



Carlton Clearwell Recoating & Misc WTP Improvements

CONSTRUCTION DOCUMENTS

November 2021



15350 SW Sequoia Parkway, Suite 220, Portland, OR 97224
Tel 503.684.9097 Fax 503.598.0583 www.tetrattech.com



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CONSTRUCTION DOCUMENTS

NOVEMBER 2021

Prepared for:
City of Carlton
191 E. Main Street
Carlton, Oregon 97111



TETRA TECH

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Project # 135-13914-16001-02

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**CITY OF CARLTON, OREGON
PUBLIC WORKS DEPARTMENT**

**INVITATION TO BID
FOR
CLEARWELL RECOATING & MISC. WTP IMPROVEMENT**

Bid Opening: Sealed Bids will be received digitally by the City of Carlton’s consultant, Tetra Tech until **2:00pm, December 15, 2021 (“the Bid Opening Date and Time”)**. Scanned bid shall be clearly marked “City of Carlton – East Main Street Improvement Project” and shall be emailed to Hunter Bennett-Daggett at Hunter.Bennett-Daggett@tetratech.com, Assistant City Engineer, on or before the above Bid date and time. The timepiece used to determine the precise passing of the Bid Opening Date and Time shall be the clock on the computer of the Assistant City Engineer; as shown on the email receipt timestamp associated with Bidder’s email in Assistant City Engineer’s email inbox. Bidder may contact the Assistant City Engineer at (503) 598-2510 to inquire about the computer clock’s exact timing. Bidder may contact the Assistant City Engineer at 503.598.2510 to inquire about the computer clock’s exact timing. Bids sent prior to the bid opening date and time, but not received before the closing time based upon the time stamp will not be opened. No hard copies or faxed quotes will be considered. Bids will be publicly opened using online meeting software. A link to the online bid opening will be provided to prospective bidders in an addendum, and the opening procedure will be recorded. First-Tier Subcontractor Disclosure Statements must be submitted by email on the same date by no later than 4:00 PM.

By submitting an electronic bid, the bidders certify that the signature on the electronic bid is treated as an original signature for the purposes of the bid. The bidder also certifies that an original bid bond will be mailed to the City of Carlton with a post date no later than December 15th, 2021. It shall be mailed to: City of Carlton, PO Box 458, Carlton, OR, 97111.

The Work consists of:

Recoating the interior and exterior of the 0.3 MG steel tank clearwell, painting the pipes and tanks inside the water treatment plant building, and demolishing the package in-plant water booster pump station and replacing it with a new package booster pump station.

All work on the Project will be performed to meet the highest standards prevalent in the industry.

Documents: Digital copies of the solicitation documents may be obtained from the City of Carlton’s consultant, Tetra Tech, by contacting Hunter Bennett-Daggett at Hunter.Bennett-Daggett@tetratech.com or 503.598.2510. In addition, specifications, including bidding documents and conditions of the agreement, may be obtained from the following plan centers:

- Salem Contractor's Exchange, 2256 SE Judson Street, Salem, OR 97309
- DJC Plan Center, 921 SW Washington Street, Suite 210, Portland, OR 97205
- SW Washington Contractor Association, 7017 NE Highway 99, No.214, Vancouver, WA 98665

Pre-Bid Conference: A non-mandatory pre-bid conference is planned for this project on **December 2, 2021 at 10:00 am** outside the Public Works Building. The pre-bid conference will include a site visit. All Bidders are strongly encouraged to attend.

Oregon Public Contracting Law: Bidders are required to comply with applicable biddings and contracting procedures, rules, and regulations. This includes requirements for timely submission of the First-Tier Subcontracting Form and compliance with wage rate requirements. BOLI wage rates shall prevail. Bids will not be received or considered unless the Bidder is licensed by the Construction Contractors Board as required by ORS 279C.365(1)(k).

Bid Security: Each Bid must contain a statement as to whether the Bidder is a resident bidder, as defined in ORS 279.029. Each proposal must be submitted on the prescribed form and accompanied by a Bid Bond payable to the City of Carlton in an amount not less than five percent (5%) of the Bid amount.

Owners Reservations: Bids may be held by the City of Carlton for a period not to exceed sixty (60) days from the date Bids are due for the purpose of reviewing Bid Documents and investigating qualifications of Bidders. The City of Carlton reserves the right to reject any or all Bids for good cause, or any or all Bids upon a finding of the Owner that it is in the public interest to do so, to waive any irregularities, and to accept that Bid from the lowest responsible Bidder, which is in the best interests of the City of Carlton.

Failure to Perform: Upon successful bid and selection, failure to perform the scope of work identified in this Invitation to Bid or failure to meet established performance standards could result in, but are not limited to, the City of Carlton reducing or withholding payment, requiring performance at successful Bidder's expense, requiring additional work to perform identified scope of work, declaring a default, terminating the contract, and seeking damages.

Recyclable Products: Bidders shall use recyclable products to the maximum extent economically feasible in the performance of the contract work set forth in this document.

Questions: For information regarding this project, contact Conor Zoebelein at 971.409.7768.

END OF SECTION 00030

**SECTION 00100
INSTRUCTION TO BIDDERS**

1. GENERAL

1.01 DEFINED TERMS

- A. Terms used in these Instructions to Bidders which are defined in the Standard General Conditions have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a bid directly to the Owner, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement or Invitation to Bid, Instructions to Bidders, Bid Form and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

1.02 COPIES OF BIDDING DOCUMENTS

- A. Digital copies of the solicitation documents may be obtained from the City of Carlton's consultant, Tetra Tech, by contacting Hunter Bennett-Daggett at hunter.bennett-daggett@tetrattech.com or 503.598.2510. In addition, specifications, including bidding documents and conditions of the agreement, may be reviewed at the following offices:
- Carlton City Hall, 191 E. Main Street, Carlton, OR 97111
 - Salem Contractor's Exchange, 2256 SE Judson Street, Salem, OR 97309
 - DJC Plan Center, 921 SW Washington Street, Suite 210, Portland, OR 97205
 - SW Washington Contractor Association, 7017 NE Highway 99 No.214, Vancouver, WA 98665
- B. Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- C. Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

1.03 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. It is the responsibility of each Bidder before submitting a Bid, to (a) examine the contract documents thoroughly; (b) visit the site to familiarize himself with local conditions that may affect cost, progress, or performance of the Work; (c) consider with federal, state and local laws, ordinances, rules and regulations that may affect cost, progress, or performance of the Work; (d) study and correlate Bidder's observations with the Contract Documents; and (e) notify Engineer of all conflicts,

errors, ambiguities or discrepancies which Bidder has discovered in the Contract Documents.

