, unless otherwise specified, shall be flexible rubber with stainless steel bands. Fernco, or approved equal. Rotate coupling so type and size wording is visible from top to allow for inspection.
 2. PVC pipe connections to concrete manholes shall utilize appropriately sized flexible, watertight seal adapters designed for such use. Adapters shall be tested watertight to a minimum of 10.8 psi during factory testing. Adapters shall be for connections to precast concrete shall be KOR-N-SEAL as manufactured by NPC, Inc.; or approved equal. Adapters for connections at cast-in-place manhole bases shall be made with a rubber waterstop grouting ring. Ring shall clamp to pipe with stainless steel clamp and have waterstop ribs. Waterstop Grouting Ring by Press-Seal Gasket Corp., or approved equal.
 3. Manufactured wyes shall be required for service lateral connections to new mains and lateral reconnections to existing mains where use of saddles is not feasible. Fittings shall conform to subsection 2.01.B. above.
- D. Concrete shall conform to Oregon Standard Specifications Section 00440, Commercial Grade Concrete. Compressive field strength shall not be less than 3,000 psi at 28 days. Maximum aggregate size shall be 1½-inches. Slump shall be between 2 and 4 inches.
- E. Non-Shrink Grout. Grout shall be Sika 212, Euco N-S, Five Star, or approved equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C827. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing. Nonshrink grout shall be placed and packed only with the use of an approved commercial bonding agent. Unused grout shall be discarded after 20 minutes.
- F. Tracer Wire: Provide detectable tracer wire along all non-metallic pipes. See section 02511 for specifications.
- G. Warning Tape. Provide warning tape in trench over installed pipelines. See section 02511 for specifications.

PART 3 EXECUTION

3.01 PIPE INSTALLATION

- A. PVC gravity pipe shall be installed, stored and handled in accordance with the manufacturer's installation guide, the Uni-Bell PVC Pipe Association Installation Guide for PVC Sewer Pipe, ASTM D2321, and these specifications.
- B. Remove material from job site, which in the judgment of the Engineer or Landscape Architect is damaged, not as specified, or otherwise rejected. Payment will not be made for damaged or rejected materials, their removal, or for repairs to such materials.
- C. Preparation of Trench – Excavate and prepare trench for pipe laying to the lines and grades as specified and shown on the Plans. Place any required foundation stabilization

and compact pipe bedding prior to laying pipe. Stabilize trench as required and comply with OSHA safety provisions.

- D. Place and compact pipe bedding material before placing pipe in the trench. Dig depression for pipe bells to provide uniform bearing along the entire pipe length. Thoroughly compact bedding material to prevent future bellies.
- E. Prior to lowering pipe into the trench, the Engineer or Landscape Architect and City representative will check for damage to the pipe. The Contractor shall repair or replace, as directed, all damaged or flawed pipe prior to installation.
- F. Thoroughly clean inside the pipe before laying. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Keep debris, tools, rags or other materials out of the pipes at all times. When pipe laying is not in progress, seal the open end of the pipe with a watertight plug, or by other approved means to prevent the entry of trench water or other foreign materials into the pipe.
- G. Lay pipe with bell ends facing the direction of laying. For lines on an appreciable slope, face bells up-grade unless otherwise directed by the Engineer or Landscape Architect. Thoroughly clean the ends of the pipe to remove all foreign matter from the pipe joint. Lubricate the bell and spigot ends with approved pipe lubricant, as recommended by the manufacturer.
- H. Tolerance. For gravity pipelines, vertical deviation from true grade shall not exceed 0.02 feet (0.24 inch). Horizontal tolerance for deviation from line shall be 0.03125 feet (3/8 inch). Depressions or bellies which create the potential for solids deposition are not allowed.
- I. Care must be taken to ensure the pipe is not moved and the side support fill is not disturbed when moving sheeting or trench boxes.
- J. Place materials in the pipe zone in layers not greater than 6 inches thick and in a manner that equalizes the pressure on the pipe and minimizes stress. As required under the haunches of pipe and areas not accessible to mechanical tampers or to testing, compact with hand methods to ensure thorough contact between the material and the pipe. Before placing the pipe zone material, condition, aerate, or wet the material so that the moisture content of each layer is within minus 4% to plus 2% of optimum moisture content.
- K. Provide proper Backfill Class material as required. Backfill the trench above the pipe zone in successive lifts. Do not allow the backfill to free-fall into the trench until at least 3 feet of cover is provided over the top of the pipe. Modify the compaction as necessary to protect the pipe. Compact each lift to not less than 95% of the maximum density.
- L. All pipes shall be thoroughly flushed with water prior to testing. Removal of water and debris shall be accomplished by exposing the pipe on the low end of the gravity main in each section and pumping water from the trench to the ground surface for disposal. The Contractor shall be responsible for the removal of all debris that enters into the sewer system from construction. All costs associated with removal of such debris shall be the responsibility of the Contractor and result in no additional costs to the Owner.
- M. Service laterals shall be installed at a minimum 2% slope from the mainline or manhole to the connection with the existing lateral from the building, unless otherwise approved by the Engineer or Landscape Architect. Provide couplings for connection to existing service laterals. Coordinate with the property owner, as necessary.

N. Service Lateral Connections

1. Service lateral connections shall include the connection of any new or existing service lateral to the main at locations shown on the Plans. Service laterals shall be connected to the main using new manufactured wyes, as specified. In general, wyes will be used where new laterals are being added along new mains or where existing laterals are being replaced and/or reconnected to the new main.
2. The Contractor shall install new PVC wyes with manufactured bends as shown on the Standard Details. Service lateral piping are to be reconnected within at most three feet of the outside wall of the mainline.
3. The Contractor shall provide a minimum of 1-hour notice or 24-hour notice to any existing user prior to cutting the user's service lateral and thereby disrupting service. Lateral replacement shall be completed within 4-hours or the Contractor will be required to provide bypass pumping for the affected service.
4. The Contractor shall be responsible for all exploratory excavation and/or video inspection necessary to locate service laterals.
5. Service laterals shall be neatly cut at the property line and removed to the point of connection to the mainline. Reconnection to existing lateral piping shall be made using an appropriately sized transition coupling, as specified.
6. Where existing wyes on the sewer main are cracked, broken, or otherwise unusable, the Contractor shall install a new wye and necessary mainline piping in order to provide a watertight connection for the lateral.

- O. After installation and compaction of backfill, all pipe shall be thoroughly flushed and then subject to either hydrostatic or low-pressure air testing. Pipe will also be tested for deflection and will be video inspected.

3.02 MANHOLE CONNECTIONS

- A. Where shown on the Plans or directed by the Engineer or Landscape Architect, the Contractor shall connect new sewer piping to existing manholes.
- B. Core drill the manhole wall using appropriately sized core drill for the new pipe. Jackhammering will not be allowed. Install pipe in accordance with Section 02535 using KOR-N-SEAL boot or an approved equal.
- C. When an existing manhole has a poured-in-place base or other obstruction at the pipe level and core drilling is not feasible, contractor may jackhammer to provide penetration for new or replacement pipe. Install pipe in accordance with Section 02535 using Waterstop Grouting Ring or an approved equal.
- D. Connections to plastic manholes shall utilize appropriately sized flexible couplings between sewer pipes and preformed pipe stub-outs on the manhole base.
- E. Install flexible transition couplings on all pipes within 2 feet of the outside walls of manholes. Provide a watertight connection.
- F. Modify the base of the manhole in accordance with Section 02535-3.03.

3.03 PLUG AND ABANDON PIPING/LATERALS

- A. Install an appropriately sized mechanical plug at least 2-feet into the pipe or lateral designated for plugging or abandonment.
- B. Concrete slurry for sealing sewer lines and laterals being abandoned shall consist of 2 sacks of Portland cement per cubic yard of cement sand. Water shall be added at such a ratio as to provide a 4-inch slump.
- C. Concrete slurry shall be packed into the end of the pipe up to the mechanical plug and troweled flush with the end of the pipe.

3.04 DEFLECTION TESTING FLEXIBLE PIPE

- A. Contractor shall conduct deflection tests of sanitary sewer constructed of flexible pipe prior to the wearing surface paving. Conduct the testing by pulling an approved mandrel through the completed piping after backfill and compaction to finish grade is complete. Testing shall be conducted in the presence of the Engineer or Landscape Architect.
- B. Diameter of the mandrel shall be at least 95 percent of the pipe's initial inside diameter. Mandrel shall have at least 6 vanes.
- C. Testing shall be done from manhole to manhole. Pipe shall be thoroughly cleaned and flushed prior to pulling the mandrel. Mandrel shall pass smoothly through the pipe without excessive effort.
- D. Testing shall be conducted not less than 30 days after trench backfill and compaction have been completed. Tests may be conducted sooner if approved by the Engineer or Landscape Architect. The tests may be conducted concurrently with video inspection. If conducted concurrently, pull the mandrel in front of the camera so that the deflection testing is clearly recorded on the video tape unless approved by the Engineer or Landscape Architect.

3.05 LOW-PRESSURE AIR TESTING OF GRAVITY SEWER (per UNI-B-6-98 / ASTM F1417)

- A. The Contractor shall furnish all equipment, materials and personnel required for properly conducting all required low-pressure air testing under observation of the Engineer or Landscape Architect. Pressure gauge shall have 0.10 psi increments and an accuracy of 0.0625-psi. Testing equipment must include a pressure relief device designed to relieve pressure at a maximum of 9 psi and must allow continuous monitoring of the test pressure to avoid excessive pressure. All air used shall pass through a single control valve. Only qualified personnel shall be permitted to conduct the test. The Time Pressure Drop Method shall be used.
- B. Testing shall be performed in the presence of the Engineer or Landscape Architect or a City representative. Testing shall be conducted after backfilling and compaction has been completed to finish grade. Notify Engineer or Landscape Architect at least 2 working days in advance.
- C. Initial Test – A test shall be conducted on the first section of pipe laid by each crew to establish that the pipeline installation is capable of preventing excessive infiltration. The section of pipeline tested shall be at least 300 feet in length. If the test indicates exfiltration exceeding the amount hereinafter specified, all defective materials and/or workmanship shall be corrected and the test rerun until leakage is within the specified limits.

- D. If, in the opinion of the Engineer or Landscape Architect, the water-tightness of the pipe is in question during installation, the Engineer or Landscape Architect may require the Contractor to test the pipe sections in question. Such testing shall not be considered adequate for final pipe testing, performed after the pipe is installed, backfilled, and cleaned. Thereafter all sewer pipe shall be tested as provided herein.
- E. The Contractor may desire to make air tests prior to complete backfilling, for his own purposes; however, acceptance air test shall be made only after installation of all laterals and backfilling has been completed and compacted.
- F. It is extremely important that all plugs, including end of service laterals, be installed and braced such that blowouts are prevented (ex. 250 lbs force is exerted on an 8" plug at 5 psig). Exercise care to prevent excessive pressures. Keep workers out of manholes until pressure is released.
- G. Testing Procedure
1. Immediately following pipe cleaning, the pipe installation shall be tested with low pressure air. Each pipe section between manholes shall be tested. Service laterals from the main to the property line shall be included in the test.
 2. Check the average height of ground water over the pipe invert. The test pressure required below shall be increased 0.433 psi for each foot of average water depth over the pipe (ex. If groundwater is 2.8 feet above pipe invert, add 1.2 psig to test pressures). Method used to determine groundwater depth shall be acceptable to the Engineer or Landscape Architect.
 3. Air shall be slowly supplied to the plugged pipe until internal air pressure reaches 4.0 psi greater than the average back pressure of any ground water that may submerge the pipe. Do not exceed a total pressure of 9.0 psig.
 4. After the internal test pressure is reached, at least two minutes shall be allowed for the air temperature to stabilize. After the stabilization period, disconnect the air supply.
 5. The continuous monitoring pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (greater than average backpressure of any groundwater over the pipe). At a reading of 3.5 psig, or any convenient pressure between 3.5 psig and 4.0 psig (above groundwater pressure), timing shall commence with an accurate stop watch.
 6. Acceptance - The tested section shall be considered acceptable if the required testing time has elapsed before a 1.0 psig pressure drop has occurred. If the pressure drops 1.0 psig before the minimum length of time has elapsed, the air loss rate is considered excessive and the section of pipe has failed the test.
 7. Acceptance criteria is based on an allowable air loss of $Q=0.0015$ cfm per ft^2 of internal pipe surface area less than 625 ft^2 . This results in a total allowable loss of $625Q = 0.94$ cfm. The shortest time (T), in seconds, allowed for the air pressure to drop 1.0 psig is calculated with the following formula:

$$T = 0.085 (DK/0.0015)$$

$K = 0.000419DL$ but not less than 1.0, D = pipe I.D. in inches, and L = length of pipe tested in feet.

8. Contractor shall record and document the testing procedure and results during the testing process. The UNI-Bell “Air Test Data Sheet” or similar approved equal shall be used and submitted to the Engineer or Landscape Architect. Record the diameter (in), length (ft), start and end manhole numbers, time, date, pressure drop, and groundwater level on inspection form.

Pipe ø (in)	T _{min} (min:sec)	L for T _{min} (ft)	T for longer L (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15

Minimum Specified Time Required for 1.0 PSIG Pressure Drop

If no pressure drop (0 psig) has occurred after 1 hour, test may conclude and section passes

9. Service laterals shall be included in test however the length of service laterals may be ignored and the length of main line only used in the above table. If desired, length of service laterals included in test section may be included in the calculation by following the method outlined in UNI-B-6-98 Section 9.4.

3.06 HYDROSTATIC TESTING OF PIPE

- A. Hydrostatic testing may be done in lieu of low-pressure air testing.
- B. Contractor shall provide all hose, temporary piping, approved pipe plugs, tank trucks, and other equipment, labor and material required to make the hydrostatic tests, and shall pay for the water used, unless otherwise approved by the Engineer or Landscape Architect. Testing of the pipe shall be conducted in the presence of the Engineer or Landscape Architect. Testing shall be conducted after backfilling and compaction has been completed to finish grade. Notify Engineer or Landscape Architect at least 2 working days in advance.
- C. Prior to making exfiltration leakage tests, contractor may fill the pipe with clear water to permit normal absorption into the pipe walls; provided however, that after filling the pipe, leakage testing shall be completed within twenty-four (24) hours after filling. When under test, allowable leakage shall comply with the following requirements:

Leakage shall not exceed 0.04 gallons per hour per inch diameter per one hundred (100) feet of sanitary sewer pipe, with a minimum test pressure of six (6) feet of water column above the highest section of pipe (including service laterals), or above the active ground water table, whichever is higher as determined by the Engineer or Landscape Architect. The length of pipe tested shall be limited so that the pressure on the invert of the lower end of the section tested shall not exceed 28 feet of water column, and in no case shall be greater than 500 feet. All service connection footage shall be taken into account in

computing allowable leakage. Test duration shall be at least 2 hours. Methods of imposing the water column and measuring the water loss shall be acceptable to the Engineer or Landscape Architect.

3.07 DEFLECTION TESTING OF FLEXIBLE PIPE

- A. In addition to air or hydrostatic testing, the contractor shall conduct deflection tests of sanitary sewers constructed of flexible pipe. Testing will consist of pulling an approved mandrel through the completed pipeline after backfill and compaction to finish grade is complete. Testing shall be conducted in the presence of the Engineer or Landscape Architect.
- B. Diameter of the mandrel shall be at least 95% of the pipe internal diameter. Mandrel shall have at least 6 vanes.
- C. Testing shall be done from manhole to manhole. Pipe shall be thoroughly cleaned and flushed prior to pulling the mandrel. Mandrel shall pass smoothly through the pipe without excessive effort.
- D. Testing shall be conducted not less than 30 days after trench backfill and compaction have been completed. Tests may be conducted sooner if approved by the Engineer or Landscape Architect. The tests may be conducted concurrently with video inspection. If conducted concurrently, pull the mandrel in front of the camera so that the deflection testing is clearly recorded on the video tape unless approved by the Engineer or Landscape Architect.

3.08 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.

<u>Pipe Size</u>	<u>Depth of Flow</u>
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.

3.09 VIDEO INSPECTION OF GRAVITY SYSTEMS

- A. All gravity sewer lines constructed as part of the project shall be televised and taped at the end of construction prior to acceptance. Taping shall be conducted after all backfill and compaction, but prior to final surface restoration. All pipes shall be thoroughly flushed by the Contractor immediately prior to the video inspection. A 1-inch target ball shall be placed in front of the camera. The video shall be recorded in color on VHS format. Sufficient light shall be provided to show detail. Camera speed shall not exceed 3 feet per second. Camera shall have a swivel head capable of looking up each service connection. A copy of the video tape and a written TV Inspection Report shall be furnished to the Engineer or Landscape Architect. Any sections of sewer pipe not meeting specifications or exhibiting defects shall, at the Contractor's expense, be corrected to meet specification. Repaired sections shall be re-televised. All repairs must be completed before acceptance of the project.
- B. The sanitary sewer lines constructed as part of the project will also be video inspected near the end of the one year warranty period to determine if any defects exist in the system. The warranty video inspection will be conducted during a season of high groundwater as close to the end of the warranty period as possible. The warranty period will continue to be in effect, regardless of duration, until all video recordings are received and approved. All defects in the system will be corrected at the Contractor's expense.
- C. Each lateral connected to the sewer line shall be located by footage. The camera shall stop and view directly into each lateral and pan around the entire lateral connection. Any infiltration sources in the laterals or excessive flow from the laterals or connections shall be noted in the log. Any defects shall be noted in the log.
- D. Television inspection shall start and end at the inside face of each manhole with particular attention given to the first and last two feet of recording to identify any pipe shear condition at the manhole connection.

END OF SECTION

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SECTION 02535

MANHOLES AND APPURTENANCES

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers manholes, frames, covers, adapters, and other manhole appurtenances not specifically paid for in other sections. See Standard Detail Drawings.
- B. All manholes, frames and covers supplied under this contract shall be from the same manufacturer.
- C. Any manhole lids or rings that are salvaged from the Demolition of existing structures shall remain the property of the city and will be salvaged to the city yard as described in Section 02250.

PART 2 PRODUCTS

2.01 MATERIALS

A. Manholes

- 1. Manhole riser sections shall be pre-cast reinforced concrete with a minimum wall thickness of 5 inches, conforming to ASTM C 478. Concrete used in forming the sections shall have a minimum compressive strength of 4000 psi at 28 days. Reinforcing steel shall be Grade 60.
- 2. Manholes shall have precast reinforced concrete bases with shelves, channels and slopes as specified. Precast bases shall have same wall thickness and reinforcement as riser sections.
- 3. Joints between manhole sections as well as base section shall be tongue and groove with an o-ring gasket or approved equal conforming to ASTM C-443. Preformed gaskets shall be Ram-Nek, Kent-Seal No. 2, or approved equal
- 4. Manholes shall have yard permeability tests passing ASTM C497-03 prior to delivery. Manhole steps shall be plastic with 1/2" grade 60 steel reinforcing bars encapsulated with injection molded copolymer polypropylene with serrated surfaces.
- 5. All manhole joints shall be installed with an external joint collar. The joint collar shall be CretexWrap Exterior Joint Sealer as manufactured by Cretex Specialty Products or an approved equal. The collar shall meet or exceed the requirements of ASTM C-877, type II.
 - a. The collar shall consist of a band 9" minimum. The band shall have an outer layer of polyethylene, with a minimum tensile strength of 4000 psi and a minimum tear resistance of 1500 psi, and an under layer of rubberized mastic that is reinforced with a woven polypropylene fabric. Once adhered to the manhole the joint collar will be secured with two 5/8" steel straps. The ends shall overlap at least 6" to provide cover and protection to the steel straps from moisture and rust. Installation shall be in accordance with manufacturers recommendations.

B. Frames and Covers

1. All frames and covers shall be heavy duty, gray cast iron designed for H20 traffic loading. Metal used in the castings shall conform to ASTM A48 Class 30. All castings shall be manufactured true to pattern, uniform in quality, free from blowholes, shrinkage, distortion or other defects. Component parts shall fit together in a satisfactory manner and shall have continuously machined bearing surfaces to prevent rocking and rattling. Castings shall be smooth and well cleaned by shotblasting at the factory.
2. Frames and covers shall have skid resistant surface of raised knobs or indentations. Cover shall be as described in the City's standard details for Sanitary Sewer (S-14) and Storm Sewer (S-6) covers. Non-watertight lids shall have two vent holes.
3. Frames and covers shall be manufactured in accordance with the dimensions shown in the Standard Detail Drawings. Frames shall be Olympic Foundry MH26A, or approved equal. Covers shall be Olympic Foundry MH26S, or approved equal.

C. Manhole Connections

1. Connections to precast manhole sections shall be accurately core-drilled and shall utilize a properly sized flexible rubber boot providing a watertight seal. Adapter shall be factory tested for watertightness up to 10.8 psi. Kor-N-Seal as manufactured by NPC, Inc. or approved equal.
2. Connections to cast-in-place concrete shall be made with a rubber waterstop grouting ring. Ring shall clamp to pipe with stainless steel clamp and have waterstop ribs. Waterstop Grouting Ring by Press-Seal Gasket Corp., or approved equal.

D. Grout

1. Non-Shrink Grout. Grout shall be Sika 212, Euco N-S, Five Star, or approved equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C827. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing. Nonshrink grout shall be placed and packed only with the use of an approved commercial bonding agent. Unused grout shall be discarded after 20 minutes

PART 3 EXECUTION

3.01 MANHOLE INSTALLATION

- A. Prepare native soil and place and compact the crushed rock base to 95% maximum dry density as shown in the Standard Detail Drawings. Backfill material around manholes shall be as specified for trenches in Section 02315.
- B. Concrete base shall be carefully placed on the prepared bedding so as to be fully and uniformly supported at true grade and alignment.
- C. Pipe penetrations shall be core drilled to the appropriate size for each pipe entering or exiting the manhole. Jackhammering will not be allowed. Install appropriately sized KOR-N-SEAL boot on each pipe and apply non-shrink grout to remainder of wall penetration to provide positive seal. Non-shrink grout shall be as specified.

- D. Install transition couplings, per Section 02530, within 2 feet of the outside wall of manholes on all pipes; or, a pipe bell shall be located a minimum of 1 foot to a maximum of 2 feet from the outside wall of manholes.
- E. All flow channels within precast bases shall be constructed of non-shrink grout with a minimum depth of three-fourths ($\frac{3}{4}$) the contributing pipe diameter. Inverts shall be true to line and grade with flow lines having a minimum drop of 0.2 feet from inlet to outlet. Sides of channels shall be troweled smooth to prevent solids deposition. Ledges or benches shall be sloped towards channel to drain. Provide fine broom finish on ledges.
- F. Clean tongue and grooves of base and wall sections, prime and apply joint sealer prior to setting in place. Ensure that joint has fully seated. Use approved flexible joint sealant and same manufacturer's primer. The height of the lowest wall section shall be at least three (3) times the inside diameter of the largest sewer pipe entering the manhole and in no case less than 2-feet. Wall sections shall be plumb vertical.
- G. Use eccentric cone top section for manholes greater than 6-feet deep. Use extension rings in accordance with the standard detail.
- H. Frame and covers shall be installed so that the cover is exposed and flush with the existing surface. In no case will pavement be raised or lowered to meet the grade of installed manhole frames and covers. Where manholes are installed in sloping areas, the grade of the slope shall intersect the top rim of the cover on the uphill side. Manhole frame shall be sealed to the concrete manhole section with a bed of non-shrink grout on either side of bead of flexible joint sealant. In addition, the frame and cover shall be grouted to the outside of the concrete manhole section.
- I. Manhole installations with tilted or otherwise defective bases, wall sections which are not plumb, covers which do not match existing grade properly, or are otherwise not in specification compliance shall be removed by the Contractor and replaced until acceptable.

3.02 MANHOLE VACUUM TESTING

- A. Precast concrete manholes shall be tested in accordance with the following procedure. Manhole installations which fail the testing shall be repaired or replaced until passing results are obtained. If flexible joint sealant is pulled out during testing, it shall be repaired. No payment to the Contractor will be made for such repair and/or replacement.
- B. Testing shall be done in the presence of the Engineer or Landscape Architect. Notify Engineer or Landscape Architect at least 2 working days in advance.
- C. All manholes shall be tested for acceptance after the trench has been backfilled, compaction requirements have been met, road base rock has been installed, paving is complete, and concrete manhole collars have been installed. If manhole has passed test and the castings have later been disturbed, manhole shall be re-tested.
- D. Thoroughly clean all manholes prior to testing. Remove all debris and do not allow foreign material to enter downstream piping.
- E. Contractor shall provide all necessary equipment and personnel to conduct the testing, including vacuum equipment and indicating devices.
- F. Procedure:

1. Plug all pipes entering manhole. Secure all plugs to prevent movement while vacuum is being drawn.
2. Testing shall include the joint between the manhole cone or riser ring(s) and the manhole cover frame.
3. Installation and operation of vacuum equipment and indicating devices shall be in accordance with the manufacturer's specifications and instructions.
4. Withdraw air from the manhole until a measured vacuum of 10-inches of mercury (10" Hg) is established in the manhole interior.
5. Record the time it takes for the vacuum to drop to 9-inches of mercury (9" Hg). Acceptance standards are based on this 1-inch of mercury change in negative pressure. Time measured for the 1" Hg pressure change shall be equal to or greater than the values in the following table:

Vacuum Testing Requirements (minimum test times, seconds)

Manhole Depth (ft)	Manhole Diameter (in)				
	42"	48"	54"	60"	72"
8' or less	17	20	23	26	33
10	21	25	29	33	41
12	25	30	35	39	49
14	30	35	41	46	57
16	34	40	46	52	67
18	38	45	52	59	73
20	42	50	53	65	81
22	46	55	64	72	89

6. Hydrostatic testing of manholes may be allowed. Test shall be in accordance with ASTM C497 as modified here. Test will consist of plugging all inlets and outlets and filling the manhole with water to the rim. Leakage in each manhole shall not exceed 0.2 gallons per hour per foot of head above the invert. Leakage will be determined by refilling to the rim using a calibrated or known volume container. Testing duration shall be at least 2 hours.
7. Testing results shall be recorded on the DEQ form included at the end of this specification.

3.03 MODIFY EXISTING MANHOLE BASE

- A. Modify or reconstruct manhole bases as required by hand forming channels with non-shrink grout to provide smooth flow surfaces from all inlets to the outlet. Non-shrink grout shall be as specified.
- B. All flow channels shall be constructed with a minimum depth of three-fourths ($\frac{3}{4}$) the contributing pipe diameter. Inverts shall be true to line and grade with flow lines having a minimum drop of 0.2 feet from inlet to outlet.
- C. Shape flow channels to conform to connecting pipe surfaces. Ledges or benches shall be sloped towards channel to drain.
- D. Remove all rough sections or sharp edges that might obstruct flow or cause snags.

- E. Form base channels in conformance with the standard detail drawings.

END OF SECTION

Attachment: Manhole Test Record Form provided on following page.

MANHOLE TEST RECORD

Project: _____ Project No. _____
 Contractor: _____ Testing Company: _____
 Witnessed By: _____ (Inspector)

Date	MH No.	Paved? (P or U)	MH Depth	VACUUM				HYDROSTATIC					COMMENTS	
				MH Diam.	Time Req.	Vac. Start	Vac. End	Time Start	Time End	Total Time	Volume Change	Loss (gph)		PASS FAIL

NOTE:

All Adjacent surface restoration will be completed before conducting a sanitary manhole acceptance test, including finish paving and final adjustment to grade. Any test conducted beforehand shall be considered informal and will not count for acceptance.

Vacuum test will be conducted in accordance with latest applicable standards, such as established procedures based on ASTM C1244-93, starting at 10" Hg of vacuum. Vacuum tests will be conducted in accordance with latest applicable standards, such as those listed under APWA 306.3.03B, Vacuum Testing.

Hydrostatic test will be conducted in accordance with the 1990 Oregon APWA standards Specifications for Sanitary Sewer Construction, Section 306.03. Manholes shall be filled to a mark on the iron frame at the start of the test, or to the rim of the frame.

SECTION 02630

STORM DRAIN PIPING & FITTINGS

PART 1 GENERAL

1.01 SUMMARY

- A. This item shall include furnishing and installing of the storm drain piping and fittings as required for replacement as identified on the Plans.
- B. The Contractor shall provide manufacturer's certifications, including test results for all piping, fittings and appurtenances supplied. All submittals shall be in conformance with the requirements of Section 01300.
- C. All work shall conform to the latest version of the Oregon Standard Specifications (OSS) Part 00400, except as specified herein and shown on the Plans.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All pipe, fittings and appurtenances shall be new and unused.
- B. PVC Pipe and fittings for storm drain piping shall conform to Class 12454-B, as defined in ASTM D1784. Pipe and fittings shall meet the requirements of ASTM D-3034 for 4" – 15" pipe SDR 35 and ASTM F679 for 18" – 36" pipe SDR 18. Neoprene gaskets with push on joints shall conform to ASTM F477.
 - 1. All fittings and accessories shall be as manufactured and furnished by the pipe supplier or an approved equal and shall have bell and spigot configurations compatible with that of the pipe. Fittings and accessories shall have the same requirements as the pipe.
- C. Non-Shrink Grout. Grout shall be Sika 212, Euco N-S, Five Star, or approved equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C827. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing. Nonshrink grout shall be placed and packed only with the use of an approved commercial bonding agent. Unused grout shall be discarded after 20 minutes.

PART 3 EXECUTION

3.01 PIPE INSTALLATION

- A. All pipe and fittings shall be installed in accordance with the manufacturer's recommendations and APWA standards.
- B. Remove from job site material, which in the judgment of the Engineer or Landscape Architect is damaged, not as specified, or otherwise rejected. Payment will not be made for damaged or rejected materials, their removal, or for repairs to such materials.

- C. Preparation of Trench – Excavate and prepare trench for pipe laying to the lines and grades as specified and shown on the Plans. Place any required foundation stabilization and compact pipe bedding prior to laying pipe. Stabilize trench as required and comply with OSHA safety provisions.
- D. Place and compact pipe bedding material before placing pipe in the trench. When applicable, dig depression for pipe bells to provide uniform bearing along the entire pipe length. Thoroughly compact bedding material to prevent future bellies.
- E. Install to lines and grades shown on the Plans. Maximum deviation shall not exceed 0.05 feet vertically.
- F. Prior to lowering pipe into the trench, the Engineer or Landscape Architect or City representative will check for damage to the pipe. The Contractor shall repair or replace, as directed, all damaged or flawed pipe prior to installation.
- G. Thoroughly clean inside the pipe before laying. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Keep debris, tools, rags or other materials out of the pipes at all times.
- H. Lay pipe with bell ends facing the direction of laying. For lines on an appreciable slope, face bells up-grade unless otherwise directed by the Engineer or Landscape Architect. Thoroughly clean the ends of the pipe to remove all foreign matter from the pipe joint. Lubricate the bell and spigot ends with approved pipe lubricant, as recommended by the manufacturer.
- I. Care must be taken to ensure the pipe is not moved and the side support fill is not disturbed when moving sheeting or trench boxes.
- J. Place materials in the pipe zone in layers not greater than 6 inches thick and in a manner that equalizes the pressure on the pipe and minimizes stress. As required under the haunches of pipe and areas not accessible to mechanical tampers or to testing, compact with hand methods to ensure thorough contact between the material and the pipe. Before placing the pipe zone material, condition, aerate, or wet the material so that the moisture content of each layer is within minus 4% to plus 2% of optimum moisture content.
- K. Provide proper Backfill Class material as required. Backfill the trench above the pipe zone in successive lifts. Do not allow the backfill to free-fall into the trench until at least 3 feet of cover is provided over the top of the pipe. Modify the compaction as necessary to protect the pipe. Compact each lift to not less than 95% of the maximum dry density.
- L. In areas where cover over the top of storm drain pipe is 24" or less, Class E (slurry) backfill shall be used per Section 02315.

3.02 VIDEO INSPECTION OF GRAVITY SYSTEMS

- A. All gravity storm drain lines constructed as part of the project shall be televised and recorded at the end of construction prior to acceptance. Recording shall be conducted after all backfill and compaction, but prior to final surface restoration. All pipes shall be thoroughly flushed by the Contractor immediately prior to the video inspection. Recording shall be per section 02635. Any sections of storm pipe not meeting specifications or exhibiting defects shall, at the Contractor's expense, be corrected to meet specification. Repaired sections shall be re-televised. All repairs must be completed before acceptance of the project.

- B. The storm drain lines constructed as part of the project will also be video inspected near the end of the one year warranty period to determine if any defects exist in the system. The warranty video inspection will be conducted during a season of high groundwater as close to the end of the warranty period as possible. The warranty period will continue to be in effect, regardless of duration, until all video recordings are received and approved. All defects in the system will be corrected at the Contractor's expense.

END OF SECTION

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SECTION 02631

CATCH BASINS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the furnishing and installing catch basins including curb inlets, drop basins, and ditch inlets. Catch basins shall conform to the type as shown on the Plans and shall include frames and grates.
- B. Catch basins shall be precast unless specified otherwise or as approved by the Engineer or Landscape Architect. Catch basins shall conform to the sizes, dimensions and locations as shown on the Plans.
- C. Minor revisions in the new catch basins may be required to allow for adjustment of new drain pipe grades. The Contractor shall field verify pipe penetrations and dimensions (height) required and shall not be entitled to any additional compensation for revising precast catch basins to allow for minor field revisions.
- D. Contractor shall provide submittals for precast structures including manufacturer's drawings and installation instructions.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Catch Basins
 - A. Catch Basins
 - a. Drop inlets shall be type G-2 per ODOT Standard Drawings.
 - B. Curb Inlets
 - a. Curb inlets shall be CG-3 per ODOT Standard Drawings.
 - C. Ditch Inlets
 - a. Ditch inlets shall be per ODOT Standard Drawings.
- B. Grout shall be non-shrink as specified in Section 03600.
- C. Aggregate base material shall conform to Section 02720.
- D. Cast-in-place concrete shall conform to Section 03300.

PART 3 EXECUTION

3.01 GENERAL

- A. All inside surfaces shall be smooth and free of depressions or protrusions. Cast-in-place concrete shall comply with Section 03300.
- B. Connecting pipe shall be placed the full thickness of wall and flush with inner face. Place pipe at the required grade and alignment. Connect pipe to each catch basin and area drain with grout as required for water tight joints.
- C. Precast cast basins and area drains shall be installed per manufacturer's recommendations.
- D. Aggregate base material shall be compacted to at least 95 percent of maximum density as determined by AASHTO T-99. Unless otherwise shown, depth of base material shall be a minimum of 6-inches.

END OF SECTION

SECTION 02635
VIDEO INSPECTION

PART 1 GENERAL

1.01 SUMMARY

- A. This item shall include video inspection of the installed storm drain lines.

PART 3 EXECUTION

2.01 PIPE INSTALLATION

- A. When all storm drain work has been completed and inspected, except as otherwise noted herein, the Contractor shall notify the Engineer in writing two working days in advance of the date for television inspection. The Engineer or their authorized representative shall be given the opportunity to be present during the inspection. Upon receipt of the completed televising inspection video discs and written logs, the Engineer requires ten working days to review the video records and logs before giving written notice of acceptance and/or deficiencies of the lines to the Contractor.
- B. The Contractor shall supply plans and specifications for this work to the televising contractor and any other information required to facilitate the work.
- C. During this inspection, the Contractor shall be present to observe the televising inspection. Acceptance of any portion of the storm drain work shall not be given in the field at the time of televising.
- D. The Engineer shall only receive video and written logs for areas not known by the Contractor to need correction. If while conducting the initial television inspection in the field the Contractor discovers areas that need correction, these corrections shall be made and the area televised again prior to submitting the logs to the Engineer for review. If footage of video that is not required for inspection, such as areas known to need repair, stationary video footage in storm drain lines other than where required, the submittal will be rejected.
- E. The televising contractor is responsible for all stuck, broken, or lost equipment and any damage to storm drain facilities due to their operations and shall bear all necessary costs to retrieve or replace said equipment and make required repairs to storm drain facilities.
- F. Any damage to facilities or obstruction to service caused by the televising operations shall be corrected immediately by the Contractor at no cost to the City.
- G. The Contractor shall obtain Engineer approval prior to the removal of any manmade or natural obstruction needed to complete this work. Any item removed shall be replaced in kind, to the satisfaction of the Engineer, by the Contractor at no cost to the City.
- H. Approved source of water shall be discharged into the upstream manhole or mainline cleanout until water flows out of the downstream manhole. This is to be done no more than 24 hours before the video inspection takes place. High pressure flushing of the line is not to be considered as a substitute for this requirement. This shall be done to ensure that all dips or sags are filled before televising. If the storm drain has live flow, the Engineer may waive this requirement. Live flows that are greater than the depth of the gauge shall be temporarily

plugged upstream and bypass pumped to allow for proper televising.

- I. The televising of all lines shall be recorded on a flash drive in a format that can be played on any computer without the installation of special software. The video and written logs shall become the property of the City. Every televised run (manhole to manhole, manhole to mainline cleanout, catch basin lines, and individual laterals) shall be recorded as a separate video file, with the name of the file being the manhole and/or mainline cleanout numbers for the main and the address of the lateral. A lateral file shall consist of both the run from the cleanout to the connection at the main and the run from the cleanout to the connection of the existing lateral.
- J. A pan and tilt color camera shall be used for all video inspection of mainlines and shall be one specifically designed and constructed for such inspections. The camera shall be mounted on adjustable skids or a tractor to keep it in the center of the pipe. Lighting for the camera shall be supplied by a lamp on the camera, capable of being dimmed or brightened remotely from the control panel. The lighting system shall be capable of lighting the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions and shall have a minimum of 330 lines of resolution. The camera equipment shall produce a continuously monitored color picture with the resolution capability to discern small hairline cracks and other minor and major defects in the storm drain line. The camera equipment shall be capable of producing digital still pictures for permanent record as required. The camera shall be self-propelled or pulled by a cable winch from the downstream manhole through the line along the axis of the pipe at a uniform rate of 1/2' per second maximum.
- K. Each pipe run between manholes being inspected may be required to be isolated from the remainder of the line by the use of a line plug to ensure total viewing of the inside periphery of the pipe. Every effort shall be made by the Contractor to televise in the same direction as the flow, especially during live flow conditions. The Engineer must approve any video inspection that goes against the flow.
- L. Televising contractor personnel shall be in constant communication during the televising operation.
- M. The Contractor shall keep a copy of the written logs on-site that clearly shows the exact location, in relation to the starting manhole/mainline, catch basin, outfall, cleanout or lateral cleanout of each following item discovered during the television inspection: infiltration points, lateral locations, cracks, open/pulled joints, roots, broken or collapsed sections, grease, debris, location of dips (starting and ending footage plus depth), and any other discernible features. In addition to the aforementioned items, the video and written logs shall also indicate project name, Contractor name, date, line material and size, length of run, manhole condition and live flow. Measurement for location of defects shall be at ground level by means of a metering device. Markings on the cable or the like which would require interpolation for depth of manhole or lateral cleanout will not be allowed. Measurement meters will be accurate to plus or minus one foot in a thousand and must show on video. A 1" depth gauge pulled or pushed in front of the camera is required for all mainlines up to and including 12". For larger lines, the Contractor shall verify required gauge size with the Engineer or Landscape Architect prior to scheduling the television inspection. Measurement of laterals must be recorded on video and written log from bottom of cleanout to main and bottom of cleanout to connection at existing lateral.
- N. The following conditions shall exist prior to the television inspection:
 - a. All storm drain lines shall be installed, backfilled and compacted.

- b. All structures shall be in place, all channeling complete and all pipelines accessible from structures.
 - c. All other underground facilities, utility piping and conduit shall be installed and accepted by the Engineer or Landscape Architect.
 - d. Mainlines to be inspected shall be balled/high pressure flushed and mandrel tested.
- O. Inspection video shall be clear throughout. Any cloudy, dim, over-bright or unfocused areas during inspection may cause the rejection of the complete video.
- P. Deficiencies revealed by the television inspection shall be repaired by the Contractor at the Contractor's expense to the satisfaction of the Engineer or Landscape Architect. After all required repairs are completed, the areas of repair shall be re-televised at the Contractor's expense.

PART 4 SPECIAL PROVISIONS

3.01 MEASUREMENT AND PAYMENT

- A. Payment for Video Inspection shall be included in the unit price of each utility line requiring it. Prior to final payment, television inspection must be performed

END OF SECTION

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SECTION 02720
AGGREGATE BASE

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes all work necessary for furnishing, placing, compacting and grading aggregate base and gravel shoulder on the prepared surface to the lines, grades, thicknesses and cross sections shown on the Plans or where indicated.

1.02 REFERENCES

- A. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
- B. OSS – Oregon Standard Specifications for Construction, most recent Edition.

1.03 SUBMITTALS

- A. Contractor shall furnish sample of proposed material for visual inspection by Engineer or Landscape Architect and Owner for approval prior to importing to site.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aggregate base course rock shall be 1” – 0 angular crushed rock conforming to OSS Section 00641. Use clean, hard, durable aggregates, reasonably well-graded from the maximum size to dust.
- B. Aggregate base shall conform to OSS Section 00641 or shall be obtained from a source pre-approved by the Owner.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Sequencing and Scheduling –
 - 1. Notify Owner 48-hours prior to any road closures and or disruption to flow of traffic.
 - 2. Notify Engineer or Landscape Architect 48-hours prior to placement of aggregate base to permit inspection.
- B. Excavate to proper subgrade depths or elevations as shown on the Plans or as necessary to provide required thickness of aggregate base.
- C. Preparation of subgrade – Provide a firm sub-grade surface on which aggregate base is to be placed.

1. Subgrade Over Excavation & Replacement – Remove and dispose of any unstable or unsuitable materials as directed by the Owners representative or Engineer or Landscape Architect. Replace any excavated materials with successive lifts of foundation stabilization as directed by the Owners representative or Engineer or Landscape Architect. Grade and compact, as required, to provide a smooth surface that conforms to the surrounding grades.
 2. Sub-grade Compaction – compact exposed sub-grade by wetting or other means until it is firm and unyielding, per OSS 00344.45.
- D. Mixing – Mix to provide a homogeneous mixture of unsegregated and uniformly dispersed materials. Add water or aerate, as necessary, during mixing to achieve optimum moisture content $\pm 2\%$ during placement.
- E. Placement
1. When, in the judgment of the Engineer or Landscape Architect, the weather is such that satisfactory results cannot be achieved, operations shall be suspended. Owner shall not be liable for damages or claims of any kind or description due to the suspension of operations by the Engineer or Landscape Architect.
 2. Aggregate base materials shall be deposited on the sub-grade at a uniform quantity per linear foot so that the Contractor will not resort to spotting, picking up, or otherwise shifting material. Segregation of aggregates shall be avoided and material so spread shall be free of pockets of coarse or fine materials.
 3. Place aggregate base materials such that when compacted and finish graded it will conform to the grades and sections shown on the Plans. Aggregate base materials shall be placed in maximum lifts of 6-inches, or as approved by the Engineer or Landscape Architect. Place each layer in spreads as wide as practical and to the full width of the course before a succeeding layer is placed.
 4. Place shoulder rock materials such that when compacted and finish graded it will match final pavement grade. Shoulder rock materials should be 1 foot wide and depth as needed, or as approved by the Engineer or Landscape Architect.
- F. Compacting and Shaping
1. Aggregate base materials shall be compacted by self propelled, smooth drum, static or vibratory rollers capable of achieving the specified compaction.
 2. Shape and maintain the surface of each layer of aggregate base during compaction operations such the surface of each layer is parallel to the established grade and cross section for the finished surface within 0.05 foot.
 3. Aggregate base materials shall be compacted to 95% maximum dry density as determined by the ASTM D698 test method.
- G. Comply with Section 02321, Compaction Testing.

END OF SECTION

SECTION 02740

HOT MIX ASPHALT CONCRETE PAVEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes furnishing all materials, labor and equipment necessary to construct asphalt concrete pavement to the lines, grades and cross sections shown or established, including one or more courses and overlays. Work shall be performed in conformance with any applicable State, County or City Standards.

PART 2 PRODUCTS

2.01 DEFINITIONS

- A. Hot Mixed Asphalt Concrete (HMAC) – Asphalt concrete is a hot mix of asphaltic cement; well graded, high quality aggregate; mineral filler and additives, as required; plant mixed into a uniformly coated mass, hot laid in on a prepared foundation, and compacted to a specified density.
- B. Oregon Standard Specifications (OSS) – The 2008 Oregon Department of Transportation/APWA Oregon Chapter Standard Specifications for Construction.
- C. ASTM D946 - Standard Specifications for Penetration-Graded Asphalt Cement for use in Pavement Construction; 2009. ASTM D946-09a

2.02 MATERIALS

- A. Unless otherwise specified herein, types, grades, quality and proportions of materials shall conform to specified and/or applicable sections of the current Oregon Standard Specifications.
- B. HMAC shall be Level 3 HMAC, 1/2-inch Dense Graded Mix in accordance with OSS Section 00745.
- C. Asphalt Tack Coat shall consist of CSS-1 or CSS-1h emulsified asphalt (EA) tack coat conforming to OSS 00730.
- D. Base Aggregate shall be as specified in Section 02720 of these specifications.
- E. Joint Sealant:
 - 1. Joint seal shall meet the test requirements of ASTM D244.
 - 2. Joint seal material shall be CRS-1 or CRS-2 and shall meet the requirements of OSS; Section 02710 for Cationic Emulsified Rapid Setting Asphalt

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Unless otherwise specified herein, HMAC shall be mixed, processed, hauled, laid, compacted and finished in accordance with OSS Section 00745.
- B. Notify the Engineer or Landscape Architect at least 48-hours prior to placement asphalt concrete pavement to permit inspection.
- C. When, in the judgment of the Engineer or Landscape Architect, the weather is such that satisfactory results cannot be achieved asphalt concrete paving operations shall be suspended. Owner shall not be liable for damages or claims of any kind or description due to the suspension of operations by the Engineer or Landscape Architect. HMAC shall not be placed when the ambient temperature is below 40° F, or surface is wet or frozen.
- D. Adhere to all applicable State and/or OSHA regulations pertaining to road closure, traffic control, and other related safety precautions.
- E. To provide for the convenience and safety of the traveling public, pavement replacement shall be performed immediately following the completion of backfilling operations. In the event that pavement replacement cannot be performed as such, the Contractor shall maintain the trench backfill on a daily basis, as directed, until pavement replacement has been completed.
- F. Subgrade and aggregate base shall be prepared, compacted and finished in accordance with Section 02720.
- G. Pavement Sawcutting
 - 1. Utility trenches in existing pavement areas shall be sawcut immediately prior to repaving. Sawcuts shall be made a minimum of 12-inches outside the limits of the trench, or to the outer extents of pavement damaged as a result of the Contractor's operations, whichever is greater.
 - 2. Prior to final paving, all sawcuts made for project improvements shall be approached by the City and Engineer or Landscape Architect. Sawcut shall be straight, clean, and free of damage.
- H. Tack Coat Asphalt
 - 1. Contact surfaces of manholes, catch basins, gutters and existing pavements shall be treated with a layer of tack coat asphalt. Do not place on wet surfaces.
 - 2. Joints between existing and new AC pavement shall be filled with tack coat asphalt.
 - 3. Apply tack coat asphalt with a pressure distributor capable of uniformly applying the emulsified asphalt at even heat on variable surface widths up to 16-feet, at readily determined and controlled rates from 0.05 to 0.20 gallons per square yard, and with uniform pressure. Pressure distributor shall include a tachometer, pressure gages, accurate volume measuring devices and a thermometer for measuring temperature of tank contents. Pressure distributor shall be equipped with a positive power asphalt pump and full circulation spray bars adjustable both laterally and vertically. Set bar height for triple lap coverage.
 - 4. Minimum surface temperature at the time of placement of tack coat asphalt shall not be less than 50° F.

5. Tack coat shall only be applied to clean dry surfaces. All loose material should be removed by sweeping, flushing with water or other approved methods.
6. Apply tack coat asphalt at the following rates for the indicated surfaces.

Surface	Application Rate (gallons / yd ²)	
	Undiluted	Diluted 1:1 with Water
New HMAC	0.05 – 0.07	0.10 – 0.13
Oxidized HMAC	0.07 – 0.10	0.13 – 0.20
Milled HMAC	0.10 – 0.13	0.20+

7. Tack coat asphalt shall be at a temperature between 140° F and 185° F as recommended by the manufacturer at the time of application.
8. Do not place HMAC on the tack coat until the asphalt separates from the water, but before it loses its tackiness.

I. Asphalt Concrete Pavement

1. HMAC shall be a minimum of 250° F at the time of placement.
2. Storage of HMAC in silos shall not be permitted.
3. Control of line and grade shall be manual.
4. HMAC shall be covered during hauling if rain or cold air temperatures are encountered any time between loading and placement. HMAC will be rejected if any of the following is observed: mix falls below minimum specified temperature; slumping or separating; solidifying or crusting; absorbing moisture. Rejected loads shall be disposed of at the Contractor's expense.
5. Deposit HMAC from the hauling vehicles so segregation is prevented. HMAC shall not be windrowed.

J. Placement

1. HMAC should be placed using a self-contained, self-propelled paver supported on tracks or wheels that do not contact the mix being placed.
2. When leveling irregular surfaces and raising low areas, do not exceed 2-inches actual compacted thickness on any one lift.
3. Place the mix in the number of lifts and courses, and to the compacted thickness for each lift and course as shown on the Plans. Limit the minimum lift thickness to twice the maximum aggregate size in the mix.
4. The compacted depth of new asphalt concrete pavement on public streets shall be 4-inches, minimum. Asphalt concrete paving for utility trench patches shall be 4-inches, minimum, or shall match the existing paving, whichever is greater. On non-public roads or driveways, match existing thickness, with a minimum thickness of 2-inches. Asphalt concrete pavement in excess of 2-inches thick shall be constructed in multiple lifts of approximately equal thickness. The maximum compacted thickness of any individual lift shall not exceed 2-inches.

5. Pavement shall be placed, shaped, compacted and finished to the grades and cross sections shown on the Plans or established.
6. HMAC shall be compacted using self-propelled steel wheeled static rollers, vibratory rollers, or pneumatic tired rollers capable of achieving the minimum compaction specified. If vibratory rollers are used, they should be specifically designed for compaction of HMAC, have adjustable amplitude and frequency, and be capable of at least 2000 vibrations per minute. Finish rolling should be performed by a static roller or a vibratory roller in the static mode.
7. Asphalt concrete pavement shall be compacted to a minimum of 92% relative compaction with the theoretical maximum density determined by AASHTO T-209. Testing shall be performed at random locations using a nuclear gauge operated in the back-scatter mode. At least one density test shall be performed every 1000 lineal feet on each spread or a minimum of one test each day of production. At least two density tests will be required.
8. No traffic shall come in contact with any newly paved surface until surface has cooled and set sufficiently to prevent marking. The Contractor is responsible for traffic control.
9. Test the top surfaces with a 12-foot long straight edge in conformance with Section 00745.70 of OSS. The finish grade shall have a smooth uniform surface for storm drainage with no low spots that would collect water, causing puddling.
10. Surface of the asphalt concrete after compaction shall be smooth and true to a tolerance of 0.02 foot of the established cross section and grade, conforming to Section 00745.70 of OSS. Any mixture that become loose or broken, mixed with dirt or is in any way defective, shall be removed and replaced with fresh hot mixture which, when compacted, shall conform to the surrounding area. There shall be no sign of roller marks. All cost in correcting defective surfaces shall be borne by the Contractor.
 - a. Tolerances
 - 1) Flatness: Maximum variation of 1/4 inch measured with a 10-foot straight edge
 - 2) Variation from Trued Elevation: Within 1/2 inch.
 - b. Protection
 - 1) Immediately after placement protect pavement form mechanical injury for 7 days or until surface temperature is less than 140 degrees.
 - 2) No traffic shall come in contact with any newly paved surface until surface has cooled and set sufficiently to prevent marking. The Contractor is responsible for this traffic control.
 - 3) After completion of paving, the Contractor shall remove from the site all debris resulting from the Contractor's operation.
 - 4) All costs incurred in the repair of deficiencies or damages shall be borne by the Contractor, and no additional compensation shall be due to the Contractor.

K. Warranty

1. Contractor shall maintain all asphalt concrete paved areas and shall furnish all required materials and workmanship at no additional cost to the Owner for a period of one year following the Owner's acceptance of the complete project.
2. If any newly paved asphalt concrete surfaces settles, cracks, breaks, or becomes otherwise defective within the warranty period as described herein, then the deficiencies or damages in surfacing shall be immediately repaired by the Contractor upon request and in a manner approved by the Engineer or Landscape Architect.
3. All costs incurred in the repair of deficiencies or damages shall be borne by the Contractor, with no additional compensation allowed.

END OF SECTION

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SECTION 02760
PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes all materials and workmanship for durable permanent pavement striping and pavement markings.

1.02 DEFINITIONS

- A. Oregon Standard Specifications (OSS) – The joint Oregon Department of Transportation/APWA Oregon Chapter Standard Specifications for Construction.
- B. ODOT Qualified Products List (QPL) – The Qualified Products List published every six months by the Oregon Department of Transportation, Construction Section.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All markings shall be from the QPL. Parking stalls, centerline pavement and miscellaneous markings shall be painted.
- B. 4" Striping – White and yellow, solid and skip lines shall conform to OSS (2015) Section 00860 with 15 mils wet thickness for each marking application.
- C. Paint shall be reflectorized in type and shall be specifically made for application upon asphaltic concrete surfaces and shall comply with Sections 00860 and 00867 and other related sections of the ODOT Standard Specifications for Construction.
- D. Crosswalks, stop bars, directional arrows and associated markings shall be Thermoplastic and white in color. Thermoplastic pavement markings shall be Type B (preformed fused thermoplastic film) as specified in Section 00867 of the ODOT Standard Specifications for Construction.

PART 3 EXECUTION

3.01 DURABLE PAVEMENT STRIPING APPLICATION

- A. Apply striping to the lines and locations shown on the Plans or as directed. Apply 2 coats.
- B. Lay out a continuous guideline for each line and receive approval from the Engineer or Landscape Architect prior to striping.
- C. Place permanent striping prior to traffic being allowed on the pavement if the pavement has cured sufficiently. If scheduling does not allow placement of permanent striping prior to allowing traffic on the roadway, install and maintain flexible pavement markers until permanent striping is completed.

- D. Apply striping material only when the surface is sufficiently dry, clean and free of contaminants such as surface oils. Some striping materials require the asphalt to cure for several weeks prior to placement.
- E. Place striping parallel and true to line. Place skip stripes so that they are in cycle with existing striping on at least one end of the project. Allowable tolerances for application are as follows:
 - 1. Side to Side – ½ inch on tangents; 1 inch on curves.
 - 2. Length of Skips – 10 feet +/- 2 inches.
 - 3. End to End on Skips – 30 feet +/- 2 inches. Place skips on cycle to a tolerance of 2 inches. A tolerance of 12 inches will be allowed on the first skip of a run, but it shall be on cycle in one skip.
 - 4. Double Lines – Parallel, with a gap tolerance of +/- 3/8 inch.