- B Reference is made to Section 01010, Summary of Work, for the identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress, or performance of the Work in which have been relied upon in preparing the Drawings and Specifications. Owner will make copies of such reports available for review to any Bidder requesting them. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents. Before submitting his Bid, each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.
- C. Information and data reflected in the Contract Documents with respect to existing underground facilities at or contiguous to the site is based upon information and data furnished to the Owner and Engineer by the owners of such underground facilities or others, and the Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
- D. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Article 5 of the General Conditions.
- E. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the Work and which the Bidder deems necessary to determine its Bid for performing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. The Bidder shall be responsible for all costs associated with these additional examinations including all restoration work and damages which may be a result of such investigation.
- F. On request and seven days' notice, Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid. Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.
- G. The lands upon which the Work is to be performed, rights-of-way for access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the Contractor.
- H. The submission of a Bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with every requirement of Articles 2 and 3 of the General Conditions, that without exception the Bid is premised upon performing the Work required by the Contract Documents and such means, methods, techniques,

sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

- I. Failure to comply with Sections 1.03A to 1.03H will not relieve the Successful Bidder of his obligation to enter into a contract and complete the contemplated work in strict accordance with the Contract Documents.

1.04 INTERPRETATIONS AND ADDENDA

- A. All questions about the meaning or intent of the Contract Documents are to be directed to the Engineer in writing. Interpretations or clarifications considered necessary by the Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by the Engineer or Owner as having received the Bidding Documents. Questions received less than 5 days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- B. Addenda may also be issued to modify the Bidding Documents as deemed advisable by the Owner or Engineer.

1.05 BID SECURITY

- A. Each Bid shall be accompanied by a certified or cashier's check or approved Bid Bond in the amount of 5 percent of the Bidder's maximum Bid price. Said check or said Bid Bond shall be made payable to the Owner and shall be given as a guarantee that the Bidder, if awarded the Work, will enter into an Agreement with the Owner, and will furnish the necessary insurance certificates, Payment Bond and Performance Bond. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the Owner. If the Bidder elects to furnish a Bid Bond as its Bid Security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form.
- B. The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon it will be returned; if the Successful Bidder fails to execute and deliver the Agreement and furnish the required insurance certificates and endorsements and contract payment and performance bonds within 10 days of the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of any Bidder whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the seventh day after the Effective Date of the Agreement, where upon Bid security furnished by such Bidders will be returned. Bid security of other Bidders will be returned within 7 days after the bid opening.
- C. An electronic copy of the bid bond shall be submitted with the bid. An original bid bond shall be mailed to the City with a post mark no later than the bid opening date.

1.06 CONTRACT TIME

- A. The number of days (contract time) within which the work is to be substantially completed and finally completed and ready for acceptance and final payment are set forth in the Agreement (Section 00520).

1.07 LIQUIDATED DAMAGES

- A. Provisions for liquidated damages are set forth in the Agreement (Section 00520).

1.08 SUBSTITUTE OR "OR-EQUAL" ITEMS

- A. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which ORS 279B.215 or the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final.
- B. All prices that Bidder sets forth in its Bid shall 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" or substitution requests are made at Bidder's sole risk.
- C. One or more brand names or equal specification may be used when the use of a brand name or specification describes the standard of quality, performance, functionality or other characteristics of the product needed by Owner. All uses of brand names in specifications will allow subsequent proposals for substitution of equal products or materials as permitted by ORS 279B.215 unless otherwise specified in the specifications.

1.09 SUBCONTRACTORS

- A. As specified in Section 00030, the Contractor shall submit the First-tier Subcontractor Disclosure Form provided in Section 00440. The Contractor shall include on the form the required information for each subcontractor to whom the Bidder proposes to sublet portions of the Work as specified in Section 00440. For the purpose of this paragraph, subcontractor is defined as one who contracts with the Contractor to furnish materials and labor, or labor only, for the performance of Work at the site of Work. Failure to provide the form will result in the bid being considered nonresponsive.
- B. If requested by Owner, the apparent Successful Bidder and any other Bidder so requested, shall, within 7 days after the date of the Bid opening, submit to Owner a list of all subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for those portions of the Work as to which such identification is so required. Such list shall be accompanied

by an experience statement with pertinent information as to similar projects and other evidence of qualification for each such subcontractor, person, and organization if requested by Owner.

- C. If Owner or Engineer, after due investigation, has reasonable objection to any proposed subcontractor, other person or organization, either may before giving the Notice of Award, request the apparent Successful Bidder to submit an acceptable substitute in which case the apparent Successful Bidder shall submit an acceptable substitute, that Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution and Owner may consider such prior adjustment in evaluating Bids and making the Contract award.
- D. If the apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest bidder that proposes to use acceptable subcontractor, other person, or organization. The declining to make any such substitution will not constitute grounds for sacrificing the Bid security of any Bidder.
- E. No Contractor shall be required to employ any subcontractor, other person or organization against whom he has reasonable objection.
- F. The Contractor shall perform with their own organization not less than one-third of the Work and shall not sublet more than one-half of the Work without the previous written consent of the Owner. No subcontractor will be recognized as such, and all persons engaged in the Work will be considered as employees of the Contractor and their work shall be subject to the provisions of the Contract. When it is stated in the Contract Documents that a subcontractor or the Owner shall do something, it means that the Contractor shall cause such person to do that thing.

1.10 BID FORM

- A. The Bid Form is included with the Bidding Documents; additional copies may be obtained from the Engineer.
- B. Bid Forms must be completed in ink or by typewriter/computer. The Bid price of each item on the form must be stated in words and numerals, where applicable; in case of a conflict, words will take precedence.
- C. Bids by corporations must be executed in the corporate name by the president or vice president (or other corporate officer; provide evidence of authority to sign at the request of the Engineer) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- D. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- E. All names must be typed or printed below the signature.

- F. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- G. The bids submitted must not contain any erasures, interlineations, or other corrections unless each such correction is suitably authenticated by affixing in the margin immediately opposite the correction, the surname or surnames of the person or persons signing the bid.
- H. The address to which communications regarding the Bid are to be directed must be shown.

1.11. SUBMISSION OF BIDS

- A. Bid packets shall be scanned and submitted by email at the time indicated in the Advertisement or Invitation to Bid, marked with the project title and the name and address of the Bidder and accompanied by the Bid security and other required documents. It is the Bidder's sole responsibility to see that its Bid is received in proper time.
- B. By submitting an electronic bid, the bidders certify that the signature on the electronic bid is treated as an original signature for the purposes of the bid.
- C. An electronic copy of the bid bond shall be submitted with the bid. An original bid bond shall be mailed to the City with a post mark no later than the bid opening date. It shall be mailed to: City of Carlton, 191 E. Main St., Carlton, OR, 97111.

1.12 MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- B. If, within 24 hours after the 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, that Bidder will be disqualified from further Bidding on the Work to be provided under the Contract Documents.

1.13 OPENING OF BIDS

- A. Bids will be opened and read aloud publicly using online meeting software. 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.

1.14 BIDS TO REMAIN OPEN

- A. All Bids will remain subject to acceptance for sixty (60) days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

1.15 REJECTING OF BIDS

- A. The Owner reserves the right to reject any Bid which is incomplete, obscure or irregular; any Bid accompanied by insufficient or irregular security; any Bid from Bidders named on the Federal debarred list. The Owner reserves the right to reject, for good cause, all Bids upon a finding by the Owner that it is in their best interest to do so.

1.16 AWARD OF CONTRACT

- A. The bid award shall be made as shown in the Bid Form 00300. The award(s) will be to the lowest responsive and responsible bidder(s).
- B. Owner reserves the right to reject any and all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. 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. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between words and figures will be resolved in favor of the words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
- C. Owner may consider the qualifications and experience of subcontractors, suppliers, and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of subcontractors, suppliers, and other persons, and organizations must be submitted as specified. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment proposed for incorporation in the Work may also be considered by Owner.
- D. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of the Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time. In evaluating whether a Bidder is responsible, Owner will, pursuant to the criteria set forth in ORS 279C.375, consider the qualifications of the Bidder, including the availability of financing, required bonding, material, equipment, facility personnel, resources, expertise, or the ability to obtain such, whether the Bidder holds required licenses, has liability and other insurance in required amounts, has made the required ORS 279C.370 disclosure, has a satisfactory record of project completion, has a record of integrity, is legally qualified and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents. The Bidder shall supply all necessary information requested by the Owner's Engineer. If the Bidder fails to promptly supply all necessary information

concerning responsibility that the Engineer requests the Owner shall determine the Bidder's responsibility based on available information, or may find that the Bidder is not responsible.

- E. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.
- F. If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within sixty (60) days after the day of the Bid opening.
- G. Award shall be made to the lowest responsive and responsible Bidder as determined in Section 1.16 (this section).

1.17 BONDS AND INSURANCE

- A. Article 6 of the General Conditions set forth Performance Bond and Payment Bond requirements. When the successful Bidder delivers the executed Agreement to the Owner, it shall be accompanied by the required Performance Bond and Payment Bond. Attorneys-in-fact who sign bonds must file with each bond a certified and effective dated copy of their power of attorney. Bond forms enclosed in the contract documents must be used.
- B. Article 6 of the General Conditions set forth the insurance requirements. Specific amounts shall be as specified in the Supplementary Conditions. When the successful Bidder delivers the executed Agreement to the Owner, it shall be accompanied by the required insurance certificate.
- C. In no case will the Notice-to-Proceed be issued prior to receipt of the Performance Bond, Payment Bond and insurance certificate.

1.18 SIGNING OF AGREEMENT

- A. When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least 3 unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 10 days thereafter, Contractor shall sign and deliver at least 3 counterparts of the Agreement and attached documents to Owner with the required Bonds. Within 20 days thereafter, Owner will deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

1.19 USE OF LOCAL LABOR AND BUSINESSES

- A. To the greatest extent possible, the Contractor shall utilize local labor and businesses.

1.20 PREVAILING WAGE RATES

- A. Contractor shall comply with Oregon Bureau of Labor and Industries (BOLI) wage rates effective on the date of first advertisement and the applicable paragraphs of ORS 279C.800 through 279C.870. Copies of the above referenced prevailing wage rate publications are available electronically on the Internet at

<https://www.oregon.gov/boli/employers/Pages/prevaling-wage-rates.aspx> and upon request by calling (971) 673-0839.

1.21 CONTRACTOR REGISTRATION

- A. Oregon Construction Contractors Board Registration is required for contractors and subcontractors. No offer will be received or considered by the Owner for a public improvement contract unless the Offeror is registered with the Construction Contractors Board as specified in OAR 125-249-0230. This project does not require the Contractor to be licensed under ORS 468A.720 relating to asbestos.

1.22 PRE-BID CONFERENCE

- A. A non-mandatory Pre-bid Conference will be held at the time and place stated in the Invitation to Bid. Representatives of the Owner and Engineer will be present to discuss the Project. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. For bidders unable to attend the Pre-Bid Conference, site viewing will be available by arrangement with the City Engineer and Public Works Director.

1.23 PUBLIC WORKS BOND

- A. Contractor and every subcontractor must have a Public Works bond filed with the Construction Contractors Board before starting work on the Project, unless otherwise exempt. This bond is in addition to Performance Bond and Payment Bond requirements.

END OF SECTION 00100

**SECTION 00300
BID FORM**

PROJECT IDENTIFICATION

**City of Carlton
Clearwell Recaoting & Misc. WTP Improvements**

CONTRACT IDENTIFICATION AND NUMBER

N/A

1. BID RECIPIENT

1.01 THIS BID IS SUBMITTED TO:

- A. City of Carlton
191 E. Main Street
Carlton, OR 97111
- B. 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.

1.02 BIDDER'S ACKNOWLEDGEMENTS

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

1.03 BIDDER'S REPRESENTATIONS

- A. In submitting this Bid, Bidder represents, as set forth in the Agreement, that:
 - 1. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

2. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
4. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 5.03 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Supplementary Conditions as provided in paragraph 5.06 of the General Conditions.
5. Bidder has obtained and carefully studied (or assumes responsibility for having done 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 the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
6. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this 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.
7. 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.
8. Bidder has correlated 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.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

1.04 BIDDER'S CERTIFICATIONS

- A. Bidder further certifies that 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 agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
- B. Bidder agrees that they will meet the time schedule as set forth in the Agreement as to contract time.
- C. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to meet the allowed contract times.
- D. Bidder accepts that the BOLI wage rates shall prevail. The undersigned certifies that they will comply with the provisions regarding prevailing wage rates required by ORS 279.350.