3.02 FINISHING AND CLEANUP

- A. Protect applied markings from traffic until sufficiently dry to prevent damage or tracking by normal traffic movements. At a minimum, place cones or tubular markers next to all pavement markings, and place barricades at all areas where cross traffic is anticipated.
- B. Remove or repair all unacceptable work and dispose of at the Contractor's expense. Repair or replace unacceptable work immediately if it causes a safety problem. The removed material becomes the property of the Contractor. If additional traffic control is required for removal of unacceptable material, provide it as directed and at no additional cost to the Owner.
- C. Do not open up any work area to traffic that is not adequately striped and suitable for safe driving.

END OF SECTION

SECTION 02770
CURBS & GUTTERS

PART 1 GENERAL

1.01 SUMMARY

- A. The work in this section includes the furnishing of all labor, materials, equipment and performing all work for the placement of new curbs and gutters as shown on the Plans and as required for roadway improvements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete shall be as specified in Section 03300.
- B. Expansion and joint filler shall be ½-inch thick preformed asphalt fiberboard conforming to ASTM D994.
- C. Poured joint sealer for expansion joints shall be polyurethane-base, non-sag elastomeric sealant, and gray in color. Sika Corporation “Sikaflex-1A” or approved equal.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. The dimensions of the curbs and gutters shall conform to the details shown within the Construction Plans.
- B. Curbs and gutters shall be placed on compacted aggregate base of 1”-0 materials; aggregate base shall be in a moist condition. A minimum of 4-inches of compacted aggregate shall be used.
- C. Forms shall have sufficient strength to resist the pressure of the concrete and to prevent leakage. Forms shall extend for the full depth of concrete and shall be adequately braced. Forms shall be cleaned and coated with an appropriate release agent before concrete is placed against them. Face forms shall be removed as soon as possible to permit finishing of face. Front and back forms shall be removed, after concrete has set, without damage to the concrete.
- D. Concrete shall be deposited into the forms without segregation and then tamped and spaded for complete consolidation. Mechanical vibration may also be used.
- E. Joints shall be placed at appropriate intervals for the section replaced. Maximum spacing of isolation joints shall be 50 feet, contraction joints shall be 10 feet all other control joints shall be 15-feet and shall match same spacing as concrete sidewalk.

END OF SECTION

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SECTION 02775

SIDEWALKS, DRIVEWAY APPROACHES AND SIDEWALK RAMPS

PART 1 GENERAL

1.01 SUMMARY

- A. The work in this section includes the furnishing of all labor, materials, equipment and performing all work for the placement of new sidewalks, driveway approaches, and sidewalk access ramps using Portland cement concrete.

1.02 RELATED SECTIONS

- A. Section 02770 Curbs and Gutters
- B. Section 03300 Cast in Place Concrete

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete shall be as specified in Section 03300.
- B. Expansion and joint filler shall be ½-inch thick preformed asphalt fiberboard conforming to ASTM D994.
- C. Poured joint sealer for expansion joints shall be polyurethane-base, non-sag elastomeric sealant, and gray in color. Sika Corporation "Sikaflex-1A" or approved equal.
- D. Handicap accessible ramp grades shall meet ADA Standards.
- E. Aggregate base shall be as specified in Section 02720. If no specific size or grade is noted, furnish either 1"-0 or ¾"-0 as directed by the Engineer or Landscape Architect a minimum of four (4) inches thick.
- F. Truncated Domes (Sidewalk Ramps) with detectable warning surfaces for sidewalk ramps shall be supplied by Armor-Tile, Detectable Warnings systems or other approved equal.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Properly prepare bedding and foundations using appropriate materials and workmanship, depths, widths, and cross sections shown on the plans and details or as directed.
- B. All concrete work shall meet 2024 ODOT ADA Standards.
- C. Contractor shall bear certification to work on ODOT ADA projects.

- D. Bring areas on which structures are to be constructed to established line, and make firm, dry and free of all unsuitable or deleterious materials before placing concrete. Existing concrete surfaces shall be clean and moist at the time of placing new concrete.
- E. Forms shall have sufficient strength to resist the pressure of the concrete and to prevent leakage. Forms shall extend for the full depth of concrete and shall be adequately braced. Forms shall be cleaned and coated with an appropriate release agent before concrete is placed against them. Face forms shall be removed as soon as possible to permit finishing of face. Front and back forms shall be removed, after concrete has set, without damage to the concrete.
- F. All forms shall be checked prior to pour. Provide minimum 48 hours before concrete is placed.
- G. Concrete shall be deposited into the forms without segregation and then tamped and spaded for complete consolidation. Mechanical vibration may also be used.
 - 1. Sidewalks shall be 4-inches thick Portland cement concrete placed on a minimum of four (4) inches of compacted $\frac{3}{4}$ "-0 aggregate base material and shall match existing sidewalks at limits of replacement.
 - 2. Handicap accessible ramps grades shall meet ADA Standards.
 - 3. Residential driveway approaches shall be a minimum of 6-inches thick Portland cement concrete as shown in project Details placed on a minimum of six (6) inches of compacted $\frac{3}{4}$ "-0 aggregate base material.
 - a. No rebar or wire mesh is required for residential driveways.
 - b. Transition flares shall be constructed to the same standards as residential driveway approaches.
 - 4. Commercial driveway approaches shall be a minimum of 8-inches thick reinforced Portland cement concrete as shown in project Details placed on a minimum of six (6) inches of compacted $\frac{3}{4}$ "-0 aggregate base materials.
 - a. Transition flares shall be constructed to the same standards as residential driveway approaches.
 - 5. Scored joints shall be required at 5-foot centers.
 - 6. Protect and keep moist during curing.
- H. Joints shall be placed at appropriate intervals for the section replaced. Joints shall be the preformed filler type and shall be not less than $\frac{1}{2}$ inch wide and placed flush or no more than $\frac{1}{8}$ inch below the concrete surface.
- I. Construct suitable connections between new and existing concrete where existing driveways, walks, and other structures are cut back to permit the new construction or where the new construction abuts existing concrete. Unless shown or directed otherwise, furnish and place minimum $\frac{1}{2}$ inch thick preformed expansion joint filler between new and existing concrete.
 - 1. Between driveways, walks, monolithic curbs and sidewalks, and surfacing, provide expansion joints:

2. Between driveways and concrete pavement.
3. Transversely in walks opposite expansion joints in adjoining curbs and elsewhere so the distance between joints does not exceed 45 feet.
4. Transversely in walks at a distance of 16 feet to 8 feet from the ends of walks which abut curbs.
5. Around poles, fire hydrants, posts, boxes, and other fixtures which protrude through or against the structures.

J. Stairs

1. Provide expansion joints for stairs at the top and bottom landings as shown on the details.

K. Surface Finishing

1. Remove forms, if any, from structures after the concrete has taken its initial set and while the concrete is still green.
2. Repair minor defects with mortar containing one part Portland cement and two parts sand. Do not plaster exposed surfaces.
3. The top and face of the sidewalk shall be true and straight, free from humps, sags, or other irregularities. The surface shall not vary more than $\frac{1}{4}$ inch from the edge of a 12 foot long straightedge laid on the top or face of the structure, except in curves. Contractor shall furnish the straightedge and operate it for testing, if needed.
4. Finish concrete surfaces to smooth and uniform texture by troweling, floating, and cross brooming. Lightly groove or mark surfaces into squares or other shapes to match markings on similar or existing surfaces in the vicinity, as directed.
5. On all sidewalk ramps and accessible route islands, install truncated domes as shown. Place according to the manufacturer's recommendations.

3.02 Curing

1. Cure and protect concrete after placing and finishing.
2. Keep the concrete free from contact, strain, and public traffic for at least seven calendar days, or longer, as directed.
3. Do not apply curing compounds to the designated truncated dome areas of sidewalk ramps and accessible routes.

END OF SECTION

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SECTION 02900

LANDSCAPE RESTORATION & CLEANUP

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers the work necessary to reseed, restore and cleanup the site(s). Work shall include the removal of all construction equipment, rubbish, construction debris, and unused materials of any kind resulting from the project activities.
- B. Site cleanup shall include the cleanup of all pavement surfaces, whether new or existing within the limits of the project and shall include the replacement of any disturbed pavement markings.
- C. Contractor responsible for maintaining landscape restoration until sufficiently established to survive without maintenance or six months, whichever comes first.

PART 2 PRODUCTS

2.01 RESEEDING MATERIALS

- A. Grass seed shall be from blue tag stock and from the latest crop available. Deliver each variety in standard containers labeled in accordance with Oregon State laws and U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Provide with label showing seed variety, percentage of purity, germination, maximum weed content, date of test within nine months of date of delivery, and as set forth in the General Seed Certification Standard by the Oregon State University Certification Board. Mold or other evidence of container having been wet or otherwise damaged will be cause for rejection of each lot of seed. Grass seed may be delivered to the project as a mixture provided each variety of grass seed in the mixture is identified and labeled as specified.
- B. Where imported topsoil is required, provide natural, fertile, friable topsoil, representative of local productive soil, and 90% free of clay lumps or other foreign matter larger than 2-inches in diameter, not frozen or muddy, with pH 5.0 to 7.0, and not less than 3% humus as determined by loss of ignition of moisture-free samples dried at 100° C. Gravel portion (particles larger than 2 mm) shall not exceed 15% of total volume. Topsoil shall be free of quack grass, horsetail and other noxious vegetation and seed. Should such regenerative material be present in the soil, all resultant growth, both surface and root, shall be removed by the Contractor within 1-year of acceptance of the work at no expense to the Owner.
- C. Provide a lime compound of ground dolomitic limestone not less than 85% total carbonates and magnesium, ground so that 50% passes a number 100 sieve and 90% passes a number 20 sieve. Coarser material will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing the number 100 sieve.
- D. Furnish fertilizer in moisture-proof bags marked with weight and the manufacturer's certified analysis of the contents showing the percentage for each ingredient. Furnish fertilizer in a dry condition free from lumps and caking, in granular or palletized form, of standard commercial grade conforming to all State and Federal regulations and to the standards of the Association of Official Agricultural Chemists.

- E. Areas with plants removed should be replanted with elderberry, western hemlock, salmonberry, huckleberry, vine maple, rhododendron and salal according to consultation with CoosWA or approved equal specializing in Coos Watershed native species cultivation for a vegetation plan and plantings supply nursery. The consultation, plan, planting and any other recommendations from CoosWA or approved equal will add no additional cost to the owner.
- F. Provide all other materials required to accomplish the work specified.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. Surface Dressing

1. Slopes, sidewalk areas, planting areas, easements and roadways shall be smoothed and dressed to the required cross section and grade by means of a grading machine insofar as it is possible to do without damaging the work or existing improvements, trees and shrubs. Supplement machine dressing by hand work as directed.
2. Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. Grade all areas true to line and grade as shown or as approved. Where the existing planting is below sidewalk and curb, fill and dress the area to the walk regardless of limits shown. Wherever fill material is required in the planting area, make finished surface high enough to allow for final settlement.
3. Remove and dispose of all excavated or construction materials, equipment, and rubbish of all kinds resulting from the work. Where brush and trees beyond the limits of the project have been disturbed or damaged, remove and dispose of or restore same, as directed, at no expense to the Owner.
4. Clean all drainage facilities such as inlets, catch basins, culverts and open ditches of all excess material or debris resulting from the work, to the satisfaction of the Owner.
5. Clean all pavement surfaces, whether new or existing within the limits of the project. Clean existing improvements such as curbs, gutters, walls, sidewalks, castings for manholes, monuments, water gates, lamp poles, vaults, signs, and other similar installations as approved. Flush the roadway with a pressure type flusher as approved. Hand sweep or flush all sidewalks as directed.
6. Reconstructed and created ditch lines shall be seeded and provided with adequate straw or matting to prevent erosion while vegetation is established.

B. Restoring Planted Areas

1. Hand rake and drag all formerly grassed and/or planted areas leaving disturbed areas free from rocks, gravel, clay, or any other foreign material and ready, in all respects, for seeding. The finished surface shall conform to the original surface, be free draining and free from holes, rough spots, or other surface features detrimental to a seeded area.
2. Plant grass seed only at times when local weather and other conditions are favorable to the preparation of the soil and to the germination and growth of grass. Sow grassed areas evenly with a mechanical spreader at a rate of one pound per 300 square feet, roll with packer to cover seed, and water with fine

spray. Method of seeding may be varied as approved, however, responsibility to establish a smooth, uniformly grassed area will not be waived.

3. The contractor will be responsible for ensuring that the planted area is maturing properly for one-year from when restoration is complete. If the planted area is not self-sustaining after one-year, the contractor will be required to repeat the restoration process.

END OF SECTION

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SECTION 03300	CAST IN PLACE CONCRETE
SECTION 03600	GROUT

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SECTION 03110

CONCRETE FORMWORK AND ACCESSORIES

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Concrete formwork required for all project structural concrete.
- B. Formwork design, placement, proper securing and support, and removal.
- C. Coordination for various wall and slab penetration locations and sizes including sleeve positioning for casting in place.

1.02 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete
- B. Section 03200 – Concrete Reinforcement

1.03 REFERENCES

- A. American Concrete Institute (ACI) 318-11, Chapter 6 – Formwork, Embedded Pipes, and Construction Joints.
- B. ACI 347R-04 – Guide to Formwork for Concrete
- C. ACI Special Publication, SP-4(7th) – Formwork for Concrete

1.04 QUALITY ASSURANCE

- A. The formwork shall be designed for the loads, lateral pressure, and allowable stresses outlined in "Recommended Practice for Concrete Formwork", ACI 347 and for design considerations, wind loads, allowable stresses and other applicable requirements of the local building code. The design and construction of the formwork shall be the responsibility of the CONTRACTOR. Form design shall be certified by a Registered Structural Engineer.
- B. Forms shall be constructed by laborers experienced in concrete formwork erection. Formwork shall be constructed such that the hardened surfaces shall conform to the tolerance limits of ACI 347.
- C. Formwork shall be true in every respect to produce hardened concrete to the required shape, size, grade, and alignment as indicated on the Construction Drawings, and of sufficient strength, bracing, and rigidity to maintain their position and shape under the loads and operations incidental to placing and curing the concrete, as well as other forces resulting from the movement of the forms. The forms shall be mortar-tight at the time concrete is placed in them and shall be so constructed that the surfaces of the finished concrete will be reasonably free from ridges, fins, offsets, or similar defects. Adequate and suitable means for removing the forms without injury to the surfaces or edges of the finished concrete shall be provided.

- D. Resulting work which is not in conformance with applicable contract specifications shall be promptly removed and replaced.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Protect form materials from damage that may affect finish appearance or form stability.
- B. Keep forms clean and free from deleterious materials. Protect form coating to prevent contamination.
- C. Protect form ties from rusting.

PART 2 PRODUCTS

2.01 FORM MATERIALS

- A. Plywood Forms will be grade marked B-B Plyform, Exterior Class 1 and 2 and HDO Medium Density Overlaid Plywood Concrete Form, B-Matte Formquard or equal, conforming to the requirements of U.S. Products Standard PS-1.
- B. Metal Forms will use smooth metal plate free from surface irregularities.

2.02 ACCESSORIES

A. Form Ties

1. Shall be factory fabricated form ties, snap-off type of adequate design to prevent form deflection and concrete spalling upon removal. The permanently embedded portion shall terminate not less than ¾-inch from the face of finished concrete. The permanently embedded portion shall have a waterseal washer located at the approximate center of walls.
2. Breakback Distance: Ties will be placed so that the set back in the concrete is such that the portion of the tie remaining after snap-off and removal of exterior portions is at least 1 inches back from the concrete surface.
3. Do not use wire ties and wood spacers

D. Form Release Agents

1. Form coating will be non-grain-raising and non-staining resin or polymer type that will not leave residual matter on the surface of the concrete or adversely affect bonding to concrete of paint, plaster, mortar, protective coatings, waterproofing or other applied materials. Coatings containing mineral oils, paraffin, and other non-drying ingredients are not permitted. For concrete surfaces contacting potable stored water, the coatings and form release agents shall be completely non-toxic and approved by the EPA for the intended use.

E. Form Joint Caulking

1. Manufacturer and Brand: Sonneborn Sonolac, Dap Acrylic Latex, or approved

E. Chamfer Strips – clear white pine or similar with planed surface against concrete.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ensure that reinforcing steel is properly placed according the spacing and tolerances required, and that proper inspection has been conducted.
- B. Ensure waterstops are installed as required when placed prior to formwork.
- C. Review plans for wall and slab penetrations and imbedded items.
- D. Remove debris and foreign matter from formwork. Clean form contact surfaces. Replace with new material when necessary or when directed.
- E. Remove loose rust and foreign matter from reusable hardware prior to installation into Formwork.
- F. Re-use Forms only when contact surfaces equal original use and forms have been adequately cleaned.

3.02 INSTALLATION

- A. Comply with ACI 318 and ACI 347. Fabricate with facing materials that produce the specified tolerance requirements of ACI SP-4, produce true surfaces and lines, sharp corners, and surfaces free of offsets, bulges, ridges, etc.
- B. Carefully conform to the shapes, lines and dimensions of the drawings. Ensure that edges are chamfered where shown. Form any Surface Indentations shown on the Drawings.
- C. Arrange to provide concrete cold joints as indicated on the drawings. Unless otherwise directed, make contraction, expansion, and construction joints only where shown. Continue reinforcing steel across construction joints which are not indicated to be free moving.
- D. At forms for exposed concrete, fill form panel joints with Form Joint Caulking Compound, and strike compound flush with panel on face adjacent to exposed Concrete, or cover joints with thin, smooth, plastic, pressure-sensitive tape.
- E. At forms for exposed concrete, seal Form Ties against leakage with Form Joint Caulking Compound.
- F. Make form joints tight to prevent leakage. Minimize the number of form joints used.
- G. Ensure that formwork is properly supported, tied, and braced to prevent deflection and maintain shape (see allowable tolerances for formwork).
 - 1. Provide bracing as required to meet load requirements.
 - 2. Protect against undermining or settlement when placed on ground.
 - 3. Anchor as required to prevent upward or lateral Formwork movement during Concrete placement.
 - 4. Locate ties equidistant and symmetrical. Align vertically and horizontally.

- H. Provide Access Openings as required for cleaning and inspection of Forms and Embedded Items prior to placing Concrete. Locate where not exposed to view.
- I. Anchor Bolts: Set with templates to assure accurate bolt positioning
- J. During Concrete placement, in areas where Formwork develops weakness, settlement, or distortion, stop concrete placement, remove placed concrete, and remove or strengthen Formwork.
- K. Reposition to true alignment prior to, during, and after Concrete placement, if necessary.

3.03 ALLOWABLE TOLERANCES FOR FORMWORK

- A. Variation from Plumb: 1/4 inch in 10 feet maximum
- B. Variation of Building Lines: 1/4 inch in any Bay or 20 feet maximum
- C. Variation in Cross-Sectional Dimensions: Minus 1/8 inch; plus 1/4 inch
- D. Variation in Surface Tolerance: 1/8 inch in any 10 feet measured with 10-foot straightedge.
- E. Maximum Deflection of Form facing between Supports: $0.00025 \times \text{Span}$
- F. Wall Locations: Accurately size and locate within 1/8 inch.

3.04 FORM TREATMENT

- A. All forms shall be adequately treated with form release agent to prevent concrete damage during form removal.
- B. Prior to each use: Apply form coating to contact surfaces in accordance with Manufacturer's instructions. Conduct surface preparation in accordance with manufacturer's instructions prior to coating forms.
- C. When treating previously set forms, carefully prevent coatings from covering reinforcing steel, waterstops, imbedded items, or existing concrete.
- D. Prevent coatings from collecting in puddles.

3.05 FORM REMOVAL

- A. Leave forms and shoring in place until concrete has attained sufficient strength to safely support own weight and imposed loads.
- B. Remove forms at time and in manner to insure safety of structure, and without concrete surface damage.
- C. At exposed concrete, form removal time shall be uniform to avoid color differences.
- D. Remove top forms from any sloping concrete surfaces as soon as concrete is self-supporting. Repair and finish, if necessary, and cure immediately.

3.06 CLEANING AND REPAIRING

- A. Including Work of other Trades, clean, repair, and touch-up, or replace when directed, products which have been soiled, discolored, or damaged by Work of this Section.
- B. Remove debris from Project Site upon Work completion, or sooner if directed.

END OF SECTION

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SECTION 03200
CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes reinforcement for concrete including deformed steel bars, welded-wire-fabric, and fiber reinforcement.
- B. Supply, detail shop drawings, and place reinforcement.
- C. Provide reinforcing to the sizes and dimensions shown on the drawings and according to approved shop drawings for rebar placement.

1.02 RELATED SECTIONS

- A. Section 03110 – Concrete Formwork and Accessories
- B. Section 03300 – Cast-In-Place Concrete

1.03 REFERENCES

- A. American Standards for Testing and Materials (ASTM), latest edition
 - 1. ASTM A 615 – Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - 2. ASTM A 185 – Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
 - 3. ASTM A 82 – Specification for Steel Wire, Plain, for Concrete Reinforcement
- B. American Concrete Institute (ACI), latest edition
 - 1. ACI 315-99 – Details and Detailing of Concrete Reinforcement
 - 2. ACI 318 – Building Code Requirements for Reinforced Concrete
 - 3. ACI 408R – Bond and Development of Straight Reinforcing Bars in Tension
 - 4. ACI 439.3R-07 – Types of Mechanical Splices for Reinforcing Bars
- C. Oregon Structural Specialty Code (OSSC) – Adopted Oregon code, 2010 edition or latest revision.
- D. Concrete Reinforcing Steel Institute (CRSI)
 - 1. CRSI Manual of Standard Practice, 1997
 - 2. CRSI Reinforcing Bar Detailing, 1999
 - 3. CRSI 63 – Recommended Practice for Placing Reinforcing Bars
 - 4. CRSI 65 – Recommended Practice for Placing Bar Supports

1.04 SUBMITTALS

- A. Certified Mill Test Reports for steel.
- B. Detail and placement drawings. Submit in accordance with Section 01300 at least 14 days prior to reinforcement fabrication.
 - 1. Reinforcing steel shall be detailed in accordance with the “ACI Detailing Manual” SP-66 (04), ACI Committee 315; CRSI; and in conformance with the project drawings.
 - 2. Shop drawings shall include sufficient plan, section, and elevation drawings of all beams, walls, slabs, footings, columns, and other shapes to clearly show all reinforcement details, spacing, and sizes.
 - 3. Bends, splices, hooks, ties and all other details shall be shown. Drawings shall indicate any fieldwork required.
 - 4. Shop drawings shall show steel specifications and conformances.
- C. Samples of all proposed bar supports with a written description of where each support is proposed to be used.

1.05 QUALITY ASSURANCE

- A. Coordinate with other Trades affecting or affected by Work of this Section.
- B. Bends, hooks, laps, splices, cover, and other details shall conform to OSSC Section 1907; and ACI 318, except where more stringent requirements are shown in the drawings or specified herein.
- C. Perform reinforcement work in accordance with CRSI Documents 63 and 65.
- D. Conduct field measurements as necessary prior to fabrication. Conform to the approved detail and placement drawings.
- E. All materials shall be new, unused, specifically manufactured for the intended purpose.
- F. Any welding shall be conducted by persons with Welder Certification in accordance with AWS D1.4.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered properly bundled and labeled to show grade, size and location. Deformed bars shall be marked with the letter “S” per ASTM A615. Deliver with suitable hauling and handling equipment.
- B. Properly store to protect from moisture. Cover steel with waterproof covering and store so that materials are not against unprotected earth.
- C. Handle material carefully to protect from cuts, nicks, kinks, deformation, and other damage. Ensure worker safety.

PART 2 PRODUCTS

2.01 REINFORCEMENT MATERIALS

- A. Reinforcing Bars for Concrete
 - 1. All structural reinforcement shall be deformed bars.
 - 2. Deformed billet steel; ASTM A 615, Grade 60

2.02 ACCESSORIES

- A. Provide all Accessories necessary for proper Reinforcement placement, spacing, support, and fastening. Bricks, broken CMU, spalls, rocks or similar materials shall not be used for support of reinforcing steel.
- B. Tie Wire: 16-gauge minimum, black annealed steel; acceptable patented system.
- C. Bar Supports, Bolsters, Chairs and Spacers
 - 1. Sized and shaped for strength and support of reinforcement during installation and placement of concrete. Use only approved materials.
 - 2. High density concrete dobies. Compressive strength equal or greater than concrete to be placed. No plastic or low cement content dobies accepted.
 - 3. Chairs: Stainless steel. With plastic tips when used at surfaces that will be exposed to view.
 - 4. Spacers: Plastic wheel type. Preco Barspan Wheels, or approved equal.
 - 5. Plastic Shims may be used to support plastic spacers.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify that surfaces to receive Reinforcement are accurately sized and located, square, plumb, rigid, secure, and otherwise accurately prepared.
- B. Prior to starting Work, notify General Contractor about defects requiring correction.
- C. Reinforcement shall be free from mud, oil or other nonmetallic coatings that decrease bond.
- D. Remove surface rust and mill scale with wire brush. Heavily rusted bars shall not be used.
- E. Do not start Work until conditions are satisfactory.

3.02 PLACEMENT

- A. Perform reinforcement work in accordance with CRSI Documents 63 and 65, and fabricate in compliance with ACI 315.
- B. Conform to approved placement and detail drawings and specified tolerances herein.

- C. Reinforcement shall be accurately placed and adequately supported before concrete is placed, and shall be secured against displacement within the tolerances of this section.
- D. All reinforcement shall be bent cold unless otherwise permitted by the Engineer or Landscape Architect.
- E. Reinforcement partially embedded in concrete shall not be field bent unless approved by the Engineer or Landscape Architect.
- F. Do not weld splices, crossing bars, or other locations.
- G. Splices: Provide bars in full lengths to preclude the need for splices as much as possible. Locate any allowed splices not indicated on the drawings at points of minimum stress. Development length and splices shall conform to ACI 318. At wire mesh, lap one full mesh plus 2-inches. Splices of adjacent bars shall be staggered. Use greater splice lengths where shown in the drawings.
- H. Spacing: Comply with OSSC Section 1907.6, contract drawings, and approved shop drawings.
- I. Protective Concrete Cover: Comply with OSSC Section 1907.7 minimums. Provide greater cover where shown in the drawings.
- J. Bars in slabs shall be supported on well-cured concrete blocks or approved chairs.
- K. Tolerances:
 - 1. Concrete Cover: Plus or minus ¼ inch.
 - 2. Spacing Between Bars: ¼ inch.
- L. Bar relocation to avoid interference with other reinforcement, conduits or embedded items: 1 bar diameter, unless otherwise approved by Engineer or Landscape Architect.
- M. Reinforcement around openings: Unless otherwise shown on the drawings, place at least double the area of steel removed by the opening around the opening and extend on each side sufficiently to develop bond in each bar. At square or rectangular openings, place at least one diagonal bar at each corner.

3.03 PROTECTION

- A. Protect other Work against damage and discoloration caused by Work of this Section.
- B. Protect placed reinforcement from subsequent movement and inclement weather until concrete is placed.

3.04 FIELD QUALITY CONTROL

- A. The Engineer or Landscape Architect or Owner representative shall be notified when reinforcing steel is ready for inspection. Inspection must occur before any concrete is placed.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Payment for Concrete Reinforcement shall be included as a portion of the unit price for any items requiring concrete reinforcement. Payment shall include all labor, materials as required to complete the work described herein. No separate payment for Concrete Reinforcement will be made.

END OF SECTION

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SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes work required to supply, place, finish and cure cast-in-place concrete, including mix design, certifications, and submittals and testing.
- B. Rinsing out of transit mix trucks, washing or wetting of concrete, site cleanup, or other activity related to water at the site shall be in conformance with all EPA requirements for the prevention of water runoff to storm water sewers or creeks.

1.02 RELATED SECTIONS

- A. Section 03110 – Concrete Formwork
- B. Section 03200 – Concrete Reinforcement
- C. Section 02800 – Grouting

1.03 REFERENCES

- A. American Standards for Testing and Materials (ASTM), latest editions
 - 1. ASTM C31 – Standard Specification for Making and Curing Concrete Test Specimens in the Field
 - 2. ASTM C33 – Specification for Concrete Aggregate
 - 3. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - 4. ASTM C94 – Standard Specification for Ready-Mixed Concrete
 - 5. ASTM C143 – Standard Test Method for Slump of Hydraulic Cement Concrete
 - 6. ASTM C150 – Standard Specification for Portland Cement
 - 7. ASTM C231 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
 - 8. ASTM C260 – Standard Specification for Air Entrained Admixtures for Concrete
 - 9. ASTM C309 – Standard Specification for Liquid Membrane – Forming Compounds for Curing Concrete
 - 10. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete
 - 11. ASTM C618 – Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

- B. American Concrete Institute (ACI), latest editions
 - 1. ACI 301 – Standard Specification for Structural Concrete in Buildings
 - 2. ACI 304R – Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
 - 3. ACI 305R – Recommended Practice for Hot Weather Concreting
 - 4. ACI 306R – Recommended Practice for Cold Weather Concreting
 - 5. ACI 309R – Guide for Consolidation of Concrete
 - 6. ACI 318 – Building Code Requirements for Reinforced Concrete
 - 7. ACI SP-15 – Field Reference Manual (*have copy on-site*)
- C. Oregon Structural Specialty Code (OSSC) – 2010 Edition or latest revision.

1.04 SUBMITTALS

- A. Mix design submittals and certificates of compliance shall be furnished at least 30 days prior to any anticipated concrete placement. All submittals must be approved by the Engineer or Landscape Architect prior to placement of any concrete.
- B. Contractor is responsible to obtain design of the concrete mix that shall conform to ASTM C94 and the requirements of this section. Mix design shall be prepared by a professional testing laboratory or concrete mix design professional.
- C. Submit properties of each mix design for each class of concrete including:
 - 1. Average compressive strength of proposed mixture
 - 2. Documentation of strength test results of similar concrete mixtures in accordance with ACI 318
 - 3. Slump
 - 4. Air Content
 - 5. Density
 - 6. Water/Cement ratio
 - 7. Maximum aggregate size
 - 8. Cementitious materials and type
 - 9. Admixtures
- D. Certificates of compliance for aggregate, cement, and admixtures signed by the concrete supplier certifying that materials meet or exceed these specifications.
- E. Concrete placement schedule showing construction joint locations and type, and placement sequence.
- F. Product data for proposed curing compounds, admixtures, hardeners, sealers, etc. to be used.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Conform to ACI 305R in hot weather.
- C. Conform to ACI 306R in cold weather.
- D. Installer Qualifications: Concrete work shall be finished by persons with at least 5 years experience with work of similar scope and quality.
- E. No chloride containing admixtures shall be used.
- F. On-Site water addition to concrete will not be permitted.
- G. Conduct field-testing as specified.
- H. Admixtures shall be added in strict conformance with the manufacturer's instructions.
- I. Manufacturer Qualifications: Concrete supplied from concrete plants with current certification under the NRMCA Certification of Ready Mixed Concrete Production Facilities. Individual with responsibility for concrete mixtures certified as an NRMCA Concrete Technologist Level 2.

1.06 DELIVERY

- A. Concrete shall be scheduled and delivered in a timely manner in accordance with ASTM C94 and ACI 304R. Ensure that forms and reinforcement are complete and ready to accept concrete prior to scheduling delivery.
- B. When installing a continuous pour section, ensure that trucks arrive and concrete is placed with no greater than 45 minutes elapsing between lifts.

PART 2 PRODUCTS

2.01 CEMENTITIOUS MATERIALS

- A. Hydraulic Cement per ASTM C150
- B. Fly Ash: ASTM C618, up to 15% by volume of cement content

2.02 WATER

- A. Water used for mixing shall be clean and potable.

2.03 AGGREGATE

- A. Aggregates shall be natural materials conforming to ASTM C33 as modified herein.
- B. Aggregates shall be nonreactive as defined in ASTM C33 and tested per ASTM C289.
- C. Aggregate shall contain no soil, friable particles, organic matter, or other deleterious materials. Aggregate shall be washed prior to use in the concrete mix.
- D. Aggregates shall contain no chert, limestone, or shale.

- E. Coarse Aggregate:
1. Use coarse aggregate from only one source for exposed concrete in a single structure.
 2. Coarse aggregate shall be smooth, rounded and uniform. No more than 15% shall be elongated (max. dimension 5 times min. dimension).
 3. Coarse aggregate shall be durable, sound and hard.
 4. Maximum Size: 3/4-inch, but not more than one-fifth of narrow dimension between sides of Formwork, one-fourth depth of slab, nor three fourths of narrowest distance between Reinforcing Steel.

- F. Fine Aggregate:
1. Use fine aggregate from only one source for exposed concrete in a single structure.
 2. Fine aggregate shall not exceed 40% by weight of combined aggregate total, except when coarse aggregate maximum size is 1/2-inch or less.
 3. Fine aggregate shall be durable, sound, clean and hard.
 4. Sand Equivalent of 75 minimum per ASTM D2419.

- G. Combined (Coarse and Fine) Gradation per ASTM C136:

US Standard Sieve	% Passing by Weight
1 1/2-inch	100
1-inch	90-100
3/8-inch	45-75
No. 4	33-50
No. 8	28-44
No. 16	23-38
No. 30	10-22
No. 200	0-2

2.04 CHEMICAL ADMIXTURES

- A. General:
1. When two or more admixtures are used, they shall be certified by the manufacturer(s) to be compatible.
 2. Chlorides are not permitted in any form.
 3. Air Entraining and Water Reducer admixtures are required.
 4. All admixtures shall be added at the batch plant, unless otherwise specified.
- B. Midrange Water Reducer:
1. Shall conform to ASTM C494, Type A and F.
 2. Master Builders, Inc. "PolyHeed" Series; or approved equal.

- C. High-Range Water Reducer (Superplasticizer):
 - 1. Shall conform to ASTM C494, Type F or G; and ASTM C1017, Type I or II.
 - 2. Master Builders, Inc. "Rheobuild"; or approved equal.
- D. Air-Entraining Admixture:
 - 1. Shall conform to ASTM C260.
 - 2. Master Builders, Inc. "MicroAir", "MB-AE 90"; or approved equal.

2.05 BONDING AGENT

- A. Required where new concrete is poured against existing concrete, and on embedded items with less than 1½-inches of cover.
- B. 100% solids, two component epoxy bonding compound meeting ASTM C881, Type II, Grade 2, Class B or C materials except as modified herein.
- C. Properties:
 - 1. Bond Strength @ 14 days (ASTM C882) – 1800 psi minimum
 - 2. Tensile Strength @ 7 days (ASTM D638) – 4400 psi minimum
 - 3. Tensile Elongation @ 7 days (ASTM D638) – 1.49% maximum
- D. Master Builders, Inc. "Concresive Liquid PL"; or approved equal.

2.06 CURING COMPOUNDS AND SEALERS

- A. Evaporation Reducer: Spray applied monomolecular film that reduces the rate of surface moisture evaporation, minimizes plastic shrinkage, and does not effect the cement hydration process. Master Builders, Inc. "Confilm"; WR Meadows "Sealtight Evapre"; or approved equal.
- B. Exterior Use Liquid Membrane-Forming Curing Compound: Shall conform to ASTM C309, Type I, Class B and ASTM C1315, Type 1, Class A. WR Meadows "CS-309-25"; or approved equal.
- C. Interior Use Liquid Membrane-Forming Curing Compound: Water-base acrylic curing and sealing compound conforming to ASTM C309, Type I, Class B and ASTM C1315, Type 1, Class A. WR Meadows "Vocomp-25-1315"; or approved equal.
- D. Concrete Sealer: Non-yellowing, acrylic co-polymer solution meeting ASTM C309, Type 1, Class B and ASTM C1315, Type 1, Class A. WR Meadows "TIAH 1315"; or approved equal.

2.07 CONCRETE HARDENERS

- A. Liquid concrete densifier and hardener, chemical resistant, colorless, with 100% active chemicals. WR Meadows "Liqui-Hard"; or approved equal.

2.08 VAPOR BARRIER

- A. ASTM D2103 – Polyethylene Film and Sheeting, 6 mils thickness.

2.09 HIGH-PERFORMANCE CONCRETE MIX

- A. Use: All water-holding structures and adjoining structures, equipment pads, footings, support walls, retaining walls, and others not designated for standard concrete. May be used in place of standard concrete except for interior slabs where a smooth trowel finish is required.
- B. Mix Design Requirements:
 - 1. Cement: Portland Cement, Type II, ASTM C150.
 - 2. Water / Cementitious Materials Ratio: 0.35-0.40 by weight
 - 3. Strength: 4000 psi minimum, ASTM C39
 - 4. Slump before plasticizer: 1.5 to 3-inches, ASTM C143
 - 5. Air Content: 5.5-7% by volume, ASTM C231
 - 6. Water Reducer: High-Range
 - 7. Maximum slump at time of placement: 8-inches (with rheoplastic admixture)

2.10 STANDARD CONCRETE MIX

- A. Use: Sidewalks and walkways, curbs and gutters, reinforced concrete parking areas and other miscellaneous structures
- B. Mix Design Requirements:
 - 1. Cement: Portland Cement, Type I or II, ASTM C150
 - 2. Water / Cementitious Materials Ratio: 0.45-0.50 by weight
 - 3. Strength: 3500 psi minimum, ASTM C39
 - 4. Air Content: 2.5-5% by volume, ASTM C231
 - 5. Water Reducer: Mid or High-Range
 - 6. Maximum slump at time of placement: 5-inches or less

PART 3 EXECUTION

3.01 PREPARATION

- A. Examine all reinforcement, formwork, waterstops, premolded joint fillers, and other embedded items to ensure they are accurately placed, properly secured and cleaned.
- B. Ensure that inspection of reinforcement is complete and installation approved.
- C. Ensure concrete mix design and test certifications have been submitted and approved.
- D. Ensure that all required materials and equipment are on-site and operable.

- E. Ensure that subgrade and base rock are properly placed and compacted. Place vapor barrier and leveling sand at slab-on-grade locations. Sprinkle subgrades and other porous surfaces with water to reduce adsorption.
- F. Apply form release agent to formwork.
- G. Apply bonding agent where required.
- H. Notify General Contractor of work requiring correction. Do not start work until conditions are satisfactory.
- I. Review for various locations to receive different types of concrete mixes.
- J. Notify Engineer or Landscape Architect at least 48 hours in advance of concrete placement.

3.02 CONCRETE PLACEMENT

- A. Comply with ACI 304, ASTM C94, ACI 305R and 306R, and OSSC Section 1905 as required.
- B. Convey and place by methods with will prevent material separation, segregation, and loss. Mix for at least 10 minutes and at least 3 minutes immediately prior to discharging at the job site.
- C. Concrete shall be delivered to site and placed within formwork within 1½ hours after the introduction of water to the mixture.
- D. Deposit concrete continuously or in layers so that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or other planes of weakness. Where seams are unavoidable, provide construction joints as directed.
- E. Do not convey pneumatically placed concrete through aluminum pipe.
- F. Do not retemper concrete, or add water on-site for other reasons.
- G. Use trunks or tremies when pouring walls to ensure concrete does not drop or fall more than 4 feet. Place in layers not exceeding 2 feet in depth.
- H. Screed all slabs to true levels or slopes, true within ¼ inch per 10 feet. Evenly slope to any drain at 3/16 inch per foot, unless otherwise shown on Drawings.
- I. When mean temperature exceeds, or is expected to exceed 80°F during placement and finishing operations, steps shall be taken in accordance with ACI 305R to reduce concrete temperature and water evaporation. Slabs will be fog sprayed from the completion of screeding until curing is begun (except during troweling). Submit detailed hot weather concreting procedure to Engineer or Landscape Architect for approval at least 2 days prior to planned placement.
- J. When mean temperature falls below, or is expected to fall below 40°F, comply with ACI 306R. Concrete shall be protected from freezing by means acceptable to the Engineer or Landscape Architect. Submit detailed cold weather concreting procedure to Engineer or Landscape Architect for approval at least 2 days prior to planned placement.

3.03 CONSOLIDATION

- A. Employ mechanical, high frequency vibrators to consolidate concrete around reinforcement, into corners and angles of formwork, and to exclude rock pockets, air bubbles and honeycomb.
- B. Have sufficient number of vibrators and tampers on-site. Minimum of 1 device per each 20 c.y. placed per hour.
- C. Vibration shall be in accordance with ACI 309. Vibrator frequency shall be between 8000 and 12000 rpm.
- D. Hold Vibrator in one spot no longer than 15 seconds; keep in constant motion, insert and withdraw at points approximately 18 inches o.c.
- E. Maintain vibrator in vertical position when penetrating concrete walls. At slabs, hold vibrator perpendicular to the surface at all times.
- F. Vibrate each successive lift. Extend vibrator into previous lift to avoid seams.
- G. Transporting concrete with vibrator is not permitted.
- H. Maintain spare vibrators at jobsite during concrete placement.
- I. Supplement vibration by forking and spading along surfaces of forms and between reinforcing whenever flow is restricted.

3.04 CONTROL JOINTS

- A. Form to true, straight lines, with adjacent slab sections flush at Joints. Make panels as close to square as possible.
- B. Conform to ACI 302 and the Project Drawings. If not shown, submit control joint layout plan to Engineer or Landscape Architect for approval.
- C. Joints shall be formed by tooling into fresh concrete. The joint shall be perpendicular to the concrete surface and $\frac{1}{4}$ of the thickness of the slab. Zip strips not allowed.
- D. Fill joint as directed with proper joint sealants.
- E. Extend Reinforcement through Joints, unless otherwise shown on Drawings.
- F. If necessary, and approved by Engineer or Landscape Architect, joint may be saw cut as soon as concrete has sufficiently hardened to prevent dislodging of aggregates. Saw continuous slots perpendicular to surface and $\frac{1}{4}$ of slab thickness. Must be complete within 12 hours of concrete placement.

3.05 CONCRETE FIELD TESTING

- A. Samples for concrete tests shall be taken in accordance with ASTM C172.
- B. If total quantity of a class of concrete for the project is less than 50 cubic yards, strength tests are not required when evidence of satisfactory strength is submitted to and approved by Engineer or Landscape Architect.
- C. Samples for compressive strength tests of each class of concrete shall be taken not less than once per day, nor less than once for each 150 cubic yards of concrete, nor less than once for each 5000 feet squared of surface area of walls or sidewalks. If the total volume

of concrete for each class is such that less than 5 tests are required, then samples shall be made from at least 5 random batches or each batch if less than 5 batches is required.

- D. Acceptance of concrete shall be based on strength test results of standard cured cylinders in accordance with ASTM C 31 and tested at 28 days in accordance with ASTM C 39. Strength test results are the average of two specimens.
- E. When strength cylinders are made, tests of slump per ASTM C143, air content per ASTM C94, temperature per ASTM C1064 and density per ASTM C138 shall be made and recorded with the strength test results.
- F. Strength of each concrete class shall be deemed satisfactory when both of the following criteria are met:
 - 1. The average of three consecutive compressive-strength tests equals or exceeds specified compressive strength
 - 2. Any individual compressive-strength test result does not fall below specified compressive strength by more than 500 psi.
- G. When compressive strength tests indicate low strength, follow procedure in ACI 318 chapter 5.6.4 Investigation of low-strength test results.

3.06 FINISHES

- A. Rough Form Finish
 - 1. Finish resulting after form removal with fins or projections exceeding ¼-inch removed, and with tie holes and defective areas repaired and patched.
 - 2. Location: Formed concrete surfaces not exposed to view in the finished structure.
- B. Standard Smooth Finish
 - 1. As-cast surface with all fins and projections completely removed and smoothed, and with all tie holes and defective areas repaired and patched for a uniform, smooth appearance.
 - 2. At unformed surfaces, such as tops of walls, strike-off smooth and finish with a texture matching adjacent surfaces.
 - 3. Location: Formed surfaces exposed to view in the finished structure.
- C. Float Finish
 - 1. After placing slabs, do not work the surface until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently to permit the operation of a power-driven float, or by hand-floating if area is small or inaccessible to power units.
 - 2. Check the level of the surface plane to a tolerance not exceeding ¼-inch in 10 feet when tested with a 10-foot straightedge placed on the surface in not less than two different angles from a reference point. Cut down high spots and fill low spots. Uniformly slope surfaces to drain where shown on the drawings.
 - 3. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture. Do not overfinish.

4. Location: Monolithic slab surfaces that are to receive a trowel finish and other finishes.
- D. Trowel Finish
1. After floating, begin the first trowel finish operation using a power driven trowel. Consolidate the concrete surface by the final hand troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8-inch in 10 feet when tested with a 10-foot straightedge.
 2. Do not absorb wet spots with neat cement or cement-sand mixture, and do not use chemical dryers.
 3. Location: Monolithic slab surfaces exposed to view, or to be covered with resilient floor covering, or to receive liquid hardener treatment.
- E. Nonslip Broom Finish
1. After concrete has received floating finish specified above, provide light brushing with fiber-bristle broom perpendicular to traffic flow.
 2. Location: Exterior walks and other horizontal walking surfaces.

3.07 CONCRETE SURFACE REPAIRS

- A. After removal of forms, repair and patch defective areas with specified repair mortar.
- B. In honeycomb and rock pocket areas, saw cut area and remove material down to solid concrete. Saw cut edges perpendicular to the concrete surface. Thoroughly clean out loose material, saturate area with water to a saturated surface dry condition and brush-coat the area to be patched with a slurry coat of structural repair mortar. Place additional mortar to patch the area before the slurry coat has dried. Smooth and blend to surrounding surface. Do not feather edges.

3.08 CONCRETE CURING AND PROTECTION

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Protect concrete from rapid moisture loss before and during finishing operations with a fog spray or evaporation reducer. Apply evaporation reducer in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Curing shall begin as soon as the finishing operation has been completed and the surface will not be damaged by the curing method. Curing shall be maintained for not less than 7 days.
- C. Curing Methods: Perform curing of concrete by curing compound, by moist curing, by moisture-retaining cover curing, or combinations thereof, as specified herein.
 1. Moist Curing. Use one of the following methods:
 - a. Keep concrete surface continuously wet by covering with water
 - b. Use continuous water-fog spray
 - c. Cover concrete with absorptive cover (burlap cloth, 9 oz./s.y.), thoroughly saturate with water, and keep continuously wet. Completely cover all

concrete and lap edges 4-inches. Place moisture retaining cover (polyethylene film) over absorptive cover.

2. Moisture-Retaining Cover. Cover all surfaces completely with polyethylene sheets, lap edges at least 3-inches, and seal with waterproof tape. Immediately repair any holes or tears with sheet material and tape.
 3. Curing Compound. Use specified compound and apply in accordance with manufacturer's instructions. Apply within 1 hour of final finishing operations or form removal. Maintain continuity of coating and protect from damage during curing period. If finish materials are to be applied later, follow manufacturer's instructions for compound removal.
- D. Exterior Structural Concrete: Cure for 7 days with moist cure or moisture-retaining cover. After 7 day period, apply specified or approved sealing compound to surfaces that will be exposed in the finished structure.
- E. Protect all surfaces from damage until curing is complete and sealers and hardeners have dried.

3.09 CORRECTION AND REMOVAL OF DEFECTIVE WORK

- A. Remove and replace any concrete which shows excessive cracks or severe damage. Remove and replace slabs which do not drain properly, or are improperly finished, and other defective concrete as directed.
- B. Remove and replace work with improper cover over steel, concrete containing wood, cloth or other foreign matter.
- C. Fill and repair all voids, rock pockets, and other defects as directed. Voids larger than 3/4-inch shall be considered excessive and such work shall be removed and replaced.
- D. Remove and replace any concrete that has been improperly cured or finished.
- E. Should concrete fail to meet the minimum specified 28 day strength as determined by tests on both the regular and spare cylinders, the concrete will be deemed defective and shall be removed and replaced. Contractor shall bear the entire cost of such testing, removal, redesign, and replacing of defective concrete.
- F. Concrete which has improper water/cement ratios, and/or improper air contents shall be removed and replaced as directed.
- G. Contractor shall bear all costs for removal and replacement of defective work.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Payment for Cast-In-Place Concrete shall be included within the unit price for any item on the Bid Form requiring it. Payment shall include compensation for the permanent and consumable materials, forming and labor required to complete the work described herein. No other payment shall be made.

END OF SECTION

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SECTION 03600

GROUT

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes various types of grout as may be required for the project as shown on the Drawings and as required.
- B. Work includes supply, preparation, mixing, application, finishing and curing of grout.

1.02 RELATED SECTIONS

- A. Section 03200 – Concrete Reinforcement
- B. Section 03300 – Cast-In-Place Concrete

1.03 REFERENCES

- A. ASTM C1107 - Standards Specification for Packaged Hydraulic-Cement Grout (Nonshrink)
- B. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars – Modified
- C. ASTM C1090 - Standard Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic Cement Grout
- C. ASTM C939 - Standard Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)
- D. ASTM C827 – Test Method for Early Volume Change of Cementitious Mixtures

1.04 SUBMITTALS

- A. Submit list of each type of grout proposed for each location to be grouted. Include manufacturer's specifications, use recommendations, surface preparation and application instructions, and protection of adjacent surfaces.
- B. Submit three copies of submittal package. Grout shall be approved prior to use.

1.05 QUALITY ASSURANCE

- A. Grout Manufacturer shall be consulted when questions arise during selection of a particular grout for application. Grout used shall be as recommended by the manufacturer for each type of application.
- B. Grout shall be mixed, placed and cured in strict conformance to the manufacturer's instructions. Surfaces to be grouted shall be carefully prepared according to the

manufacturer's instructions. Improper surface preparation and curing are the most common causes of grout failure and problems.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's sealed containers with contents clearly labeled.
- B. Store materials in a dry area at a temperature between 40 and 100°F.

PART 2 PRODUCTS

2.01 STANDARD NON-SHRINK GROUT

- A. Non-metallic, non-bleeding, cement based non-shrink grout meeting ASTM C1107, Grades B or C. Pumpable and pourable with positive expansion per ASTM C827.
- B. Compressive Strength at Flowable Consistency per ASTM C109: 2500 psi at 1 day, 5000 psi at 3 days, and 8000 psi at 28 days (minimums).
- C. Use: Grouting around pipe and conduit penetrations in concrete slabs, and other locations where non-shrink grout is called for and other specified grouts are not required.
- D. Manufacturers: Sika 212, Euco N-S, Five Star, or approved equal.

2.02 DRY PACK GROUT

- A. Cement based, non-shrink, noncorrosive, non-metallic, high density, high strength grout for dry pack applications. Meets COE CRD-C-621.
- B. Compressive Strength per ASTM C109: 3000 psi at 1 day, 6500 psi at 7 days, and 8000 psi at 28 days (minimums) at damp pack consistency.
- C. Use: Pipe penetration patches in precast concrete, overhead applications and other areas where poured or pumped grout use is not practical.
- D. Manufacturers: Dayton Superior Corp. "Sure-Grip Grout Dri-Pak"; W.R. Meadows "Pac-It"; EUCO "Dry Pack Grout"; or approved equal.

2.03 ACCESSORIES

- A. Aggregate: Washed pea gravel, maximum 3/8-inch size.
- B. Water: Clean potable water.
- C. Curing Compound: Water based, acrylic as recommended by grout manufacturer.

PART 3 EXECUTION

3.01 MIXING

- A. Mix materials in accordance with the manufacturer's instructions.
- B. Where grout depth will exceed 2-inches, add aggregate at a maximum rate of 25 pounds per 55 pound bag.

- C. Do not retemper mix.

3.02 PREPARATION

- A. Carefully prepare all surfaces to be grouted in accordance with the manufacturer's recommendations and as specified. Concrete must be cured for 28 days before placing grout.
- B. Clean surfaces to remove loose and foreign material by waterblasting, mechanical abrasion, or sandblasting. Surface shall be free of dirt, oil, curing compounds and laitance.
- C. Remove unsound concrete by chipping or grinding. Grind or sandblast steel surfaces to remove all rust, mill scale and paint.
- D. Install forms to contain liquid grout. Seal joints and corners.

3.03 INSTALLATION – CEMENTITIOUS GROUTS

- A. Follow manufacturer's instructions.
- B. Just prior to grouting, thoroughly saturate concrete surfaces for 24 hours; remove excess water.
- C. Place grout continuously by most practical means. Work from one side to avoid entrapped air.
- D. Grout may be rodded or tamped, but do not vibrate.
- E. Apply curing compounds to exposed grout in accordance with manufacturer's instructions or cure with wet burlap for 3 days. Curing shall commence immediately after placement.

PART 4 SPECIAL PROVISIONS

4.01 MEASUREMENT AND PAYMENT

- A. Payment for grout shall be considered incidental to bid items requiring grouting and associated costs shall be included within the cost basis as stated on the Bid Form. No separate measurement or additional payment will be made for these quantities and/or items.

END OF SECTION

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City of Coquille - URA

Coos County, Oregon

Contract Documents

VOLUME 3 – Project Drawings

FOR THE CONSTRUCTION OF

City of Coquille URA North Adams Streetscape Improvements Phase 1: Underground Improvements

February 2025
Engineering Project No. 2204-298

Civil West

Engineering Services, Inc.