1.05 BASIS OF BID

- A. The award will be to the lowest responsive and responsible bidder based upon the best interests of the City.
- B. The following items are required for a complete Bid Package:
 - 1. Bid Form (00300)
 - 2. Acknowledgment of Addendums (00300)
 - 3. Bid Bond (00410)
 - 4. First-tier Subcontractor Disclosure Form (00440). This must be submitted within two hours of the bid closing see instructions for First Tier disclosure form.

1.06 BIDDER'S RESIDENCY

___ The Bidder is a resident of the State of Oregon.

___ The Bidder is a non-resident of the State of Oregon as defined below.

- A. A non-resident of Oregon is not one who has paid unemployment taxes or income taxes in Oregon during the 12 calendar months immediately preceding submission of this Bid, nor has a business address in Oregon.

1.07 OREGON TAX LAWS

- A. The undersigned certifies that provisions of ORS 305.385, relating to Oregon tax laws will be complied with.

1.08 WORKERS COMPENSATION

- A. The undersigned certifies that the Bidder, its subcontractors, if any, and all employers which would work on this project are subject employers under the Oregon Workers' Compensation law and shall comply with ORS 656.017, which requires them to provide Workers' Compensation coverage for all their subject workers.

1.09 BID SECURITY

- A. Accompanying herewith is Bid Security; which is not less than five percent (5%) of the total amount of the Base Bid plus Additive Alternate Bids.

1.10 BID SECURITY FORFEITURE

- A. The undersigned further agrees that the Bid Security accompanying this Bid is left in escrow with the Owner; that the amount thereof is the measure of liquidated damages which the Owner will sustain by the failure of the undersigned to execute and deliver the above-named Agreement, and Performance and Payment Bonds, and that if the undersigned defaults in either executing the Agreement or providing the Performance and Payment Bonds within ten (10) days after receiving the contract forms, then the full value of the Bid Security may, at the Owner's option, become the property of the Owner; but if the Bid is not accepted within sixty (60) calendar days after the time set for the opening of the Bids or if the undersigned executes and timely delivers the said Agreement and Performance and Payment Bonds, the Security will be returned.

1.11 CONTRACT AND BOND

- A. The undersigned agrees, if awarded the Contract, to provide proof that the Contractor and all Subcontractors have Public Works bonds filed with the Construction Contractor Board or are exempt under ORS 279C.800 to 279C.870, as amended by SB477. This shall be available to the City before starting Work.

1.12 PAYMENT AND PERFORMANCE BONDS

- A. The undersigned agrees, if awarded the Contract, to deliver to the Owner within ten (10) days after receiving the Contract forms an executed Agreement together with satisfactory Performance and Payment Bonds in the form provided in the bid documents in an amount equal to one hundred percent (100%) of the Contract Sum.

1.13 EMPLOYEE DRUG TESTING PROGRAM

- A. The undersigned certifies to have in-place a Qualifying Employee Drug Testing Program, pursuant to ORS 279C.505(2).

1.14 WAGE RATES

- A. The undersigned agrees, if awarded a Contract, to be bound by and comply with the provisions of ORS 279C.800 to 279C.870 pertaining to the payment of prevailing rates of Wage.

1.15 SUBCONTRACTOR REGISTRATION

- A. The undersigned hereby certifies that all Subcontractors performing construction work as described in ORS 701.005(2) will be registered with the Construction Contractors Board prior to commencing work under this Contract.

1.16 NON-COLLUSION

- A. The undersigned hereby certifies that the bid has been arrived at by the bidder, independently, and has been submitted without collusion with, and without any agreement, understanding or planned course of action with, any other contractor, bidder, or vendor on materials, supplies, equipment or services, described in the invitation to bid, designed to limit independent bidding or competition. The contents of the bid herein presented and made have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid, and will not be communicated to any such person prior to the official opening of the bid.

1.17 NON DISCRIMINATION

- A. The undersigned certifies that Bidder has not discriminated and will not discriminate against minority, women or emerging small business enterprises in obtaining any required subcontracts.

1.18 BID SCHEDULE

- A. See Specification Section 01150 – Measurement and Payment for complete descriptions of bid items.

BID SCHEDULE

	ITEM	QNTY	UNIT	UNIT PRICE	TOTAL PRICE
1	Mobilization, Demobilization, Bonds, Insurance, Permits and all Indirect Expenses	1	LS	\$ _____	\$ _____
2	Recoat the Clearwell - Exterior	1	LS	\$ _____	\$ _____
3	Recoat the Clearwell - Interior	1	LS	\$ _____	\$ _____
4	Welding	24	HR	\$ _____	\$ _____
5	Repainting WTP interior pipes, tanks, valves and pumps	1	LS	\$ _____	\$ _____
6	In-plant Booster Pump Station	1	LS	\$ _____	\$ _____
TOTAL BID					\$ _____

Total Bid Price in Words _____

1.19 BID SUBMITTAL

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

SUBMITTED on _____, 2021

1.20 CONTRACTORS' REGISTRATION

- A. Bids will not be received or considered unless the Bidder (Contractor) is licensed by the Construction Contractor's Board as required by ORS 279C.365(1) (i).

Contractor's Registration Number: _____

Expiration Date: _____

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited

Liability): _____

By: _____
(Signature)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(*Signature of Corporate Secretary*)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

A Joint Venture

Joint Venturer Name: _____ (SEAL)

By: _____
(*Signature of joint venture partner*)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venturer Name: _____ (SEAL)

By: _____
(*Signature*)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

135-13914-16001-02

Phone and FAX Number, and Address for receipt of official communications:

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

END OF SECTION 00300

**SECTION 00410
BID BOND**

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

BIDDER (*Name and Address*):

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

OWNER (*Name and Address*):

City of Carlton
191 E. Main Street
Carlton, OR 97111

BID

Bid Due Date:

Description: Clearwell Recoating & Misc. WTP Improvements, Carlton, Oregon

BOND

Bond Number:

Date:

Penal sum

\$

(Words)

(Figures)

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

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature

By:

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Signature

Attest:

Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

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 shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default 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 shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable.

END OF SECTION 00410

**SECTION 00420
BIDDER'S QUALIFICATIONS**

1. GENERAL

Upon request from the City's Engineer, the Bidder shall provide qualifications information to demonstrate their experience, or their Bid may be rejected.

1.01 QUALIFICATION INFORMATION

A. Upon request from the City's Engineer, the Bidder shall furnish information, including but not limited to and demonstrating ability and experience in performing work of similar type, complexity and value:

1. Contractor Experience: Due to the nature of the project, it is the intent of these specifications to obtain a first-class product including emphasis on overall safety, quality and quality control, both during and after the construction process. Contractor experience in similar work shall be a significant consideration in determining whether Contractor is responsible to Bid on and construct this project, based on the standards outlined in ORS 279C.110(2).
2. Supplemental Information. Such additional information as the City Engineer may request that is relevant to a determination of the responsibility of the bidder. This may include: a list of machinery, plant and other equipment available for the proposed work, and a financial statement, including a complete statement of the Contractor's financial ability and experience in performing similar work.

1.02 BIDDERS GENERAL RECORD OF EXPERIENCE

- A. The Bidder has been engaged in the contracting business under the present business name for ____ years and has completed work on a similar nature in the proposal over a period of ____ years.
 - B. The Bidder, as a contractor, has never failed to satisfactorily complete a contract awarded to him, except as follows (attach additional pages if required):
-

1.03 REFERENCE PROJECTS

- A. Upon request from the City's Engineer, the Bidder shall complete this form with the following information to assist the determination of Contractor responsibility; demonstrating compliance with requirements summarized herein and in Section 00100, Instructions to Bidders. Reference projects shall have been completed within the past seven (7) years. Provide general and contact information for additional due diligence by the Owner prior to award of the contract.

1. _____

Project Name Owner & Project Representative with Phone Number

Project Description Year Completed

Original Bid Amount Final Contract Amount

Onsite Construction Superintendent

2. _____

Project Name Owner & Project Representative with Phone Number

Project Description Year Completed

Original Bid Amount Final Contract Amount

Onsite Construction Superintendent

3. _____

Project Name Owner & Project Representative with Phone Number

Project Description Year Completed

Original Bid Amount Final Contract Amount

Onsite Construction Superintendent

1.04 ONSITE CONSTRUCTION SUPERINTENDENT

- A. The Bidder’s proposed onsite construction superintendent that will be the Bidder’s primary representative throughout construction is _____ who has completed _____ similar projects. A resume is attached.

Signed _____
 (Same Signature as on Bid Form)

END OF SECTION 00420

**FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM
(OAR 137-049-360)**

PROJECT NAME CITY OF CARLTON CLEARWELL RECOATING & MISC WTP
IMPROVEMENTS

BID CLOSING: Date: September 2, 2021 Time: 2 p.m.

DISCLOSURE DEADLINE: Date: September 2, 2021 Time: 4 p.m.

This form must be submitted at the location and in the manner specified in the Invitation to Bid within two (2) working hours of the advertised bid closing date and time; no later than the DISCLOSURE DEADLINE stated above. The timepiece used to determine the precise passing of the DEADLINE shall be the clock on the computer of Hunter Bennett-Daggett, Assistant City Engineer; as shown on the email receipt timestamp associated with Bidder's email in Assistant City Engineer's email inbox. Bidder may contact the Assistant City Engineer at (503) 598-2510 to inquire about the computer clock's exact timing. Unless otherwise specified in the Invitation to Bid, this disclosure form shall either be submitted in the same envelope as the bid or shall be submitted in a separate sealed envelope clearly marked "**Disclosure Form for CITY OF CARLTON CLEARWELL RECOATING AND MISC. WTP IMPROVEMENTS**" showing the date and time of the disclosure submittal deadline, as well as the Bidders name.

This form shall be submitted regardless of the bid total. Unless otherwise stated in the Invitation to Bid, this document shall not be faxed. It is the responsibility of the Bidder to submit this Disclosure Form and any additional sheets.

Deliver Form by email to: Hunter Bennett-Daggett at Hunter.Bennett-Daggett@tetrattech.com, Assistant City Engineer.

Person Designated to Receive Form: Shannon Beaucaire Phone: 503.852.7575

Form Submitted By (Bidder Name): _____

Contact Name: _____ Phone #: _____

Is the bid total greater than \$100,000? YES NO (If NO, bidder is not required to provide 1st tier subcontractor information below).

Bids which are submitted by Bid Closing, but for which the separate and sealed Disclosure has not been submitted by the specified deadline, will be considered Non-Responsive and will not be considered for award!

If bid total is greater than \$100,000, list below the Name, Address, and Category of work of each 1st tier subcontractor that will be furnishing labor or labor and materials that are required to be disclosed. Enter 'NONE' if there are no subcontractors that need to be disclosed. (IF NEEDED ATTACH ADDITIONAL SHEETS).

1 st Tier Subcontractor Name	Subcontract Dollar Value	Category or Categories of Work Each Subcontractor will be Performing	**Subcontractor Oregon CCB #
NONE (delete and replace with applicable subcontractors if appropriate)			

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

- a) 5% of the total Contract Price, but at least \$15,000 (including all alternates). If the Dollar Value is less than \$15,000 do not list the subcontractor above; or
- b) \$350,000 regardless of the percentage of the total Contract Price.

***Per ORS 701.005(5)(a), ORS 701.021(1) and ORS 701.026(1), any contractor or subcontractor must be licensed through the Oregon Construction Contractor Board (CCB) in order to “undertake, offer to undertake or submit a bid to do work” in the State of Oregon. Contractor registration “at the time the offer is made” is a matter of bid responsiveness under OAR 137-049-0230(1).

INSTRUCTIONS FOR FIRST-TIER SUBCONTRACTOR DISCLOSURE

All Bidders are required to submit the First Tier Subcontractor Disclosure Form, regardless of the Bid Total.

In addition, when the contract value for a Public Improvement is greater than \$100,000, bidders are required to disclose information about certain first-tier subcontractors (see ORS 279C.370(3)). Specifically, when the contract amount of a first-tier subcontractor is greater than or equal to: (i) 5% of the project bid, but at least \$15,000, or (ii) \$350,000 regardless of the percentage, the Bidder must disclose the following information about that subcontract within two (2) hours of bid closing:

- The subcontractor's name, and
- The dollar value of each subcontract, and
- The category or categories of work that each subcontractor will be performing

If the Bidder will not be using any subcontractors that are subject to the above disclosure requirements, the Bidder is required to indicate "NONE" on the First Tier Subcontractor Disclosure Form and "NONE" has been entered as the default response. **If subcontractors will be used, strike out "NONE" and enter the required subcontractor information.**

To determine disclosure requirements, it is recommended that the Bidder disclose subcontract information for any subcontractor as follows:

- (1) Determine the lowest possible contract price. That will be the base bid amount (exclusive of any options that can only be exercised after contract award, if any).
- (2) Provide the required disclosure information for any first-tier subcontractor whose potential contract services (subcontractor base bid amount, exclusive of any options that can only be exercised after contract award, if any) are greater than or equal to:
 - (i) 5% of that lowest contract price, but at least \$15,000, or
 - (ii) \$350,000 regardless of the percentage.