Prepared By:
Civil West Engineering Services, Inc.
HGE Architects, Inc.
Sandow Engineering, LLC

HGE
ARCHITECTS

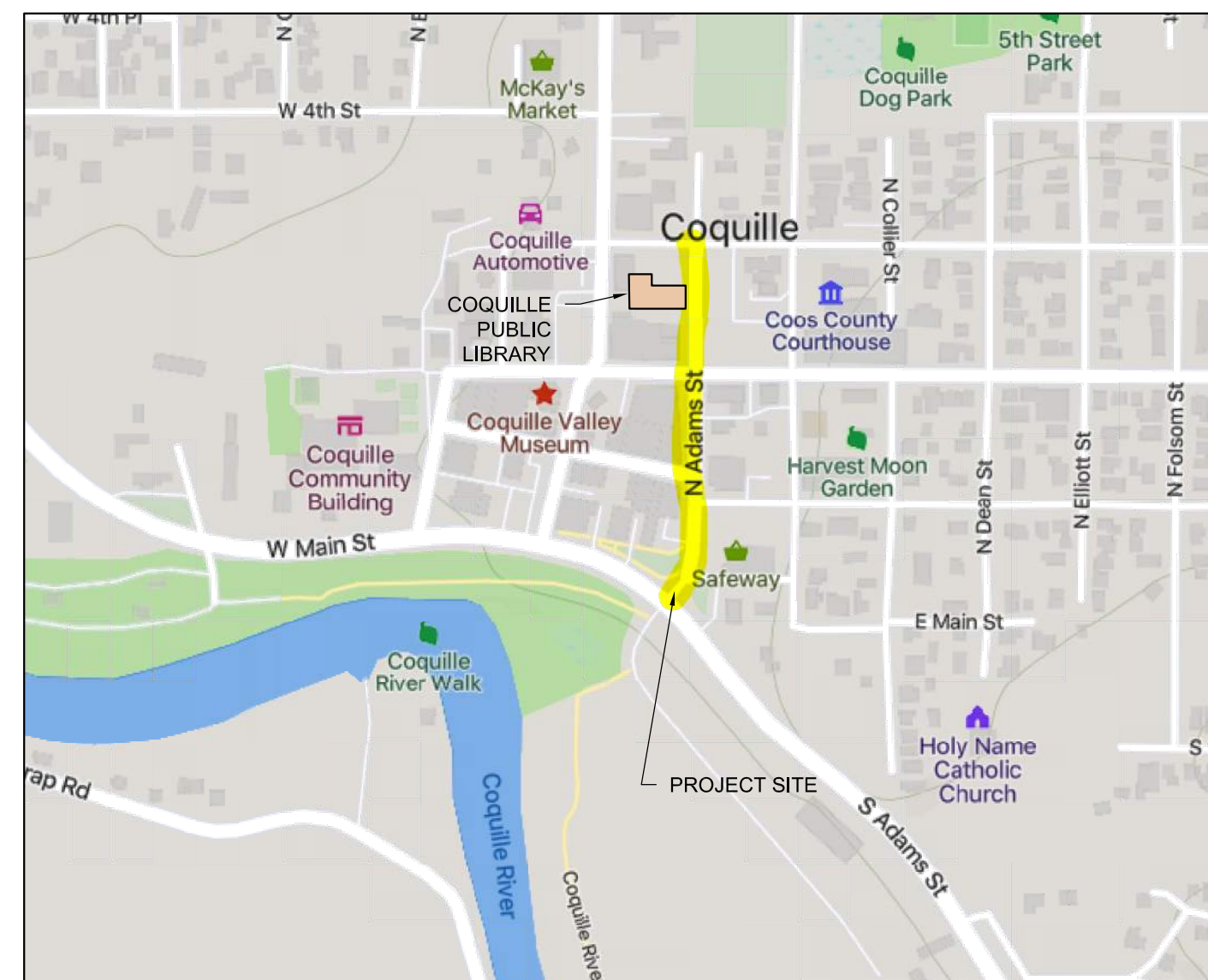
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PHASE 1: UNDERGROUND IMPROVEMENTS

NORTH ADAMS STREETSCAPE IMPROVEMENTS

CITY OF COQUILLE - URA

VICINITY MAP



OWNER

CITY OF COQUILLE - URBAN RENEWAL AGENCY
SAM FLAHERTY, MAYOR
SHEENA CORBUS, COUNCILOR / URA PRESIDENT
FORREST NEUERBURG, CITY MANAGER

851 NORTH CENTRAL BLVD.
COQUILLE, OREGON 97423
541-396-2115

LANDSCAPE ARCHITECT

HGE ARCHITECTS, INC.
STEPHANIE A. MARTELL, LANDSCAPE ARCHITECT
333 SOUTH 4TH STREET
COOS BAY, OREGON 97420
541-269-1166

CIVIL ENGINEER

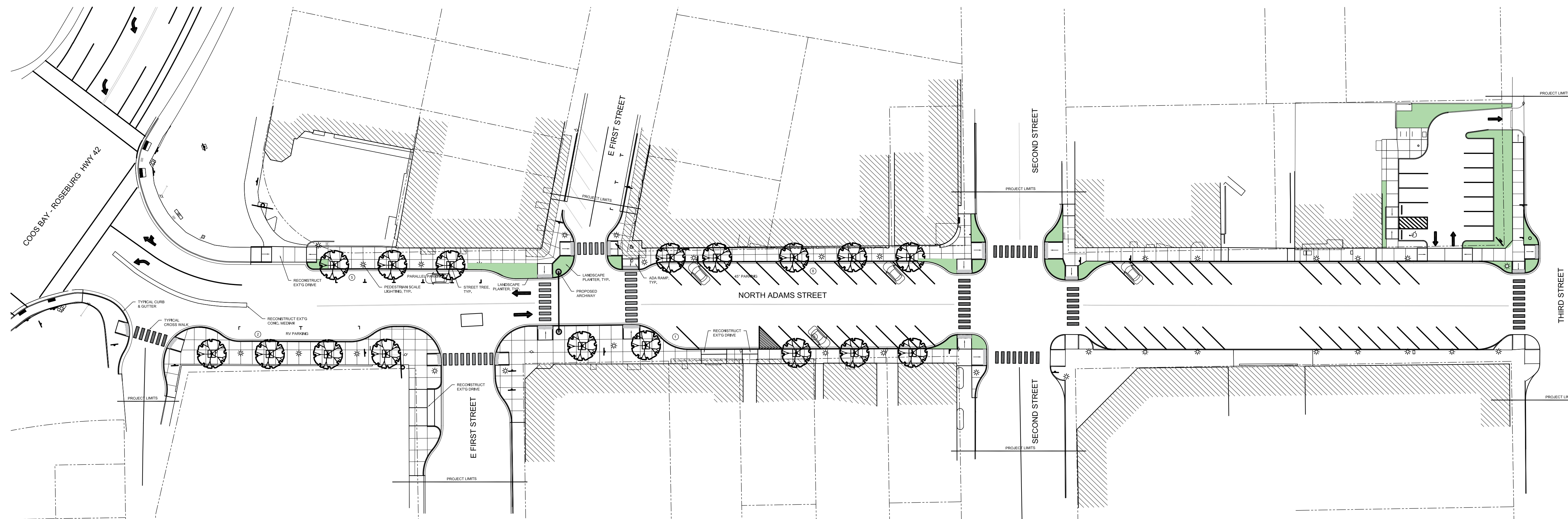
CIVIL WEST ENGINEERING SERVICES, INC.
SEAN D. LLOYD, PE
486 E STREET
COOS BAY, OREGON 97420
541-266-8601

TRANSPORTATION / LIGHTING ENGINEER

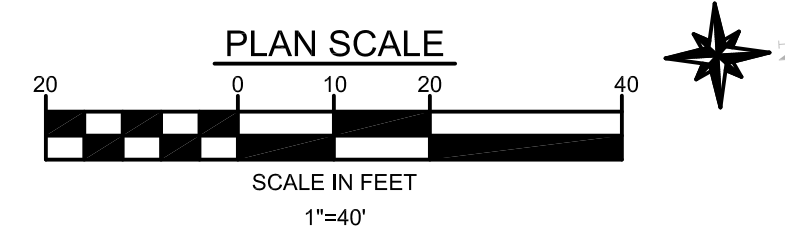
SANDOW ENGINEERING
KELLY SANDOW, PE
160 MADISON STREET SUITE A
EUGENE, OREGON 97402
541-513-3376

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X101	EXISTING CONDITIONS SITE PLAN 2
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C101	CIVIL STORM DRAIN IMPROVEMENTS - STA. 15+00 - END
C200	CIVIL SANITARY SEWER IMPROVEMENTS - STA. 20+00 - 20+38 & 30+00 - 32+33
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SL-2	STREET LIGHTING PLAN 2
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SL-4	STREET LIGHTING DETAILS
SL-5	STREET LIGHTING DETAILS



1 OVERALL ADAMS STREET IMPROVEMENT PLAN
G100



NOTES:
1. ALL FUTURE WORK SHOWN FOR REFERENCE / COORDINATION PURPOSES ONLY.

PROJECT NO.: 23.81
CITY OF COQUILLE URA
NORTH ADAMS STREETSCAPE IMPROVEMENTS
PHASE 1: UNDERGROUND IMPROVEMENTS
CITY OF COQUILLE
COQUILLE, OREGON

CONSTRUCTION

REVISIONS:

#	DATE	DESCRIPTION

DATE: FEBRUARY 2025
SHEET TITLE:
OVERALL SITE PLAN - FOR REFERENCE ONLY

G100

EXISTING FEATURE LEGEND

SANITARY SEWER MANHOLE		MAIL BOX	
STORM DRAIN MANHOLE		AIR RELEASE VALVE	
CATCH BASIN		BLOW OFF VALVE	
WATER VALVE		TREE/SHRUB	
WATER METER		SIGN	
FIRE HYDRANT		SURVEY MARKER	
CLEANOUT		POWER POLE	
TEE/CROSS FITTING		GUY ANCHOR	
ELBOW FITTING		POWER PEDESTAL	
REDUCER FITTING		TELEPHONE PEDESTAL	
MECHANICAL JOINT ADAPTER			

LINETYPE LEGEND

WATER LINE	
STORM DRAIN	
SANITARY SEWER	
ELECTRICAL	
OVER HEAD LINE	
TELEPHONE LINE	
GAS LINE	
TREELINE	
EDGE OF PAVEMENT	
RIGHT OF WAY	
MAJOR CONTOURS	
MINOR CONTOURS	
FENCELINE	

HATCH LEGEND

CONCRETE	
PAVEMENT	
NATURAL GROUND	
WETLANDS	
BUILDING	
GRANULAR MATERIALS, (CRUSHED ROCK, GRAVEL, ETC.)	

EXISTING GRADING LEGEND

EXISTING GRADE SPOT ELEVATION		310.4
GRADE		(2%)
SLOPE (HOR:VER)		TOP (2:1)
		TOE

PROPOSED FEATURE LEGEND

SANITARY SEWER MANHOLE		MAIL BOX	
STORM DRAIN MANHOLE		AIR RELEASE VALVE	
CATCH BASIN		BLOW OFF VALVE	
WATER VALVE		TREE/SHRUB	
WATER METER		SIGN	
FIRE HYDRANT		SURVEY MARKER	
CLEANOUT		POWER POLE	
TEE/CROSS FITTING		GUY ANCHOR	
ELBOW FITTING		POWER PEDESTAL	
REDUCER FITTING		TELEPHONE PEDESTAL	
MECHANICAL JOINT ADAPTER			

LINETYPE LEGEND

WATER LINE	
STORM DRAIN	
SANITARY SEWER	
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OVER HEAD LINE	
TELEPHONE LINE	
GAS LINE	
TREELINE	
EDGE OF PAVEMENT	
RIGHT OF WAY	
MAJOR CONTOURS	
MINOR CONTOURS	
FENCELINE	

HATCH LEGEND

CONCRETE	
PAVEMENT	
NATURAL GROUND	
WETLANDS	
BUILDING	
GRANULAR MATERIALS, (CRUSHED ROCK, GRAVEL, ETC.)	

PROPOSED GRADING LEGEND

PROPOSED GRADE SPOT ELEVATION		310.45
GRADE		2%
SLOPE (HOR:VER)		TOP 2:1
		TOE

ABBREVIATIONS

A	AC ASPHALTIC CONCRETE A/C AIR CONDITIONING ADWF AVERAGE DRY WEATHER FLOW AUX AUXILIARY	K	K KIP (1000 POUNDS)	V	V VOLT VAR VARIABLE VC VERTICAL CURVE VCP VITRIFIED CLAY PIPE
B	BC BEGINNING OF CURVE BCR BEGINNING OF CURVE RETURN BF BLIND FLANGE BFP BACKFLOW PREVENTER BLDG BUILDING BO BLOW OFF BOD BIOCHEMICAL OXYGEN DEMAND BOW BACK OF WALK	M	MAX MAXIMUM MCC MOTOR CONTROL CENTER MFRD MANUFACTURED MGD MILLION GALLONS PER DAY MG/L MILLIGRAMS PER LITRE MIN MINIMUM, MINUTE MJ MECHANICAL JOINT	W	W WEST WAT POTABLE WATER W/O WITHOUT WM WATER METER WSE WATER SURFACE ELEVATION
C	C:C CENTER TO CENTER CF CUBIC FEET CFS CUBIC FEET PER SECOND CFR CODE OF FEDERAL REGULATIONS CIRC CIRCUMFERENCE CL CENTERLINE CLR CLEARANCE CL2 CHLORINE CMP CORRUGATED METAL PIPE CMU CONCRETE MASONRY UNIT CNTL CONTROL COD CHEMICAL OXYGEN DEMAND CONC CONCRETE CO CLEAN OUT CONC CONCRETE CONT CONTINUED CPVC CHLORINATED POLYVINYL CHLORIDE	N	N NORTH NEG NEGATIVE NIC NOT IN CONTRACT NPSH NET POSITIVE SUCTION HEAD NPT NATIONAL PIPE THREAD NPW NON POTABLE WATER NTS NOT TO SCALE	WWF	WWF WELDED WIRE FABRIC, WET WEATHER FLOW
D	DIA DIAMETER DO DISSOLVED OXYGEN D/S DOWN SPOUT DWF DRY WEATHER FLOW	O	OC ON CENTER	P	P PUMP PCC POINT OF COMPOUND CURVATURE PE PLAIN END PI POINT OF INTERSECTION PL PROPERTY LINE PLC PROGRAMMABLE LOGIC CONTROLLER PP POWER POLE PPD POUNDS PER DAY PRV PRESSURE REDUCING VALVE PT PRESSURE TREATED PVC POLYVINYL CHLORIDE PVT PAVEMENT PW POTABLE WATER PWWF PEAK WET WEATHER FLOW
E	E EAST EC END OF CURVE EFF EFFLUENT EL ELEVATION EOP EDGE OF PAVEMENT EQ EQUAL EQUIP EQUIPMENT EW EACH WAY EX EXISTING	Q	Q FLOWRATE	R	R RADIUS RAD RADIAL BEARING RED REDUCER ROW RIGHT OF WAY REQ REQUIRED RS RAW SEWAGE RT RIGHT RV RELIEF VALVE
F	F FAHRENHEIT FF FINISHED FLOOR FG FINISHED GRADE FH FIRE HYDRANT FL FLOWLINE FLG FLANGE FLM FLOW METER FLR FLOOR FM FORCE MAIN FRP FIBERGLASS REINFORCED PLASTIC FS FINISHED SURFACE FT FOOT	S	S SOUTH SCH SCHEDULE SD STORM DRAIN SDMH STORM DRAIN MAN HOLE SIM SIMILAR SL SLOPE SPEC SPECIFICATION SS STAINLESS STEEL SSMH SANITARY SEWER MANHOLE STA STATION STD STANDARD SYM SYMMETRICAL	T	TDH TOTAL DYNAMIC HEAD TOB TOP OF BANK TOC TOP OF CURB TOW TOP OF WALL TP TANGENT POINT TSS TOTAL SUSPENDED SOLIDS TYP TYPICAL
G	GL GUTTER LINE GPD GALLONS PER DAY GPH GALLONS PER HOUR GPM GALLONS PER MINUTE	U	UNO UNLESS NOTED OTHERWISE UV ULTRAVIOLET		
H	HB HOSE BIB HOR HORIZONTAL HP HORSEPOWER HR HANDRAIL				
I	IE INVERT ELEVATION INF INFLUENT INV INVERT				

SHEET NOTES:

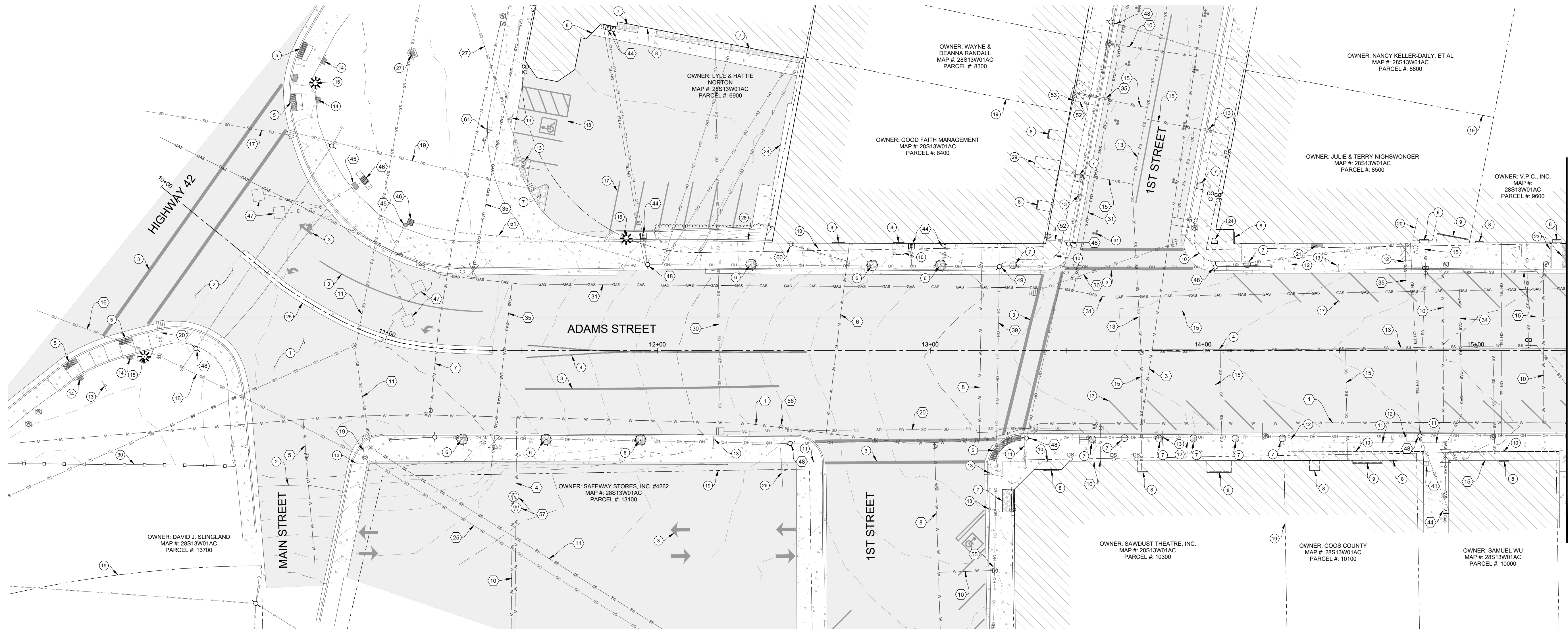
- CONTRACTOR SHALL CONTACT "ONE CALL" FOR UTILITY LOCATES PRIOR TO THE START OF ANY EXCAVATION.
- CONTRACTOR SHALL POTHOLE EXISTING WATERLINE PRIOR TO NEW WATERLINE CONSTRUCTION TO CONFIRM EXISTING WATERLINE DEPTH LOCATION, AND FITTING REQUIREMENTS FOR CONNECTION OF NEW WATERLINE TO EXISTING.
- TYPICAL BURY FOR NEW WATERLINE SHALL BE 36" TO TOP OF PIPE. ADJUST DEPTH OF BURY AS REQUIRED TO MAINTAIN CONSTANT GRADE
- AFTER COMPLETION OF NEW WATERLINE AND ALL TESTING AND CONNECTIONS HAVE BEEN MADE, DESIGNATED PORTIONS OF EXISTING WATERLINE ARE TO BE ABANDONED IN PLACE. EXISTING VALVES AND BOXES SHALL BE REMOVED IN THEIR ENTIRETY ALONG WITH ANY TEMPORARY SPOOLS AND CONNECTIONS. PROVIDE END CAPS, BLIND FLANGES OR PLUGS AS REQUIRED FOR COMPLETE ABANDONMENT OF DESIGNATED PORTIONS OF EXISTING WATERLINES.

CONSTRUCTION

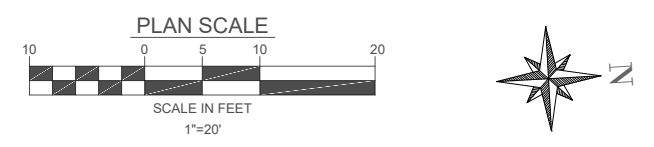
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DATE: FEBRUARY 2025

SHEET TITLE:
LEGEND, NOTES, &
ABBREVIATIONS



1 C1 EXISTING CONDITIONS - ADAMS STREET PLAN STA 10+00 TO 15+30



EXISTING CONDITIONS NOTES:	
1	OLDER PAVEMENT, TYP.
2	NEWER PAVEMENT, TYP.
3	WHITE STRIPING, TYP.
4	YELLOW STRIPING, TYP.
5	ADA RAMP
6	TREE IN GRATE
7	PLANTER
8	DOOR ENTRANCE
9	GARAGE DOOR ENTRANCE
10	AWNING
11	RAMP BREAKLINE
12	METAL RIM OUTLINE
13	SIGN
14	ADA SIGNAL BEACON
15	OVERHEAD STREET SIGNAL LIGHT
16	LIGHT POLE
17	PARKING STALL STRIPING, TYP.
18	ADA PARKING
19	APPROXIMATE LOCATION OF PROPERTY LINE, TYP.
20	ACCESSIBLE OPENING WITHIN BUILDING
21	BENCH
22	METAL GATE
23	BRICK PAVEMENT
24	EXTERIOR COLUMN IN FRONT OF DENNY'S ENTRANCE
25	RAISED CONCRETE CENTERLINE MEDIAN
26	SAFEWAY SIGN
27	CLOCK TOWER
28	RETAINING WALL
29	RIISING STAIRCASE INTO BUILDING
30	WOOD FENCE
31	PARKING STALL BULB MARKING, TYP.

EXISTING UTILITY NOTES:	
1	10" AC WATER MAINLINE
2	10" CAST IRON WATER MAINLINE
3	8" AC WATER MAINLINE
4	8" WATER IRON PIPE
5	6" AC WATER MAINLINE
6	6" WATER MAINLINE (PIPE MATERIAL UNKNOWN)
7	WATER LINE (PIPE SIZE & MATERIAL UNKNOWN)
8	4" CAST IRON WATER PIPE
9	4" GALVANIZED IRON WATER MAINLINE
10	WATER SERVICE LINE
11	12" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
12	10" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
13	8" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
14	6" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
15	SANITARY SERVICE LATERAL
16	24" CONCRETE STORM SEWER LINE
17	18" CORRUGATED HDPE STORM SEWER LINE
18	18" CONCRETE STORM SEWER LINE
19	12" CORRUGATED HDPE STORM SEWER LINE
20	12" PVC STORM SEWER LINE
21	12" STORM SEWER LINE (PIPE MATERIAL UNKNOWN)
22	10" STORM SEWER LINE (PIPE MATERIAL UNKNOWN)
23	8" CORRUGATED HDPE STORM SEWER LINE
24	8" PVC STORM SEWER LINE
25	6" CONCRETE STORM SEWER LINE
26	6" IRON STORM SEWER LINE (END POINT UNKNOWN)
27	6" PVC STORM SEWER LINE
28	4" IRON STORM SEWER LINE
29	4" PLASTIC STORM SEWER LINE
30	STORM SEWER LINE (SIZE & PIPE MATERIAL UNKNOWN)
31	6" GAS LINE (PIPE MATERIAL UNKNOWN)

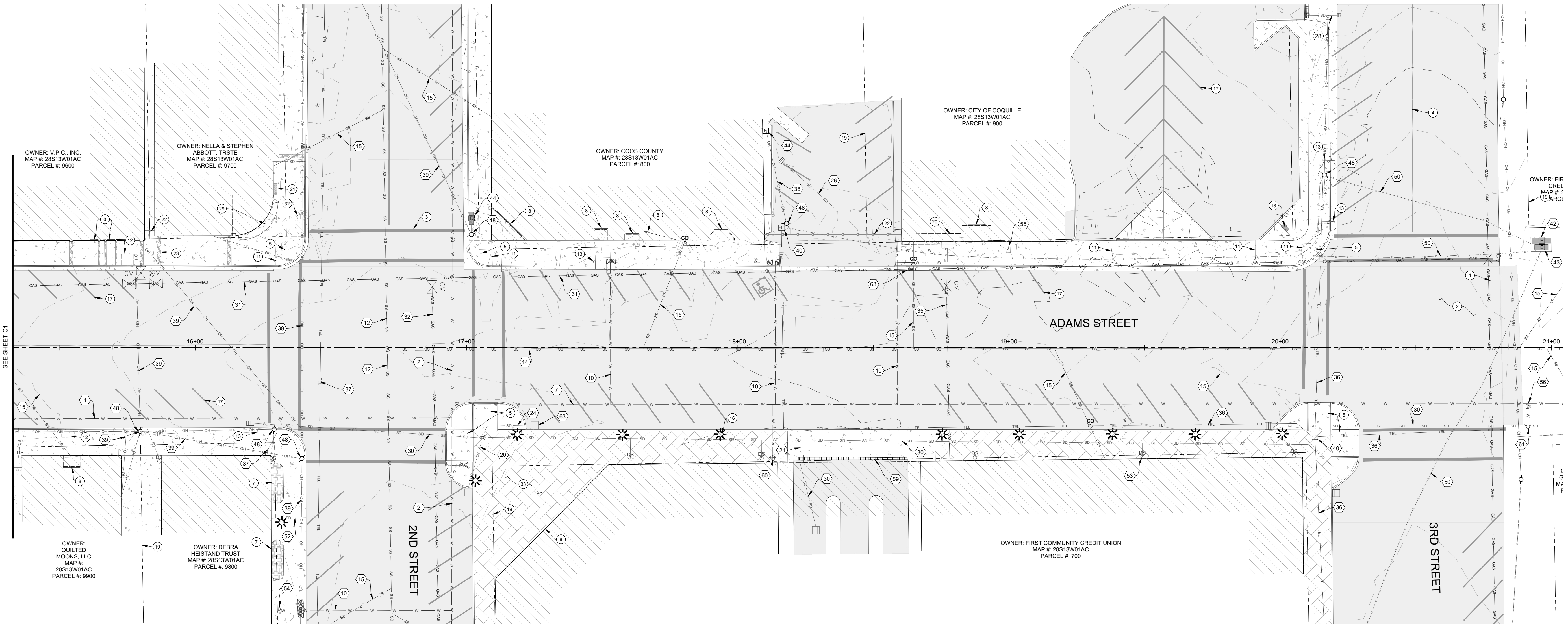
32	4" GAS LINE (PIPE MATERIAL UNKNOWN)
33	2" GAS LINE (PIPE MATERIAL UNKNOWN)
34	1" GAS LINE (PIPE MATERIAL UNKNOWN)
35	GAS SERVICE LINE
36	UNDERGROUND TELECOMMUNICATIONS LINE (CHARTER)
37	UNDERGROUND TELECOMMUNICATIONS LINE (ZPL)
38	OVERHEAD TELECOMMUNICATIONS LINE (CHARTER)
39	OVERHEAD POWER &/OR TELECOMMUNICATIONS LINE (UNIDENTIFIED), TYP.
40	TELECOMMUNICATIONS BOX (CHARTER)
41	TELECOMMUNICATIONS BOX (UNIDENTIFIED)
42	POWER BOX
43	POWER VAULT
44	POWER METER
45	SIGNAL BOX
46	SIGNAL METER
47	TRAFFIC SENSOR
48	POWER POLE
49	POWER POLE WITH TRANSFORMER
50	3-PHASE UNDERGROUND POWER LINE
51	UNDERGROUND POWER LINE, TYP.
52	SIDEWALK STORM DRAIN
53	ROOF DRAIN DOWN SPOUT, TYP.
54	IRRIGATION CONTROL VALVE
55	WATER METER BOX, TYP.
56	WATER GATE VALVE, TYP.
57	MANHOLE ACCESS FOR DOMESTIC AND FIRE WATER LINE VALVES
58	WATER BACKFLOW PREVENTER
59	SLOT DRAIN
60	FIRE DEPARTMENT CONNECTION (FDC)
61	FIRE HYDRANT, TYP.
62	CATCH BASIN

CONSTRUCTION		
REVISIONS:		
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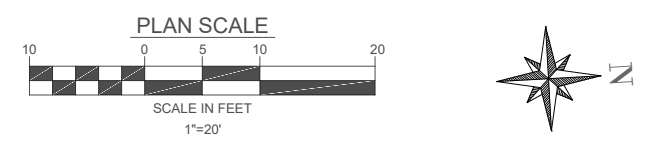
DATE: FEBRUARY 2025

SHEET TITLE:
EXISTING CONDITIONS
1

X100



1
C2 EXISTING CONDITIONS - ADAMS STREET PLAN STA 15+30 TO 21+00



EXISTING CONDITIONS NOTES:

1	OLDER PAVEMENT, TYP.
2	NEWER PAVEMENT, TYP.
3	WHITE STRIPING, TYP.
4	YELLOW STRIPING, TYP.
5	ADA RAMP
6	TREE IN GRATE
7	PLANTER
8	DOOR ENTRANCE
9	GARAGE DOOR ENTRANCE
10	AWNING
11	RAMP BREAKLINE
12	METAL RIM OUTLINE
13	SIGN
14	ADA SIGNAL BEACON
15	OVERHEAD STREET SIGNAL LIGHT
16	LIGHT POLE, TYP.
17	PARKING STALL STRIPING, TYP.
18	ADA PARKING
19	APPROXIMATE LOCATION OF PROPERTY LINE, TYP.
20	ACCESSIBLE OPENING WITHIN BUILDING, TYP.
21	BENCH
22	METAL GATE
23	BRICK PAVEMENT, TYP.
24	EXTERIOR COLUMN IN FRONT OF DENNY'S ENTRANCE
25	RAISED CONCRETE CENTERLINE MEDIAN
26	SAFETYWAY SIGN
27	CLOCK TOWER
28	RETAINING WALL
29	RISING STAIRCASE INTO BUILDING
30	WOOD FENCE
31	PARKING STALL BULB MARKING, TYP.
32	ELECTRIC STOP SIGN
33	WOOD SURFACING

EXISTING UTILITY NOTES:

1	10" AC WATER MAINLINE
2	10" CAST IRON WATER MAINLINE
3	8" AC WATER MAINLINE
4	8" WATER IRON PIPE
5	6" AC WATER MAINLINE
6	6" WATER MAINLINE (PIPE MATERIAL UNKNOWN)
7	WATER LINE (PIPE SIZE & MATERIAL UNKNOWN)
8	4" CAST IRON WATER PIPE
9	4" GALVANIZED IRON WATER MAINLINE
10	WATER SERVICE LINE
11	12" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
12	10" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
13	8" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
14	6" SANITARY SEWER MAINLINE (PIPE MATERIAL UNKNOWN)
15	SANITARY SERVICE LATERAL
16	24" CONCRETE STORM SEWER LINE
17	18" CORRUGATED HDPE STORM SEWER LINE
18	18" CONCRETE STORM SEWER LINE
19	12" CORRUGATED HDPE STORM SEWER LINE
20	12" PVC STORM SEWER LINE
21	12" STORM SEWER LINE (PIPE MATERIAL UNKNOWN)
22	10" STORM SEWER LINE (PIPE MATERIAL UNKNOWN)
23	8" CORRUGATED HDPE STORM SEWER LINE
24	6" PVC STORM SEWER LINE
25	6" CONCRETE STORM SEWER LINE
26	6" IRON STORM SEWER LINE (END POINT UNKNOWN)
27	6" PVC STORM SEWER LINE
28	4" IRON STORM SEWER LINE
29	4" PLASTIC STORM SEWER LINE
30	STORM SEWER LINE (SIZE & PIPE MATERIAL UNKNOWN)
31	6" GAS LINE (PIPE MATERIAL UNKNOWN)

32	4" GAS LINE (PIPE MATERIAL UNKNOWN)
33	2" GAS LINE (PIPE MATERIAL UNKNOWN)
34	1" GAS LINE (PIPE MATERIAL UNKNOWN)
35	GAS SERVICE LINE
36	UNDERGROUND TELECOMMUNICATIONS LINE (CHARTER)
37	UNDERGROUND TELECOMMUNICATIONS LINE (ZPLLY)
38	OVERHEAD POWER LINE (PACIFIC POWER)
39	OVERHEAD POWER & OR TELECOMMUNICATIONS LINE (UNIDENTIFIED), TYP.
40	TELECOMMUNICATIONS BOX (CHARTER)
41	TELECOMMUNICATIONS BOX (UNIDENTIFIED)
42	POWER BOX
43	POWER VAULT
44	POWER METER
45	SIGNAL BOX
46	SIGNAL METER
47	TRAFFIC SENSOR
48	POWER POLE
49	POWER POLE WITH TRANSFORMER
50	3-PHASE UNDERGROUND POWER LINE
51	UNDERGROUND POWER LINE, TYP.
52	SIDEWALK STORM DRAIN
53	ROOF DRAIN DOWN SPOUT, TYP.
54	IRRIGATION CONTROL VALVE
55	WATER METER BOX, TYP.
56	WATER GATE VALVE, TYP.
57	MANHOLE ACCESS FOR DOMESTIC AND FIRE WATER LINE VALVES
58	WATER BACKFLOW PREVENTER
59	SLOT DRAIN
60	FIRE DEPARTMENT CONNECTION (FDC)
61	FIRE HYDRANT, TYP.
62	CATCH BASIN, TYP.
63	CATCH BASIN (ABANDONED)

CONSTRUCTION

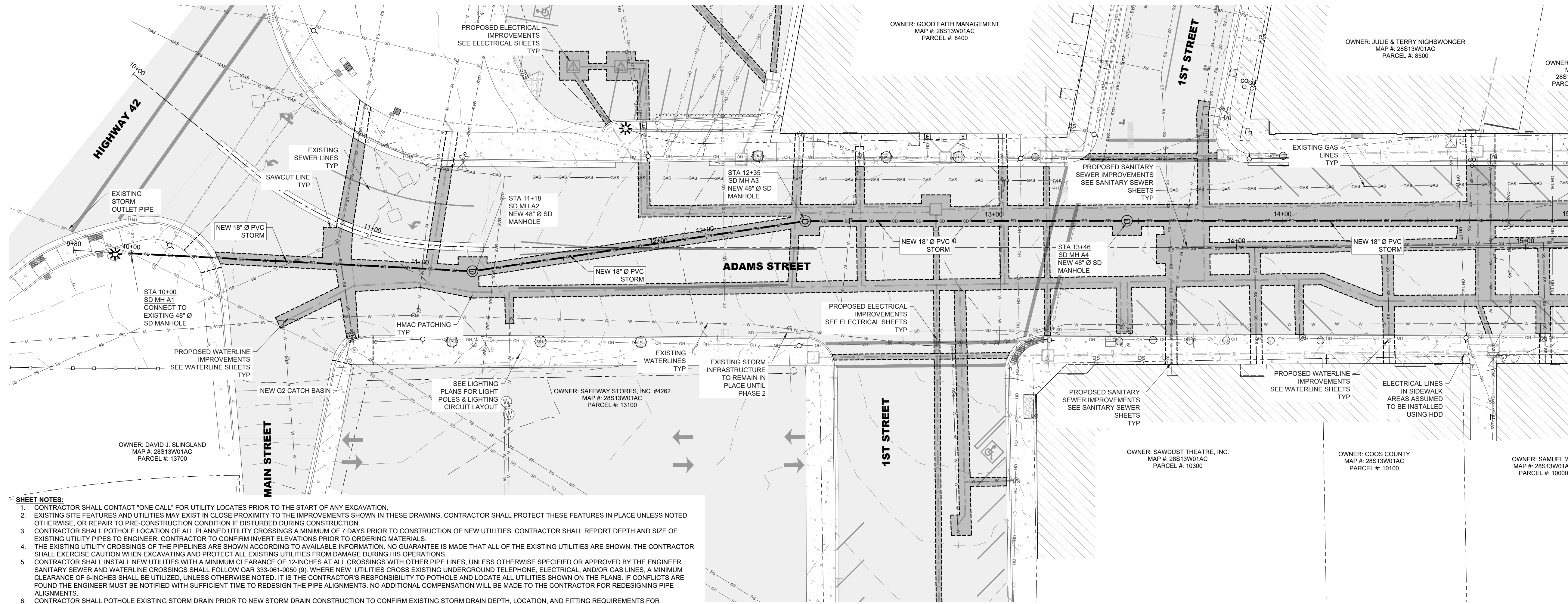
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DATE: FEBRUARY 2025

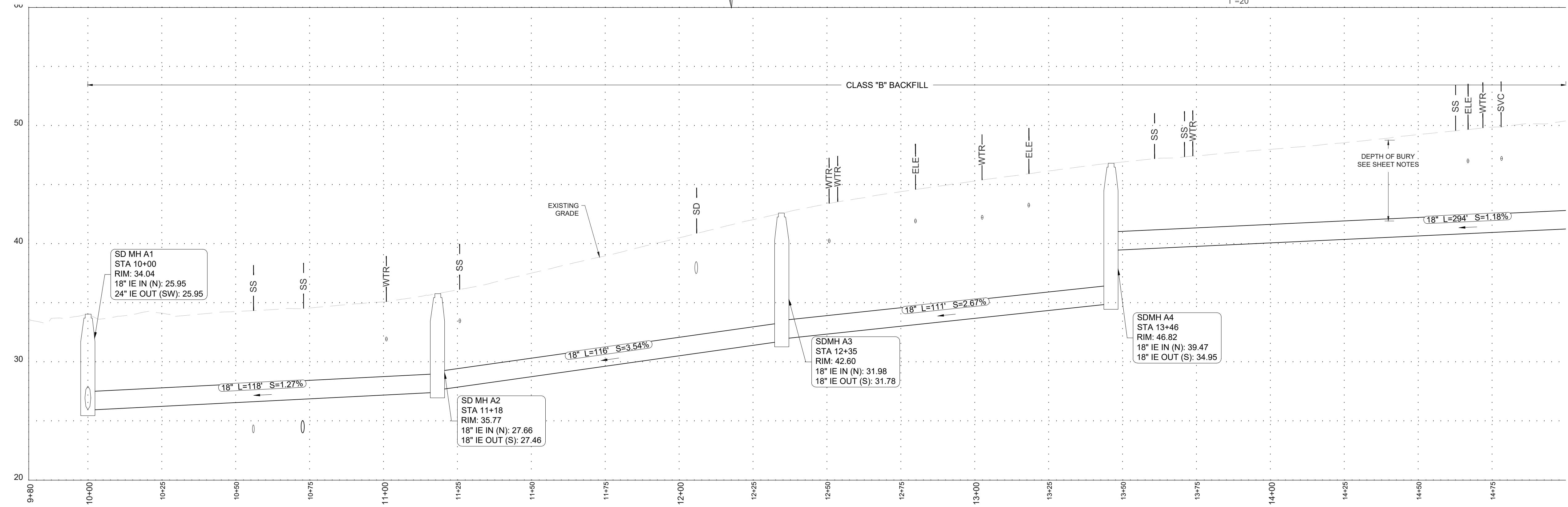
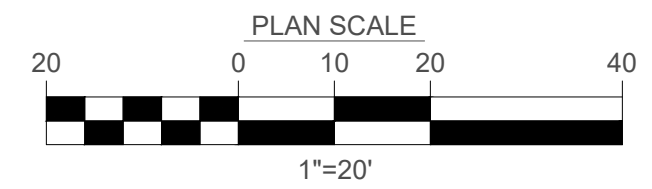
SHEET TITLE:
EXISTING CONDITIONS
2

X101



- SHEET NOTES:**
- CONTRACTOR SHALL CONTACT "ONE CALL" FOR UTILITY LOCATES PRIOR TO THE START OF ANY EXCAVATION.
 - EXISTING SITE FEATURES AND UTILITIES MAY EXIST IN CLOSE PROXIMITY TO THE IMPROVEMENTS SHOWN IN THESE DRAWING. CONTRACTOR SHALL PROTECT THESE FEATURES IN PLACE UNLESS NOTED OTHERWISE, OR REPAIR TO PRE-CONSTRUCTION CONDITION IF DISTURBED DURING CONSTRUCTION.
 - CONTRACTOR SHALL POTHOLE LOCATION OF ALL PLANNED UTILITY CROSSINGS A MINIMUM OF 7 DAYS PRIOR TO CONSTRUCTION OF NEW UTILITIES. CONTRACTOR SHALL REPORT DEPTH AND SIZE OF EXISTING UTILITY PIPES TO ENGINEER. CONTRACTOR TO CONFIRM INVERT ELEVATIONS PRIOR TO ORDERING MATERIALS.
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 - CONTRACTOR SHALL POTHOLE EXISTING STORM DRAIN PRIOR TO NEW STORM DRAIN CONSTRUCTION TO CONFIRM EXISTING STORM DRAIN DEPTH, LOCATION, AND FITTING REQUIREMENTS FOR CONNECTION OF NEW STORM DRAIN TO EXISTING.
 - ALL CATCH BASINS SHALL BE MANUFACTURED WITH A SUMP DEPTH OF 18" MINIMUM BELOW THE DEEPEST LISTED INVERT. CONTRACTOR MAY BE REQUIRED TO FIELD ADJUST INVERT ELEVATIONS AT CATCH BASINS TO AVOID CONFLICT WITH OTHER UTILITIES.
 - CONTRACTOR SHALL PROTECT IN PLACE CURB & GUTTER AS WELL AS CURB & GUTTER BASE. TRENCHING & SHORING SHALL BE USED TO PREVENT LOSS OF CURB & GUTTER BASE MATERIAL.
 - EXISTING SOIL MAY BE UNSTABLE. USE SHORING FOR TRENCH WALLS AS NECESSARY.
 - ALL TRAVELED WALKWAYS SHALL BE SAFE AND USABLE AT THE END OF EACH WORK DAY AS DIRECTED BY THE ENGINEER.

1 STORM DRAIN - PROFILE STA 10+00 - 15+00



2 STORM DRAIN - PROFILE STA 10+00 - 15+00
SCALE HORIZ: 1" = 20'
VERT: 1" = 5'

MATCH LINE
AT STATION - 15+00
NEXT SHEET NUMBER: C101

MATCH LINE
AT STATION - 15+00
NEXT SHEET NUMBER: C101

CONSTRUCTION

REVISIONS:

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DATE: FEBRUARY 2025

SHEET TITLE:
STORM DRAIN - STA
10+00 - 15+00

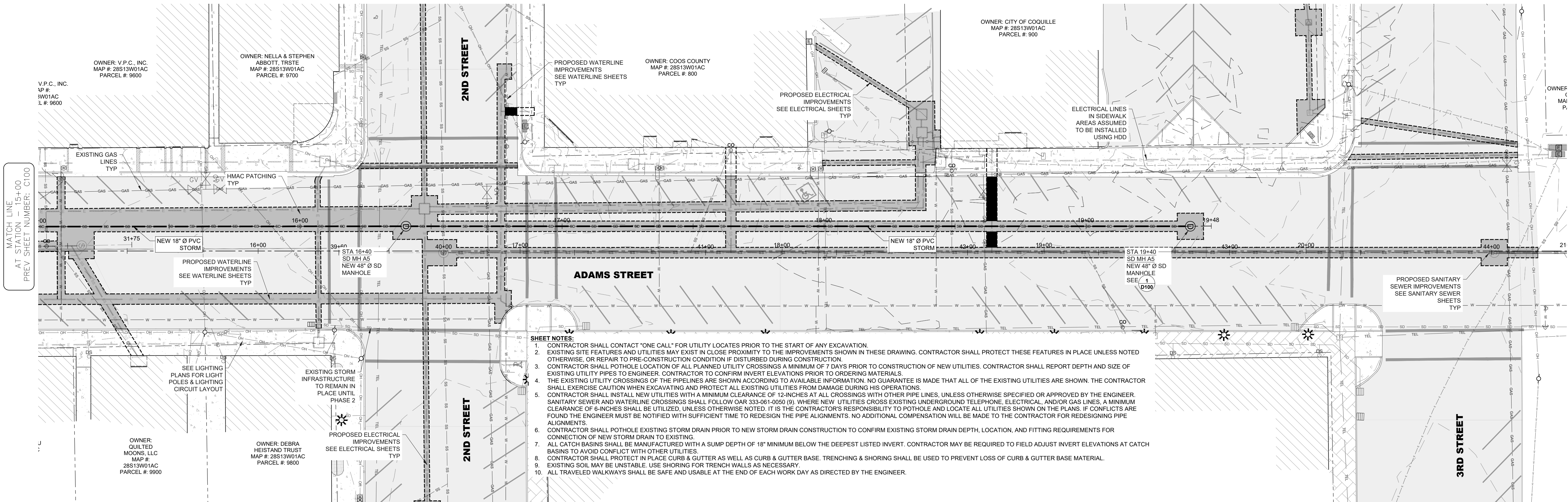
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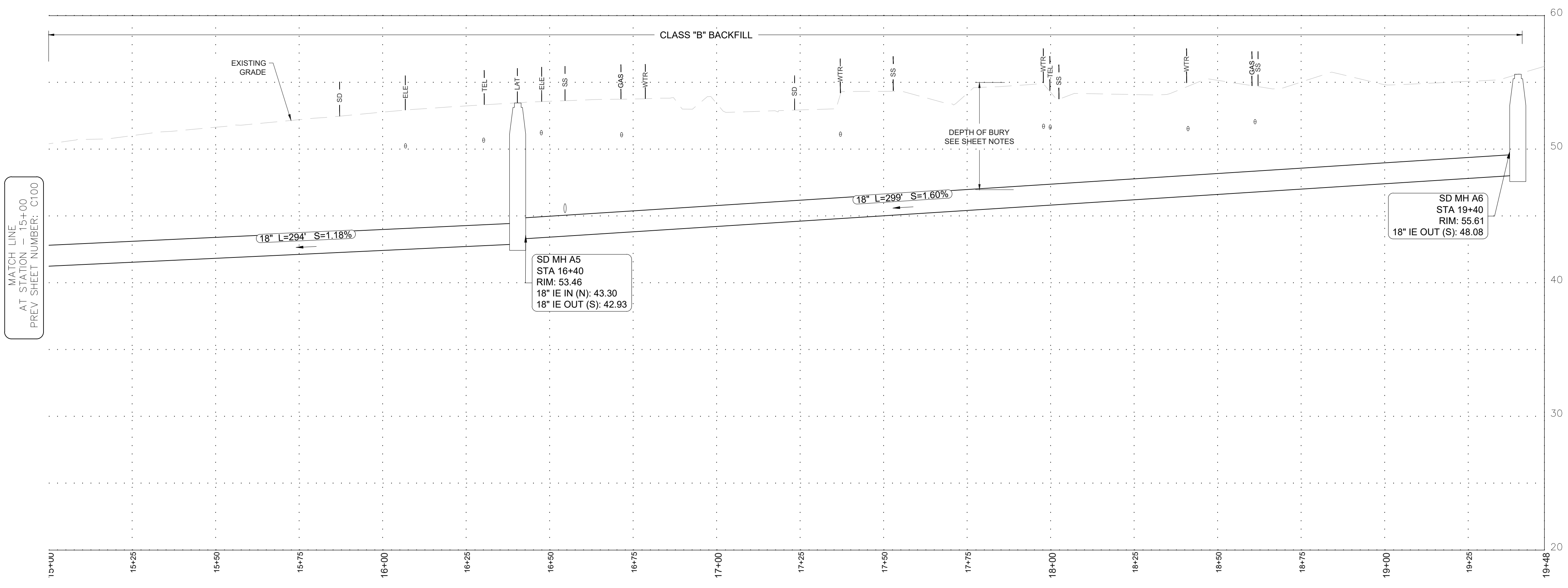
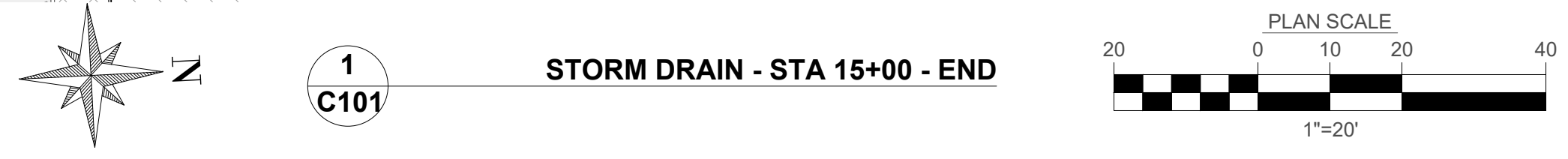
DATE: FEBRUARY 2025

SHEET TITLE:
STORM DRAIN - STA 15+00 - END

C101



- SHEET NOTES:**
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2
C101 STORM DRAIN - PROFILE STA 15+00 - END
SCALE HORIZ: 1" = 20'
VERT: 1" = 5'

CONSTRUCTION

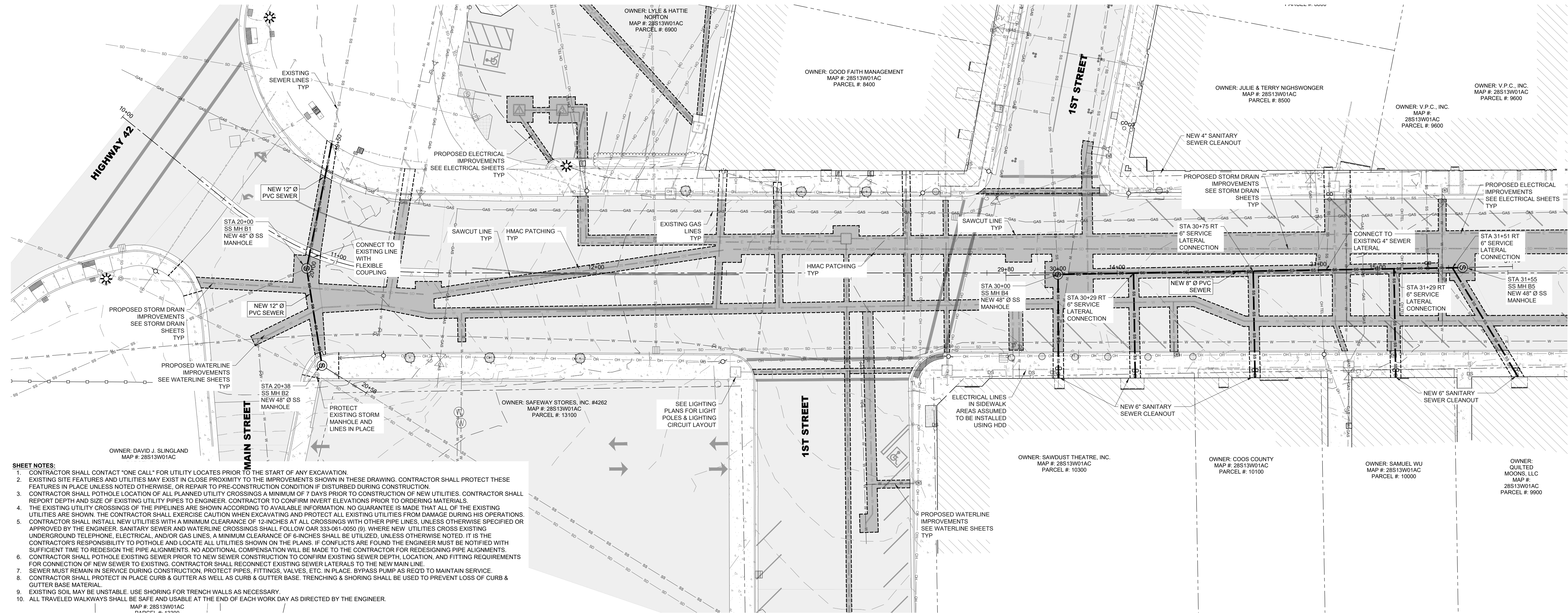
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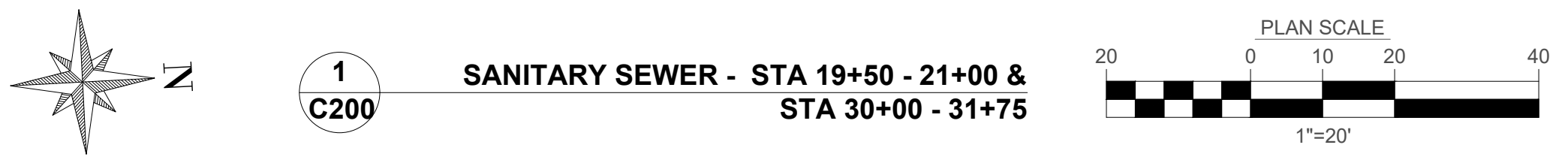
DATE: FEBRUARY 2025

SHEET TITLE:
**SANITARY SEWER -
STA 19+50 - 21+00 &
STA 30+00 - 31+75**

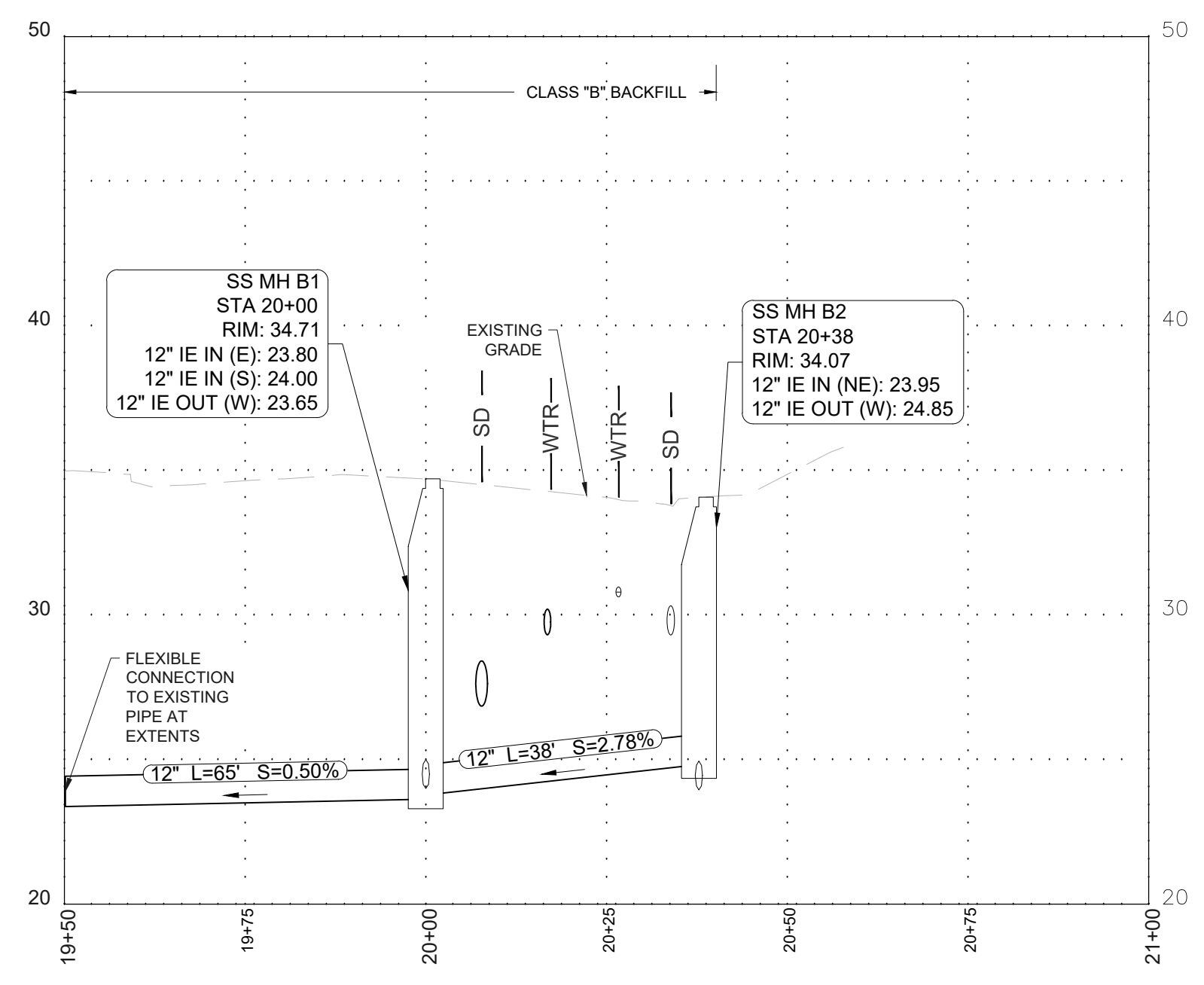
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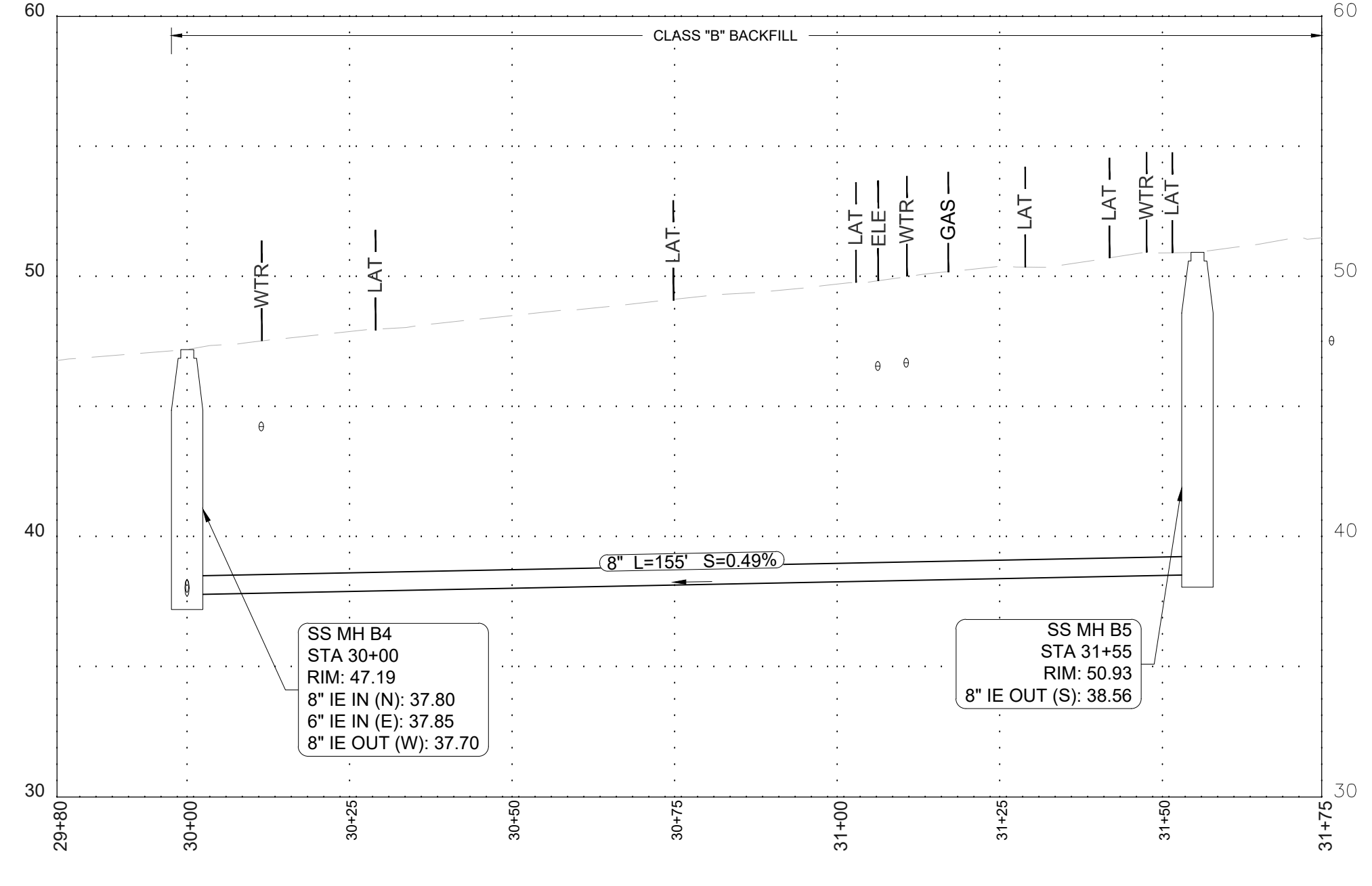
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 - SEWER MUST REMAIN IN SERVICE DURING CONSTRUCTION. PROTECT PIPES, FITTINGS, VALVES, ETC. IN PLACE. BYPASS PUMP AS REQ'D TO MAINTAIN SERVICE.
 - CONTRACTOR SHALL PROTECT IN PLACE CURB & GUTTER AS WELL AS CURB & GUTTER BASE. TRENCHING & SHORING SHALL BE USED TO PREVENT LOSS OF CURB & GUTTER BASE MATERIAL.
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1
C200 SANITARY SEWER - STA 19+50 - 21+00 & STA 30+00 - 31+75



2
C200 SANITARY SEWER - PROFILE - STA 19+50 - 21+00
SCALE HORIZ: 1" = 20'
VERT: 1" = 5'



3
C200 SANITARY SEWER - PROFILE - STA 30+00 - 31+75
SCALE HORIZ: 1" = 20'
VERT: 1" = 5'

CONSTRUCTION

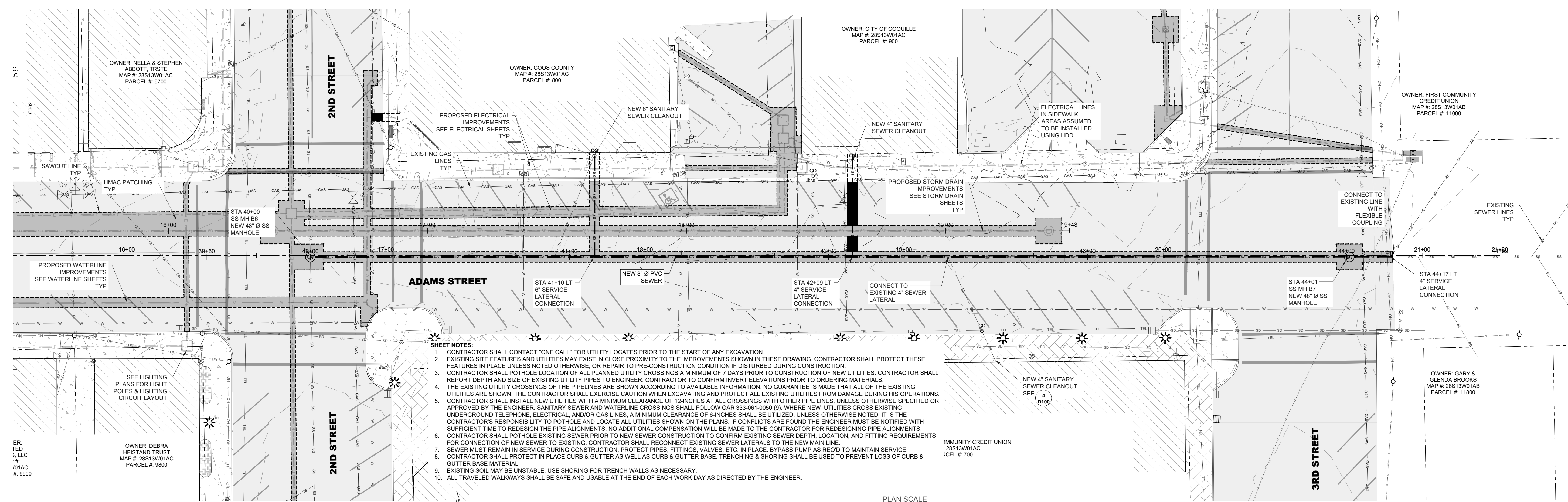
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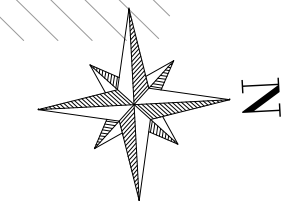
DATE: FEBRUARY 2025

SHEET TITLE:
SANITARY SEWER - STA 40+00 - 44+59

C201

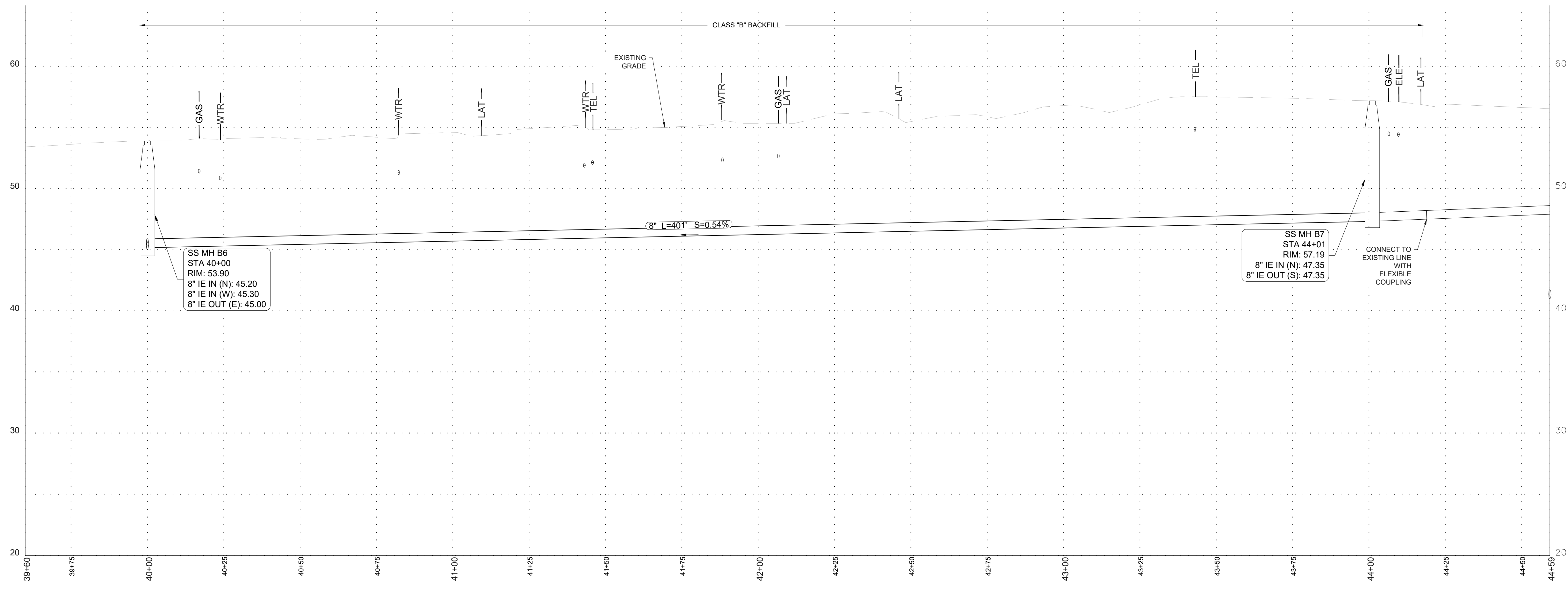
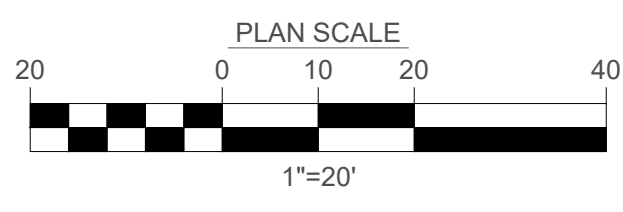


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1
C201

SANITARY SEWER - STA 40+00 - 44+59



2
C201

SANITARY SEWER - PROFILE - STA 40+00 - 44+59

SCALE HORIZ: 1"=20'
VERT: 1"=5'

CONSTRUCTION

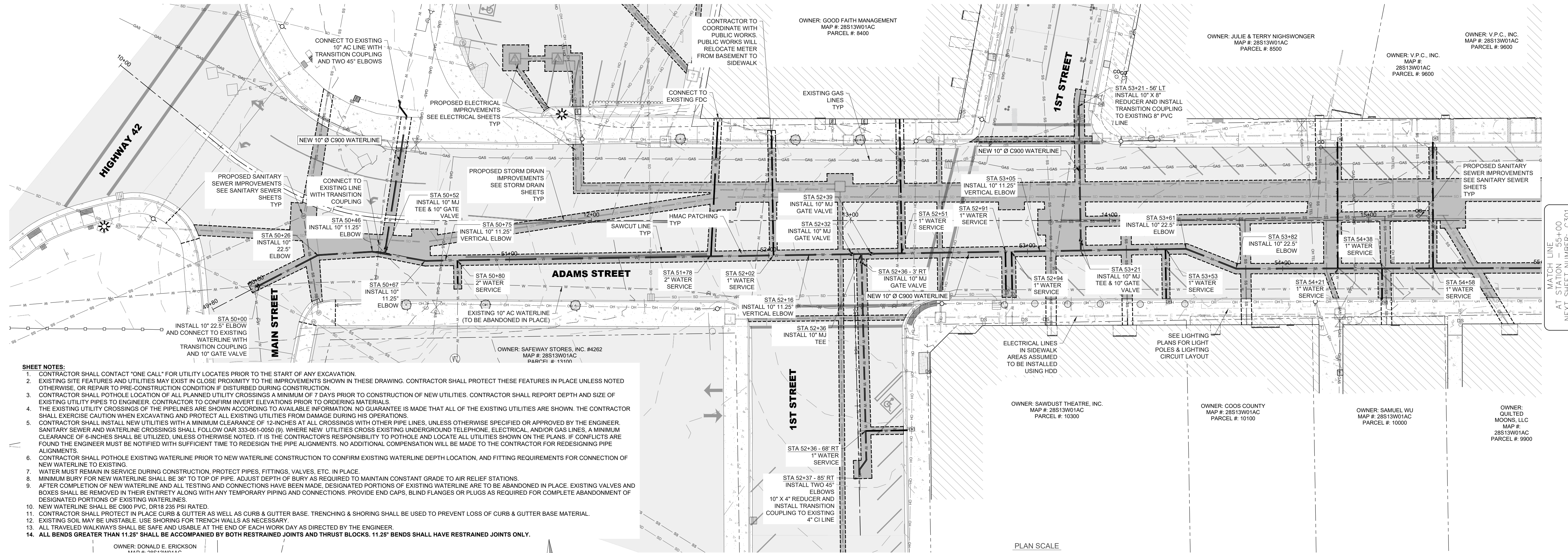
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DATE: FEBRUARY 2025

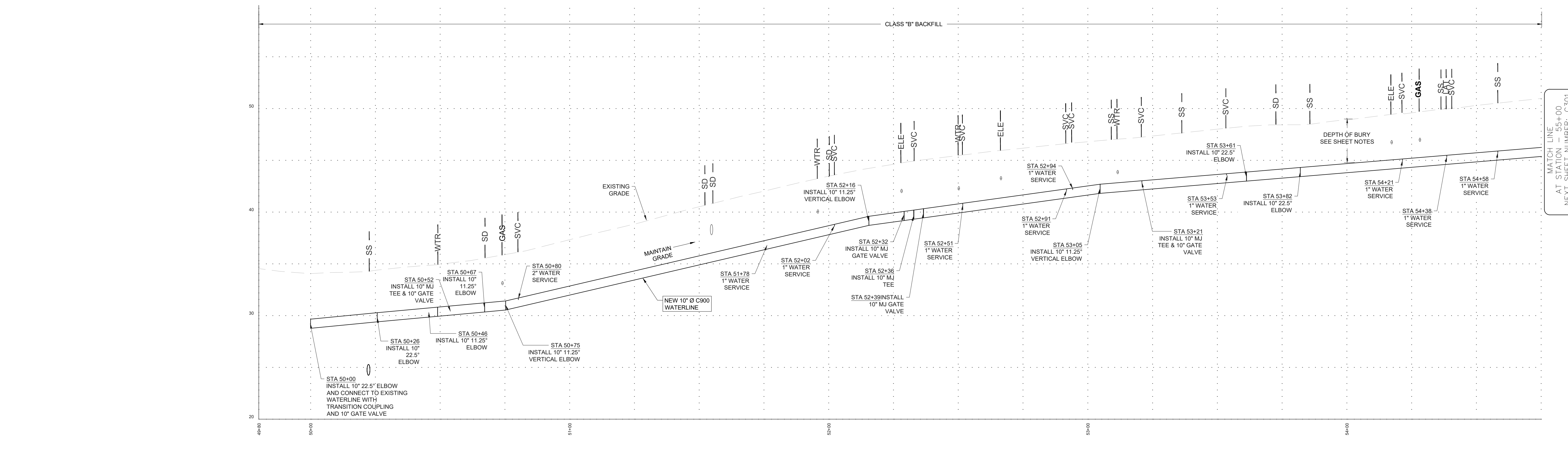
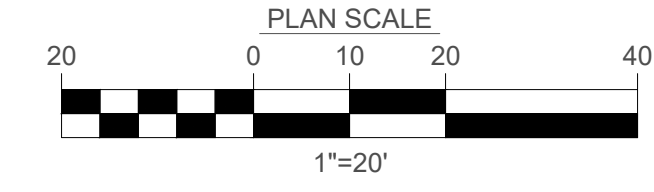
SHEET TITLE:
WATERLINE IMPROVEMENTS - STA 50+00 - 55+00

C300



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 - CONTRACTOR SHALL POTHOLE EXISTING WATERLINE PRIOR TO NEW WATERLINE CONSTRUCTION TO CONFIRM EXISTING WATERLINE DEPTH LOCATION, AND FITTING REQUIREMENTS FOR CONNECTION OF NEW WATERLINE TO EXISTING.
 - WATER MUST REMAIN IN SERVICE DURING CONSTRUCTION. PROTECT PIPES, FITTINGS, VALVES, ETC. IN PLACE.
 - MINIMUM BURY FOR NEW WATERLINE SHALL BE 36" TO TOP OF PIPE. ADJUST DEPTH OF BURY AS REQUIRED TO MAINTAIN CONSTANT GRADE TO AIR RELIEF STATIONS.
 - AFTER COMPLETION OF NEW WATERLINE AND ALL TESTING AND CONNECTIONS HAVE BEEN MADE, DESIGNATED PORTIONS OF EXISTING WATERLINE ARE TO BE ABANDONED IN PLACE. EXISTING VALVES AND BOXES SHALL BE REMOVED IN THEIR ENTIRETY ALONG WITH ANY TEMPORARY PIPING AND CONNECTIONS. PROVIDE END CAPS, BLIND FLANGES OR PLUGS AS REQUIRED FOR COMPLETE ABANDONMENT OF DESIGNATED PORTIONS OF EXISTING WATERLINES.
 - NEW WATERLINE SHALL BE C900 PVC, DR18 235 PSI RATED.
 - CONTRACTOR SHALL PROTECT IN PLACE CURB & GUTTER AS WELL AS CURB & GUTTER BASE. TRENCHING & SHORING SHALL BE USED TO PREVENT LOSS OF CURB & GUTTER BASE MATERIAL.
 - EXISTING SOIL MAY BE UNSTABLE. USE SHORING FOR TRENCH WALLS AS NECESSARY.
 - ALL TRAVELED WALKWAYS SHALL BE SAFE AND USABLE AT THE END OF EACH WORK DAY AS DIRECTED BY THE ENGINEER.
 - ALL BENDS GREATER THAN 11.25° SHALL BE ACCOMPANIED BY BOTH RESTRAINED JOINTS AND THRUST BLOCKS. 11.25° BENDS SHALL HAVE RESTRAINED JOINTS ONLY.

1 WATERLINE IMPROVEMENTS - STA 50+00 - 55+00
C300



2 WATERLINE IMPROVEMENTS - PROFILE - STA 50+00 - 55+00
C300
SCALE HORIZ: 1" = 20'
VERT: 1" = 5'

CONSTRUCTION

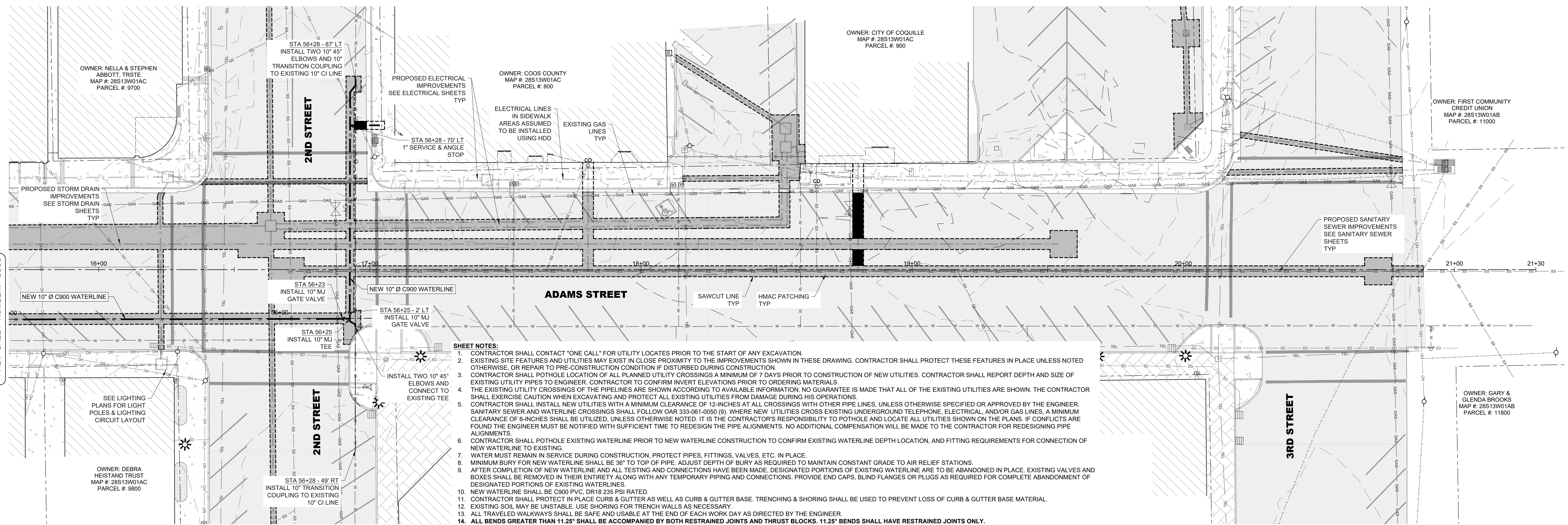
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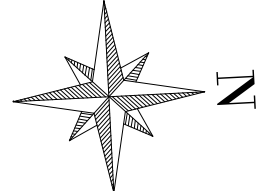
DATE: FEBRUARY 2025

SHEET TITLE:
WATERLINE IMPROVEMENTS - STA 55+00 - END

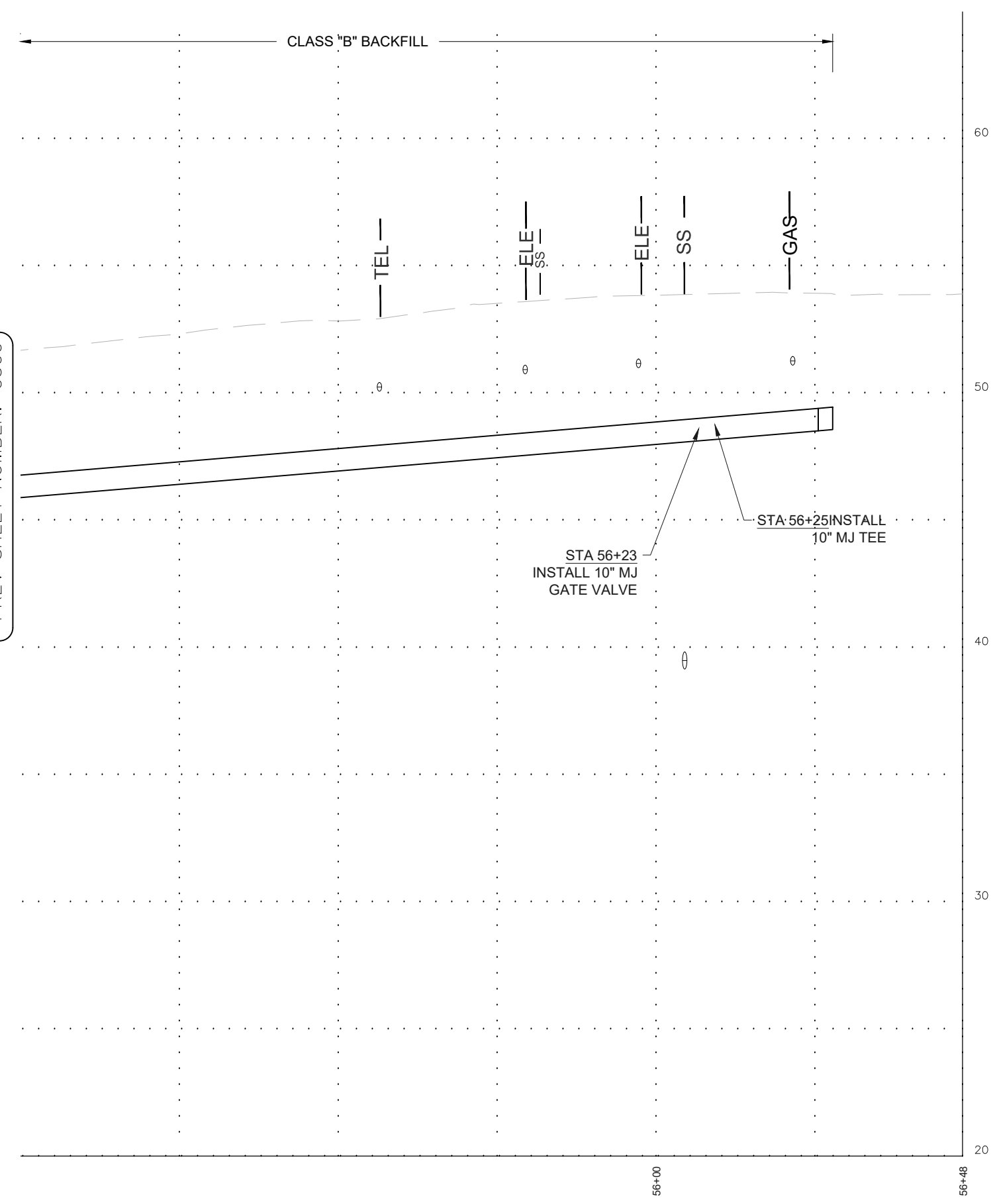
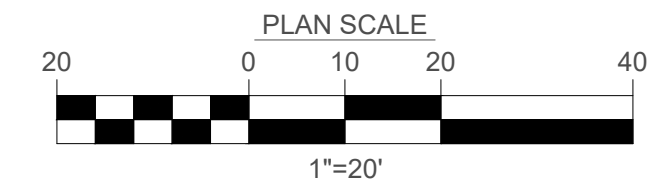
C301



- SHEET NOTES:**
- CONTRACTOR SHALL CONTACT "ONE CALL" FOR UTILITY LOCATES PRIOR TO THE START OF ANY EXCAVATION.
 - EXISTING SITE FEATURES AND UTILITIES MAY EXIST IN CLOSE PROXIMITY TO THE IMPROVEMENTS SHOWN IN THESE DRAWINGS. CONTRACTOR SHALL PROTECT THESE FEATURES IN PLACE UNLESS NOTED OTHERWISE, OR REPAIR TO PRE-CONSTRUCTION CONDITION IF DISTURBED DURING CONSTRUCTION.
 - CONTRACTOR SHALL POTHOLE LOCATION OF ALL PLANNED UTILITY CROSSINGS A MINIMUM OF 7 DAYS PRIOR TO CONSTRUCTION OF NEW UTILITIES. CONTRACTOR SHALL REPORT DEPTH AND SIZE OF EXISTING UTILITY PIPES TO ENGINEER. CONTRACTOR TO CONFIRM INVERT ELEVATIONS PRIOR TO ORDERING MATERIALS.
 - THE EXISTING UTILITY CROSSINGS OF THE PIPELINES ARE SHOWN ACCORDING TO AVAILABLE INFORMATION. NO GUARANTEE IS MADE THAT ALL OF THE EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING HIS OPERATIONS.
 - CONTRACTOR SHALL INSTALL NEW UTILITIES WITH A MINIMUM CLEARANCE OF 12-INCHES AT ALL CROSSINGS WITH OTHER PIPE LINES, UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER. SANITARY SEWER AND WATERLINE CROSSINGS SHALL FOLLOW OAR 333-061-0050 (9). WHERE NEW UTILITIES CROSS EXISTING UNDERGROUND TELEPHONE, ELECTRICAL, AND/OR GAS LINES, A MINIMUM CLEARANCE OF 6-INCHES SHALL BE UTILIZED, UNLESS OTHERWISE NOTED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO POTHOLE AND LOCATE ALL UTILITIES SHOWN ON THE PLANS. IF CONFLICTS ARE FOUND THE ENGINEER MUST BE NOTIFIED WITH SUFFICIENT TIME TO REDESIGN THE PIPE ALIGNMENTS. NO ADDITIONAL COMPENSATION WILL BE MADE TO THE CONTRACTOR FOR REDESIGNING PIPE ALIGNMENTS.
 - CONTRACTOR SHALL POTHOLE EXISTING WATERLINE PRIOR TO NEW WATERLINE CONSTRUCTION TO CONFIRM EXISTING WATERLINE DEPTH LOCATION, AND FITTING REQUIREMENTS FOR CONNECTION OF NEW WATERLINE TO EXISTING.
 - WATER MUST REMAIN IN SERVICE DURING CONSTRUCTION. PROTECT PIPES, FITTINGS, VALVES, ETC. IN PLACE.
 - MINIMUM BURY FOR NEW WATERLINE SHALL BE 36" TO TOP OF PIPE. ADJUST DEPTH OF BURY AS REQUIRED TO MAINTAIN CONSTANT GRADE TO AIR RELIEF STATIONS.
 - AFTER COMPLETION OF NEW WATERLINE AND ALL TESTING AND CONNECTIONS HAVE BEEN MADE, DESIGNATED PORTIONS OF EXISTING WATERLINE ARE TO BE ABANDONED IN PLACE. EXISTING VALVES AND BOXES SHALL BE REMOVED IN THEIR ENTIRETY ALONG WITH ANY TEMPORARY PIPING AND CONNECTIONS. PROVIDE END CAPS, BLIND FLANGES OR PLUGS AS REQUIRED FOR COMPLETE ABANDONMENT OF DESIGNATED PORTIONS OF EXISTING WATERLINES.
 - NEW WATERLINE SHALL BE C900 PVC, DR18 235 PSI RATED.
 - CONTRACTOR SHALL PROTECT IN PLACE CURB & GUTTER AS WELL AS CURB & GUTTER BASE. TRENCHING & SHORING SHALL BE USED TO PREVENT LOSS OF CURB & GUTTER BASE MATERIAL.
 - EXISTING SOIL MAY BE UNSTABLE. USE SHORING FOR TRENCH WALLS AS NECESSARY.
 - ALL TRAVELED WALKWAYS SHALL BE SAFE AND USABLE AT THE END OF EACH WORK DAY AS DIRECTED BY THE ENGINEER.
 - ALL BENDS GREATER THAN 11.25° SHALL BE ACCOMPANIED BY BOTH RESTRAINED JOINTS AND THRUST BLOCKS. 11.25° BENDS SHALL HAVE RESTRAINED JOINTS ONLY.



1
C301 WATERLINE IMPROVEMENTS - STA 55+00 - END



2
C301 WATERLINE IMPROVEMENTS - PROFILE - STA 55+00 - END
SCALE HORIZ: 1" = 20'
VERT: 1" = 5'

CONSTRUCTION

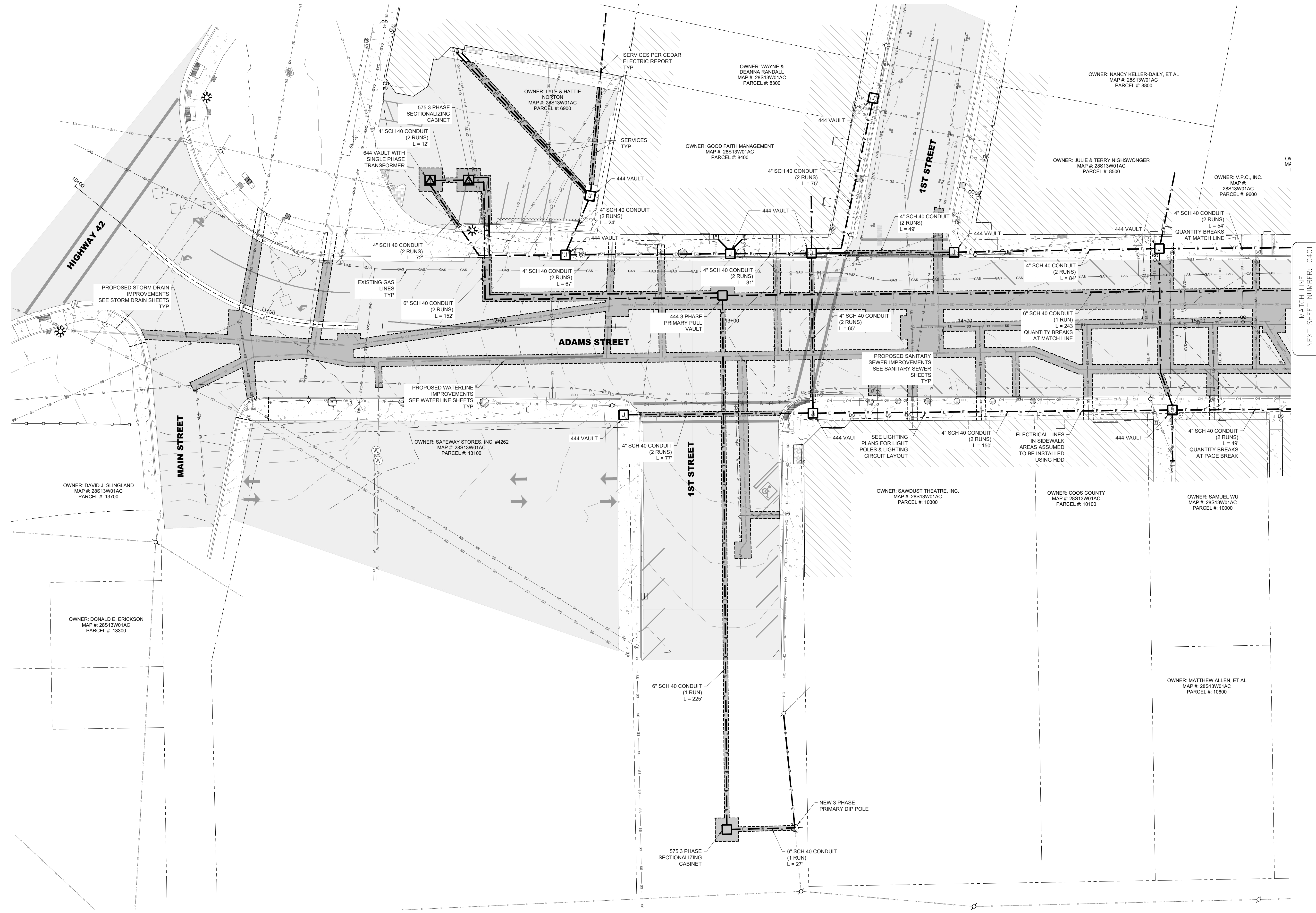
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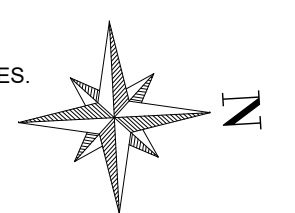
DATE: FEBRUARY 2025

SHEET TITLE:
ELECTRICAL
IMPROVEMENTS

C400

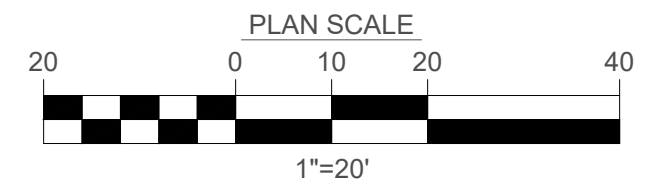


- SHEET NOTES:**
- MINOR ADJUSTMENTS OF VAULT & CONDUIT LOCATIONS MAY BE REQUIRED TO MAINTAIN APPROPRIATE CLEARANCES TO OTHER UNDERGROUND UTILITIES.
 - SERVICE UPGRADES SHALL BE PERFORMED PER REPORT BY CEDAR ELECTRIC.
 - LINE LENGTHS SHOWN ARE APPROXIMATE AND BASED ON PRELIMINARY LAYOUT.
 - ALL VAULTS AND CONDUIT SHALL BE INSTALLED TO PPL STANDARDS AND SPECIFICATIONS.



1
C400

ELECTRICAL IMPROVEMENTS



MATCH LINE
NEXT SHEET NUMBER: C401

CONSTRUCTION

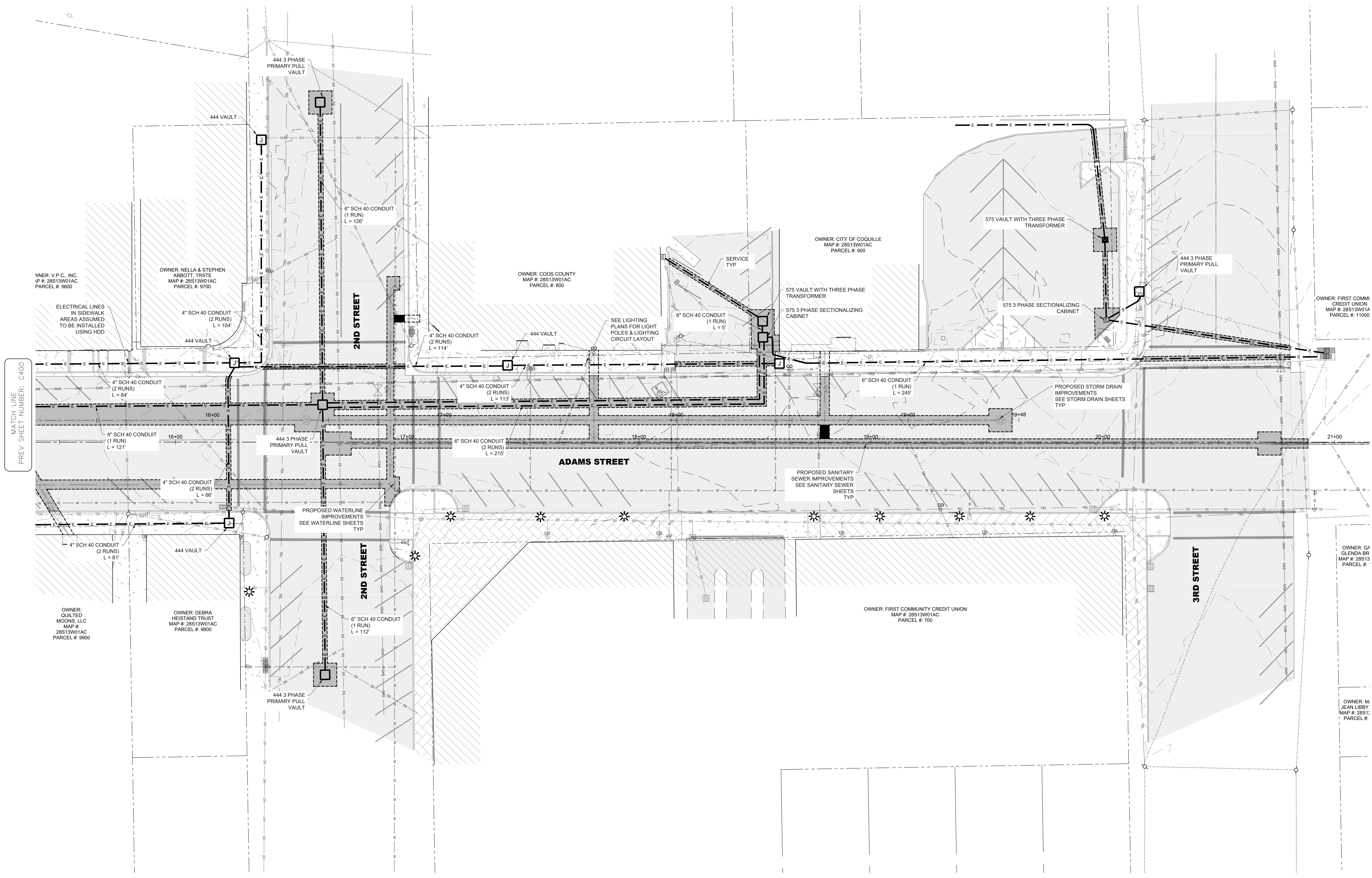
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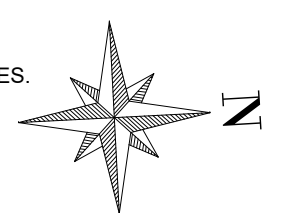
DATE: FEBRUARY 2025

SHEET TITLE:
ELECTRICAL
IMPROVEMENTS

C401

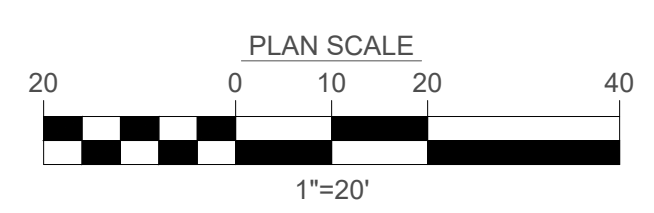


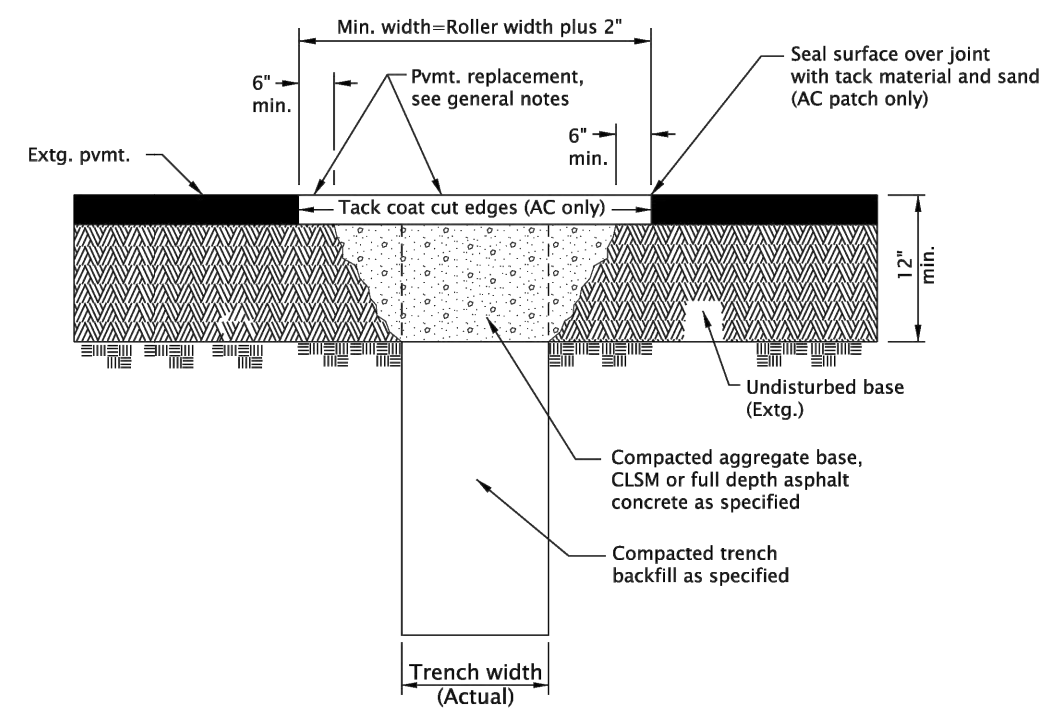
- SHEET NOTES:**
- MINOR ADJUSTMENTS OF VAULT & CONDUIT LOCATIONS MAY BE REQUIRED TO MAINTAIN APPROPRIATE CLEARANCES TO OTHER UNDERGROUND UTILITIES.
 - SERVICE UPGRADES SHALL BE PERFORMED PER REPORT BY CEDAR ELECTRIC
 - LINE LENGTHS SHOWN ARE APPROXIMATE AND BASED ON PRELIMINARY LAYOUT.
 - ALL VAULTS AND CONDUIT SHALL BE INSTALLED TO PPL STANDARDS AND SPECIFICATIONS.



1
C401

ELECTRICAL IMPROVEMENTS





- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:
1. All existing AC or PCC pavement shall be sawcut prior to repaving.
 2. Concrete pavement shall be replaced with concrete to a minimum thickness of 8" or to the thickness of removed pavement, whichever is greater.
 3. For joining new concrete to existing concrete, see contract plans for sepecific details.
 4. Place AC mix minimum thkn. of 6" or the thkn. of the removed pavement, whichever is greater. Compact as specified.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
STREET CUT	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO. N/A	S08 DATE: 20-JUL-2020 RD302

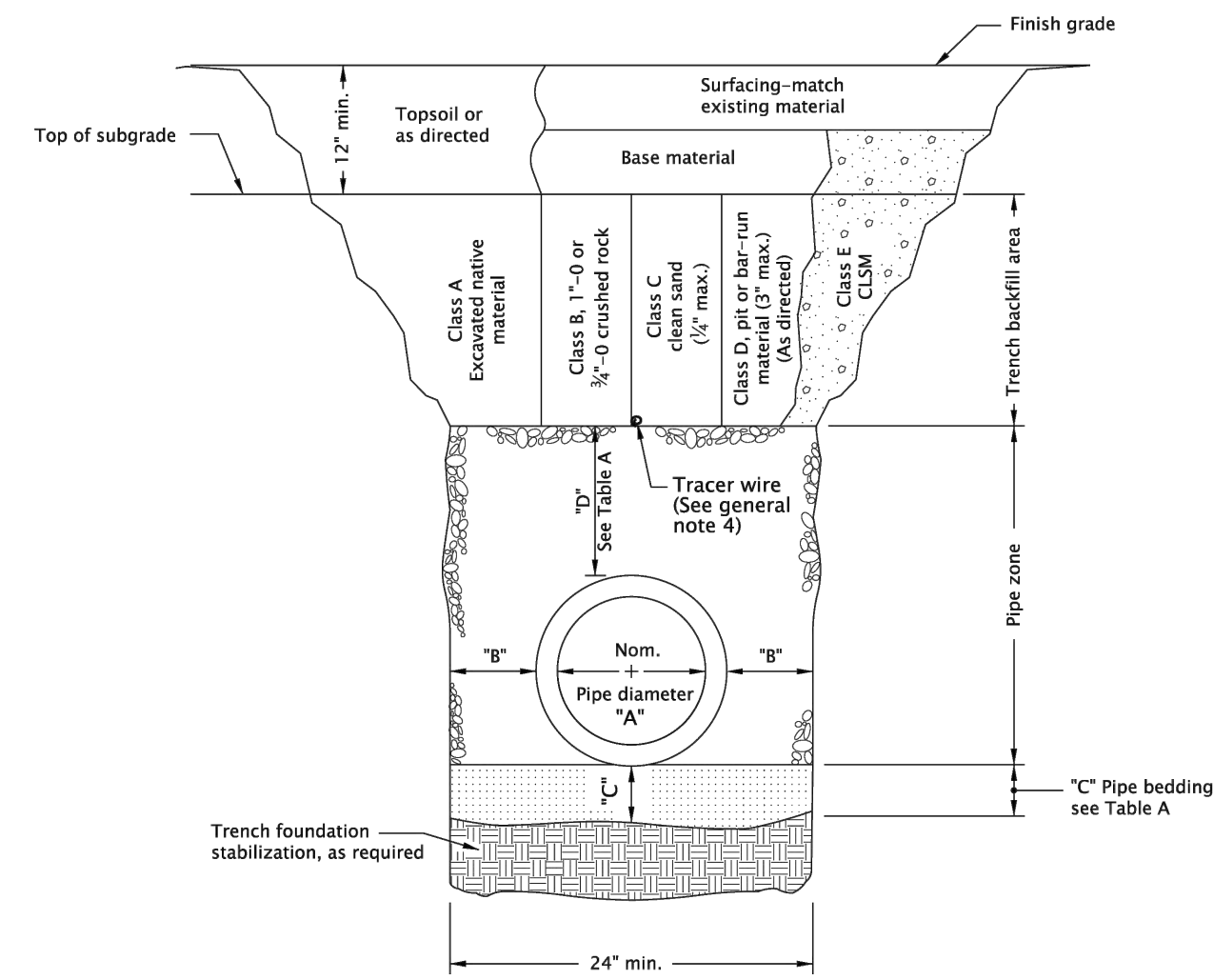


TABLE A

"A" (in)	"B" (in)	"C" (in)	"D" (in)
4	10	4	8
6	10	4	8
8	10	6	10
10	10	6	10
12	12	6	10
15	12	6	10
18	16	6	12
21	16	6	12
24	18	6	12
30	18	6	12
36	24	6	14
42	24	6	14
48	24	6	14
54	24	6	14
60	24	6	14
66	24	6	14
72	24	6	14

For pipes over 72" diameter, see general note 3.

MULTIPLE INSTALLATIONS

DIAMETER	MIN. SPACE BETWEEN PIPES
Up to 48"	24"
48" to 72"	One half (1/2) dia. of pipe

- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:
1. Surfacing of paved areas shall comply with street cut Std. Dwg. RD302.
 2. For pipe installation in embankment areas where the trench method will not be used and the pipe is $\geq 36"$ diameter, increase dimension "B" to nominal pipe diameter.
 3. Pipes over 72" diameter are structures, and are not applicable to this drawing.
 4. See Std. Dwg. RD336 for tracer wire details (When required).

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

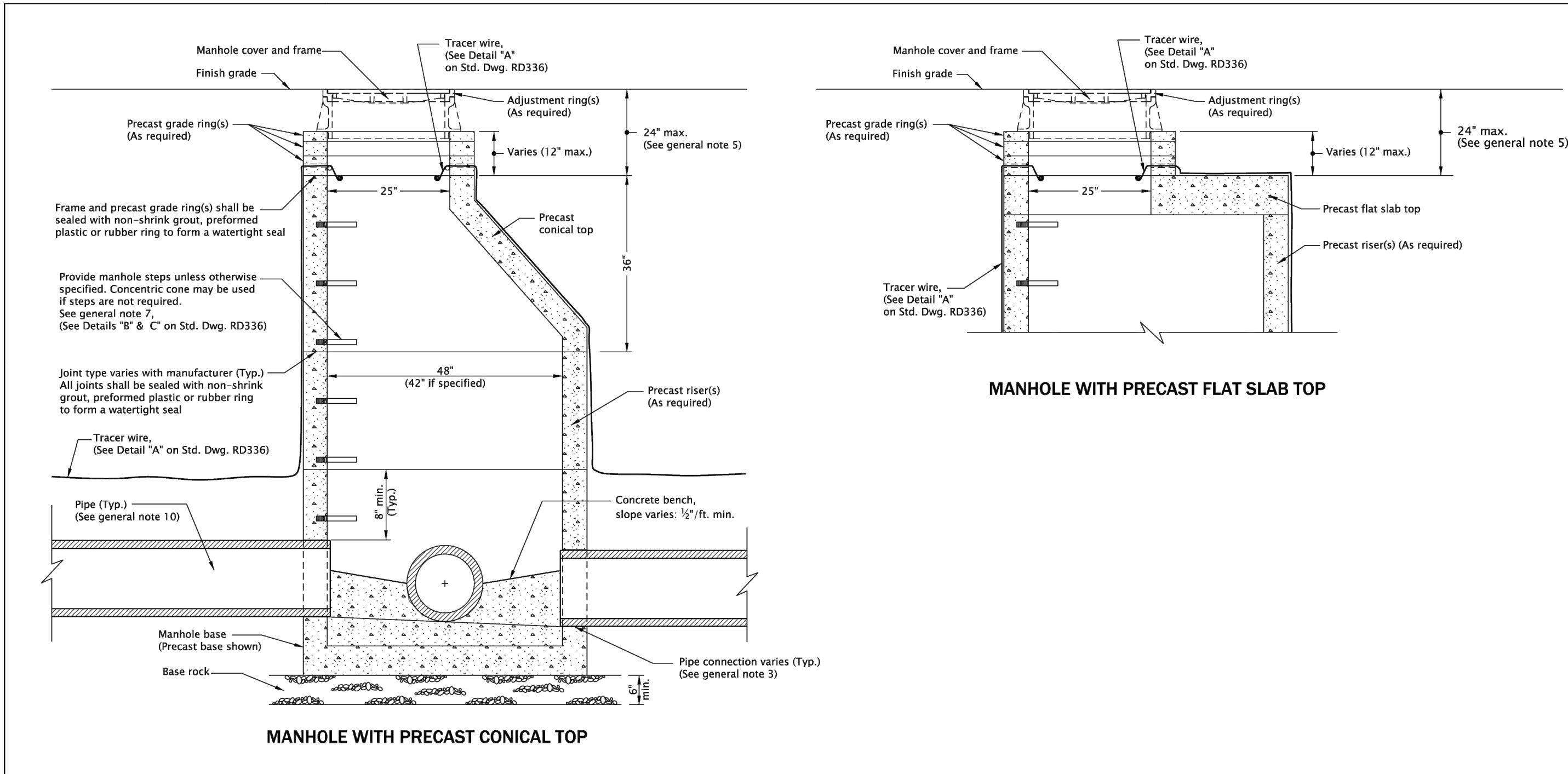
All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
TRENCH BACKFILL, BEDDING, PIPE ZONE AND MULTIPLE INSTALLATIONS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO. N/A	S08 DATE: 14-JUL-2014 RD300

CONSTRUCTION

REVISIONS:

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DATE: FEBRUARY 2025
SHEET TITLE: STANDARD DETAILS



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- All precast products shall conform to requirements of ASTM C478.
- Standard precast manhole section diameter shall be 48". Use 42" if specified by the Engineer.
- See Std. Dwg. RD345 for pipe to manhole connections.
- See Std. Dwg. RD344 for manhole base section.
- Adjust 24" maximum.
- All connecting pipes shall have a tracer wire, or approved alternate.
- See Std. Dwg. RD336 for manhole steps.
- See Std. Dwg. RD336 for details not shown.
- See Std. Dwg. RD336 for manhole covers and frames, manhole adjustment rings, etc.
- Max. pipe diameter varies with pipe material.
- See Std. Dwg. RD342 for shallow manholes.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.