Total all possible work for each subcontractor in making this determination (ie. if a subcontractor will provide \$15,000 worth of labor or labor and materials in one category of work and \$40,000 on another category of work, then the potential amount of subcontractor's labor or labor and materials is \$55,000. Assuming that \$55,000 exceeds 5% of the lowest contract price, provide the disclosure for both the \$15,000 and the \$40,000).

SUBMISSION. A Bidder shall submit the disclosure form within two (2) working hours of Bid Closing in the manner specified by the Invitation To Bid. See instructions on the SUBCONTRACTOR DISCLOSURE FORM.

RESPONSIVENESS. Compliance with the disclosure and submittal requirements outlined herein and in ORS 279C.370(3) is a matter of Responsiveness. As required by OAR 137-049-360(5), bids that are submitted by Bid Closing, but for which the separate and sealed Disclosure has not been submitted by the specified deadline, will be considered Non-Responsive and will not be considered for Contract award.

**SECTION 00480
NONCOLLUSION AFFIDAVIT CERTIFICATE**

Upon request from the City’s Engineer, the Bidder shall provide the following noncollusion affidavit certificate.

State of _____)

ss

County of _____)

The undersigned, being duly sworn, deposes and says that the person, firm, association, co-partnership, or corporation herein named has not either directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in the preparation and submission of a proposal to the Owner for consideration in the award of a contract on the improvements described as follows:

City of Carlton, Oregon
Clearwell Recoating & Misc WTP Improvements Project

Firm Name

Authorized Member

Sworn to before me, this _____ day of _____, 2021

Notary Public

in and for the State of _____

County of _____

END OF SECTION 00480

**SECTION 00520
AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT**

THIS AGREEMENT is by and between City of Carlton (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

The Project consists of recoating the interior and exterior of the 0.3 MG steel tank clearwell, painting the pipes and tanks inside the water treatment plant building, and demolishing the package in-plant water booster pump station and replacing it with a new package booster pump station.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Carlton Clearwell Recoating and Misc. WTP Improvements.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Tetra Tech Inc.

3.02 The Owner has retained Tetra Tech Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 Time of the Essence

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

4.02 Final Completion Date:

A. The Work shall be substantially complete within 180 successive days from the commencement date stated in the Notice to Proceed. Final completion of the Work shall be within 210 successive days from the commencement date stated in the Notice to Proceed.

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and

Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. 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 one thousand dollars (\$1,000) for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02(A) 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 Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner four hundred dollars (\$400) for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

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, at the prices stated in Contractor’s Bid, attached hereto as Exhibit A.

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 account of the Contract Price on the basis of Contractor’s Applications for Payment on a monthly basis 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.

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. 95% percent of Work completed (with the balance being retainage).

- b. 95% percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100% percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01(E) of the General Conditions, and less 200% 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 in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest in accordance with Oregon Revised Statutes Chapter 279C.570.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the site, conducted a thorough, alert visual examination of the site and adjacent areas, and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. 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 site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
 - F. 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.

- G. Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. 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.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 11, inclusive).
 - 2. The Bid
 - 3. Performance Bond (pages 1 to 2, inclusive).
 - 4. Payment Bond (pages 1 to 3, inclusive).
 - 5. Other bonds.
 - a. Bid Bond (pages 1 to 3, inclusive).
 - 6. General Conditions (pages 1 to 71, inclusive).
 - 7. Supplementary Conditions (pages 1 to 5, inclusive).
 - 8. Noncollusion Affidavit Certificate
 - 9. Specifications as listed in the table of contents of the Project Manual.
 - 10. Drawings consisting of 32 sheets with the Drawings listed on the enclosed sheet index.
 - 11. Addenda (numbers __ to __, inclusive).
 - 12. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages __ to __, inclusive).
 - 13. 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.
- B. The documents listed in Paragraph 9.01(A) are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

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

10.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, 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 Documents.

10.03 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.

10.04 Severability

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

10.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. “corrupt practice” means the offering, giving, receiving, or soliciting of 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.

10.06 One Year Maintenance and Warranty

- A. In addition to and not in lieu of any other warranties required under the Contract, make all necessary repairs and replacements to remedy, in a manner satisfactory to the Owner and at no cost to the Owner, any and all defects, breaks, or failures of the Work occurring within one (1) year following the date of Acceptance of the Work due to faulty or inadequate materials or workmanship. Repair damage or disturbances to other improvements under, within, or adjacent to the Work, whether or not caused by settling, washing, or slipping, when such damage or disturbance is caused, in whole or in part, from activities of the Contractor in performing his duties and obligations under this Contract when such defects or damage occur within the warranty period. The one-year maintenance period required shall, with relation to such required repair, be extended one (1) year from the date of completion of such repair. Where equipment and/or systems are specified to have a longer warranty period, Contractor shall be bound to the longer warranty period for the specific equipment and/or system.
- B. If Contractor, after written notice, fails within ten (10) days to proceed to comply with the terms of this section, Owner may have the defects corrected, and Contractor and Contractor’s Surety shall be liable for all expense incurred. In case of an emergency where, in the opinion of the Owner, delay would cause serious loss or damage, repairs may be made without notice being given to Contractor and Contractor or Surety shall pay the cost of repairs. Failure of the Owner to act in case of an emergency shall not relieve Contractor or Surety from liability and payment of all such costs.
- C. As a means of providing surety during the maintenance period, the Contractor shall provide to the Owner written and legally attested proof of surety in the amount of not less than 100 percent of the final contract amount. The maintenance guarantee shall be one of the following types:
 1. Continuance of the contract performance bond at the original or a reduced amount.
 2. Maintenance bond in a format and with the conditions acceptable to the Owner.
 3. Cash deposit to the Owner’s Treasury, with a treasurer’s receipt acting as proof of surety.
 4. Other arrangements as may be proposed by the Contractor and accepted by the Owner.