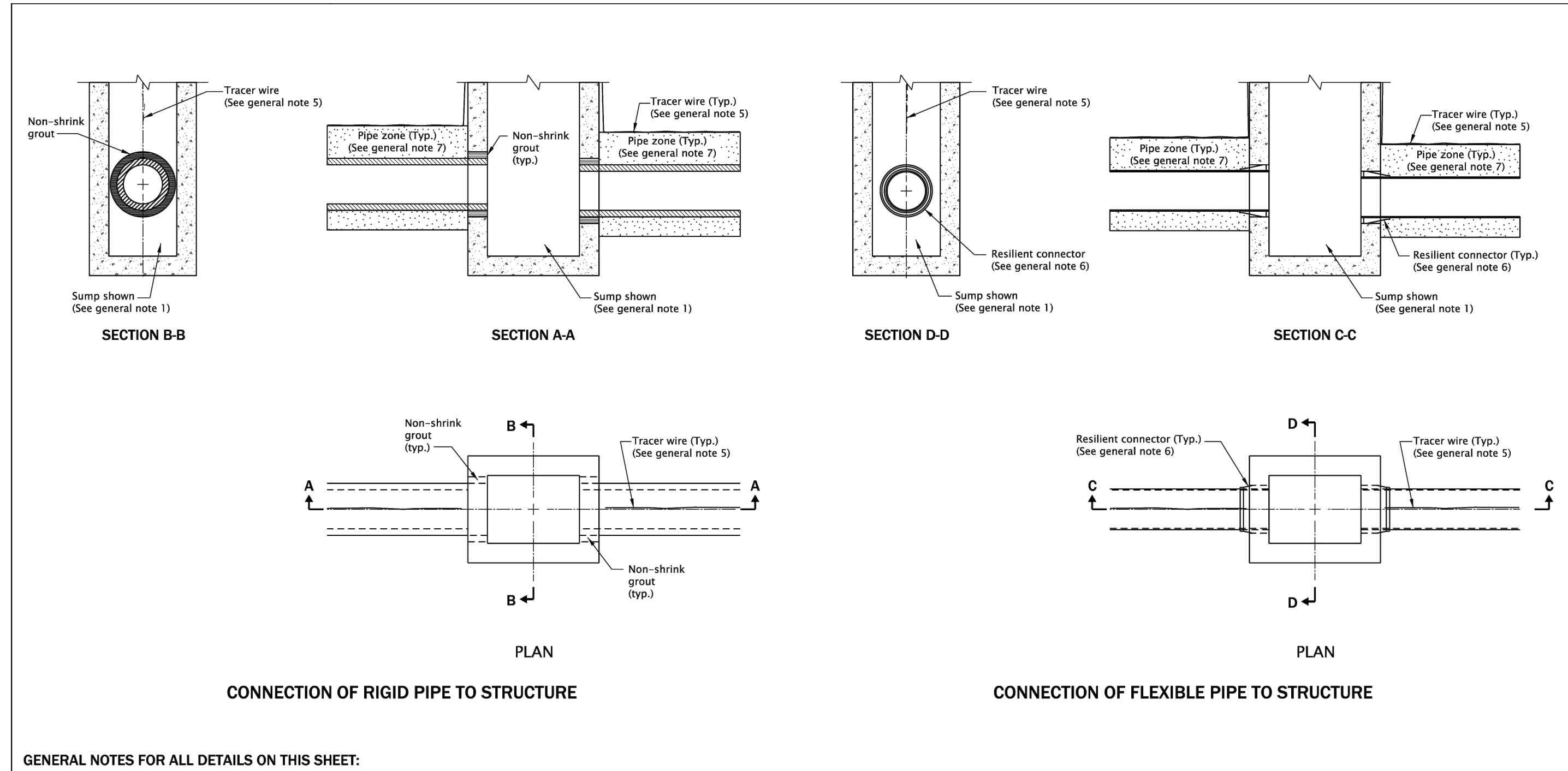
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS
STANDARD STORM SEWER MANHOLE

2024

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A SDR DATE: 25-JUN-2019 **RD335**



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- See Std. Dwg. RD364, RD365, and RD366 for inlet details not shown.
- See appropriate standard drawings or special project details for other similar structures.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
- Maximum pipe diameter varies with pipe material.
- All connecting pipes shall have a tracer wire, or approved alternate. See Std. Dwg. RD336 for tracer wire details.
- When flexible pipe is used, install resilient connectors conforming to requirements of ASTM C923.
- Pipe zone varies, see Std. Dwg. RD300.

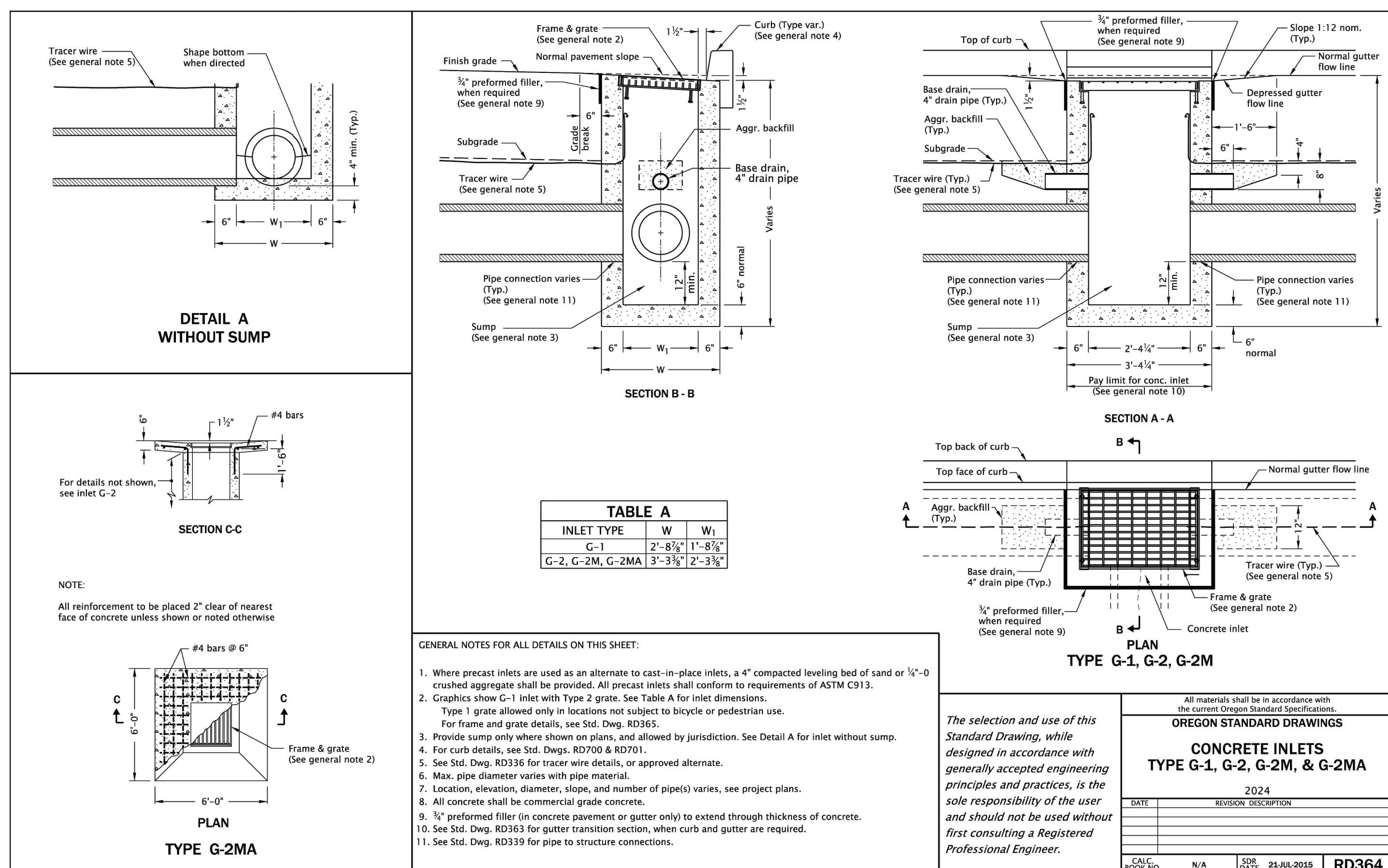
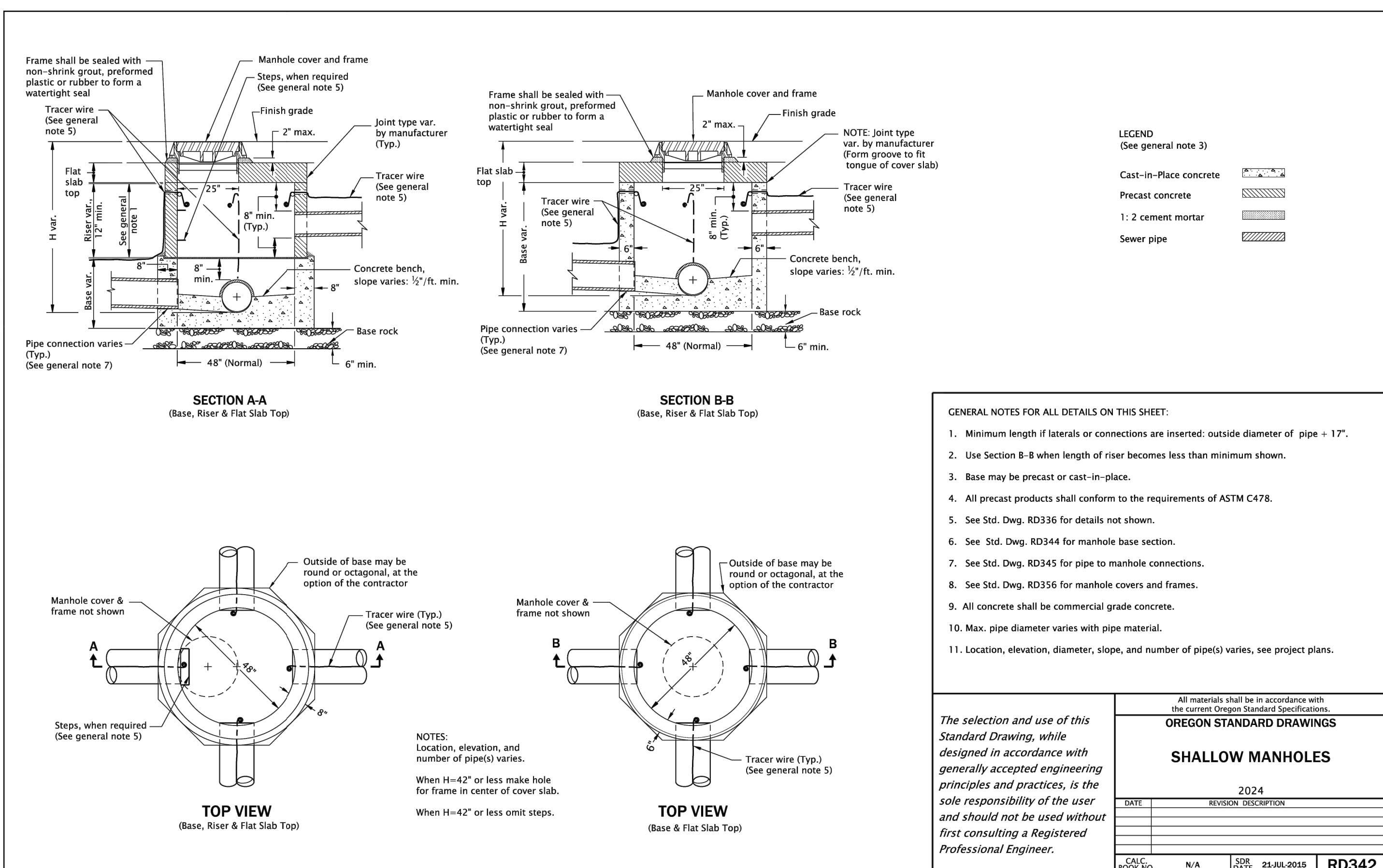
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS
PIPE TO STRUCTURE CONNECTIONS

2024

DATE	REVISION DESCRIPTION
07-2021	REVISED NOTES
04-2022	REVISED NOTES AND NOTES
07-2023	REVISED DETAILS AND NOTES

CALC. BOOK NO. N/A SDR DATE: 20-JAN-2023 **RD339**



HGE ARCHITECTS.

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Civil West
Engineering Services, Inc.

REGISTERED PROFESSIONAL ENGINEER
OREGON
SEP 11, 2018
SEAN DEAN LLOYD
RENEWS: 12/31/26

PROJECT NO.: 23.81
CITY OF COQUILLE URA
NORTH ADAMS STREETScape IMPROVEMENTS
PHASE 1: UNDERGROUND IMPROVEMENTS
CITY OF COQUILLE
COQUILLE, OREGON

CONSTRUCTION

REVISIONS:

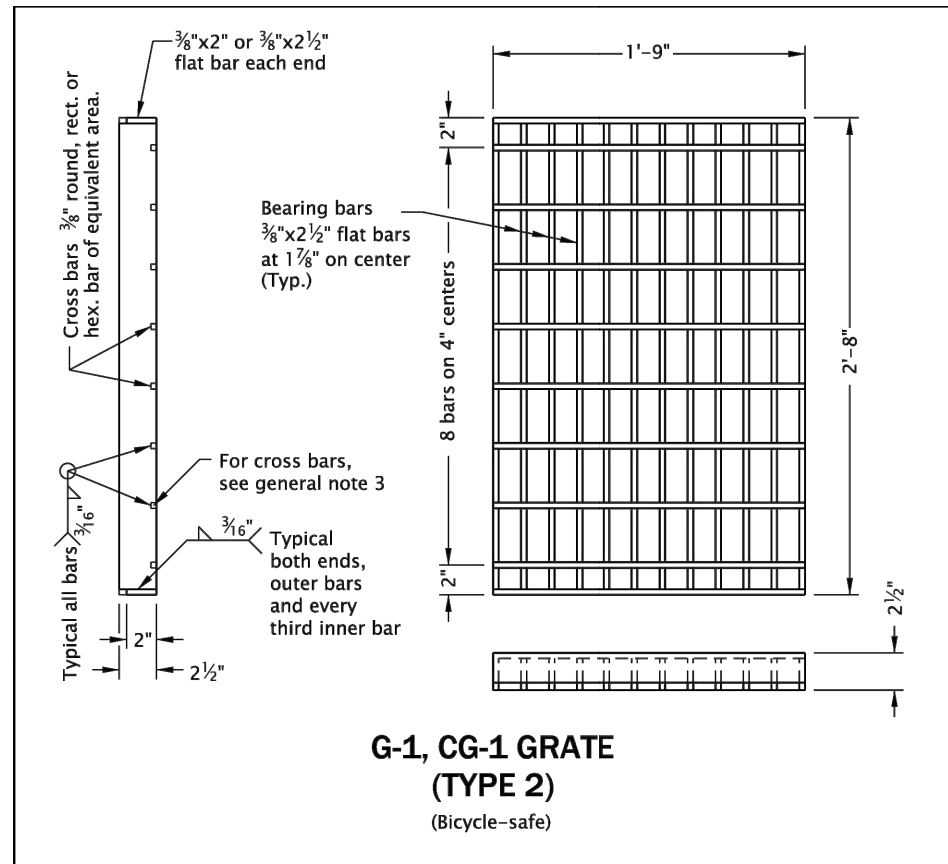
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DATE: FEBRUARY 2025

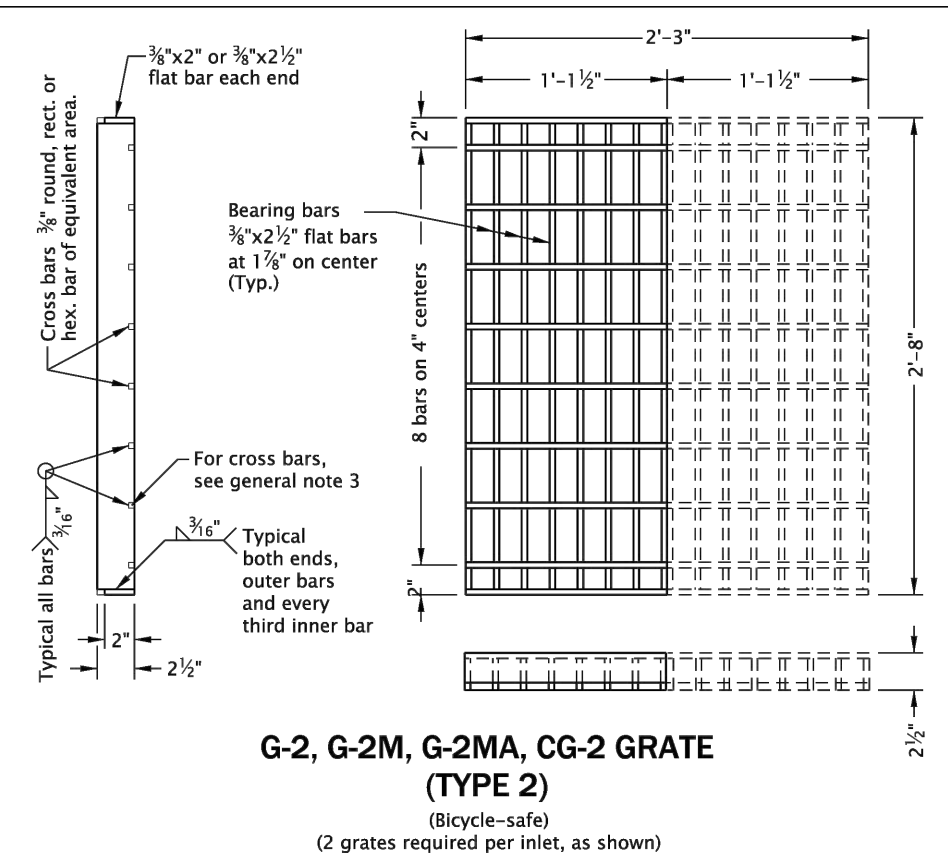
SHEET TITLE:
STANDARD DETAILS

D101

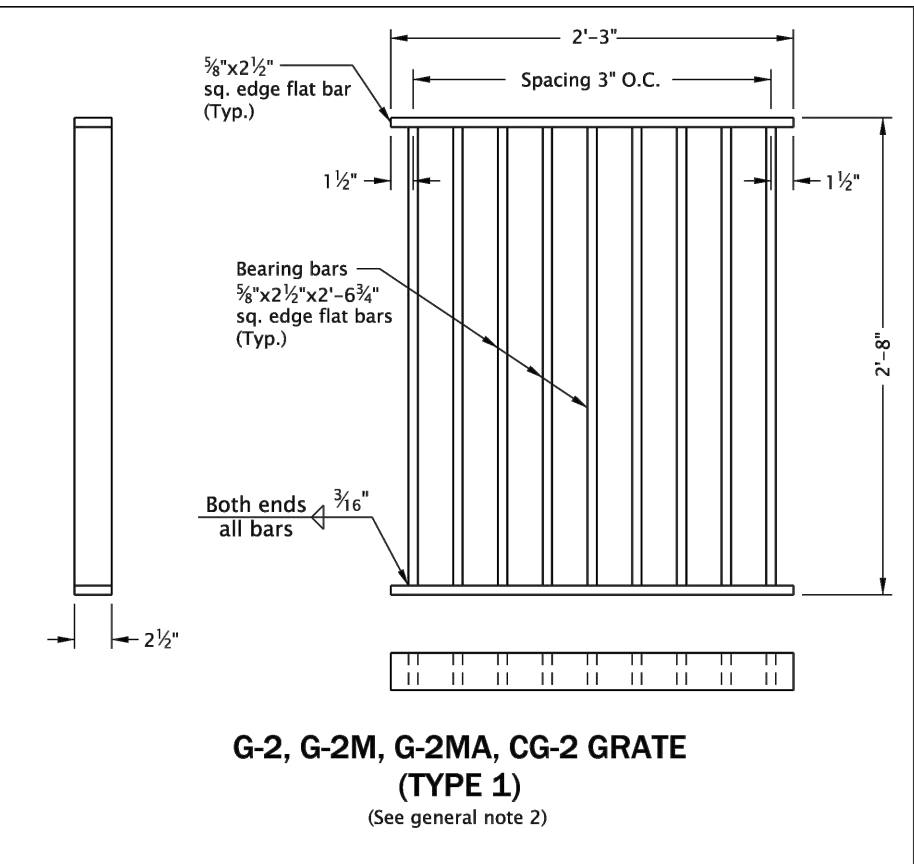
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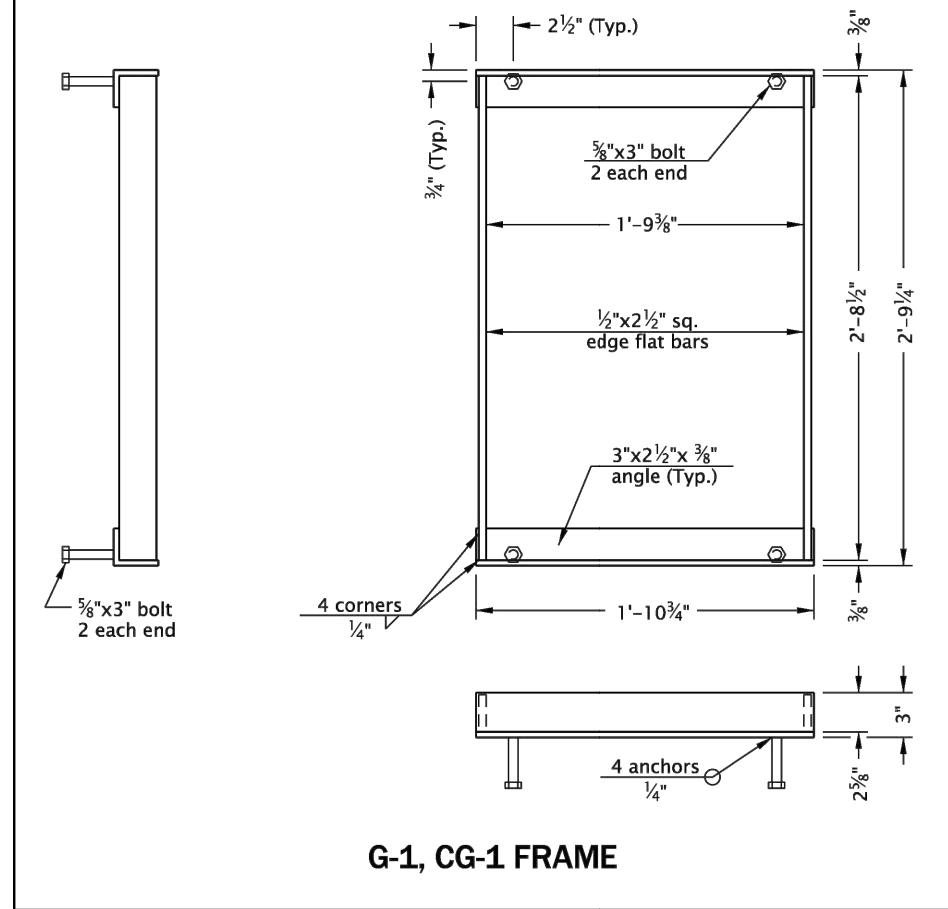
**G-1, CG-1 GRATE
(TYPE 2)**
(Bicycle-safe)



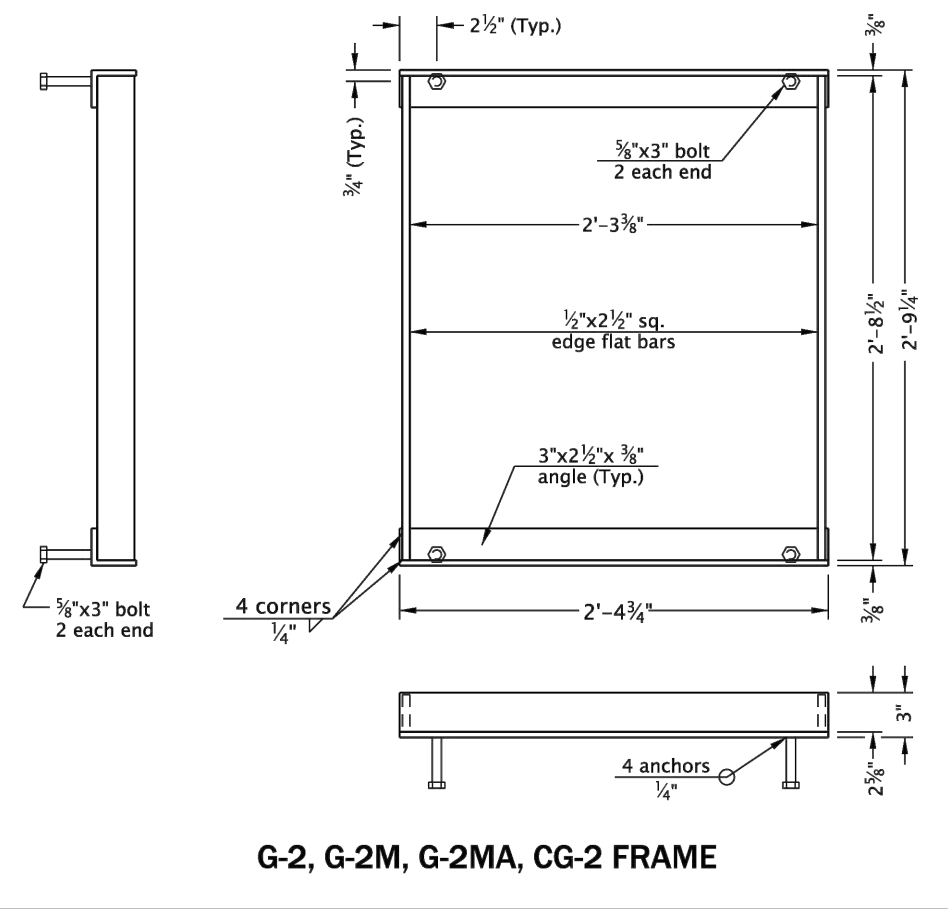
**G-2, G-2M, G-2MA, CG-2 GRATE
(TYPE 2)**
(Bicycle-safe)



**G-2, G-2M, G-2MA, CG-2 GRATE
(TYPE 1)**
(See general note 2)



G-1, CG-1 FRAME



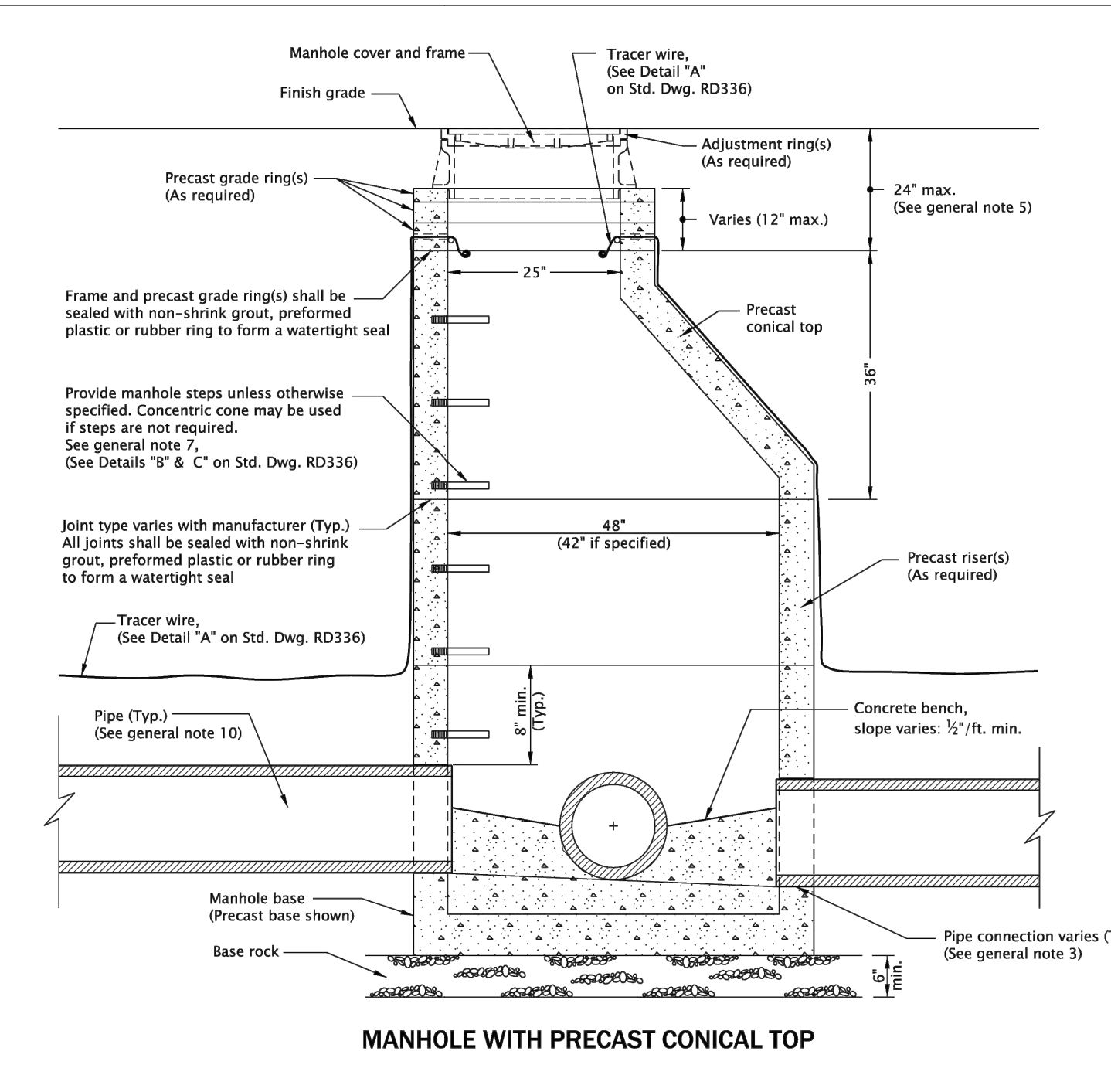
G-2, G-2M, G-2MA, CG-2 FRAME

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- For inlet details, see appropriate inlet standard drawing(s).
- Type 1 grate allowed only in locations not subject to bicycle or pedestrian use.
- 3/8" cross bars shall be flush with the top of grate surface and may be fillet welded, resistance welded or electroforged to bearing bars.
- Hot dip galvanize after fabrication.
- Cast iron grate and frame are acceptable alternates. See ODOT's QPL.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
FRAMES & GRATES FOR CONCRETE INLETS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR. DATE	14-JUN-2014
	RD365



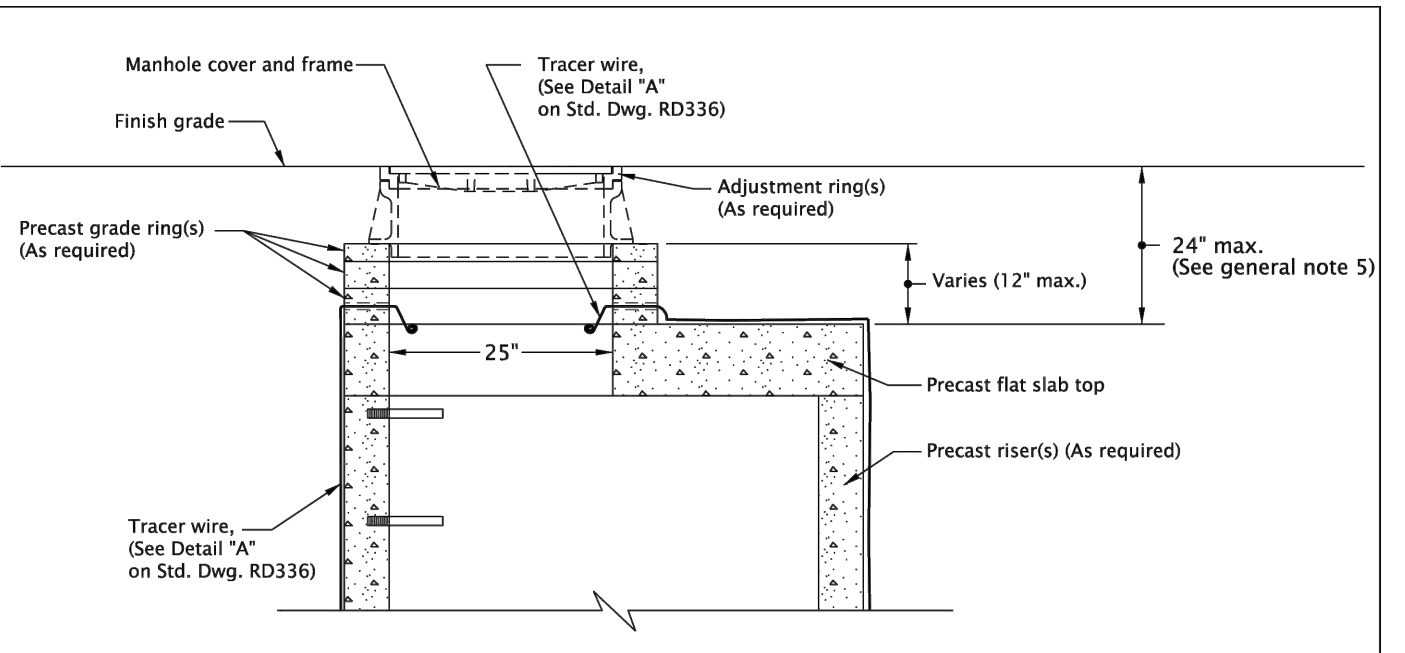
MANHOLE WITH PRECAST CONICAL TOP

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- All precast products shall conform to requirements of ASTM C478.
- Standard precast manhole section diameter shall be 48". Use 42" if specified by the Engineer.
- See Std. Dwg. RD345 for pipe to manhole connections.
- See Std. Dwg. RD344 for manhole base section.
- Adjust 24" maximum.
- All connecting pipes shall have a tracer wire, or approved alternate.
- See Std. Dwg. RD336 for manhole steps.
- See Std. Dwg. RD336 for details not shown.
- See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.
- Max. pipe diameter varies with pipe material.
- See Std. Dwg. RD342 for shallow manholes.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
- This detail limited to interior drop of 24". See Std. Dwg. RD350 or RD352 for drop manhole details for drops in excess of 24".

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
STANDARD SANITARY SEWER MANHOLE	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR. DATE	21-JUN-2019
	RD338



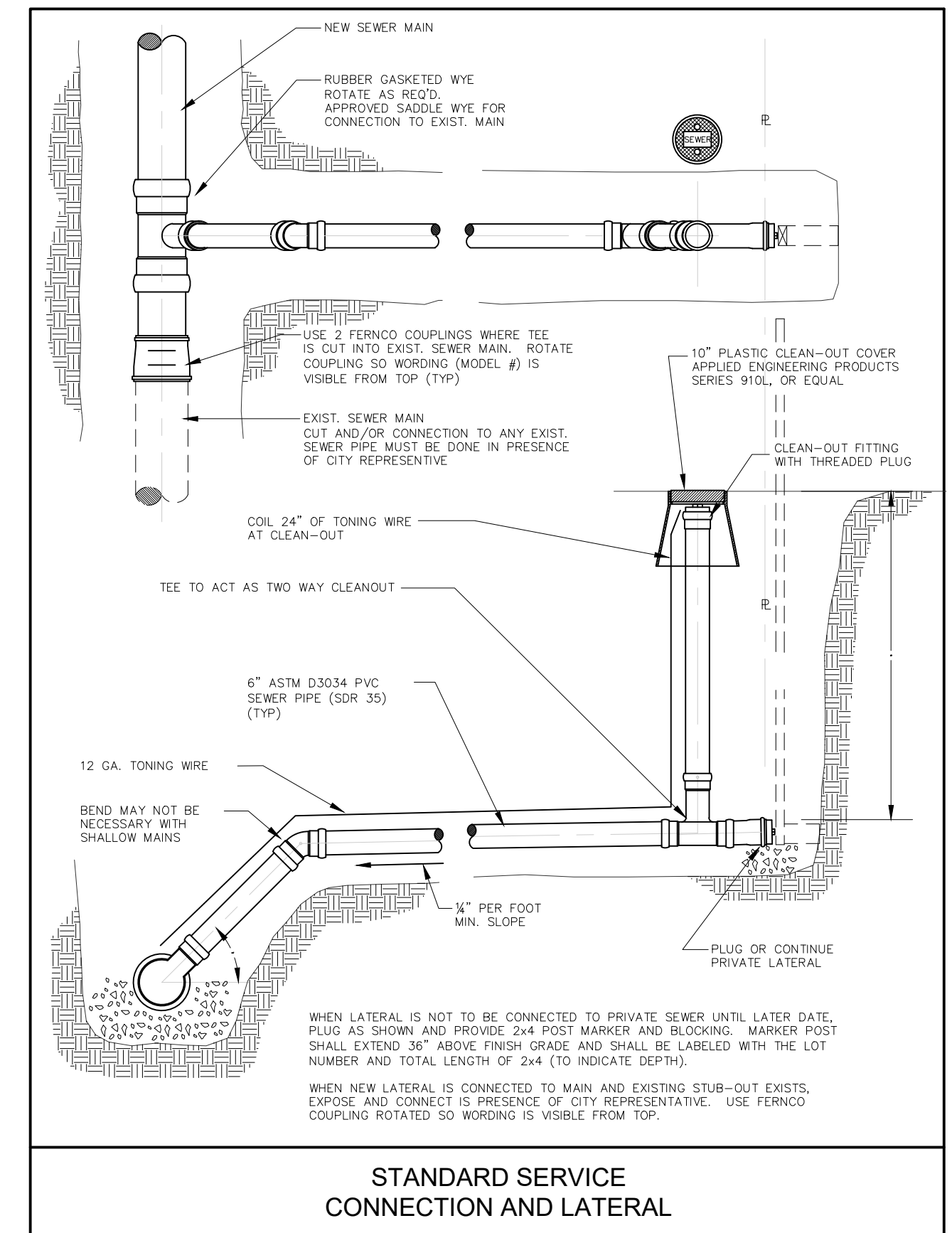
MANHOLE WITH PRECAST FLAT SLAB TOP

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

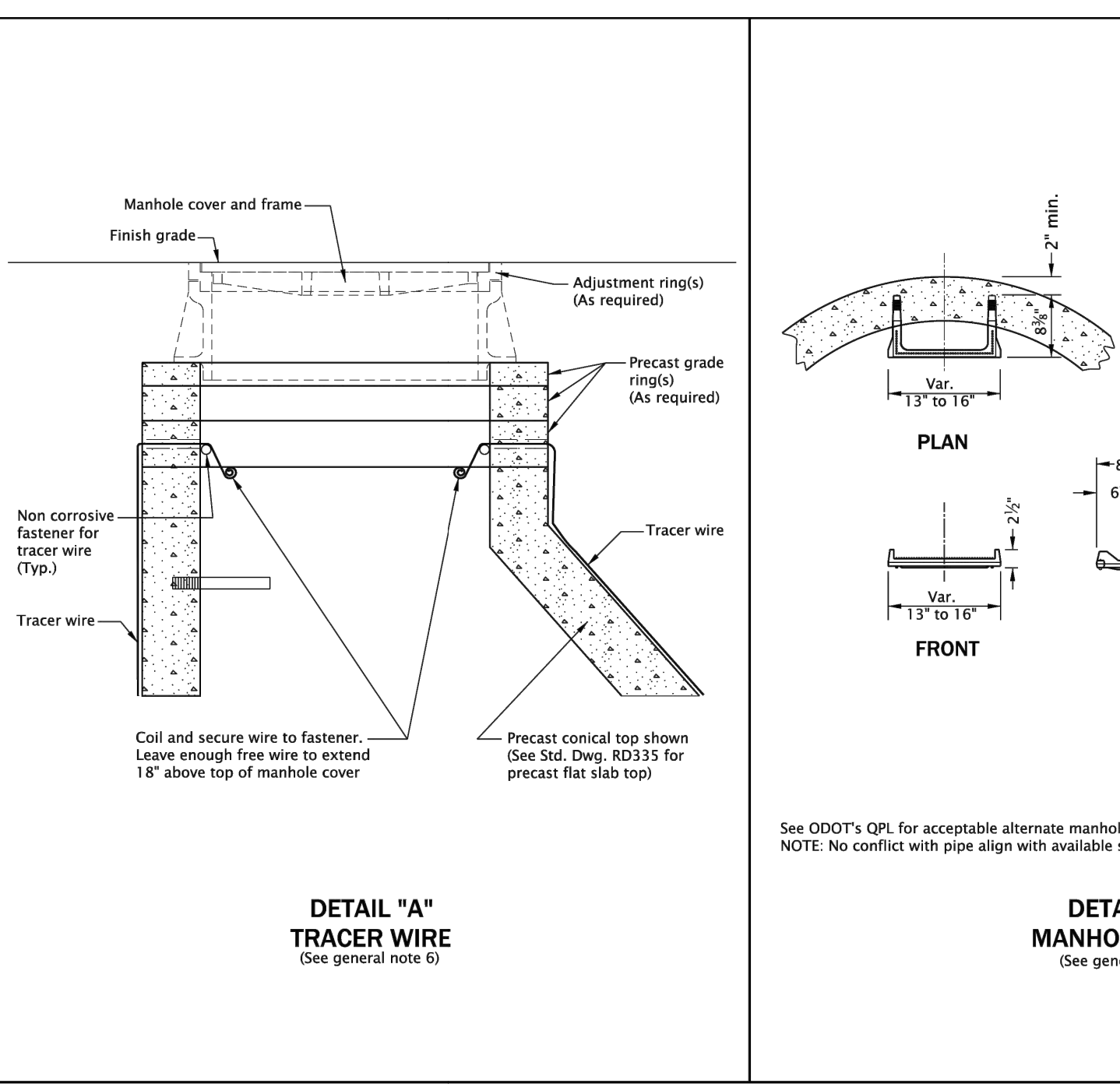
- All precast products shall conform to requirements of ASTM C478.
- Standard precast manhole section diameter shall be 48". Use 42" if specified by the Engineer.
- See Std. Dwg. RD345 for pipe to manhole connections.
- See Std. Dwg. RD344 for manhole base section.
- Adjust 24" maximum.
- All connecting pipes shall have a tracer wire, or approved alternate.
- See Std. Dwg. RD336 for manhole steps.
- See Std. Dwg. RD336 for details not shown.
- See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.
- Max. pipe diameter varies with pipe material.
- See Std. Dwg. RD342 for shallow manholes.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
- This detail limited to interior drop of 24". See Std. Dwg. RD350 or RD352 for drop manhole details for drops in excess of 24".

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

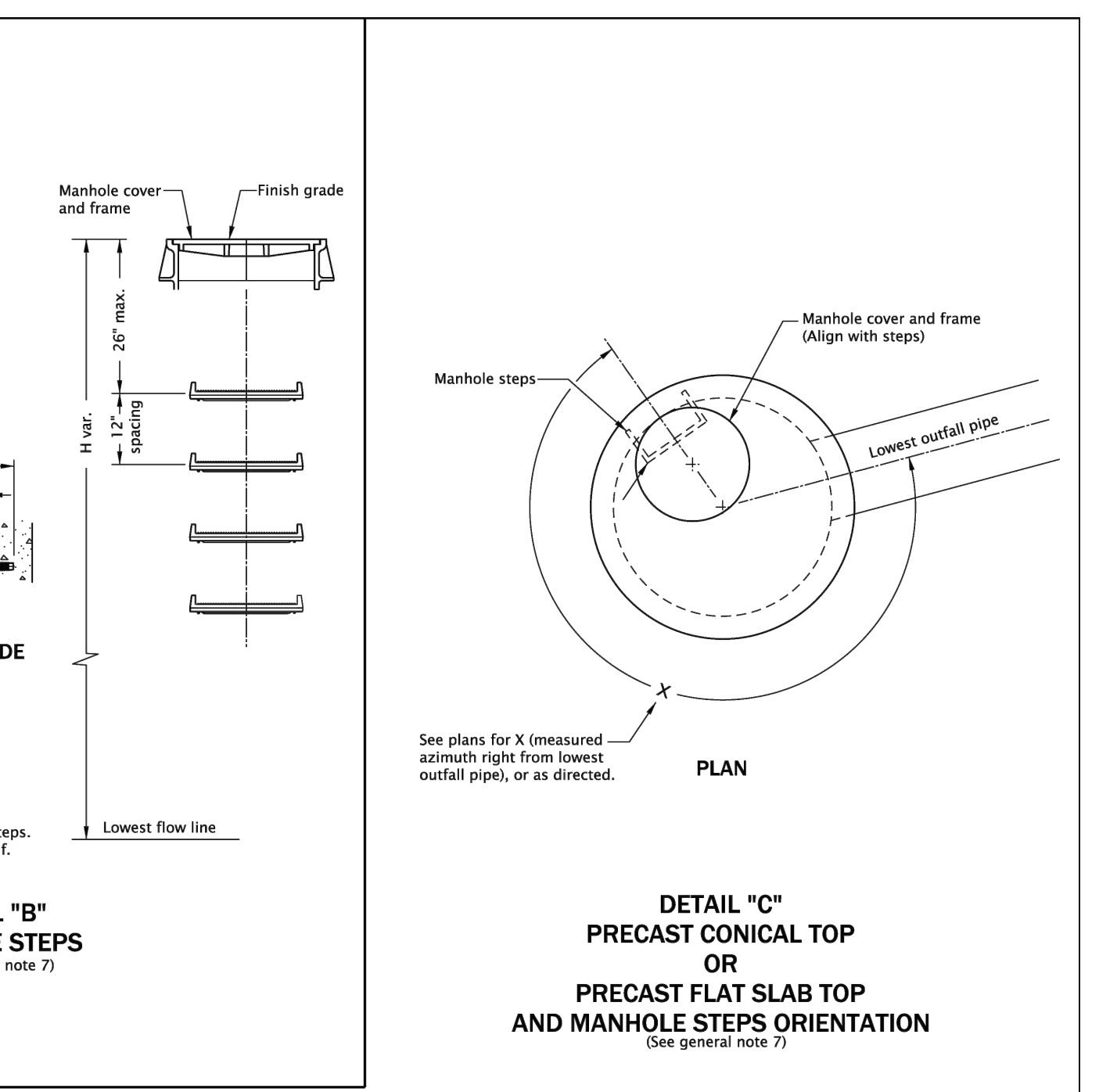
All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
STANDARD SANITARY SEWER MANHOLE	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR. DATE	21-JUN-2019
	RD338



STANDARD SERVICE CONNECTION AND LATERAL



DETAIL "A" TRACER WIRE
(See general note 6)



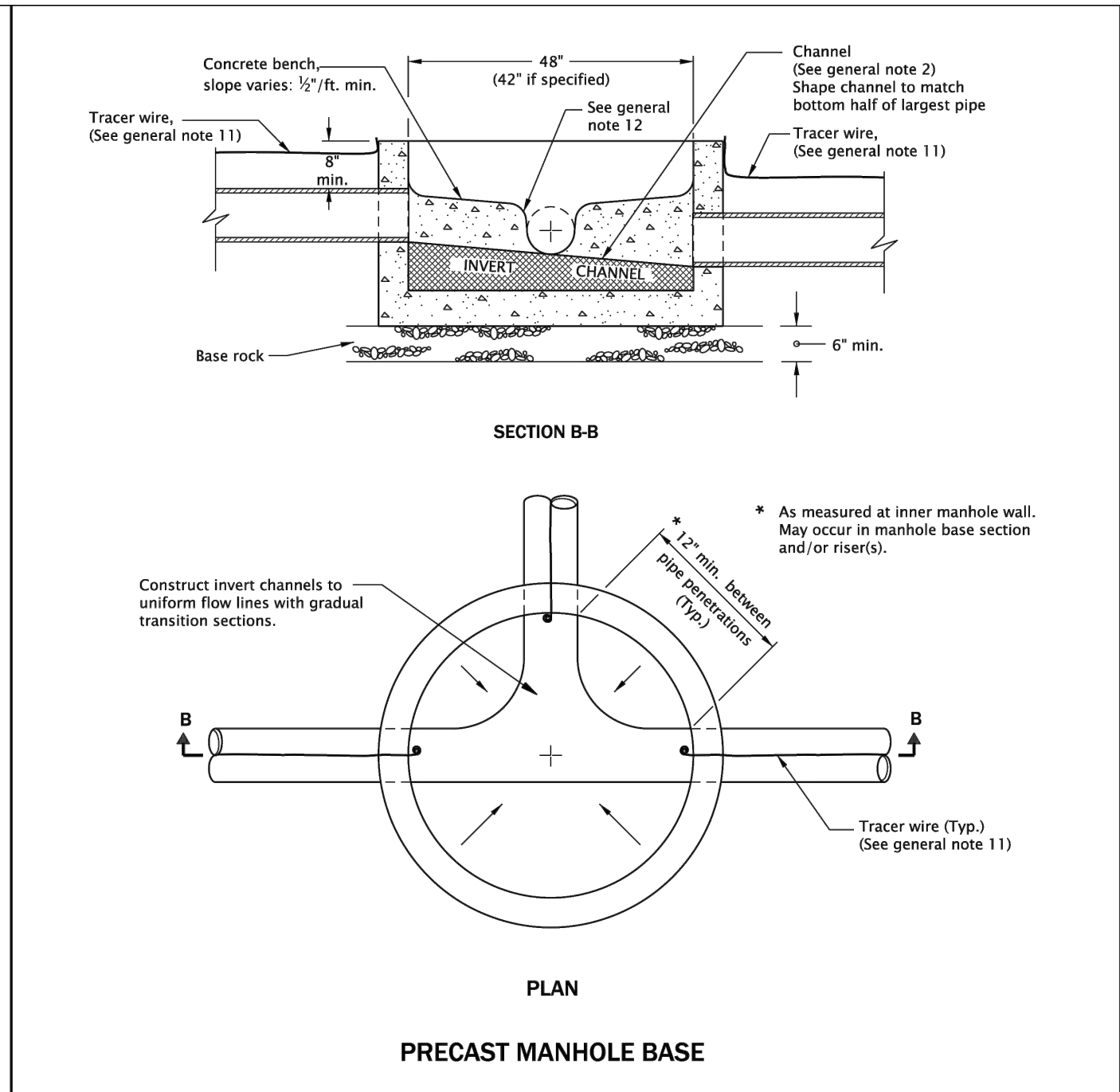
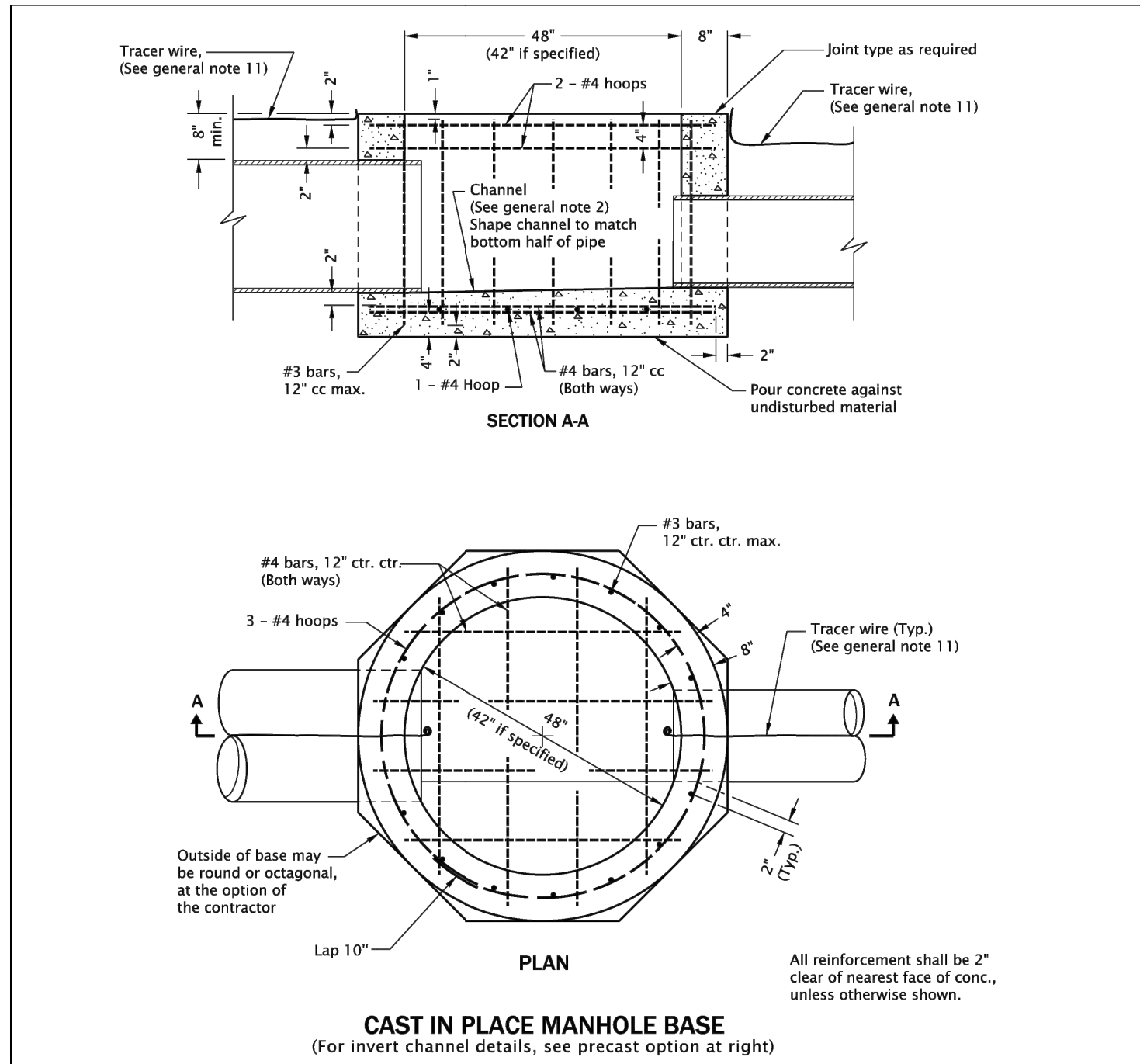
DETAIL "C" PRECAST CONICAL TOP OR PRECAST FLAT SLAB TOP AND MANHOLE STEPS ORIENTATION
(See general note 7)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- All precast products shall conform to requirements of ASTM C478.
- Standard precast manhole section diameter shall be 48". Use 42" if specified by the Engineer.
- See Std. Dwg. RD345 for pipe to manhole connections.
- See Std. Dwg. RD344 for manhole base section.
- Adjust 24" maximum.
- All connecting pipes shall have a tracer wire, or approved alternate. Place tracer wire directly over pipe centerline and on top of the pipe zone material.
- Steps shall conform to requirements of ASTM C478. When H=42" or less omit steps. See Detail "C" for alignment of steps, and manhole cover and frame.
- See Std. Dwg. RD335 for details not shown.
- See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.
- Max. pipe diameter varies with pipe material.
- See Std. Dwg. RD342 for shallow manholes.
- See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
STANDARD MANHOLE DETAILS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR. DATE	18-JAN-2019
	RD336



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

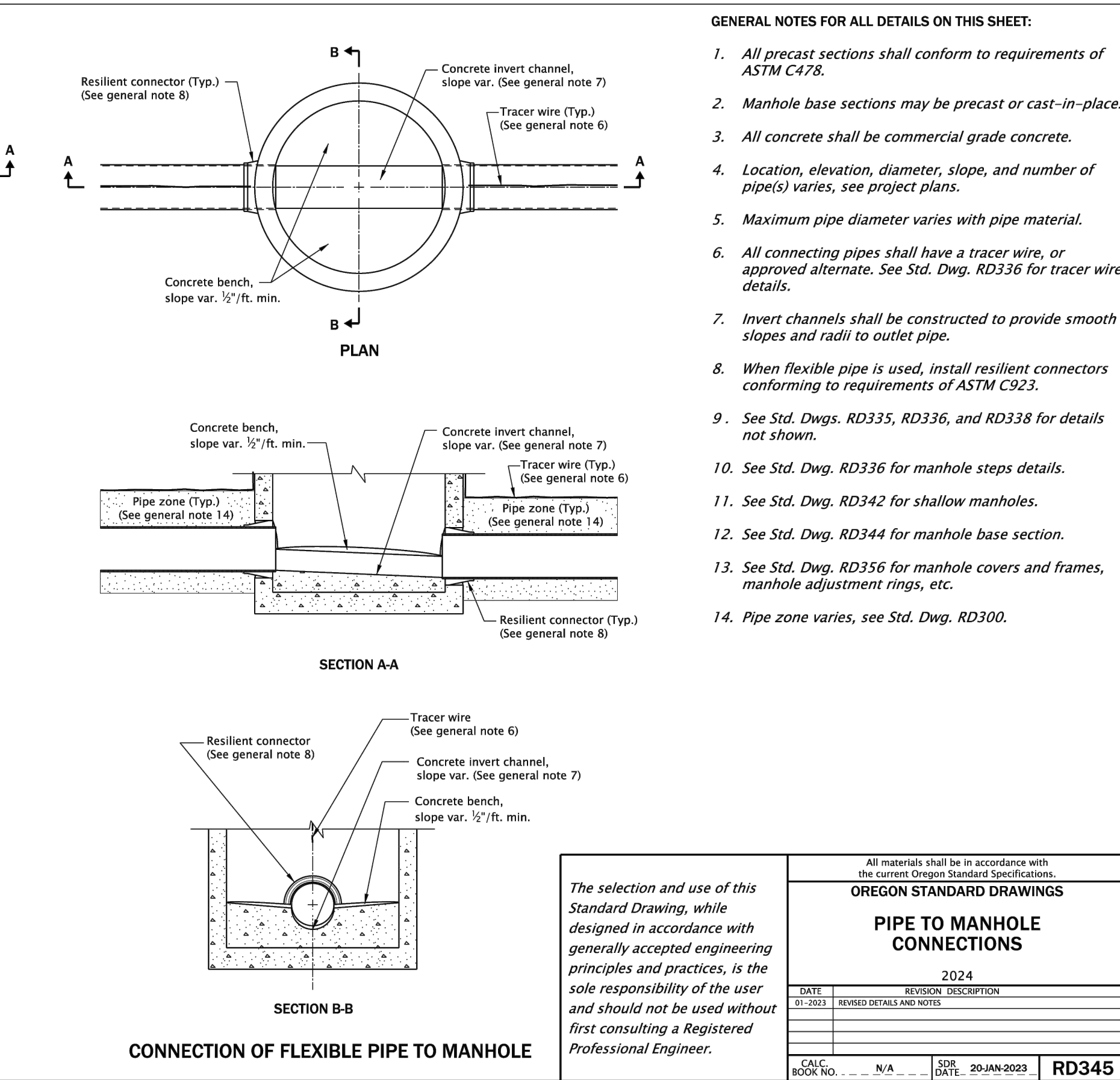
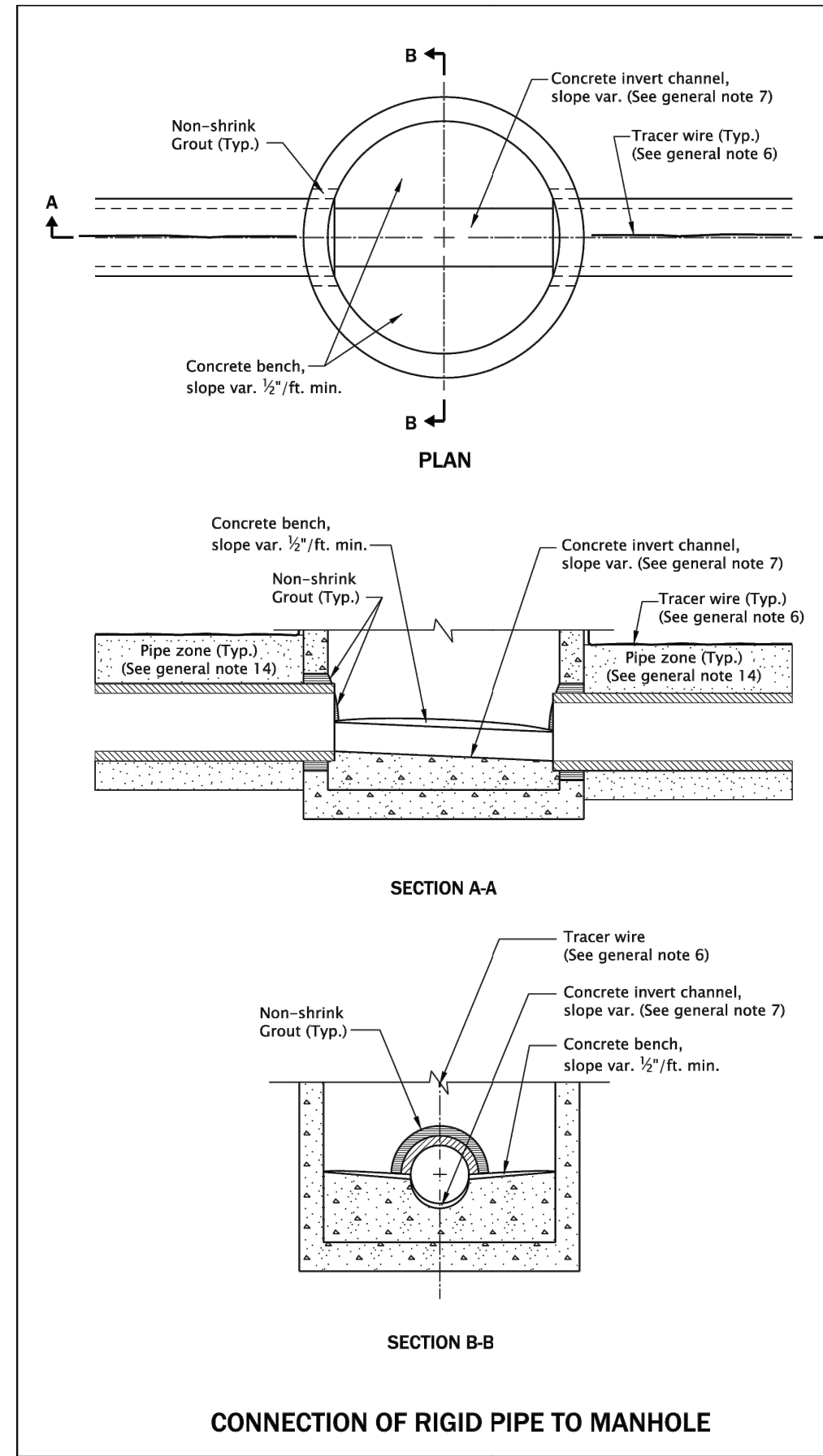
- All concrete shall be commercial grade concrete.
- Channels shall be constructed to provide smooth slopes and radii to outlet pipe.
- Bases may be precast or cast in place.
- Max. pipe diameter varies with pipe material.
- Use on 42" and 48" diameter manhole.
- Extend pipe into manhole and grout smooth. Pipe(s) may extend 2" max. beyond the interior manhole wall.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
- All precast products shall conform to the requirements of ASTM C478.
- See Std. Dwg. RD345 for pipe to manhole connections.
- See Std. Dwg. RD336 for manhole steps details.
- See Std. Dwg. RD336 for tracer wire details.
- At spring line of pipe, extend channel up to crown line on 12:1 batter.

CAST IN PLACE MANHOLE BASE
(For invert channel details, see precast option at right)

PRECAST MANHOLE BASE

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
STANDARD MANHOLE BASE SECTION	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR DATE	14-JUL-2014
	RD344



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

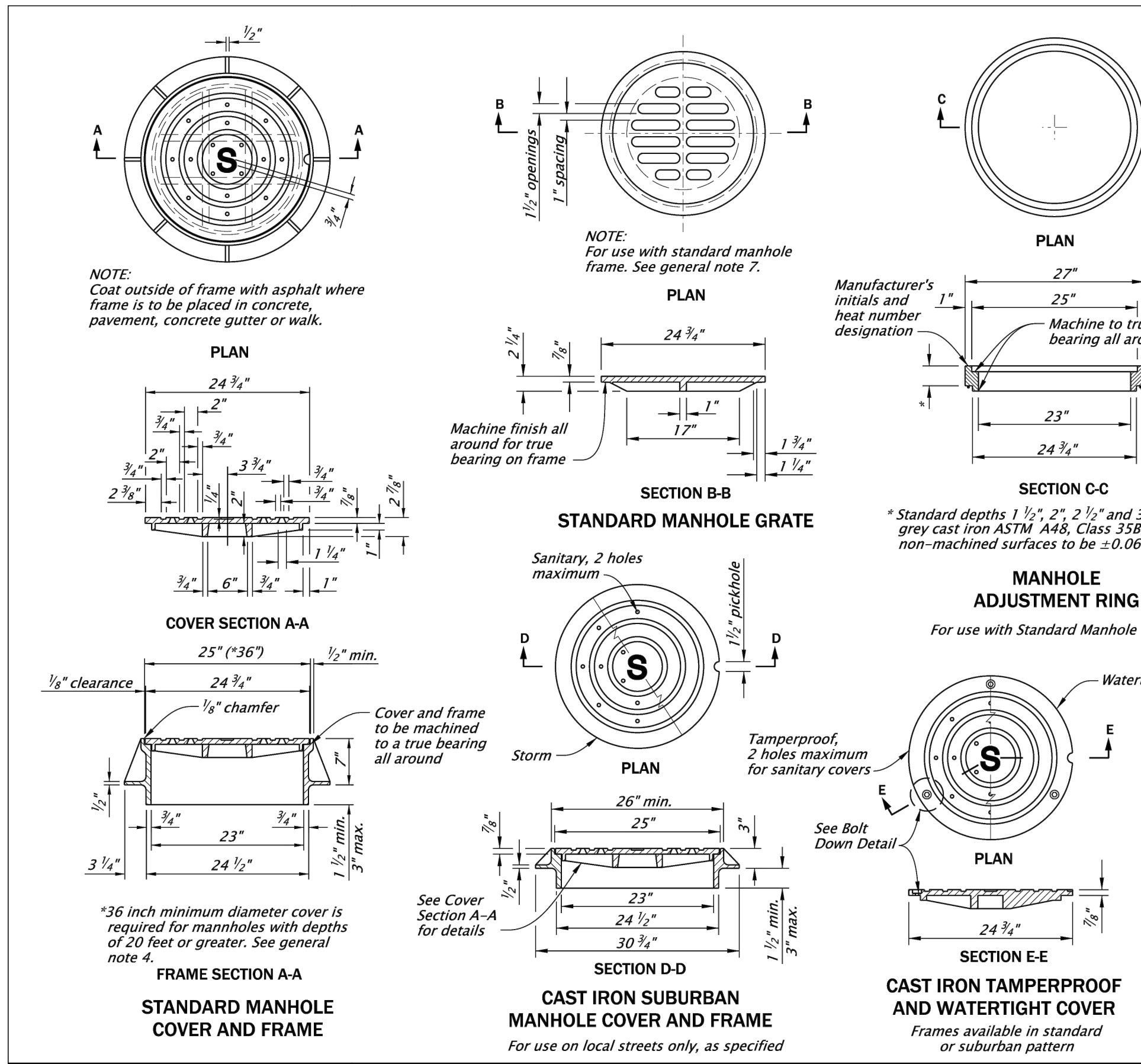
- All precast sections shall conform to requirements of ASTM C478.
- Manhole base sections may be precast or cast-in-place.
- All concrete shall be commercial grade concrete.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
- Maximum pipe diameter varies with pipe material.
- All connecting pipes shall have a tracer wire, or approved alternate. See Std. Dwg. RD336 for tracer wire details.
- Invert channels shall be constructed to provide smooth slopes and radii to outlet pipe.
- When flexible pipe is used, install resilient connectors conforming to requirements of ASTM C923.
- See Std. Dwg. RD335, RD336, and RD338 for details not shown.
- See Std. Dwg. RD336 for manhole steps details.
- See Std. Dwg. RD342 for shallow manholes.
- See Std. Dwg. RD344 for manhole base section.
- See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.
- Pipe zone varies, see Std. Dwg. RD300.

CONNECTION OF RIGID PIPE TO MANHOLE

CONNECTION OF FLEXIBLE PIPE TO MANHOLE

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
PIPE TO MANHOLE CONNECTIONS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR DATE	20-JAN-2023
	RD345



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Tamperproof covers required on sanitary or storm drain manhole where located in pedestrian ways or easement areas. Covers for sanitary manholes shall have two holes maximum.
- Watertight covers required if located where cover may be submerged (no holes).
- Covers and frames shall be stamped with manufacturer's initials, heat number and point of origin.
- See Std. Dwg. RD336 for manhole steps.
- See Std. Dwg. RD360 for manhole frame adjustment.
- See ODOT's QPL for alternate manhole adjustment rings.
- Manhole grate allowed only in locations not subject to bicycle or pedestrian use.
- See ODOT's QPL for alternate bolt-down products.

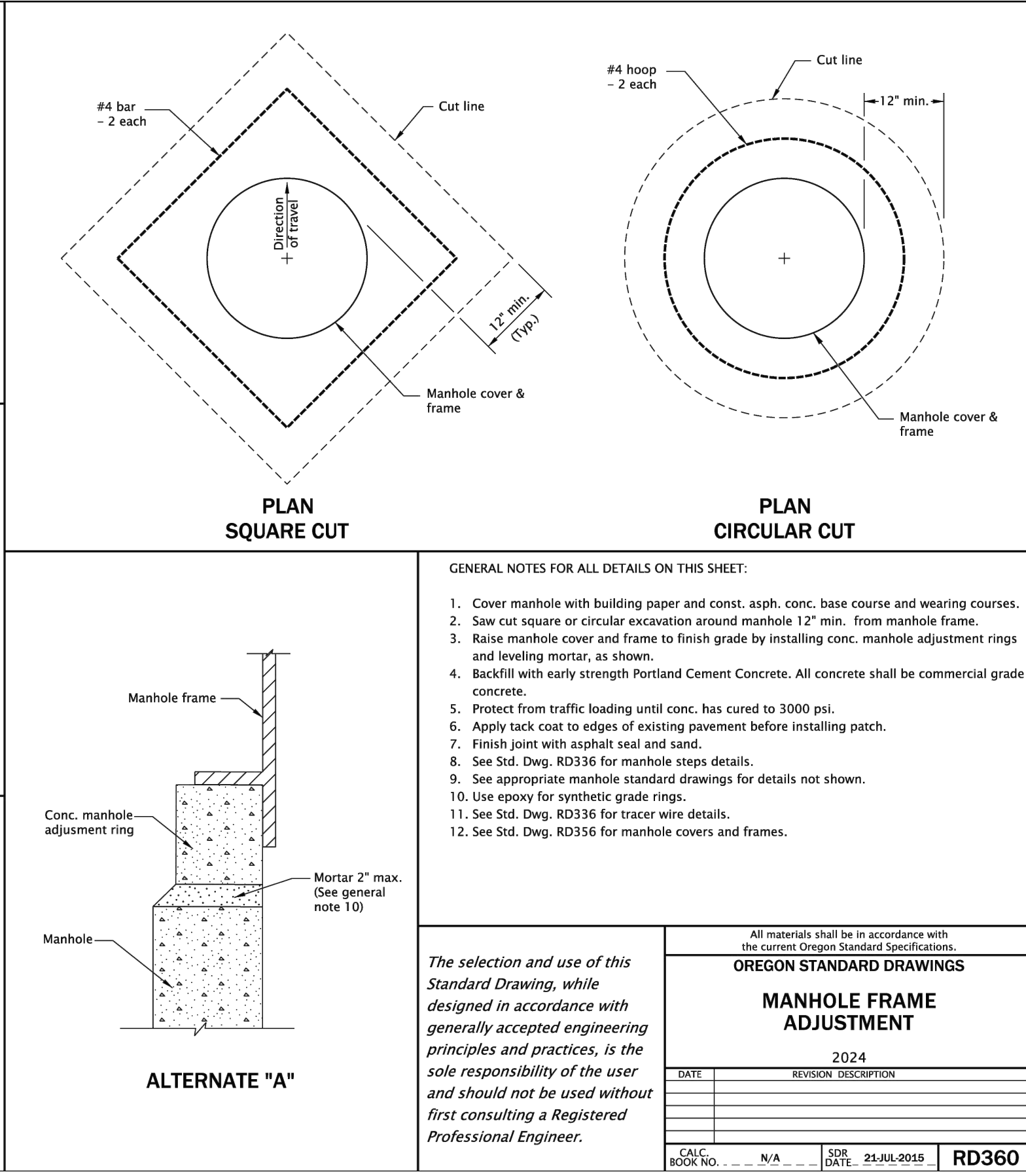
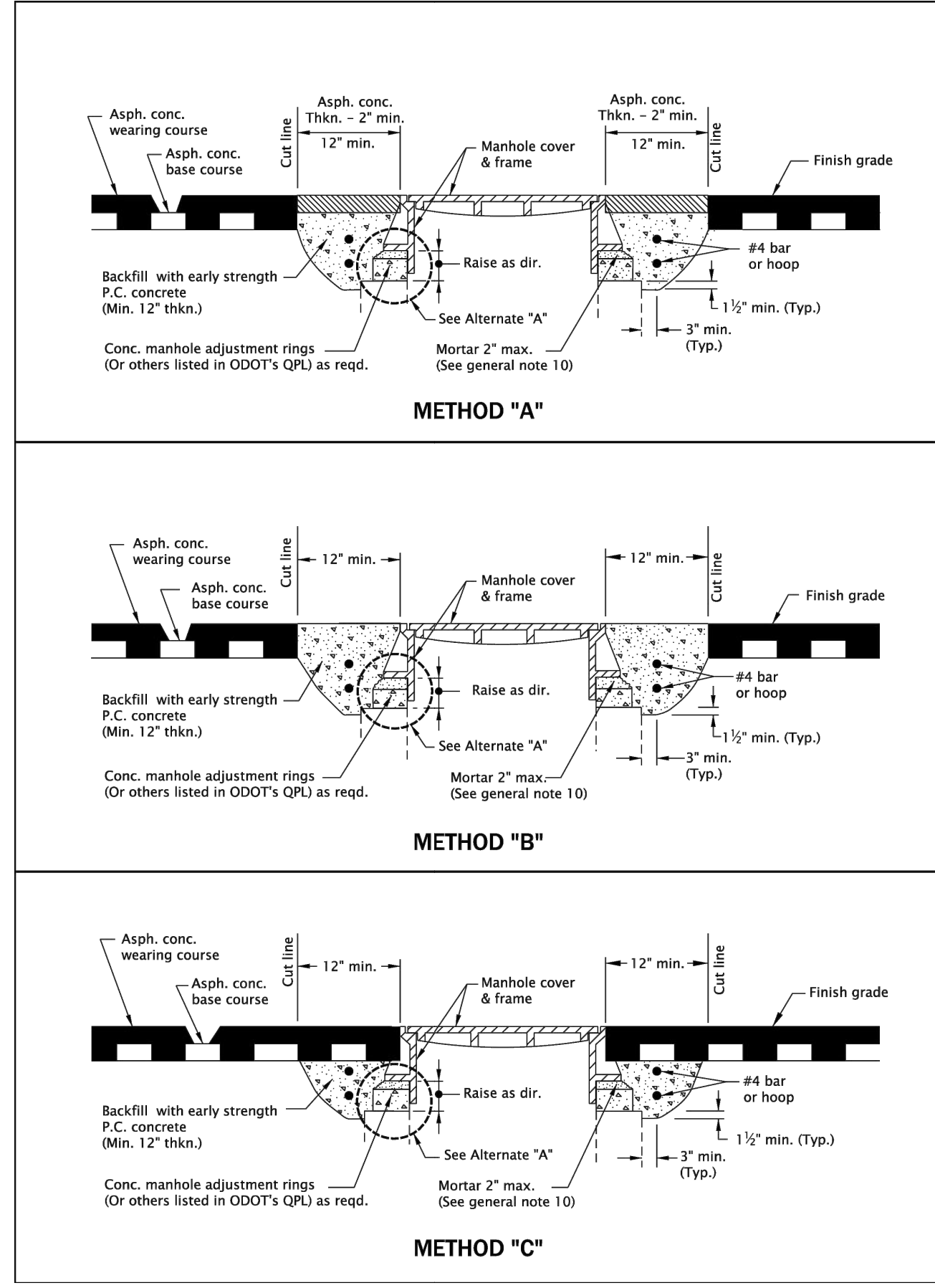
STANDARD MANHOLE GRATE

MANHOLE ADJUSTMENT RING
For use with Standard Manhole Frame

BOLT DOWN DETAIL
For tamperproof and watertight covers

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
MANHOLE COVERS AND FRAMES	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR DATE	21-JUN-2019
	RD356



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Cover manhole with building paper and const. asph. conc. base course and wearing courses.
- Saw cut square or circular excavation around manhole 12" min. from manhole frame.
- Raise manhole cover and frame to finish grade by installing conc. manhole adjustment rings and leveling mortar, as shown.
- Backfill with early strength Portland Cement Concrete. All concrete shall be commercial grade concrete.
- Protect from traffic loading until conc. has cured to 3000 psi.
- Apply tack coat to edges of existing pavement before installing patch.
- Finish joint with asphalt seal and sand.
- See Std. Dwg. RD336 for manhole steps details.
- See appropriate manhole standard drawings for details not shown.
- Use epoxy for synthetic grade rings.
- See Std. Dwg. RD336 for tracer wire details.
- See Std. Dwg. RD356 for manhole covers and frames.

ALTERNATE "A"

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
MANHOLE FRAME ADJUSTMENT	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	N/A
SDR DATE	21-JUL-2015
	RD360

CONSTRUCTION

REVISIONS:

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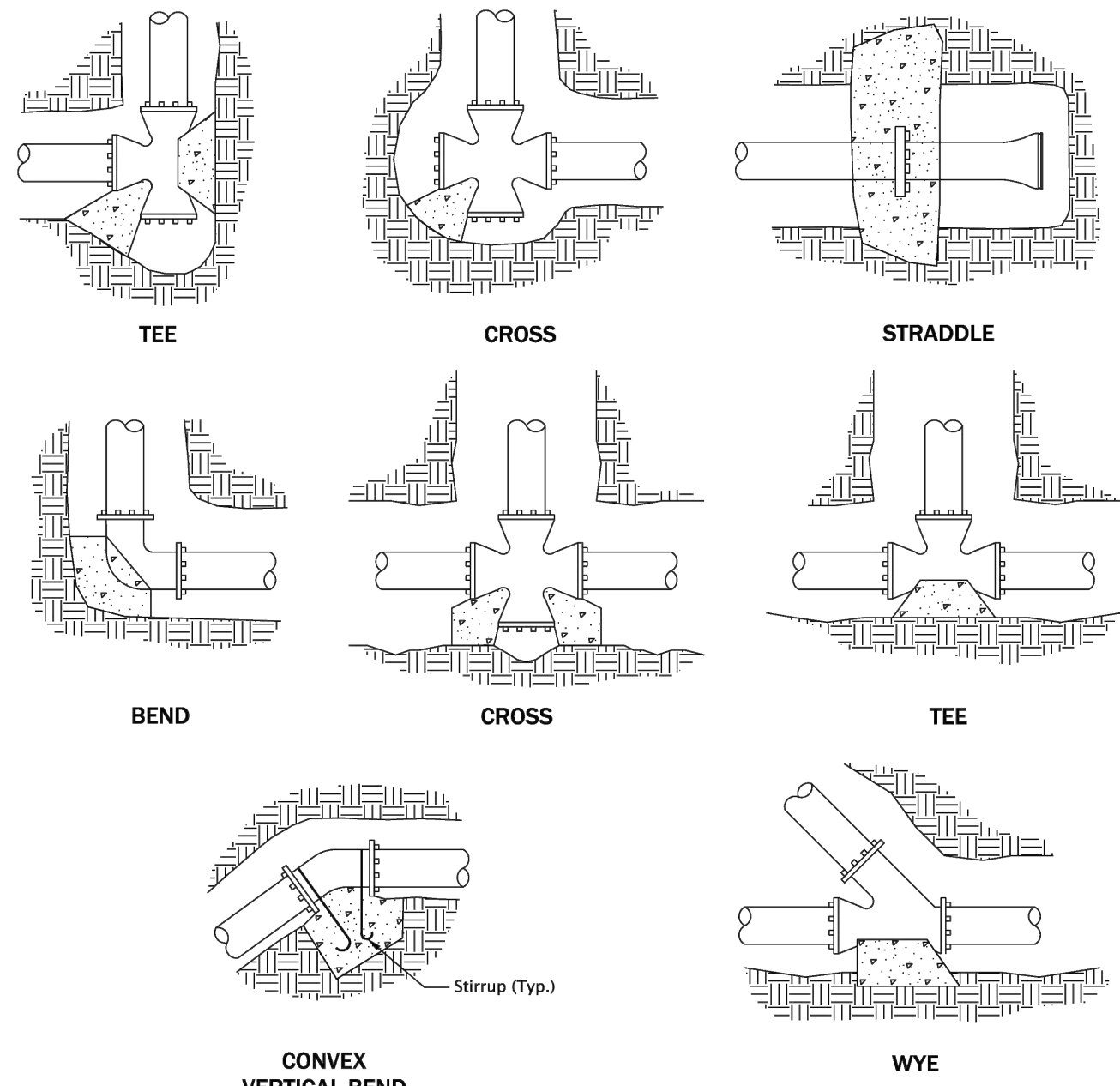
DATE: FEBRUARY 2025
SHEET TITLE: STANDARD DETAILS

THRUST BLOCKING

TABLE A CONCRETE THRUST BLOCKING (HORIZONTAL)						
PIPE DIA.	Thrust (T) at fittings in Pounds					
	A	B	C	D	E	
4"	250	3035	4320	2315	1215	610
6"	250	6860	9735	5215	2720	1375
8"	250	12185	17310	9265	4835	2430
10"	250	19045	27045	14480	7560	3800
12"	250	27405	38940	20840	10880	5465
14"	250	37320	53010	28370	14815	7445
16"	250	48740	69245	37050	19360	9735

TABLE B	
Soil Type	Soil Bearing Capacity (B) in PSF
Muck, peat, etc.	0
Soft Clay	1000
Sand	2000
Sand and gravel	3000
Sand and gravel cemented with clay	4000
Hard shale	10,000

TABLE C CONCRETE BLOCKING FOR CONVEX VERTICAL BENDS						
PIPE DIA. in.	Table Pressure PSI	DIMENSION TABLE				
		Bend Angle (deg)	Concrete Volume (cy)	Cure Size (ft)	Stirrup Dia. (in)	Stirrup Embmt. (in)
4"	250	11.25	0.21	1.8	5/8	17
		22.5	0.43	2.3	5/8	17
		45	0.77	2.8	5/8	17
6"	250	11.25	0.48	2.4	5/8	17
		22.5	0.95	3.0	5/8	17
		45	1.79	3.6	5/8	17
8"	250	11.25	0.86	2.9	5/8	17
		22.5	1.65	3.5	5/8	17
		45	3.22	4.4	5/8	17
10"	250	11.25	1.39	3.3	5/8	17
		22.5	2.62	4.1	5/8	17
		45	4.97	4.1	5/8	17
12"	250	11.25	1.94	3.7	5/8	17
		22.5	3.91	4.7	5/8	17
		45	6.89	5.7	5/8	24
14"	250	11.25	2.62	4.1	5/8	17
		22.5	5.26	5.2	5/8	20
		45	9.70	6.4	1	27
16"	250	11.25	3.44	4.5	5/8	17
		22.5	6.89	5.7	5/8	24
		45	12.63	7.0	1 1/8	30



THRUST BLOCK BEARING AREA EQUATION

NOTE: WHEN THRUST BLOCK BEARING AREA IS NOT SPECIFIED ON THE PLANS OR DETERMINED BY THE ENGINEER, USE THE FOLLOWING PROCEDURE TO DETERMINE REQUIRED BEARING AREA.

- Determine thrust (T) for type of fitting or joint and size of pipe from Table A.
- Determine Design (Test) Pressure from Standard Specifications or Special Provisions.
- Determine Table Pressure from Table A.
- Determine Soil Bearing Capacity (B) of soil from Table B.
- Determine required bearing area (A) in sq. ft. as follows:

$$\text{Thrust Block Bearing Area} = A = \left(\frac{T}{B} \right) \left(\frac{\text{Design (Test) Pressure}}{\text{Table Pressure}} \right)$$

Example: Design (Test) Pressure = 150 PSI From Table A, T = 37320
 Pipe = 14" From Table B, B = 2000
 Fitting = Tee
 Soil = Sand

$$A = \left(\frac{37320}{2000} \right) \left(\frac{150}{250} \right) = 11.2 \text{ sq. ft.}$$

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Contractor to provide blocking adequate to withstand full test pressure.
- Pour concrete blocking against undisturbed earth.
- All concrete shall be commercial grade concrete.
- Wrap pipe and/or fittings with 2 layers of polyethylene film where in contact with concrete.
- Keep concrete clear of all joints and accessories.
- Stirrups shall be deformed galvanized cold rolled steel AASHTO M31 (ASTM A615), Grade 60. Coat with coal tar epoxy after installation.
- See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

THRUST BLOCKING

2024

DATE: _____ REVISION DESCRIPTION: _____

CALC. BOOK NO. N/A SDR DATE: 25-JUL-2017 RD250

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- When pipe is shorter than 18', no joints allowed. Use mechanical joint retainer glands. Two 1/2" galvanized tie rods may be used in lieu of thrust blocks for installations less than 18' long. Coat tie rods with two coats of coal tar epoxy.
- When pipe is longer than 18' retainer glands not required.
- There shall be a minimum of 18" horizontal clearance around hydrant.
- When placed adjacent to curb, hydrant port shall be 24" from face of curb.
- Concrete thrust blocks shall be constructed as per thrust blocking Std. Dwg. RD250. Do not block drain holes.
- Extensions required for hydrant systems shall be installed to the manufacturer's specifications.
- Hydrants shall be placed to provide a minimum of 5' clearance from driveways, poles, and other obstructions.
- Hydrant pumper port shall face direction of access.
- Set hydrant plumb in all directions.
- See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

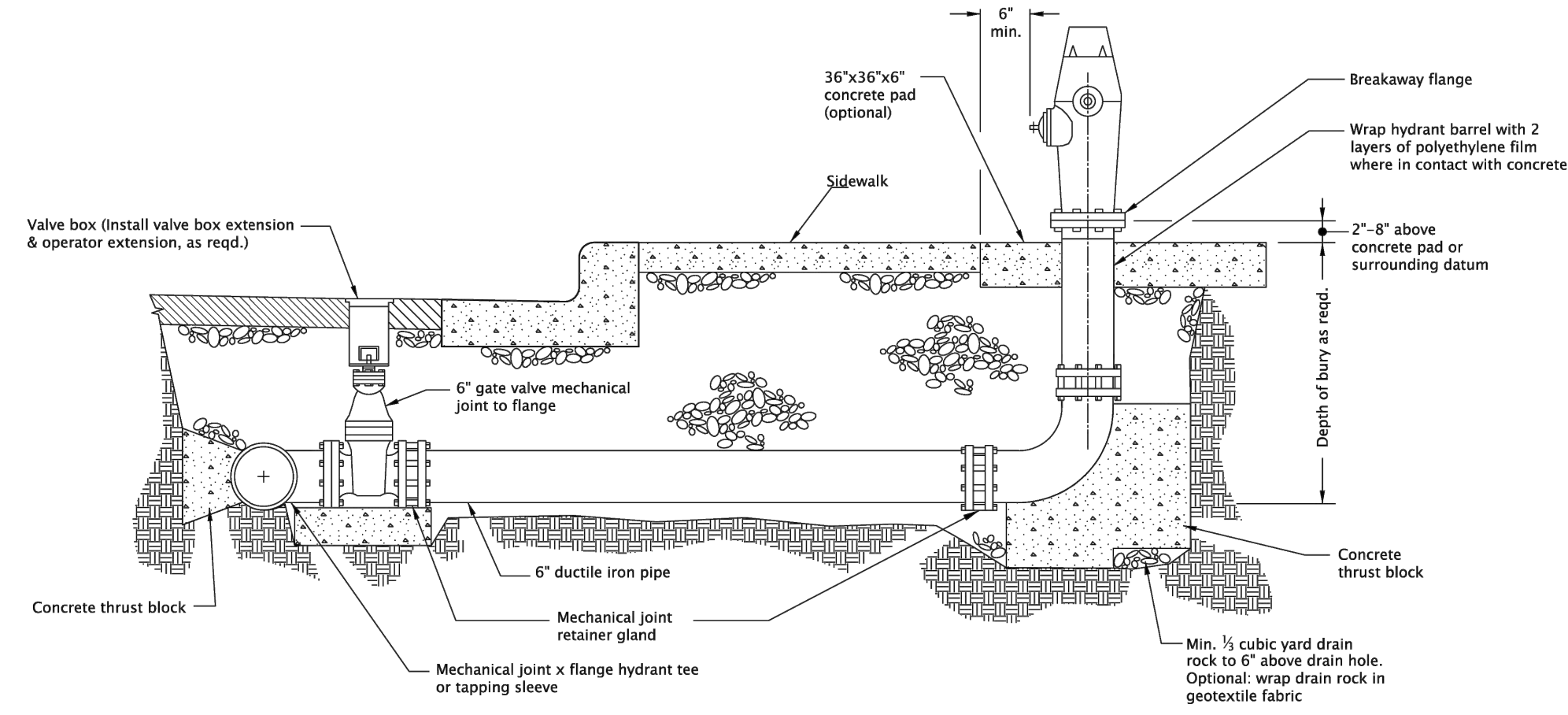
OREGON STANDARD DRAWINGS

HYDRANT INSTALLATION

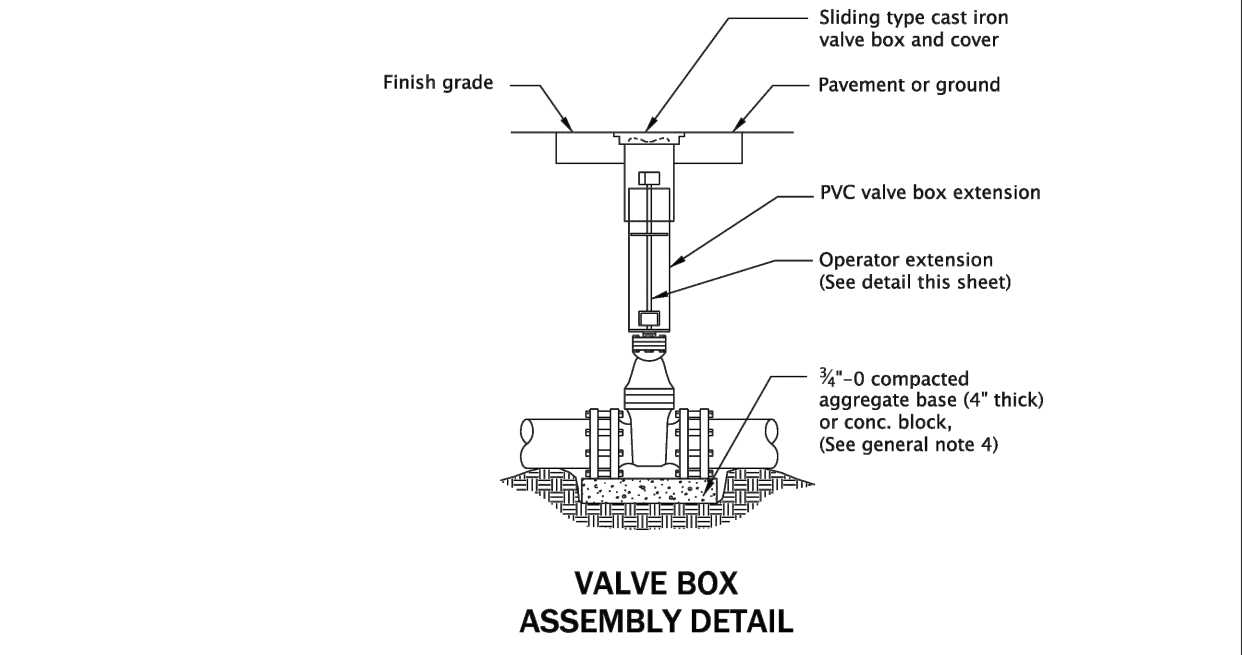
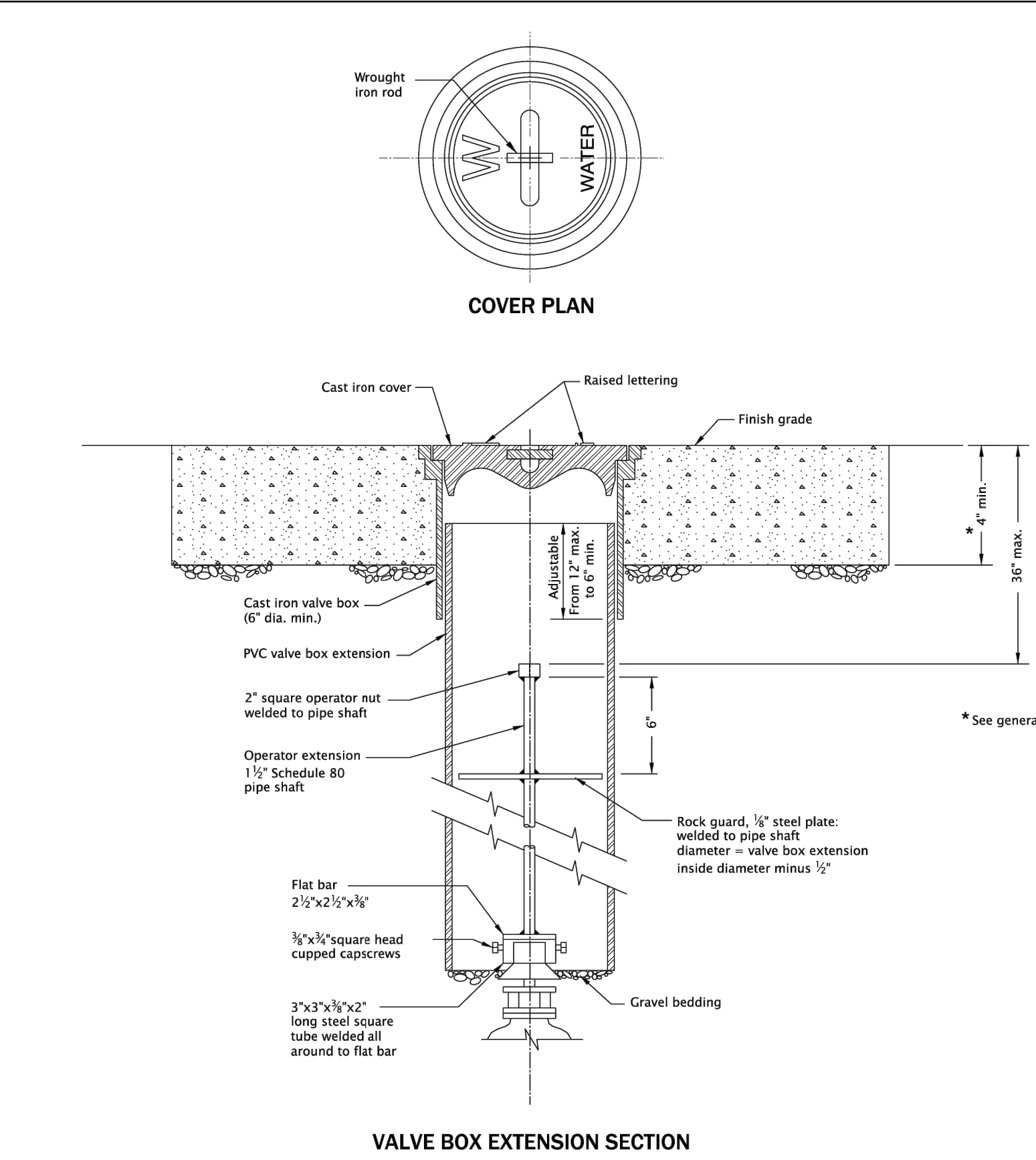
2024

DATE: _____ REVISION DESCRIPTION: _____

CALC. BOOK NO. N/A SDR DATE: 25-JUL-2017 RD254



HYDRANT ASSEMBLY



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Valve box not to rest on operating assembly.
- Operator extension required when valve nut is deeper than 4" from finish grade.
- Center valve box on axis of operator nut.
- Valves 12" and smaller shall be provided with compacted agr. base on undisturbed ground. Valves greater than 12" shall be installed on precast concrete block, (4" thick).
- Welds shall be minimum 1/4" all around.
- Hot dip galvanize operator extension after fabrication.
- CASTING shall meet H20 load requirement.
- Provide concrete or asphalt pad (24" square, 4" thick), when required.
- See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

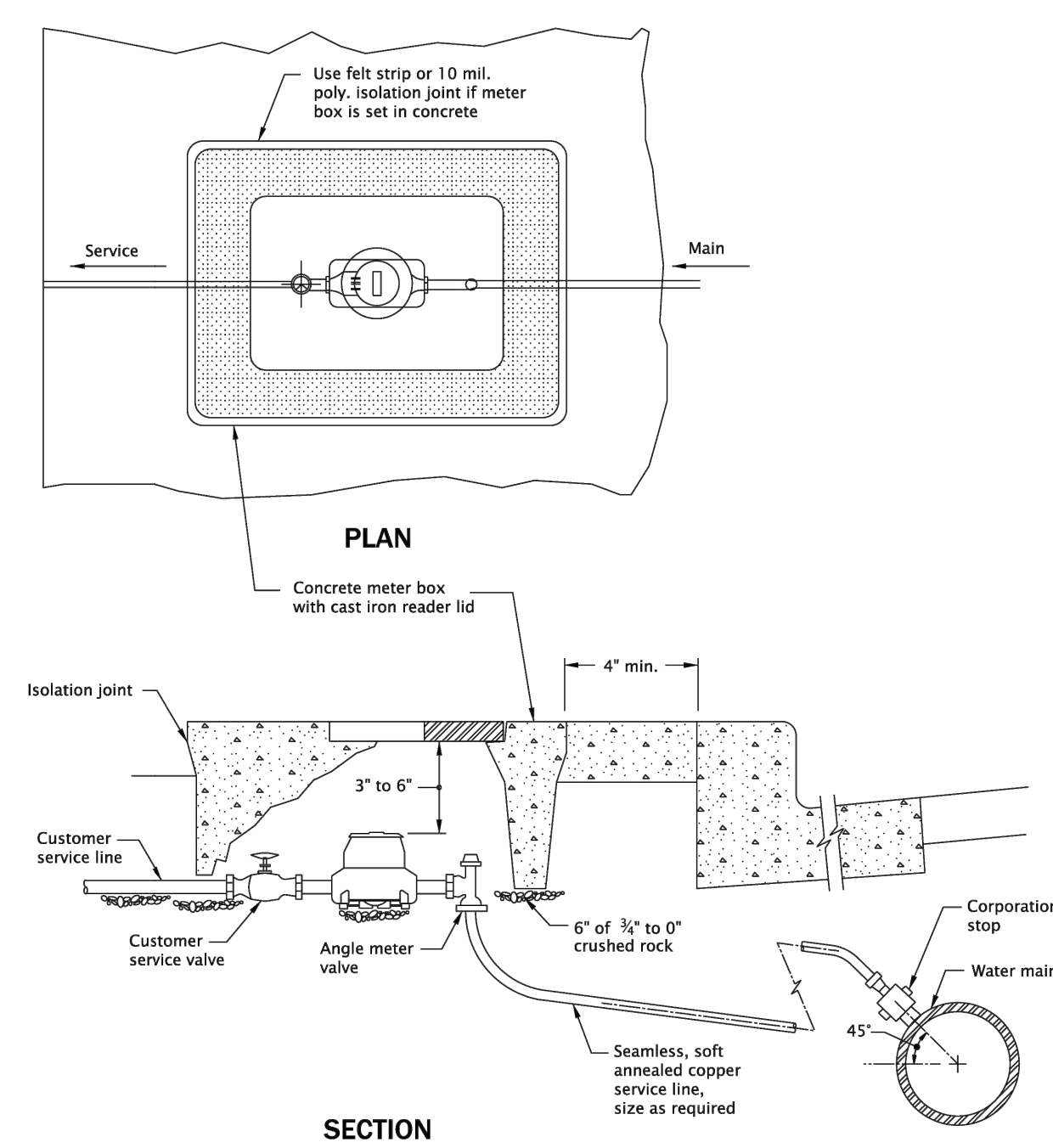
OREGON STANDARD DRAWINGS

VALVE BOX AND OPERATOR EXTENSION ASSEMBLY

2024

DATE: _____ REVISION DESCRIPTION: _____

CALC. BOOK NO. N/A SDR DATE: 25-JUL-2017 RD258



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Meter to be centered and set plumb inside meter box.
- Manufactured meter setter may be used for 3/4" to 2" services.
- Set meter box 4" minimum behind curb or sidewalk.
- Meter boxes set in driveways shall have traffic lids.
- See project plans for meter box size.
- See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

3/4" TO 2" WATER SERVICE CONNECTION

2024

DATE: _____ REVISION DESCRIPTION: _____

CALC. BOOK NO. N/A SDR DATE: 25-JUL-2017 RD274

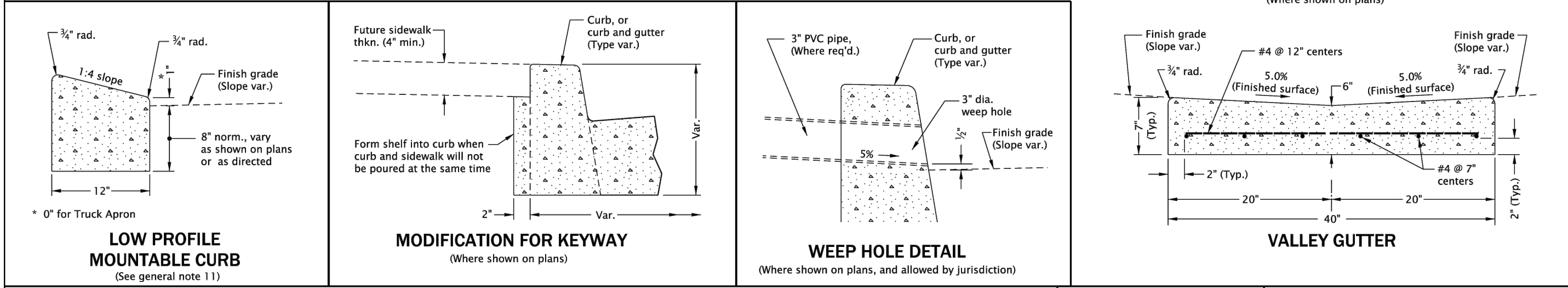
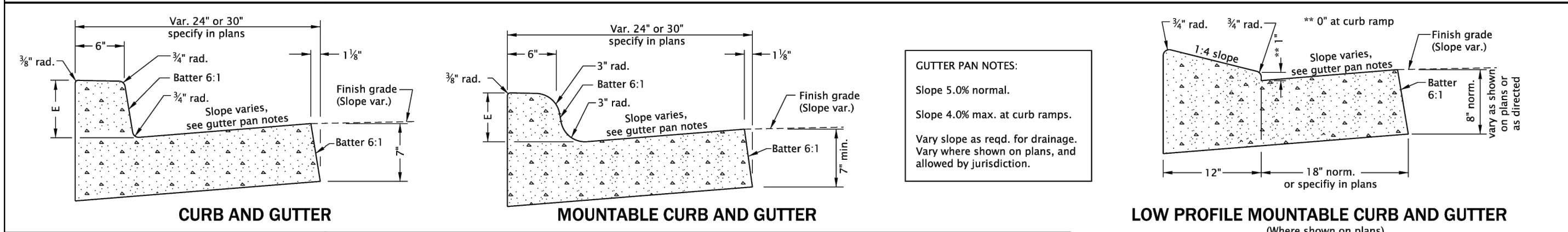
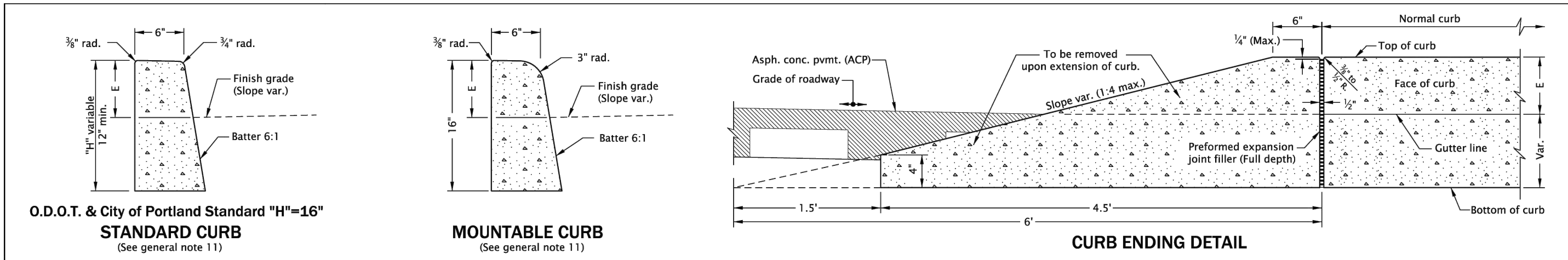
CONSTRUCTION

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DATE: FEBRUARY 2025

SHEET TITLE:
 STANDARD DETAILS

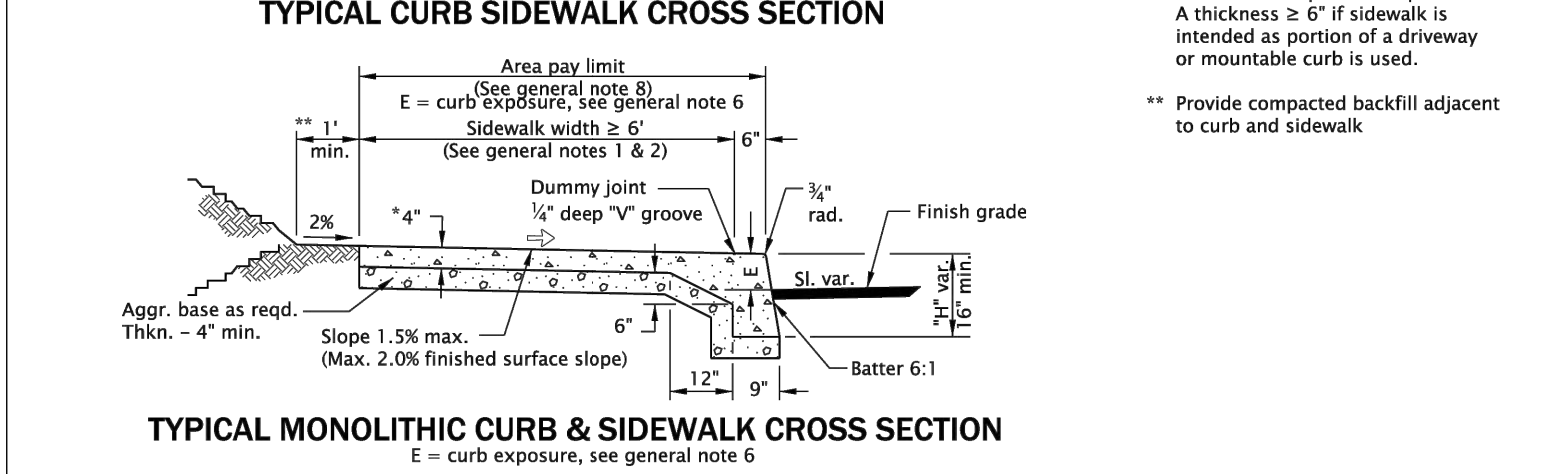
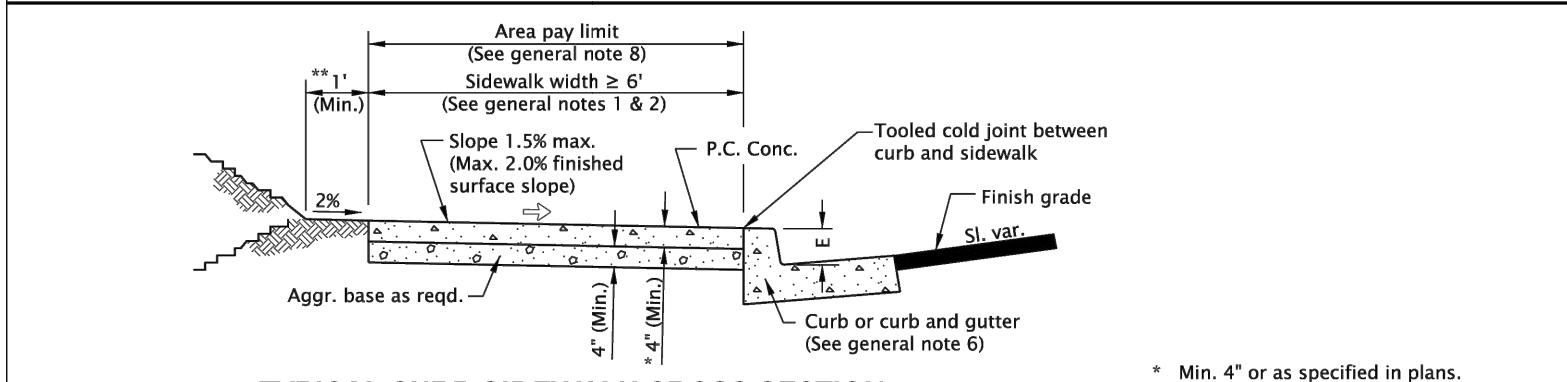
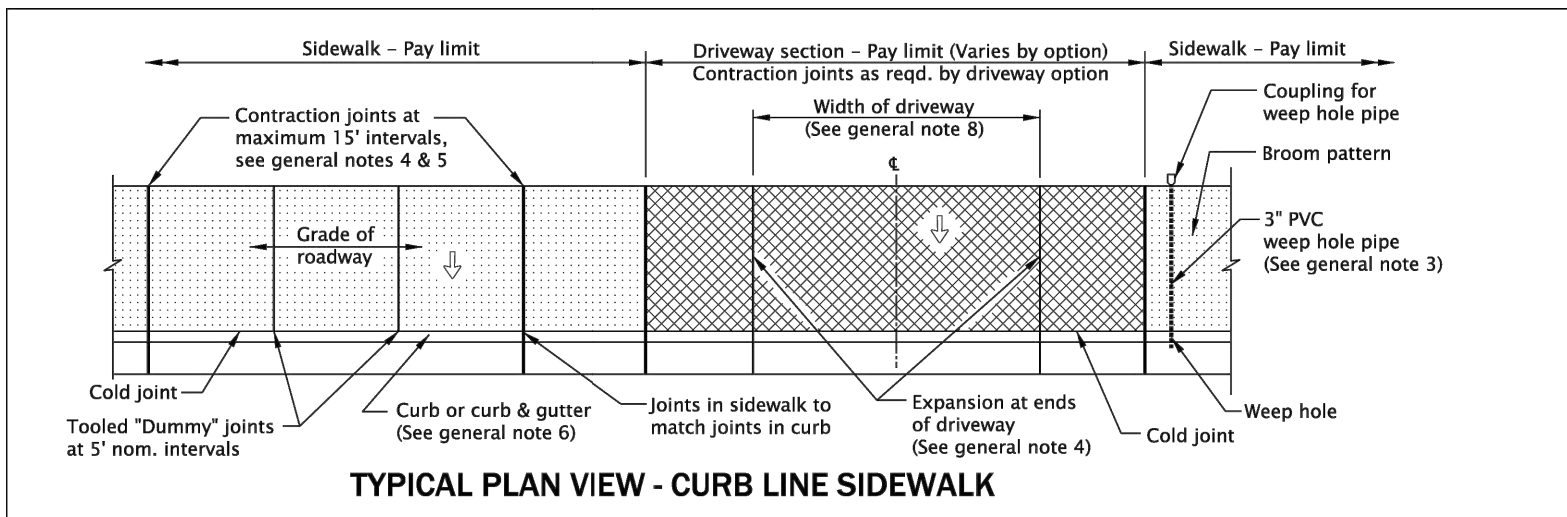


GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Curb exposure "E" = 6" to 9", as measured vertically from flowline to highest point on curb. Vary as shown on plans or as directed. O.D.O.T standard "E"=7".
- Const. curb expansion joints at 200' maximum spacing, and at points of tangency, and at ends of each driveway.
- Const. curb contraction joints at 15' maximum spacing, and at ends of each inlet and curb ramp.
- Transitions shall be used to connect curbs of different exposures "E". ("E" is the total vertical dimension of those curb surfaces having a slope of 1:1 or steeper). Minimum desirable transition length shall be 20' for each 1" difference in "E".
- Tops of all curbs shall slope toward the roadway at 1.5% max. (Max. 2.0% finished surface slope), unless otherwise shown, or as directed.
- Dimensions are nominal, vary to conform with curb machine approved by the engineer.
- Dimensions adjacent to radii are measured to the point of intersection of the curb.
- For sidewalk details, and monolithic curb & sidewalk, see Std. Dwg. RD720 & RD721.
- For drainage curbs, see Std. Dwg. RD701.
- For curb ramp details, see Std. Dwg. RD900 series.
- On or along state highways, curb and gutter is required at curb ramp.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
CURBS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	SDR DATE: 20-JUL-2020 RD700



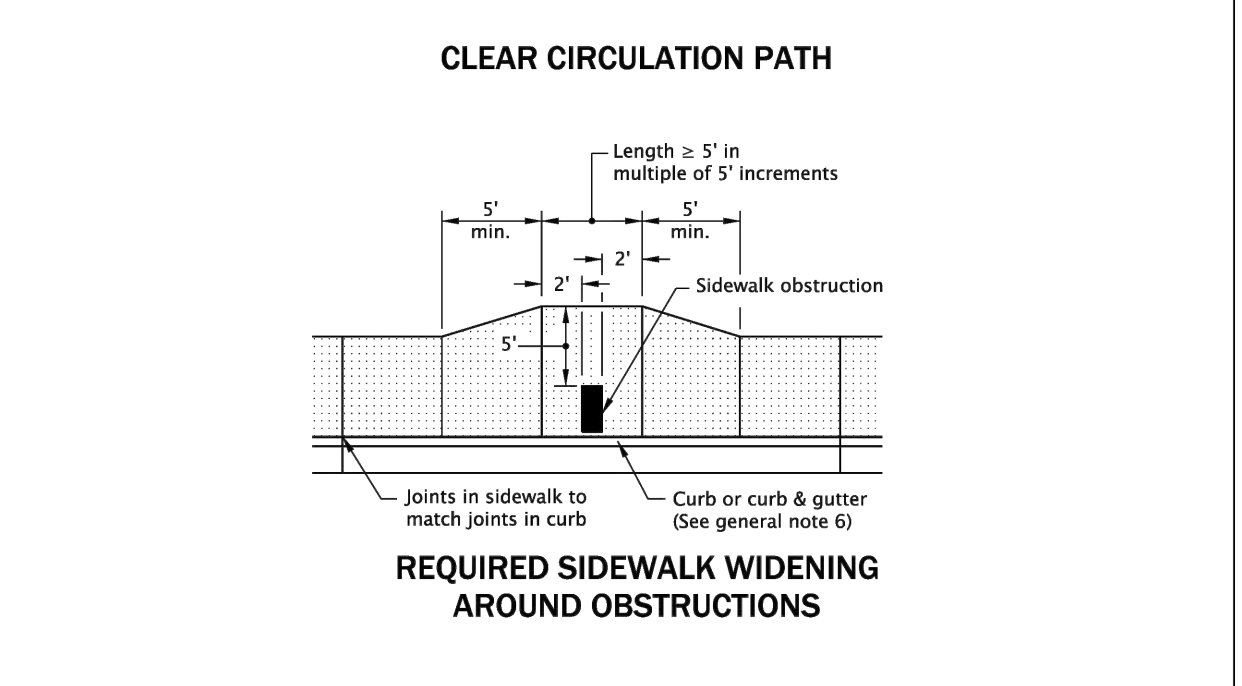
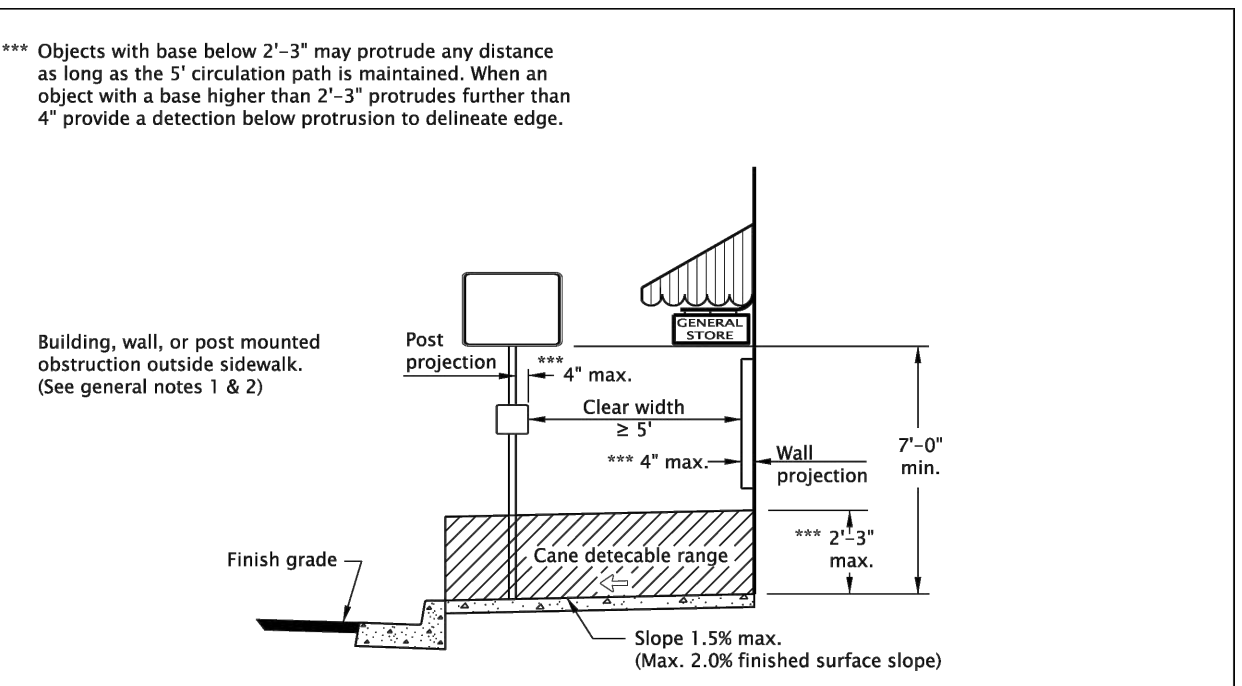
GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
- Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
- Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. RD700 for weep hole details.
- Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. RD722 for expansion joints details.
- Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. RD722 for contraction joints details.
- For curb details, see Std. Dwg. RD700 & RD701. ODOT standard E=7".
- Sidewalk details are based on applicable ODOT standards.
- Fully lowered sidewalk shown; see project plans for the driveway design specified. For driveway details not shown, see Std. Dwg. RD725, RD730, RD735, RD740, RD745 & RD750.
- See project plans for details not shown.

LEGEND

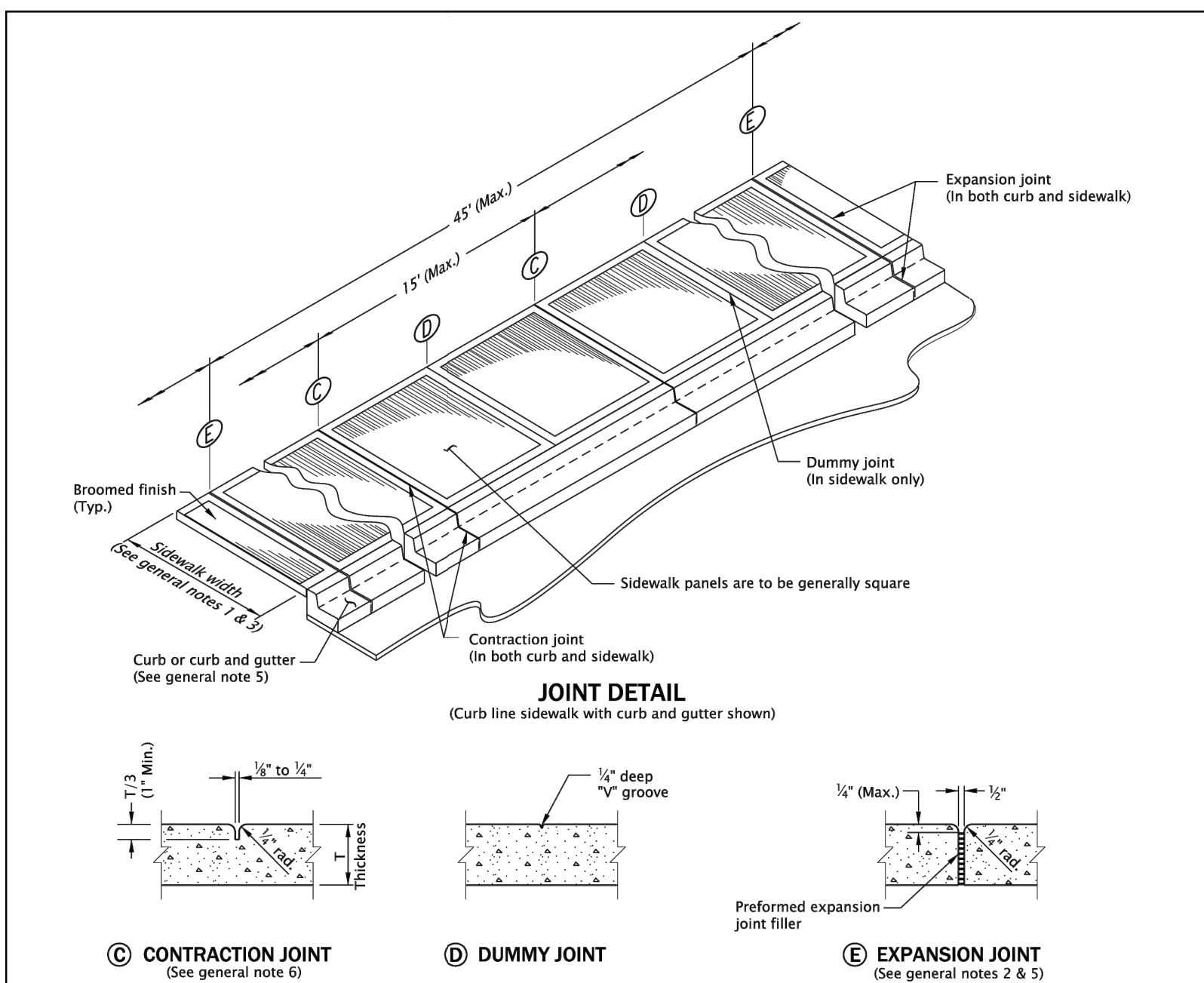
- Sidewalk pay limit.
- Driveway pay limit, varies by option, (See general note 8).
- Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
CURB LINE SIDEWALKS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	SDR DATE: 23-JUN-2019 RD720



The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
CURB LINE SIDEWALKS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	SDR DATE: 23-JUN-2019 RD720



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

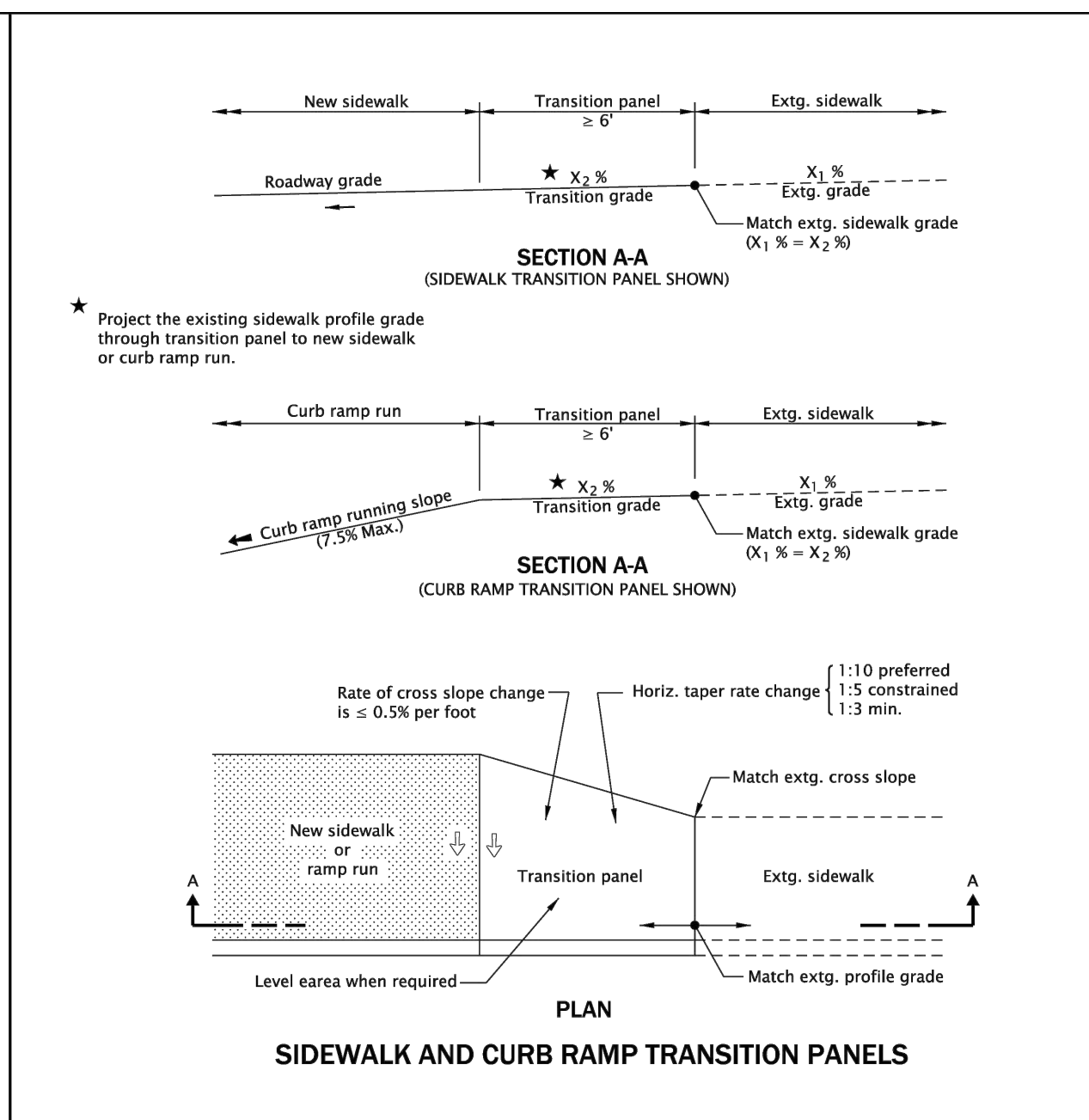
- See Std. Dwg. RD720 and RD721 for concrete sidewalk details. See project plans for sidewalk width, placement and design specified.
- Provide expansion joints around poles, boxes, at ends of each driveway and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb and sidewalk, provide construction expansion joints at 45 feet maximum spacing.
- On sidewalks 8 feet and wider, provide a longitudinal joint at the midpoint of sidewalk panel.
- See Std. Dwg. RD700 and RD701 for concrete curb details. See project plans for the curb design specified.
- Do not place expansion joints between separate concrete pours for curb ramp system components construction. Place expansion joints outside of curb ramp runs when required. Install expansion joints flush with surface for structures protruding through the curb ramp system. See Std. Dwg. RD900.
- Const. contraction joints at 15 feet maximum spacing, and at each curb ramp, driveway, sidewalk and curb.

LEGEND:

- New sidewalk or ramp run
- Slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)
- Slope 7.5% max. (Max. 8.3% finished surface slope)
- Zero exposure

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
SIDEWALK JOINTS AND TRANSITION PANELS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	SDR DATE: 08-JUL-2022 RD722



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Project the existing sidewalk profile grade through transition panel to new sidewalk or curb ramp run.
- Rate of cross slope change is ≤ 0.5% per foot. Horiz. taper rate change is 1:10 preferred, 1:5 constrained, 1:3 min.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
SIDEWALK JOINTS AND TRANSITION PANELS	
2024	
DATE	REVISION DESCRIPTION
CALC. BOOK NO.	SDR DATE: 08-JUL-2022 RD722

CONSTRUCTION

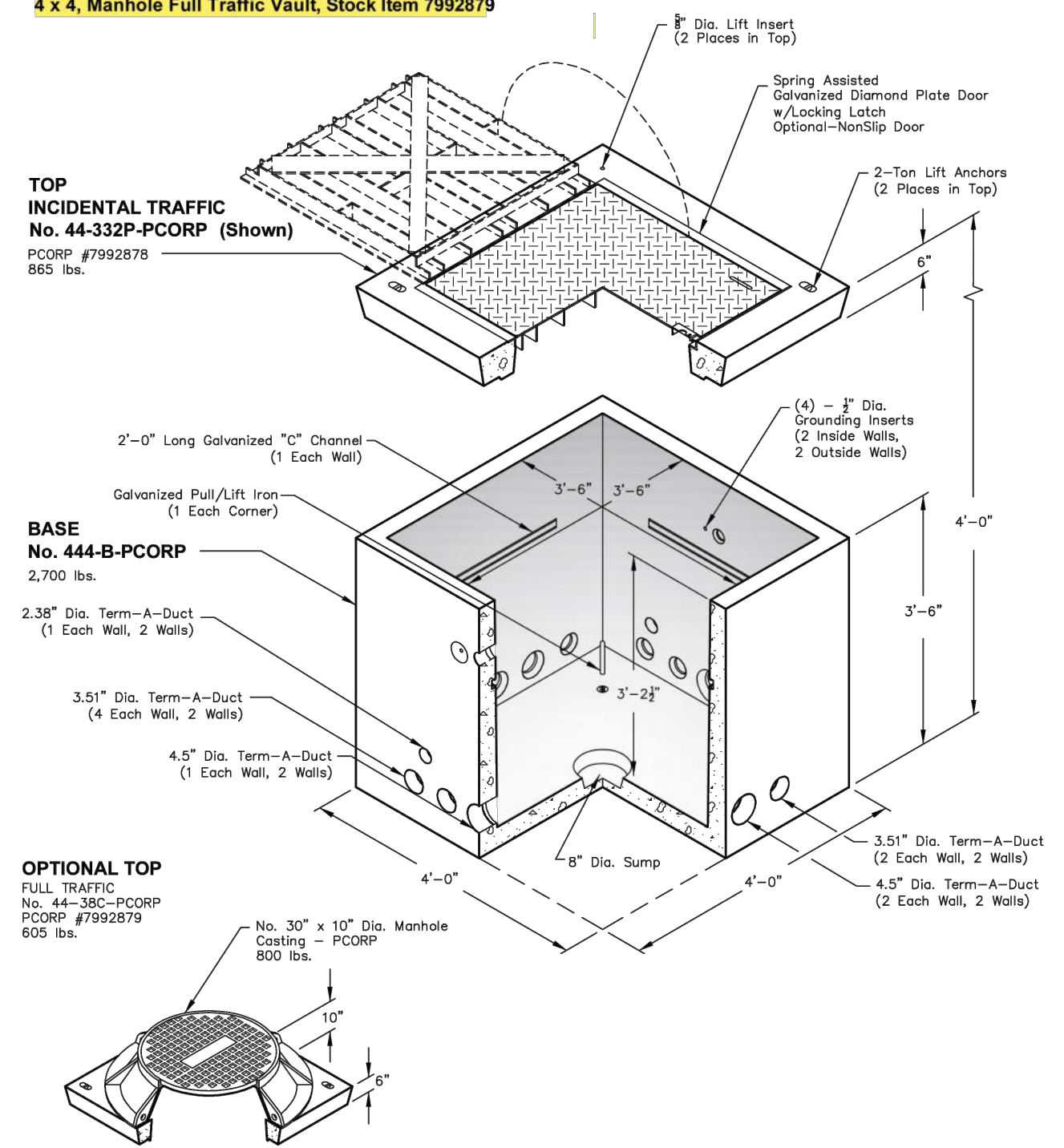
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DATE: FEBRUARY 2025
SHEET TITLE: STANDARD DETAILS

444-MH-PCORP
PC-2.0

4 x 4, Manhole Incidental Traffic Vault, Stock Item 7992878
4 x 4, Manhole Full Traffic Vault, Stock Item 7992879

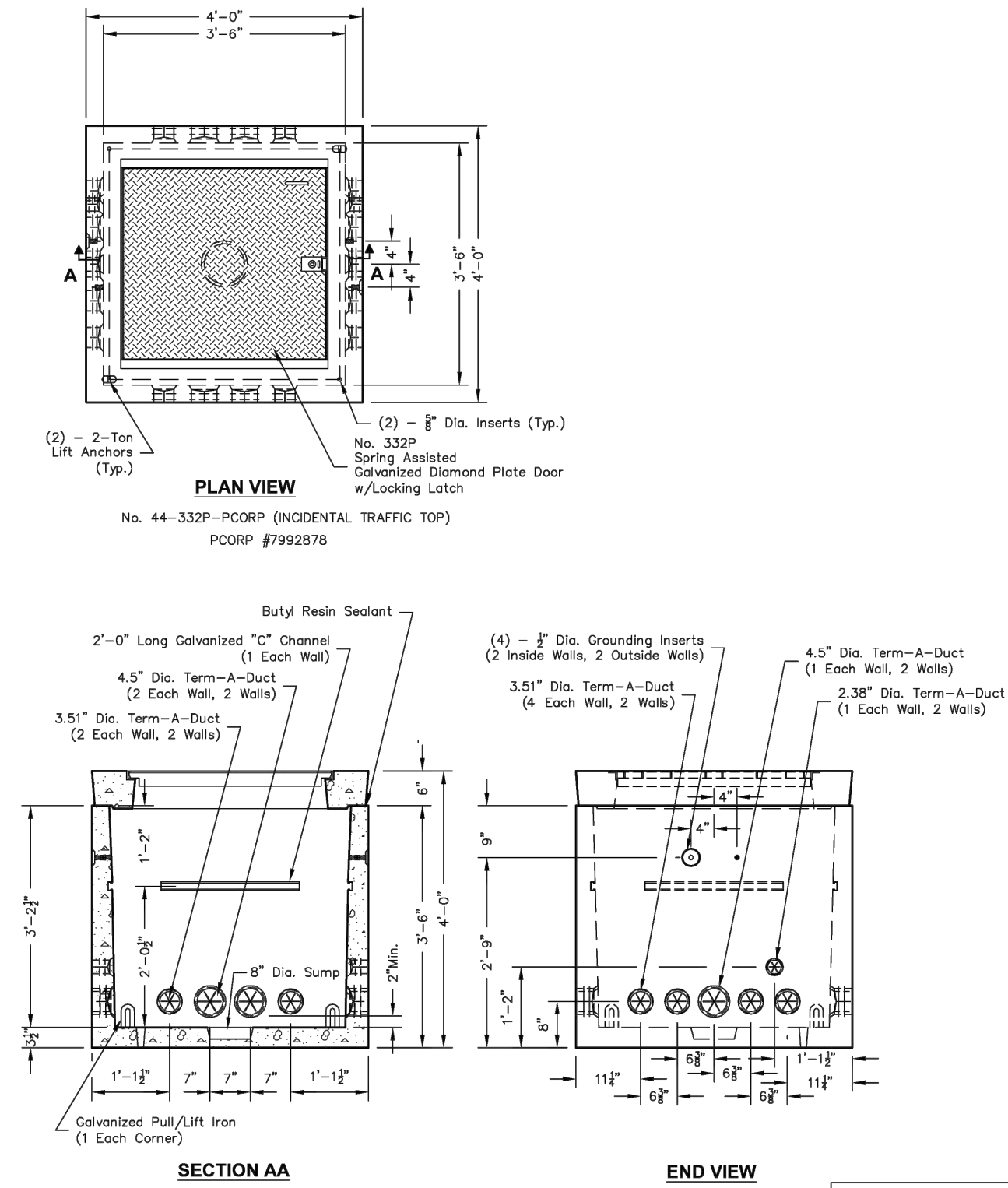


Note: Designed for 0 to 5'-0" of Cover

PCORP ZG501 6-13-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>444-MH-PCORP</p> <p>File Name: 020UEE444-MH-PCORP1 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>444-MH-PCORP 4 x 4 PACIFICORP</p>

444-MH-PCORP
PC-2.1

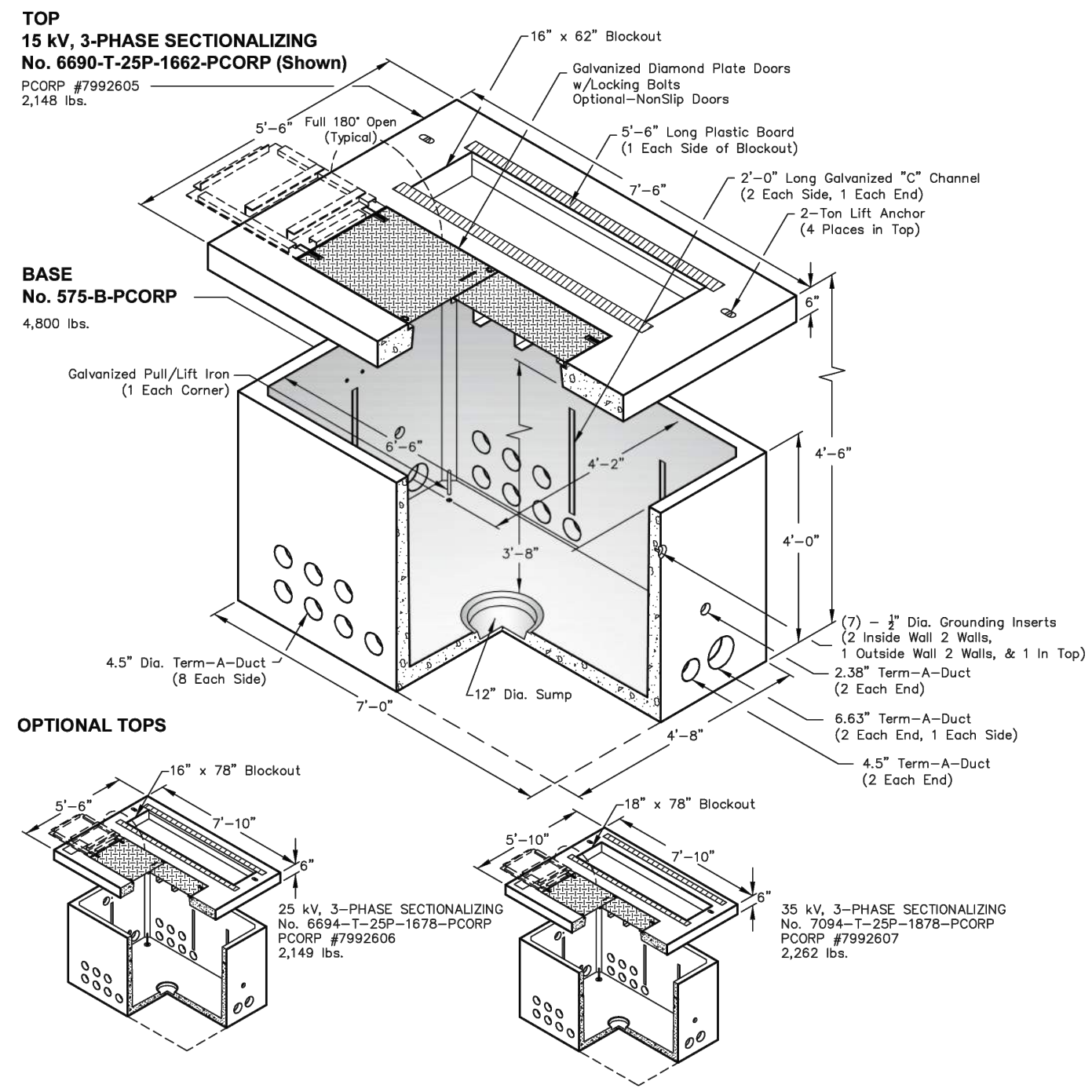


PCORP ZG501 6-13-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>444-MH-PCORP</p> <p>File Name: 444-MH-PCORP2 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>444-MH-PCORP 4 x 4 PACIFICORP</p>

575-SECT-PCORP
PC-8.0

5 x 7, 15 kV, 3-Phase Sectionalizing Cabinet Padvault, Stock Item 7992605
5 x 7, 25 kV, 3-Phase Sectionalizing Cabinet Padvault, Stock Item 7992606
5 x 7, 35 kV, 3-Phase Sectionalizing Cabinet Padvault, Stock Item 7992607

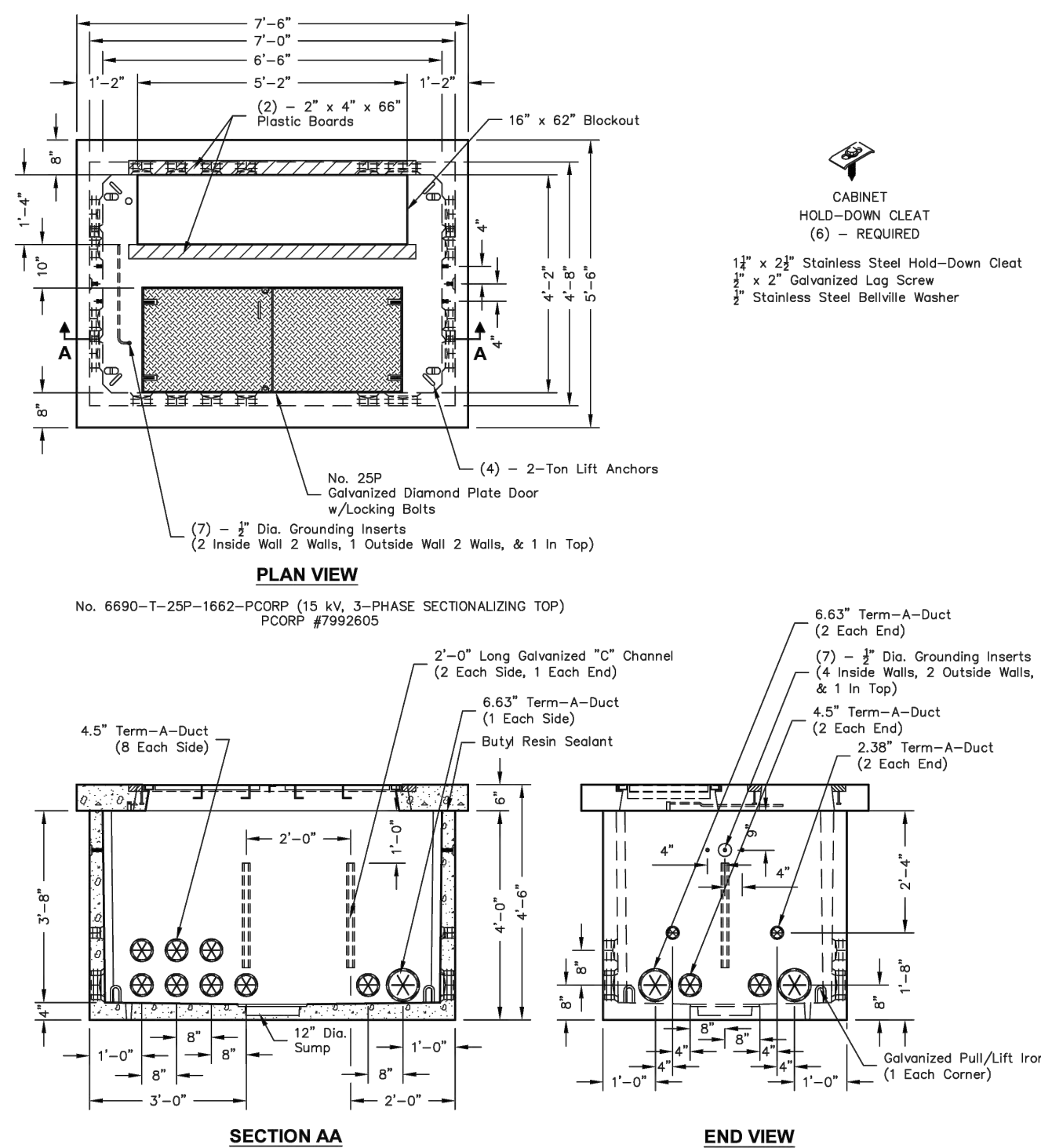


Note: Designed for 0 to 5'-0" of Cover

PCORP ZG621 6-13-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>575-SECT-PCORP</p> <p>File Name: 020UEE575SECT1 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>575-SECT-PCORP 5 x 7 PACIFICORP</p>

575-SECT-PCORP
PC-8.1

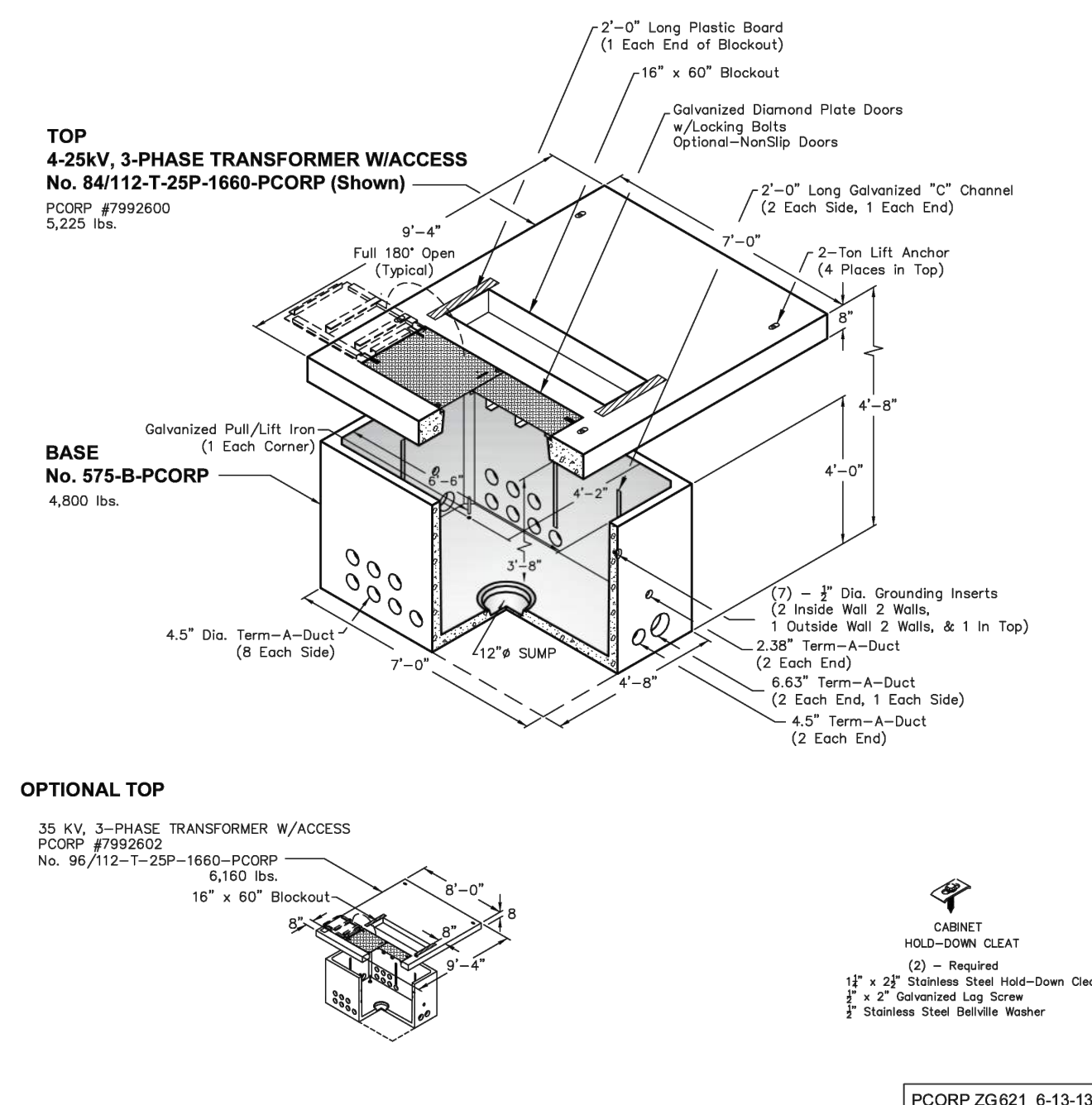


PCORP ZG621 6-13-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>575-SECT-PCORP</p> <p>File Name: 020UEE575SECT2 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>575-SECT-PCORP 5 x 7 PACIFICORP</p>

575-TRANS-PCORP
PC-7.0

5 x 7, 4-25 kV, 3-Phase 75-750 kVA Transformer Padvault With Access, Stock Item 7992600
5 x 7, 35 kV, 3-Phase 75-750 kVA Transformer Padvault With Access, Stock Item 7992602

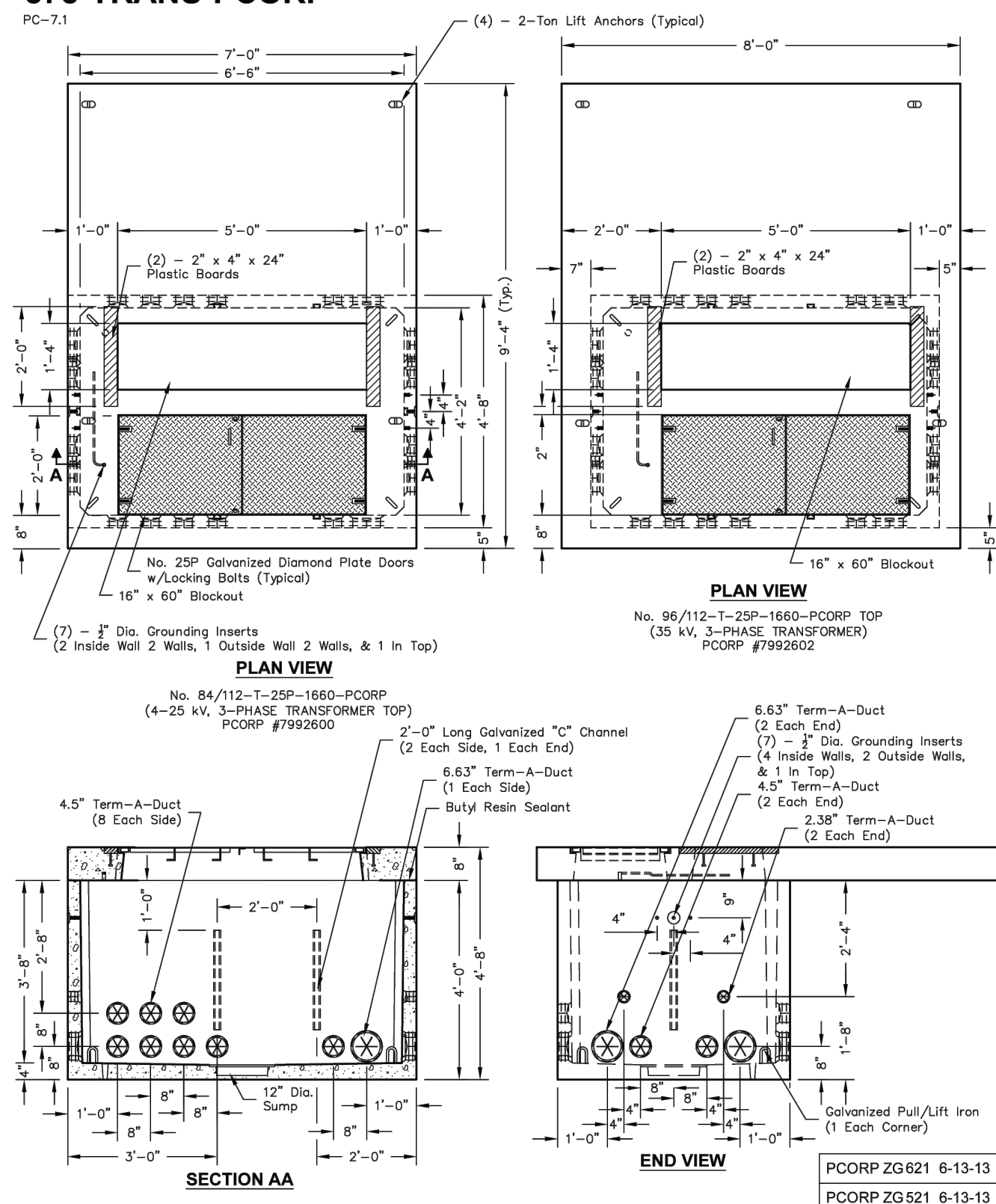


PCORP ZG621 6-13-13

PCORP ZG621 6-13-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>575-TRANS-PCORP</p> <p>File Name: 020UEE575TRANS1 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>575-TRANS-PCORP 5 x 7 PACIFICORP</p>

575-TRANS-PCORP
PC-7.1



PCORP ZG621 6-13-13

PCORP ZG621 6-13-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>575-TRANS-PCORP</p> <p>File Name: 020UEE575TRANS2 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>575-TRANS-PCORP 5 x 7 PACIFICORP</p>



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PROJECT NO.: 23.81
 CITY OF COQUILLE URA
 NORTH ADAMS STREETScape IMPROVEMENTS
 PHASE 1: UNDERGROUND IMPROVEMENTS
 CITY OF COQUILLE
 COQUILLE, OREGON

CONSTRUCTION

REVISIONS:

#	DATE	DESCRIPTION
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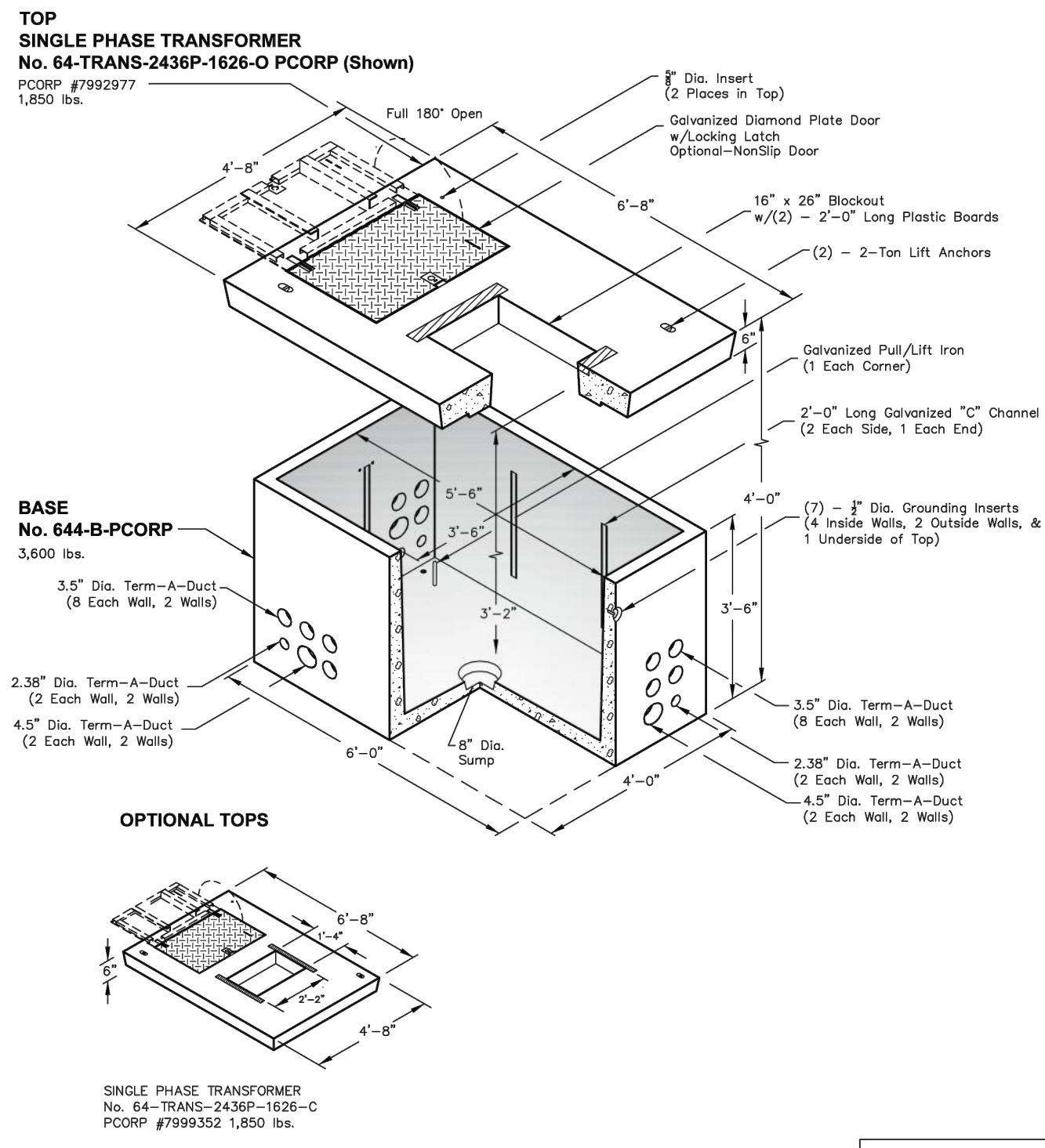
DATE: FEBRUARY 2025

SHEET TITLE: STANDARD DETAILS

D106

644-TRANS-PCORP
PC-3.0

4 x 6, Single Phase 25-167 KV Transformer Padvault, Stock Item 7992977
4 x 6, Single Phase 25-167 KV Transformer Padvault, Stock Item 799352

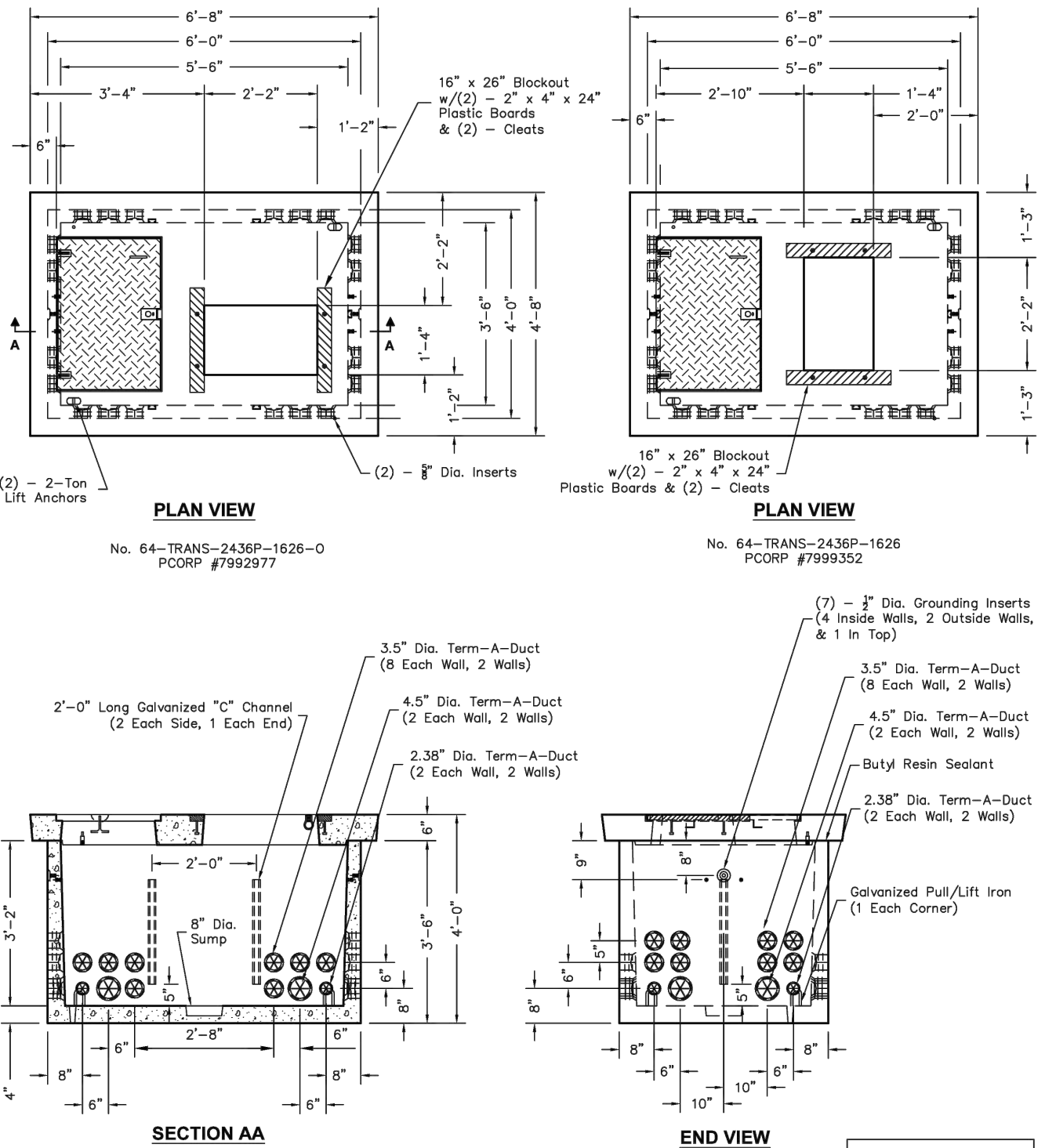


Note: Designed for 0 to 5'-0" of Cover

PCORP ZG616 11-1-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>644-TRANS-PCORP</p> <p>File Name: 020UEE644TRANS-PCORP Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>644-TRANS-PCORP 4 x 6 PACIFICORP</p>
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644-TRANS-PCORP
PC-3.1



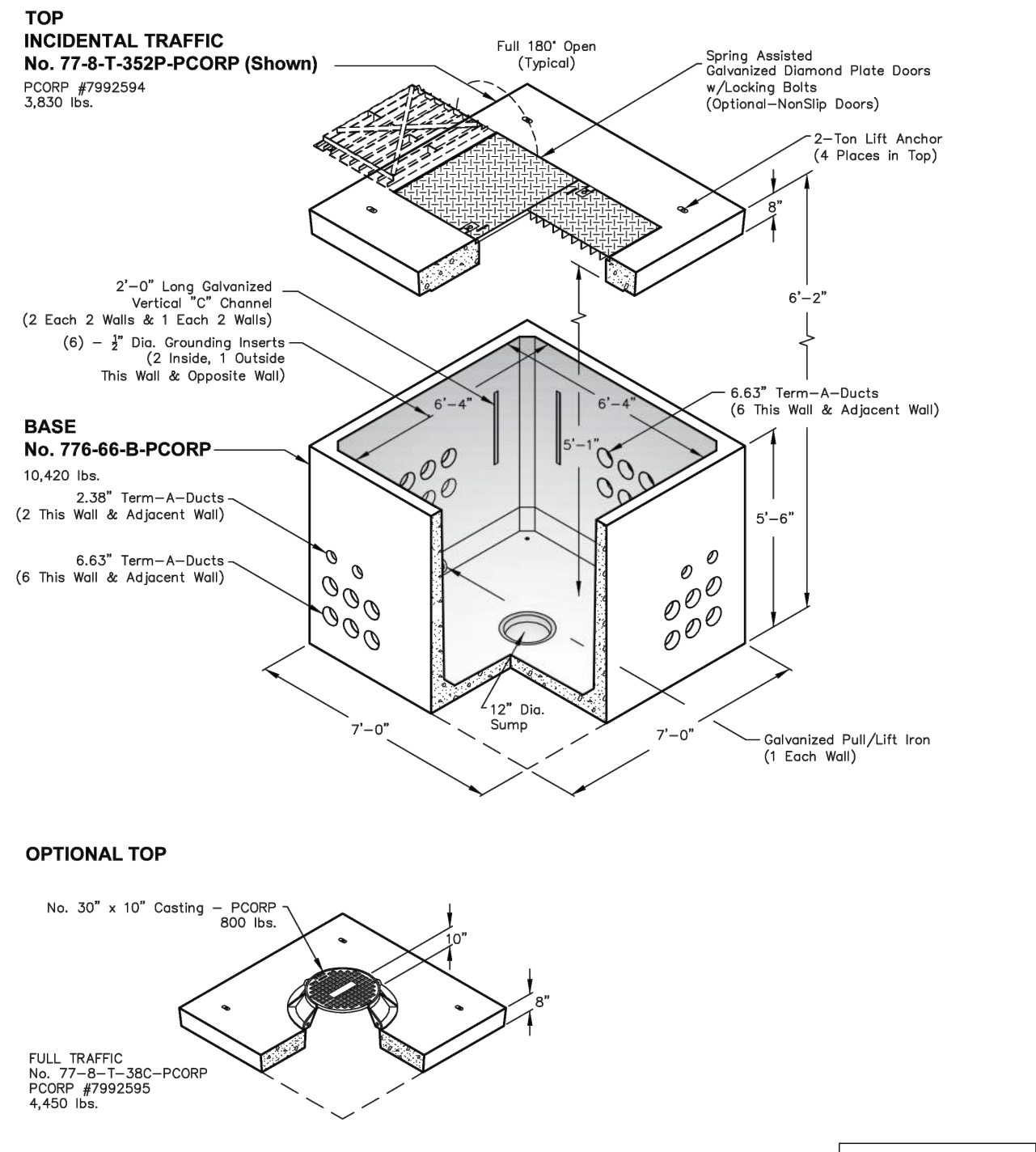
Note: Designed for 0 to 5'-0" of Cover

PCORP ZG616 11-1-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>644-TRANS-PCORP</p> <p>File Name: 020UEE644TRANS-PCORP Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>644-TRANS-PCORP 4 x 6 PACIFICORP</p>
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776-MH-PCORP
PC-13.0