10.07 Other Provisions

A. Pursuant to ORS 279C.505, Contractor shall:

1. Make payment promptly, as due, to all persons supplying to Contractor labor or material for the performance of the Work provided for in the Contract.
2. Pay all contributions or amounts due the Industrial Accident Fund from Contractor or Subcontractor incurred in the performance of Work provided for in the Contract.
3. Not permit any lien or claim to be filed or prosecuted against Owner on account of any labor or material furnished.
4. Pay to the Oregon Department of Revenue all sums withheld from employees pursuant to ORS 316.167.
5. Demonstrate an employee drug testing program is in place within their company.

B. Pursuant to ORS 279C.510:

1. If the Work includes demolition, Contractor and Subcontractors shall salvage or recycle construction and demolition debris, if feasible and cost-effective.
2. If the Work includes lawn and landscape maintenance, Contractor and Subcontractors shall compost or mulch yard waste material at an approved site, if feasible or cost-effective.

C. Pursuant to ORS 279C.515:

1. If Contractor fails, neglects, or refuses to make prompt payment of any claim for labor or services furnished to the Contractor or a Subcontractor by any person, or the assignee of the person, in connection with the Contract as such claim becomes due, 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 Contractor by reason of this Contract.
2. If Contractor or a First-Tier Subcontractor/Supplier fails, neglects, or refuses to make payment to a person furnishing labor or materials in connection with this Contract within 30 days after receipt of payment from Owner or Contractor, Contractor or First-Tier Subcontractor/Supplier shall owe the person the amount due plus interest charges, commencing at the end of the ten (10) day period that payment is due under ORS 279C.580(4) and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest charged to Contractor or First-Tier Subcontractor/Supplier on the amount due shall equal three (3) times the discount rate on 90-day commercial paper in effect at the Federal Reserve Bank in the Federal Reserve district that includes Oregon on the date that is 30 days after the date when payment was received from Owner or from Contractor, but the rate of interest shall not exceed 30 percent. The amount of interest may not be waived.
3. If Contractor, Subcontractor, or Supplier fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with the Contract, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279.580.

D. Pursuant to ORS 279C.520:

1. No person shall be employed for more than ten (10) hours in any one day, or forty (40) hours in any one week, except in cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases, the employee shall be paid at least time and a half pay:
 - a. for all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work week is five (5) consecutive days, Monday through Friday; or
 - b. for all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four (4) consecutive days, Monday through Friday; and
 - c. for all work performed on Saturday and on any legal holiday specified in ORS 279C.540.
2. Contractor must give notice to employees who work on this Contract in writing, either at the time of hire or before commencement of work on this Contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work.

E. Pursuant to ORS 279C.525:

1. Contractor shall comply with all federal, state, and local agency ordinances, rules or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the performance of the contract. If the Contractor is delayed or obligated to undertake additional work by reason of ordinances, rules, or regulations either not in the Contract or enacted after submission of the successful bid, Owner may:
 - a. Terminate the Contract;
 - b. Complete the work itself;
 - c. Require that the underlying property owner be responsible for the cleanup;
 - d. Solicit bids for a new contractor to provide the necessary services; or
 - e. Issue Contractor a change order setting forth the additional work that must be undertaken.
2. Contractor shall assume the liability of any known environmental or natural resource risk caused or discovered on the underlying property; whether caused by Contractor's actions or preexisting.

F. Pursuant to ORS 279C.530:

1. Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of Contractor, of all sums which Contractor agrees to pay for such services and all monies and sums which Contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.
2. All subject employers working under this Contract are either employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126.

- G. Contractor shall comply with ORS 279C.540 relating to maximum hours of labor on public contracts.
- H. Contractor shall comply with ORS 279C.545 relating to time limitation on claims for overtime.
- I. Contractor and all Subcontractors shall comply with ORS 279C.605 relating to notice of claims.
- J. Contractor and all Subcontractors shall comply with ORS 279C.840 relating to payment of prevailing wage rates.
- K. Pursuant to ORS 279C.836:
 - 1. Unless exempt under ORS 279C.836(7) or (8), before starting work, Contractor shall file a public works bond with the Construction Contractors Board in the amount of \$30,000.
 - 2. Contractor shall include in every subcontract a provision requiring the subcontractor to have a public works bond filed with the Construction Contractors Board before starting work, unless exempt under ORS 279C.836(7) or (8).
- L. Pursuant to ORS 279C.580:
 - 1. Contractor shall include in each subcontract for property or services entered into by Contractor and a First-Tier Subcontractor/Supplier the following:
 - a. A payment clause that obligates Contractor to pay the First-Tier Subcontractor/Supplier for satisfactory performance under its subcontract within ten days out of such amounts as are paid to Contractor by Owner under such Contract; and
 - b. An interest penalty clause that obligates Contractor, if payment is not made within thirty (30) days after receipt of payment from Owner, to pay to the First-Tier Subcontractor/Supplier an interest penalty on amounts due in the case of this Article. Contractor or First-Tier Subcontractor/Supplier shall not be obligated to pay an interest penalty if the only reason that Contractor or First-Tier Subcontractor/Supplier did not make payment when payment was due is that Contractor or First-Tier Subcontractor/Supplier did not receive payment from Owner or Contractor when payment was due. The interest penalty shall be as follows:
 - 1) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and
 - 2) Computed at the rate specified I ORS 279C.515(2).
 - 2. Contractor shall include in each of its subcontracts, for the purpose of performance of the Work pertaining to the Contract, a provision requiring First-Tier Subcontractors / Suppliers to include a payment clause and an interest penalty clause conforming to the standards in ORS 279C.580(3) in each of its subcontracts and to require each of its Subcontractors/Suppliers to include such clauses in their subcontracts with each Lower-Tier Subcontractor or Supplier.

M. Pursuant to ORS 279C.800 through 279C.870:

1. Contractor shall comply with Oregon Bureau of Labor and Industries (BOLI) wage rates effective on the date of first advertisement and the applicable paragraphs of ORS 279C.800 through 279C.870. Copies of the above referenced prevailing wage rate publications are available electronically on the internet at www.oregon.gov/boli/employers/Pages/prevailing-wage-rates.aspx and upon request by calling (971) 673-0839.

N. Contractor shall:

1. Cause a circular clearly printed in boldfaced 12-point type and containing a copy of ORS 279C.545 to be posted in a prominent place alongside the door of the timekeeper's office or in a similar place which is readily available and freely visible to any or all workers employed on the Work.
2. Maintain such Circular continuously posted from the inception to the completion of the Contract on which workers are or have been employed.