7 x 7, Manhole Incidental Traffic Vault, Stock Item 7992594
7 x 7, Manhole Full Traffic Vault, Stock Item 7992595

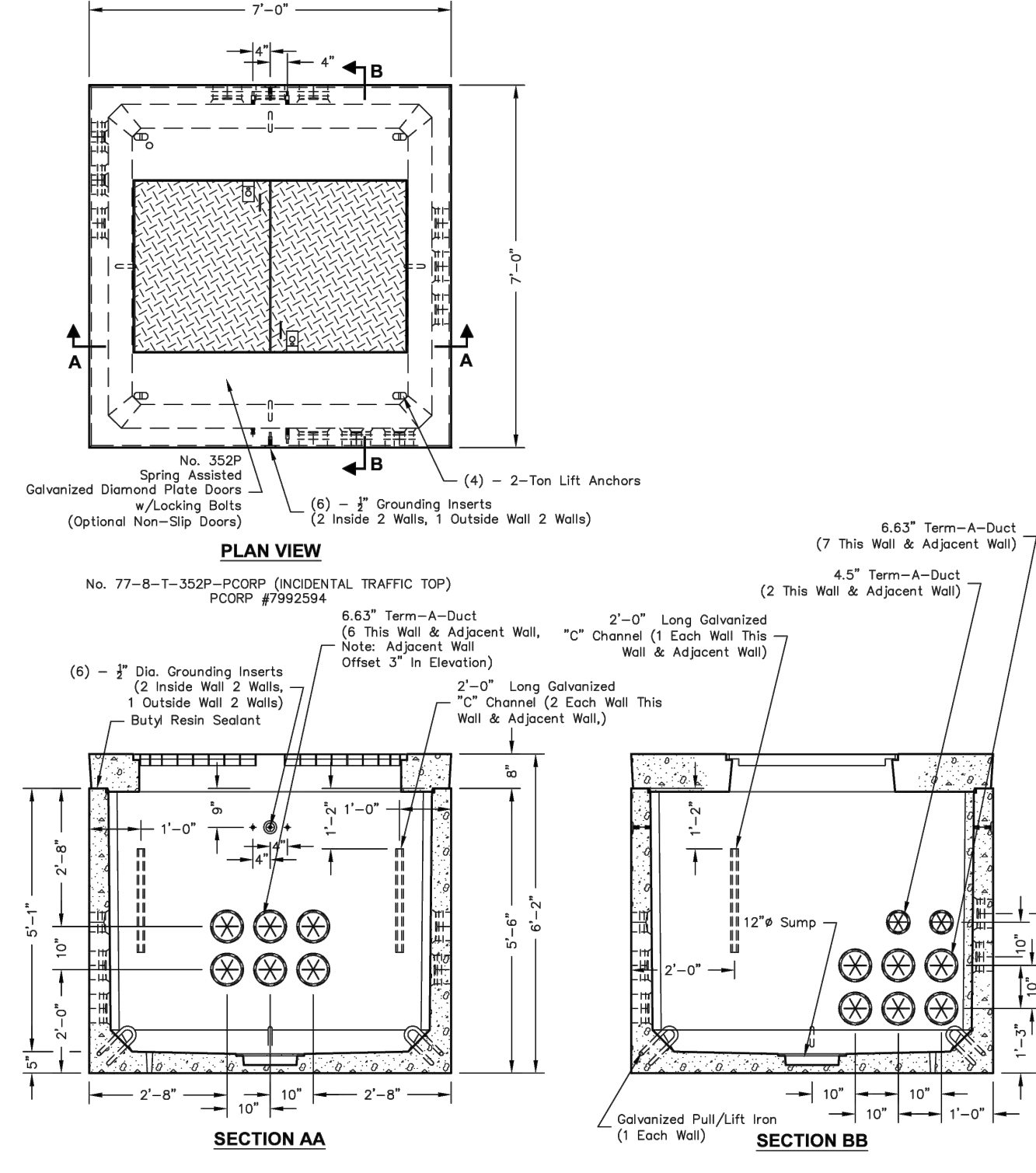


Note: Designed for 0 to 5'-0" of Cover

PCORP ZG631 11-1-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>776-MH-PCORP</p> <p>File Name: 020UEE776-MH-PCORP1 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>776-MH-PCORP 7 x 7 PACIFICORP</p>
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776-MH-PCORP
PC-13.1



Note: Designed for 0 to 5'-0" of Cover

PCORP ZG631 11-1-13

<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657 oldcastleprecast.com/wilsonville</p>	<p>776-MH-PCORP</p> <p>File Name: 020UEE776-MH-PCORP2 Issue Date: 2016 oldcastleprecast.com/wilsonville</p>	<p>776-MH-PCORP 7 x 7 PACIFICORP</p>
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 PHASE 1: UNDERGROUND IMPROVEMENTS
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DATE: FEBRUARY 2025

SHEET TITLE:
STANDARD DETAILS

D107

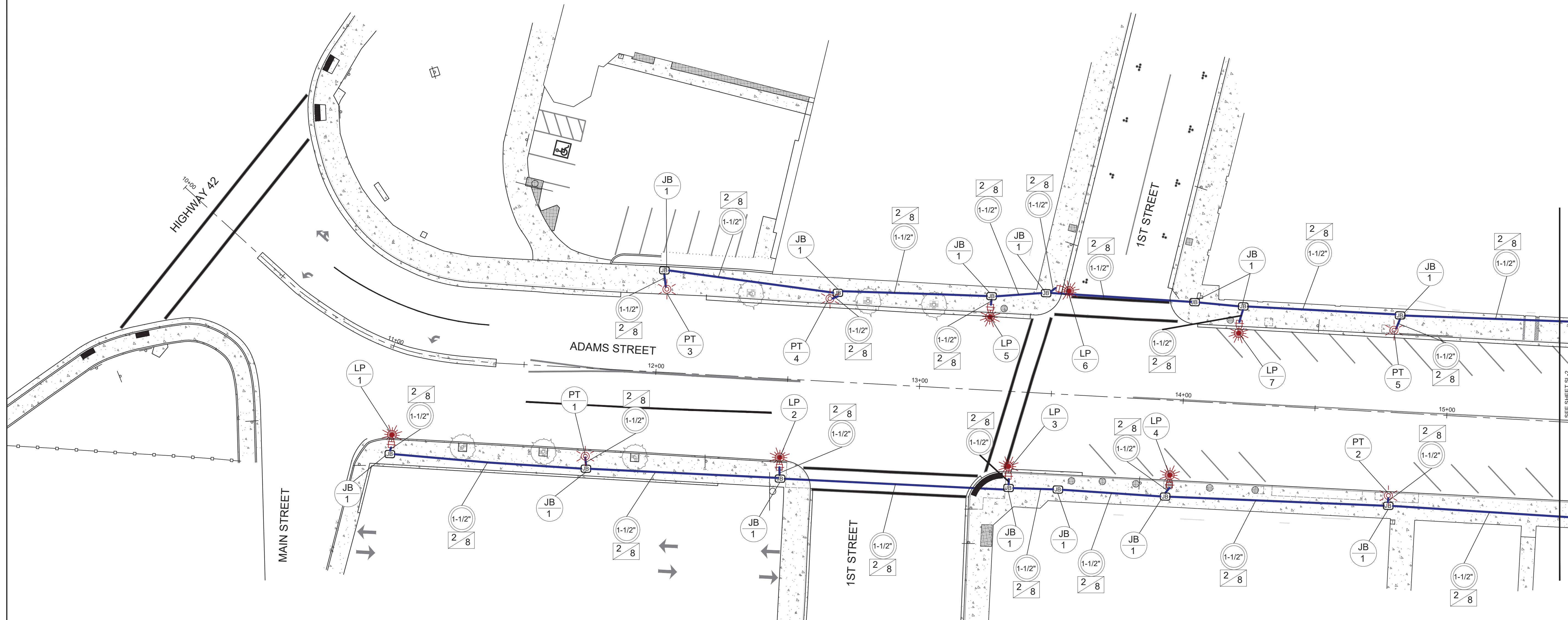
CONSTRUCTION

#	DATE	DESCRIPTION

DATE: FEBRUARY 2025

SHEET TITLE:
STREET_LIGHTING

SL-1

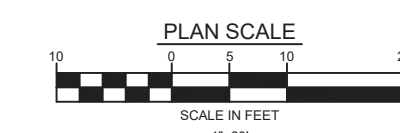


LEGEND

- Furnish and Install VISCO cast iron and steel light pole VI-A7-G1-APM90-F/20' see detail on Sheet SL-3. Furnish and install Acorn Fixture Luminaire at 40W, 3000K, and 480v with a Type V distribution. Poles to be placed on concrete *Fixed Base Pole* foundations. See TM631 on Sheet SL-4
- Furnish and Install VISCO cast iron and steel light pole VI-A-1-F/12' see detail on Sheet SL-3. Furnish and install LED Post-Top Acorn Fixture Luminaire at 40W, 3000K, and 480v with a Type V distribution. Poles to be placed on concrete *Fixed Base Pole* foundations. See TM631 on Sheet SL-4.
- Furnish and Install Type 1 (12"x18"x12") precast polymer concrete junction box marked "Street Lights". Conform to ODOT Standard Drawings TM472 on Sheet SL-5.
- Furnish and install size (S) inch rigid electrical conduit.
- Furnish and install (N=number) No. (G=AWG wire size) type XHHW wires.

STREET LIGHT LOCATION

Light Number	Description	Station	Offset (Centerline of Adams)
LP-1	VI-A7-G1-APM90-F/20'	11+01	37.0
PT-1	VI-A-1-F/12'	11+74	33.3
LP-2	VI-A7-G1-APM90-F/20'	12+49	33.5
LP-3	VI-A7-G1-APM90-F/20'	13+37	32.0
LP-4	VI-A7-G1-APM90-F/20'	13+96	32.0
PT-2	VI-A-1-F/12'	14+76	31.5
PT-3	VI-A-1-F/12'	12+03	33.6
PT-4	VI-A-1-F/12'	12+65	31.4
LP-5	VI-A7-G1-APM90-F/20'	13+26	31.5
LP-6	VI-A7-G1-APM90-F/20'	13+51	40.0
LP-7	VI-A7-G1-APM90-F/20'	14+20	30.5
PT-5	VI-A-1-F/12'	14+79	31.2



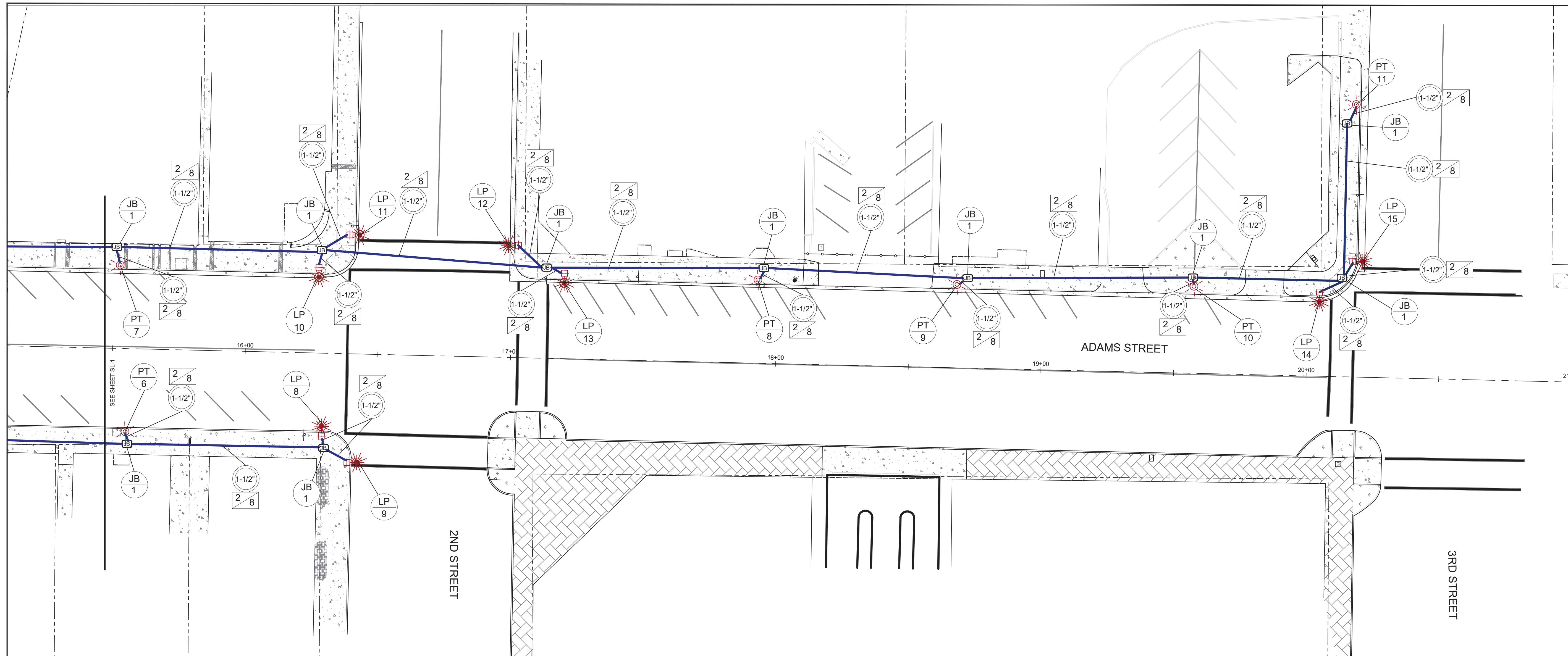
CONSTRUCTION

REVISIONS:
DATE DESCRIPTION

DATE: FEBRUARY 2025

SHEET TITLE:
STREET_LIGHTING

SL-2

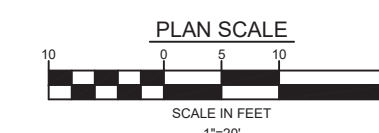


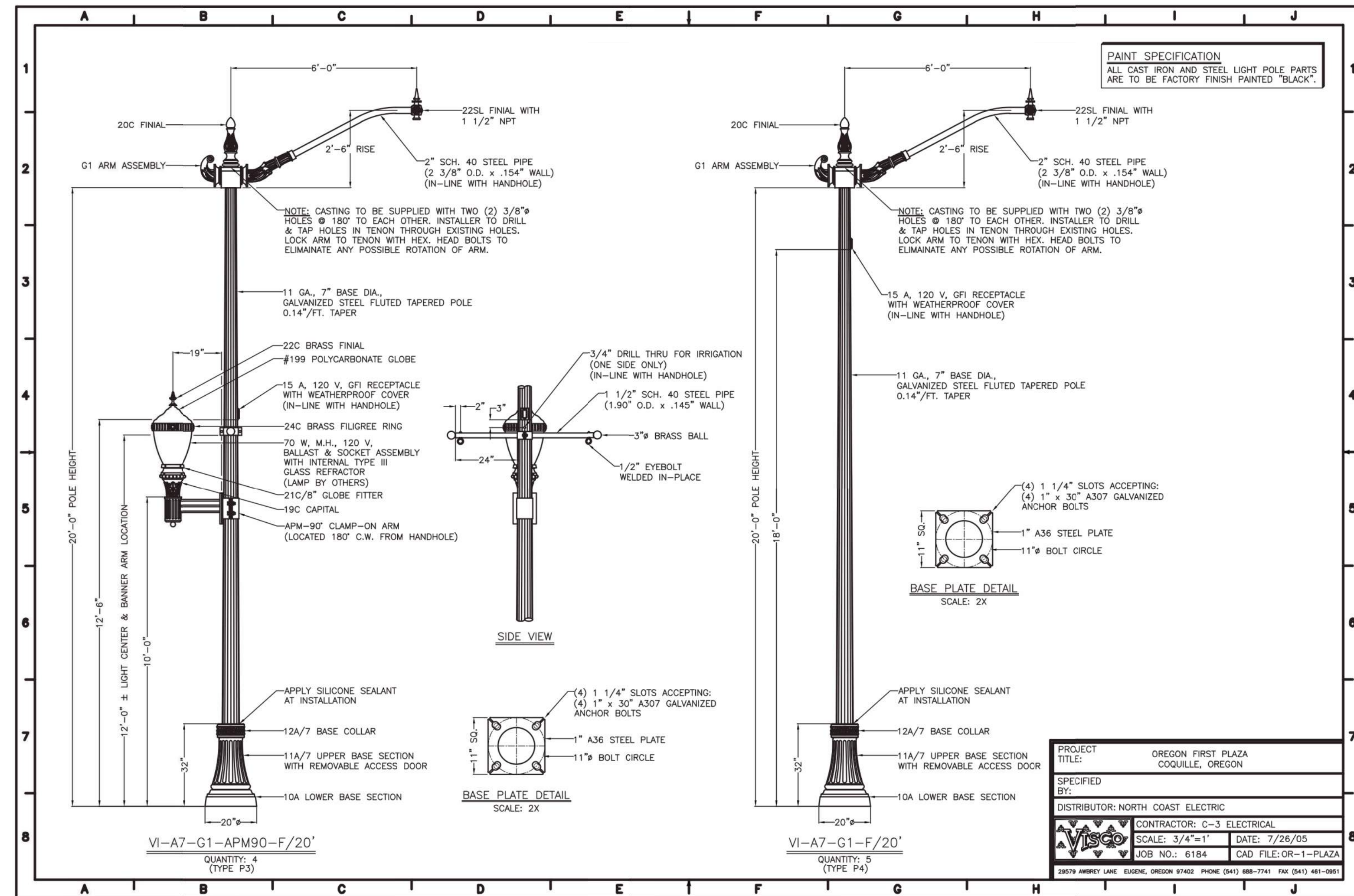
LEGEND

- Furnish and Install VISCO cast iron and steel light pole VI-A7-G1-APM90-F/20' see detail on Sheet SL-3. Furnish and install Acorn Fixture Luminaire at 40W, 3000K, and 480v with a Type V distribution. Poles to be placed on concrete *Fixed Base Pole* foundations. See TM631 on Sheet SL-4.
- Furnish and Install VISCO cast iron and steel light pole VI-A-1-F/12' see detail on Sheet SL-3. Furnish and install LED Post-Top Acorn Fixture Luminaire at 40W, 3000K, and 480v with a Type V distribution. Poles to be placed on concrete *Fixed Base Pole* foundations. See TM631 on Sheet SL-4.
- Furnish and Install Type 1 (12"x18"x12") precast polymer concrete junction box marked "Street Lights". Conform to ODOT Standard Drawings TM472 on Sheet SL-5.
- Furnish and install size (S) inch rigid electrical conduit.
- Furnish and install (N=number) No. (G=AWG wire size) type XHHW wires.

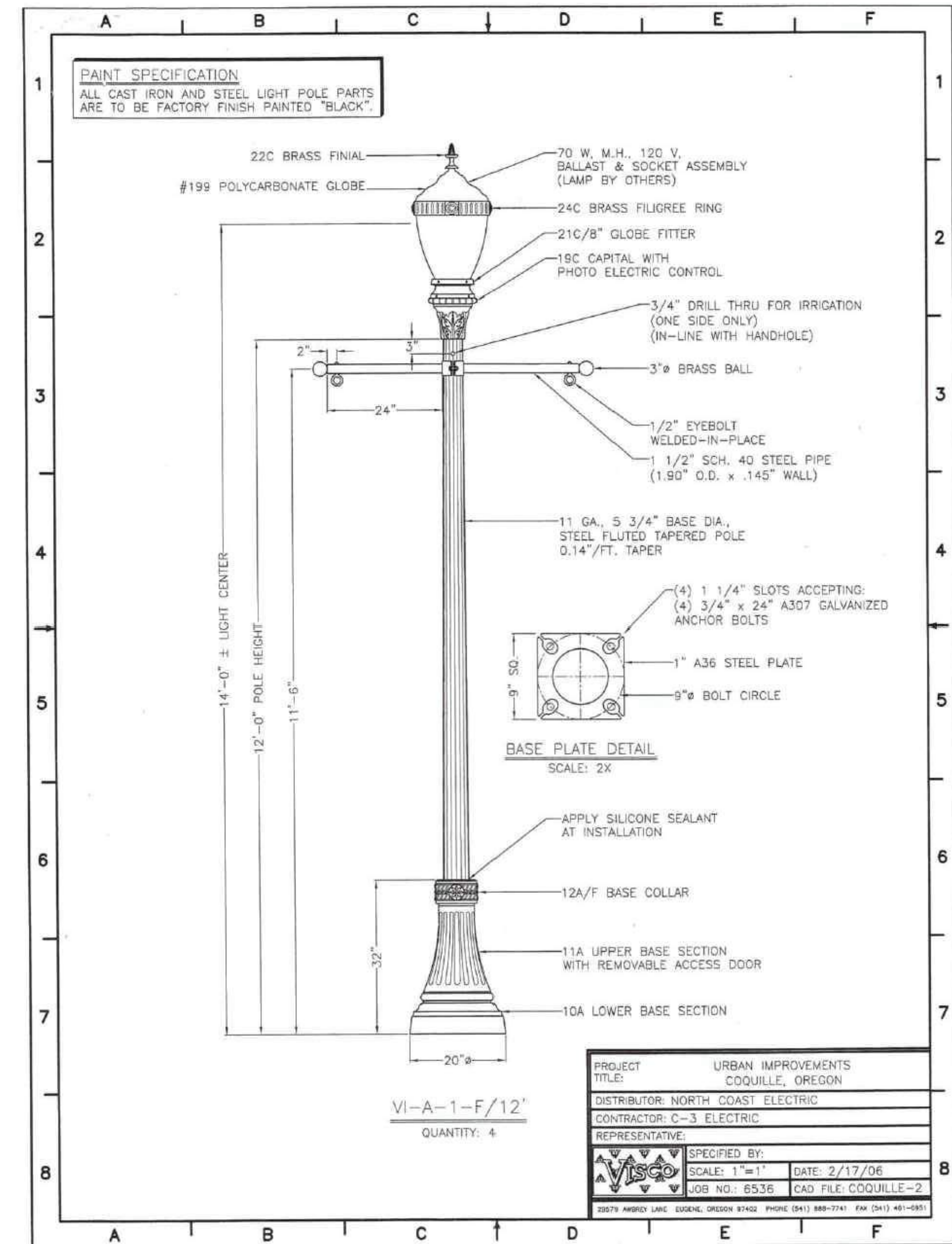
STREET LIGHT LOCATION

Light Number	Description	Station	Offset (Centerline of Adams)
PT-6	VI-A-1-F/12'	15+55	31.5
LP-8	VI-A7-G1-APM90-F/20'	16+29	31.3
LP-9	VI-A7-G1-APM90-F/20'	16+39	41.0
PT-7	VI-A-1-F/12'	15+52	31.5
LP-10	VI-A7-G1-APM90-F/20'	16+27	32.3
LP-11	VI-A7-G1-APM90-F/20'	16+38	44.8
LP-12	VI-A7-G1-APM90-F/20'	17+03	42.4
LP-13	VI-A7-G1-APM90-F/20'	17+20	32.3
PT-8	VI-A-1-F/12'	17+93	31.5
PT-9	VI-A-1-F/12'	18+68	31.5
PT-10	VI-A-1-F/12'	19+57	32.8
LP-14	VI-A7-G1-APM90-F/20'	20+04	31.5
PT-11	VI-A-1-F/12'	20+17	103.0
LP-15	VI-A7-G1-APM90-F/20'	20+17	43.6



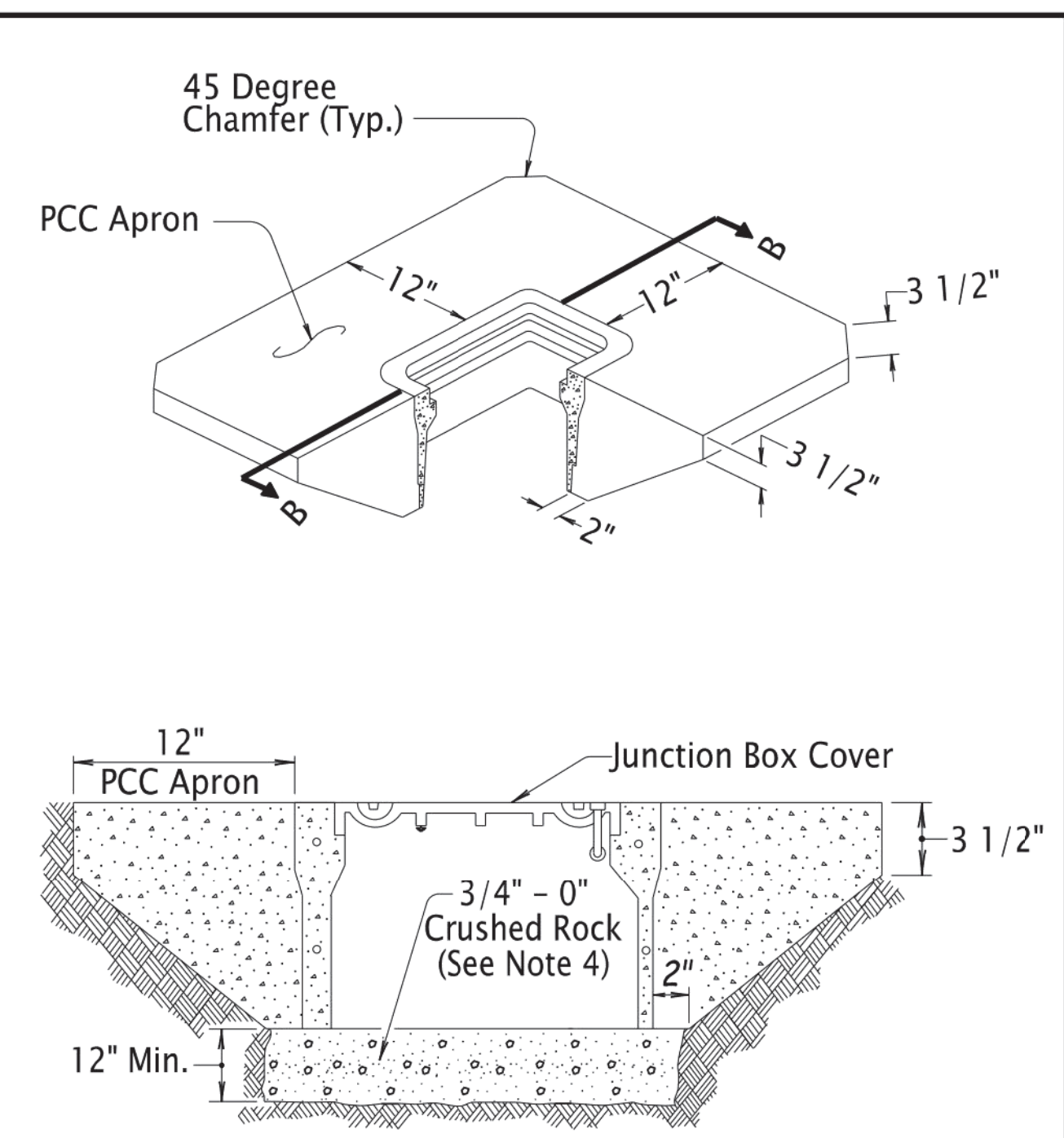


LIGHTING TYPE L1

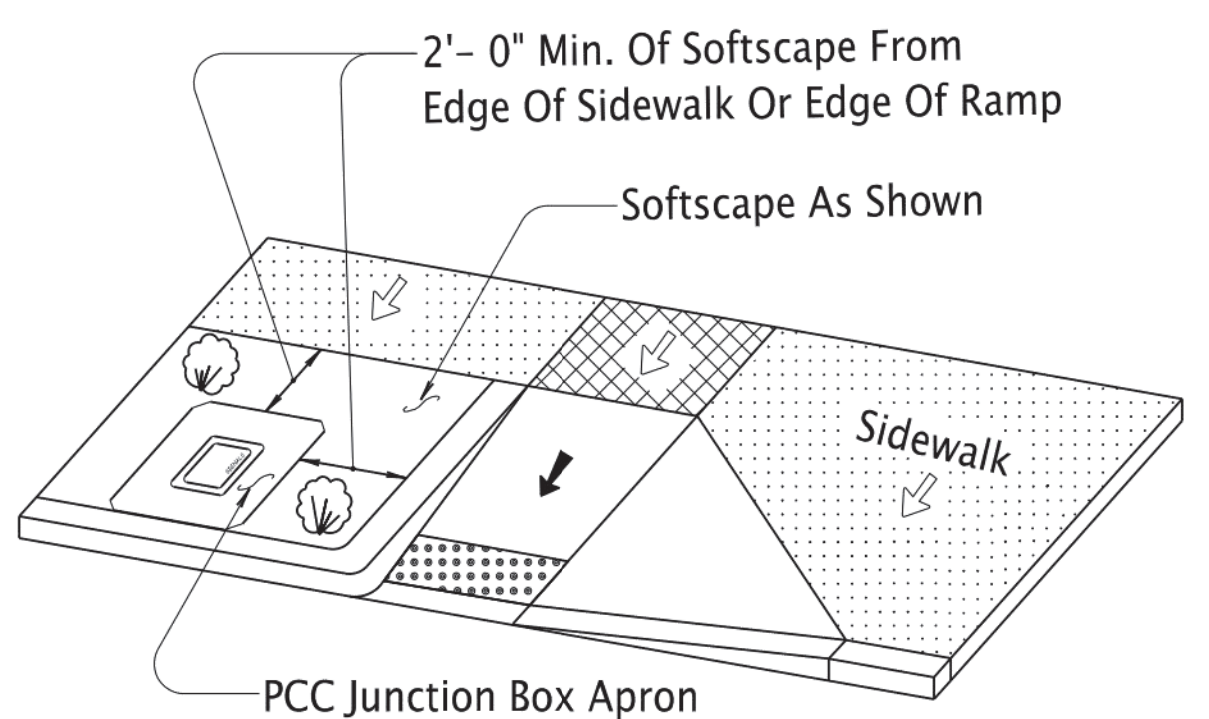


LIGHTING TYPE L2

12-JUL-2024
TM472.dgn

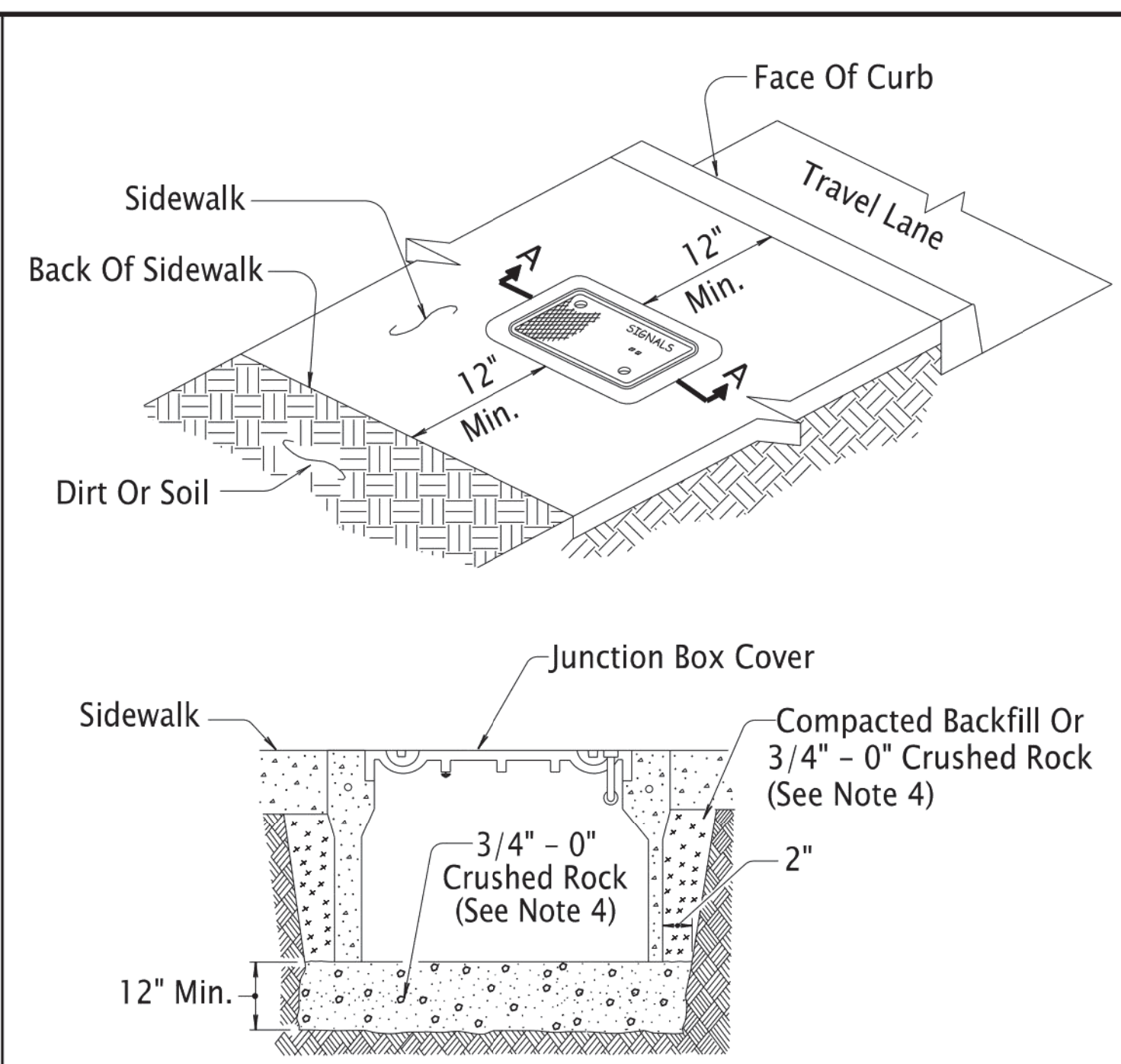


SECTION B-B



JUNCTION BOX INSTALLATION IN UNSURFACED AREA

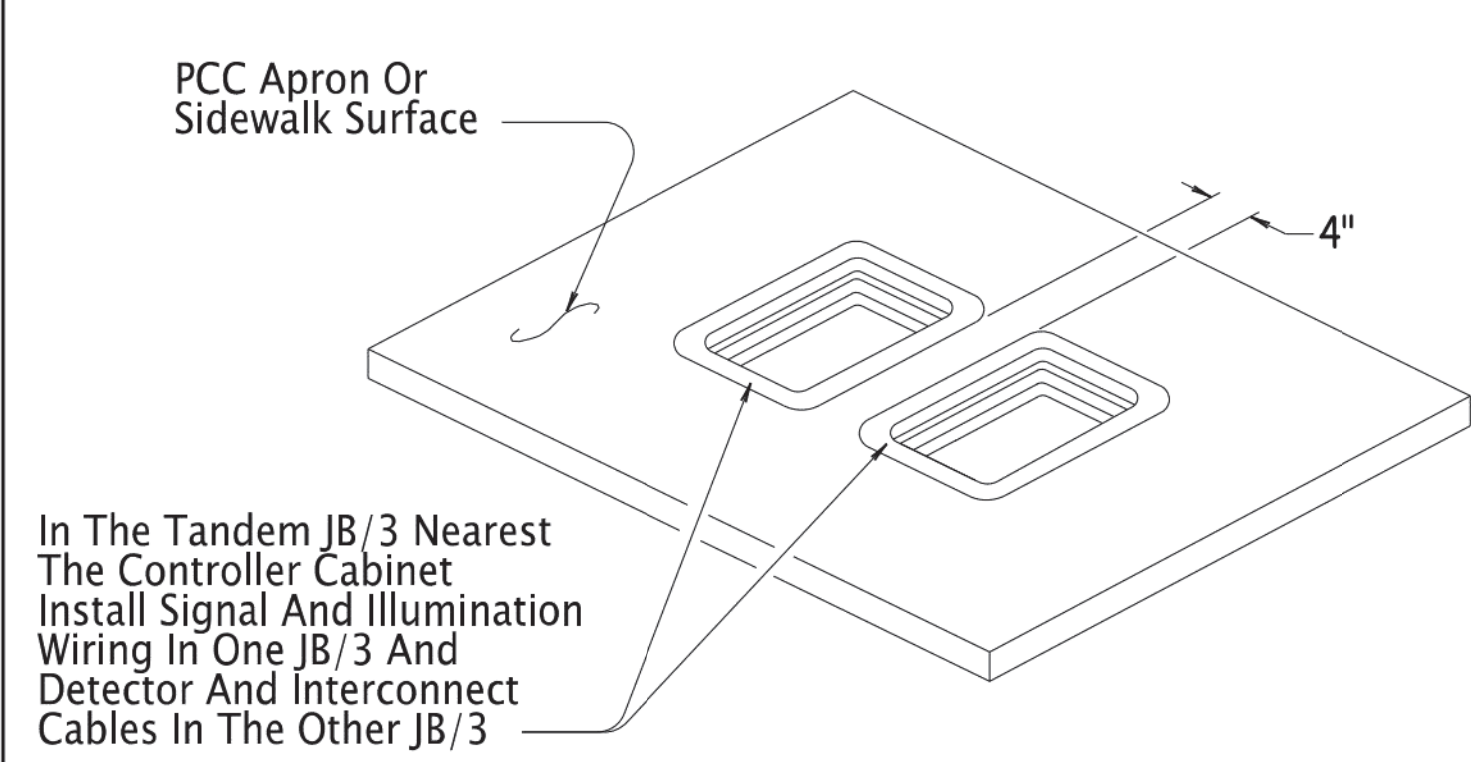
(This Detail Only Applicable for Junction Boxes Located In Incidental Travel Areas; Gravel Shoulders, Behind Guardrail, Etc. Do Not Install In Travel Lanes, Paved Shoulders, Or Other Areas Exposed To Traffic.)



SECTION A-A

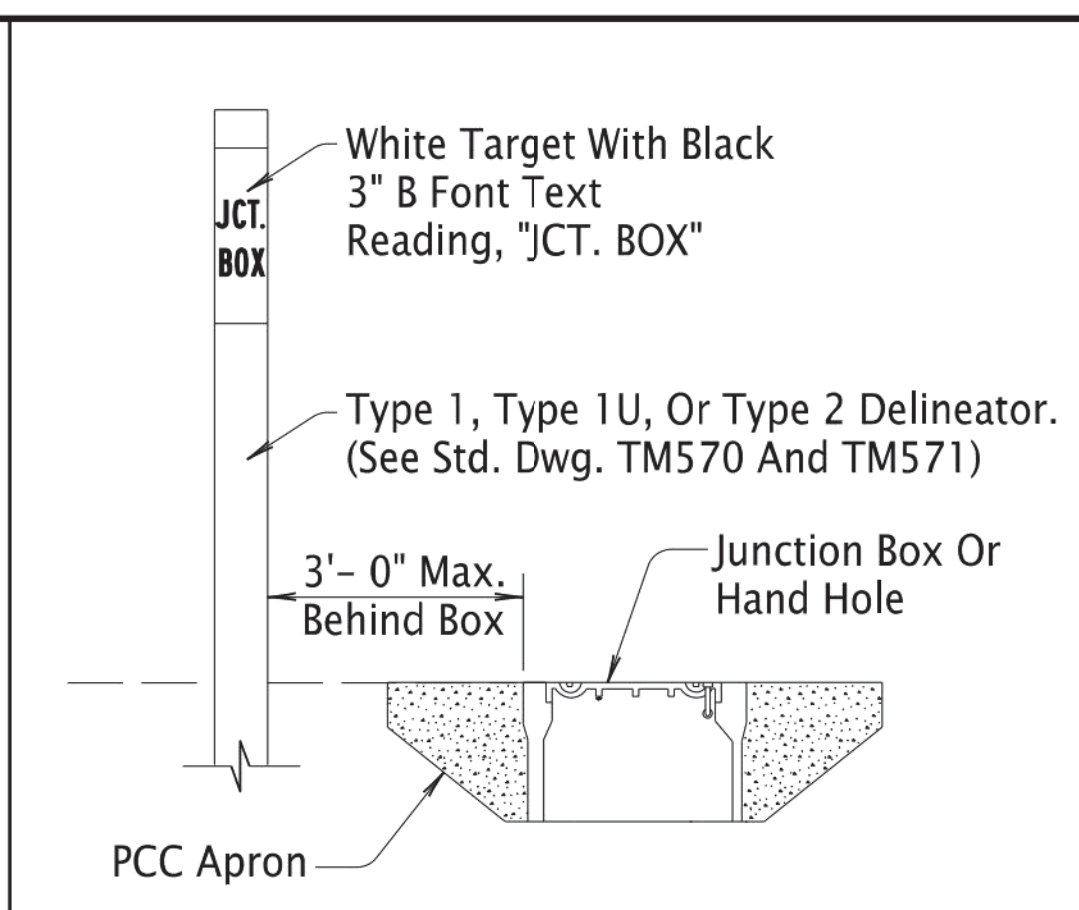
JUNCTION BOX INSTALLATION IN PCC SIDEWALK

(This Detail Only Applicable for Junction Boxes Located In Flat Areas Of Sidewalks. Do Not Install In Slopes Of Ramps Or Driveways)

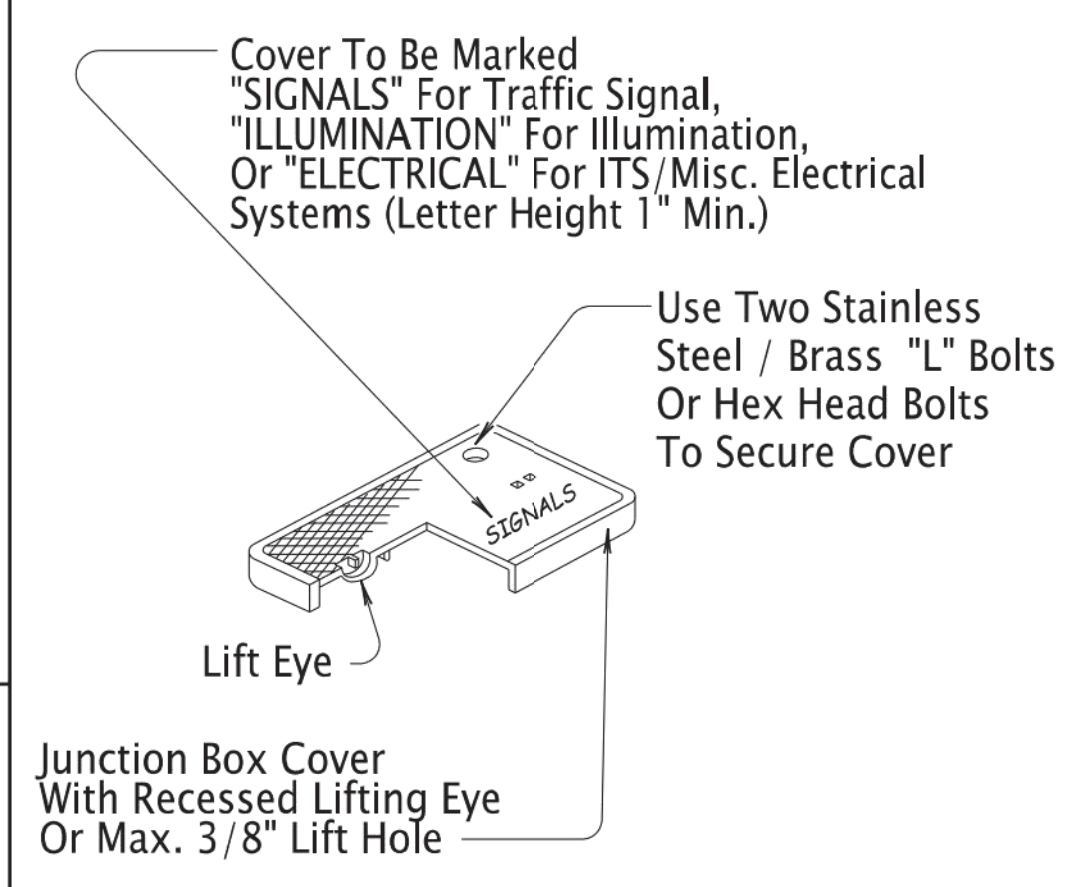


TANDEM JB/3A JUNCTION BOX DETAILS

In The Tandem JB/3 Nearest The Controller Cabinet Install Signal And Illumination Wiring In One JB/3 And Detector And Interconnect Cables In The Other JB/3

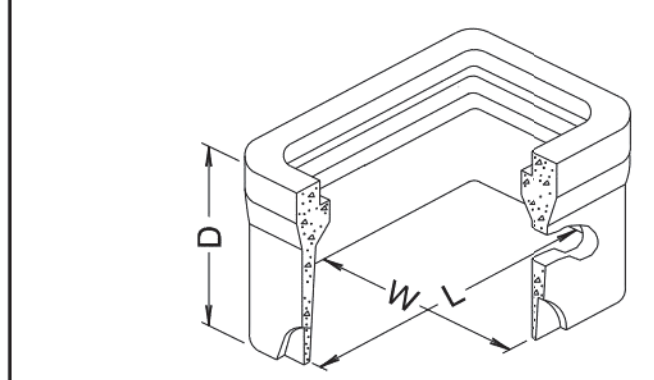


DELINEATION OF JUNCTION BOX & HAND HOLE IN UNSURFACED AREA



JUNCTION BOX COVER DETAILS

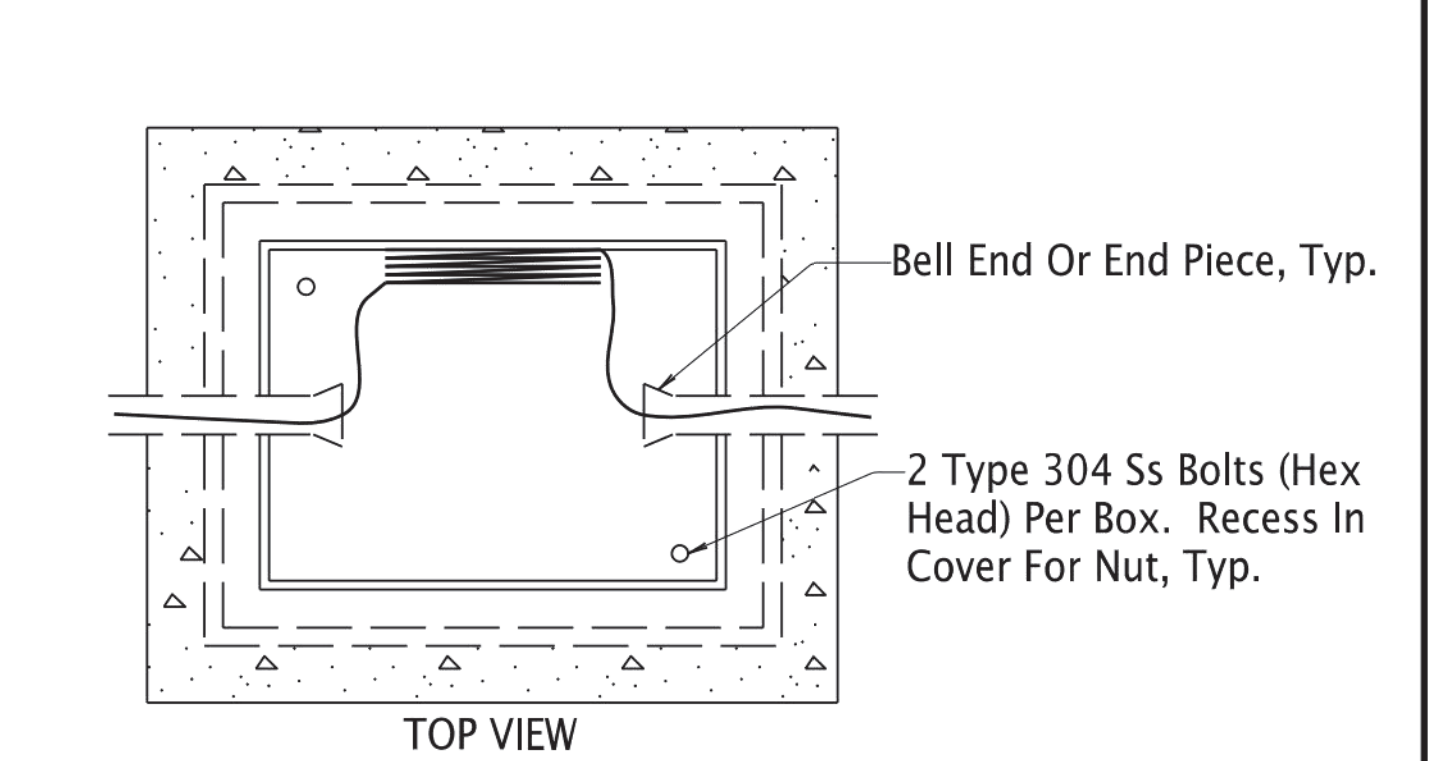
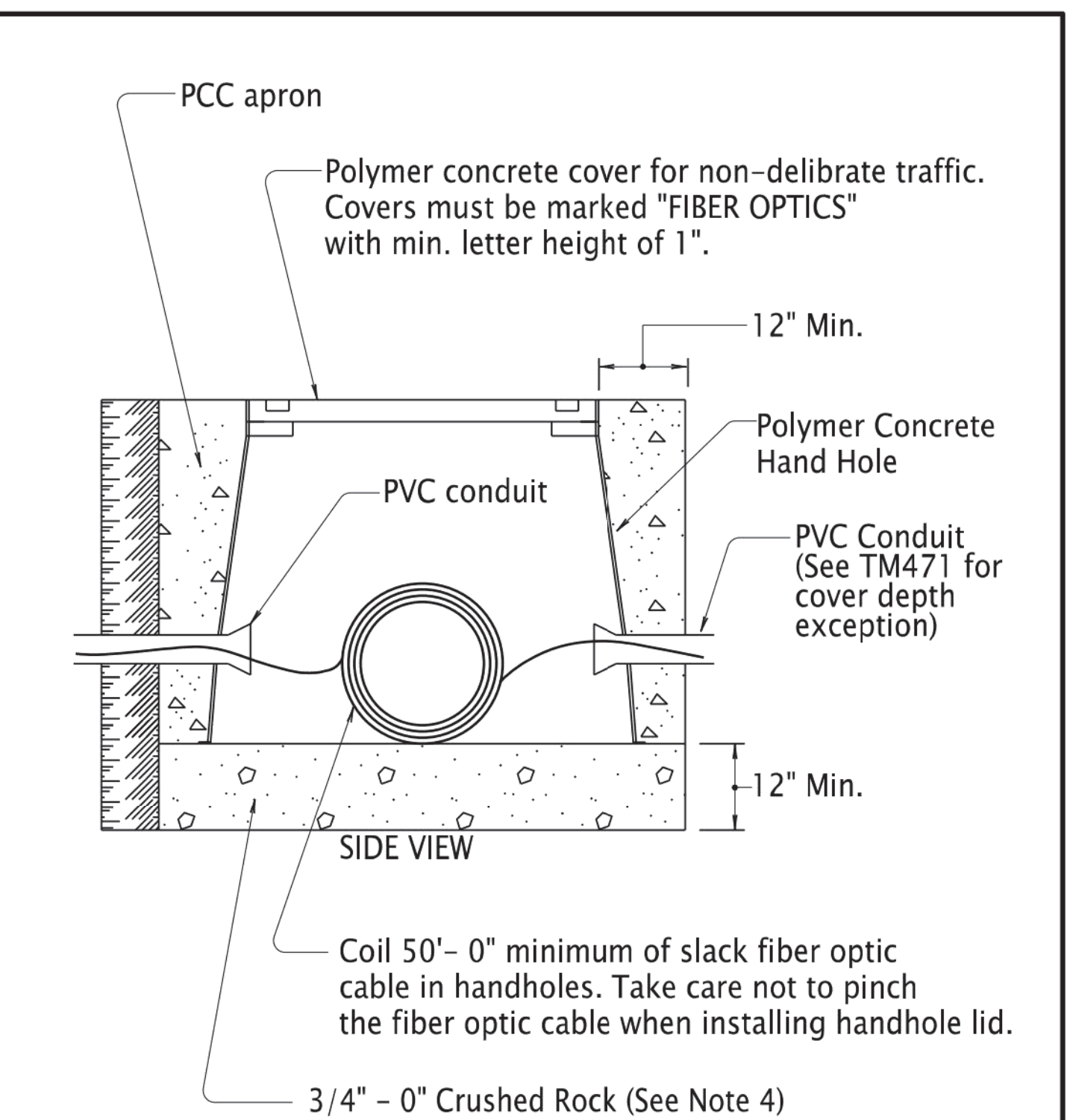
Use Two Stainless Steel / Brass "L" Bolts Or Hex Head Bolts To Secure Cover



Type*	L	W	D
JB1	17"	10"	12"
JB2	22"	12"	12"
JB3	30"	17"	12"
HH-1	24"	30"	24"
HH-2	30"	48"	24"
HH-3	30"	48"	36"

*Junction Box Or Handhole Type As Shown On Plans

DIMENSION TABLE



FIBER OPTIC CABLE HAND HOLE INSTALLATION

- GENERAL NOTES:**
1. Install Top of Junction Box And Hand Hole Flush With The Sidewalk, Surrounding Grade, Or Top Of Curb. For Hand Holes Installed In The Roadway Or Shoulder, Leave The Top Of The Hand Hole 1/2" Below The Pavement Surface.
 2. Install Junction Boxes And Hand Holes At The Approximate Locations Shown, Or If Not Shown, No More Than 300 Feet Apart For Junction Boxes And No More Than 1000 Feet Apart For Hand Holes.
 3. More Junction Boxes And Hand Holes Than Specified May Be Installed To Facilitate The Work At The Option And Cost Of The Contractor
 4. Use Materials According To 00640.10 and 00640.16. Use Compaction Equipment Suitable For Area And Compact Each Six Inch Layer With Sufficient Coverages To Produce A Firm Unyielding Surface. Do Not Install Conductors Until Surface Has Been Constructed.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

JUNCTION BOXES/HAND HOLES

2024

DATE	REVISION DESCRIPTION
07-2022	ADDED NEW MARKING (ILLUMINATION & ELECTRICAL) FOR JB COVER
01-2024	CHANGED DIMENSION FOR JB DELINEATION
07-2024	CHANGED SOFTSCAPE MIN. FROM 3' TO 2'. ADDED HAND HOLE CONDUIT NOTE

CALC. BOOK NO. - - - N/A - - - SDR DATE: 12-JUL-2024 - **TM472**

Effective Date: December 1, 2024 – May 31, 2025