O. A license issued pursuant to ORS 468A.720 is not required for the purposes of this Contract.

P. Waiver. Whenever under this Agreement either party, by a proper authority, waives either party's performance in any respect or waives a requirement or condition of either party's performance, the waiver so granted, whether express or implied, shall only apply to the particular instance and shall not be deemed a waiver forever or for subsequent instances of the performance, requirement or condition. No such waiver shall be construed as a modification of the Agreement regardless of the number of times that either party may have waived performance, requirement, or condition.

Q. The undersigned signing for Contractor warrants that the undersigned has the authority to sign on behalf of and bind the Contractor.

10.08 Attorney Fees

- A. In case suit or action is instituted to enforce any of the provisions of this Agreement, the losing party agrees to pay such sum as the trial court may adjudge reasonable as attorney's fees to be allowed the prevailing party in said suit or action. If an appeal is taken from any judgment or decree of such trial court, the losing party further promises to pay such sum as the appellate court shall adjudge reasonable as the prevailing party's attorney's fees on such appeal.

135-13914-16001-02

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

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

CITY OF CARLTON

By: _____

By: _____

Title: _____

Title: _____

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

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

191 E. Main Street

Carlton, OR 97111

License No.: _____

(where applicable)

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

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

END OF SECTION 00520

**PERFORMANCE BOND
CLEARWELL RECOATING & MISC. WTP IMPROVEMENTS
FOR
CITY OF CARLTON, OREGON**

AMOUNT \$ _____

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS: that we, _____

_____ (hereinafter called the "PRINCIPAL") as PRINCIPAL, and the _____

_____ a corporation and existing under and by the virtue of the laws of the State of _____ and authorized to transact a surety business in the State of Oregon (hereinafter called the "Surety") as Surety, are held and firmly bound unto the City of Carlton, a Municipal Corporation of the State of Oregon, (hereinafter called the "Obligee") in the penal sum of _____ DOLLARS (\$ _____) lawful money of the United States of America to be paid to said Obligee, we do bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the PRINCIPAL will be constructing **CLEARWELL RECOATING AND MISC. WTP** improvements specified in an Agreement between _____ and Obligee, dated _____, 2021; and

Whereas it is expressly understood that the Principal is making these improvements to specifications and standards identified in the Agreement, and it is further understood that the PRINCIPAL will complete these improvements to the satisfaction of the Obligee.

NOW, THEREFORE, if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Agreement and shall well and truly perform all matters and things undertaken to be performed under said contract upon the terms proposed therein and within the time prescribed therein, or as may be agreed in writing for good and sufficient cause, and until same is accepted in writing; and shall promptly make payments to all persons supplying labor or material for any prosecution of the work provided for each contract and shall not permit any lien or claim to be filed or prosecute against the Obligee on account of any labor or material furnished, and shall promptly pay all contributions or amounts due the State Accident Insurance Fund and all contributions or amounts due the State Un-employment Compensation Trust Fund incurred in the performance of said agreement and shall promptly, as due, make payment to the person, co-partnership, association or corporation entitled thereto of the moneys and sums mentioned in Section 279C.600 of the Oregon Revised Statutes, then this obligation is to be void, otherwise to remain in full force and effect.

The Surety, for value received, hereby agrees that no change, extension of time, alteration, or addition to the Agreement or to the work performed there under or the specifications accompanying the same shall in

any way affect the obligations of this bond, and hereby waives notice of any change, extension of time, alteration, or addition to the terms of the Agreement or to the work or to the specifications.

This bond is executed for the purpose of complying with Chapter 279C of Title 26, Oregon Revised Statutes, the provision of which are hereby incorporated herein and made a part hereof

IN WITNESS WHEREOF, this instrument is executed in Four (4) counterparts each one of which shall be deemed an original, this the _____ day of _____ 2021.

ATTEST:

(Principal)

(Surety)

By: _____
(Signature)

By: _____
(Signature) Attorney-in-fact

Name: _____
(print)

Name: _____
(print)

Title: _____

Title: _____

(address)

(address)

(Witness to Principal)

(Witness to Surety)

(address)

(address)

NOTE: Date of BOND must NOT be prior to date of Contract.

If Principal is a partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must be authorized to transact business in the State of Oregon.

**PAYMENT BOND
CARLTON CLEARWELL RECOATING & MISC. WTP IMPROVEMENTS
FOR
CITY OF CARLTON, OREGON**

AMOUNT \$ _____

BOND NO. _____

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, hereinafter called _____,
(Name of Contractor)
the PRINCIPAL, as Principal, and _____,
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of _____ and authorized to transact a surety business in the State of Oregon, hereinafter called the SURETY, as Surety, are held and firmly bound unto the City of Carlton, a Municipal Corporation of the State of Oregon, hereinafter called the OBLIGEE, and unto all persons, firms and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____ Dollars (\$ _____) for the payment of which sum well and truly to be made, the said PRINCIPAL and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

Whereas on the _____ day of _____, 2021, the PRINCIPAL entered into a certain contract with the OBLIGEE, a copy of which is hereto attached and made a part hereof for the construction of: **CARLTON CLEARWELL RECOATING & MISC. WTP IMPROVEMENT**

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and corporations furnishing materials for, or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modification thereof, including all amounts due for materials consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or materialman lien holder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any way affect it's obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL shall have given written notice to any two of the following: the PRINCIPAL, the OBLIGEE, or the SURETY above named within one hundred eighty (180) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating the materials were furnished, or for whom the work or labor was done or performed, or 180 days after the worker listed in a notice of claim filed by the Commissioner of the Bureau of Labor and Industries last provided labor. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the PRINCIPAL, OBLIGEE, or SURETY, or hand delivered at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer; or as required by ORS 279C.605(2) within 200 days after the employee last provided labor or materials if the claim is for a required contribution to a fund of an employee benefit plan, (b) After the expiration of the later of one (1) year following the date on which PRINCIPAL ceased work on said CONTRACT, or two years after the claimant or person last provided labor or materials or two years after the worker listed in the Oregon Bureau of Labor and Industries Commissioner's notice of claim last provided labor, it being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND or the contract shall include any alteration, addition, extension or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OBLIGEE and the PRINCIPAL shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four counterparts each one of which shall be deemed an original, this the ____ day of _____, 2021.

CONTRACTOR AS PRINCIPAL:

SURETY:

(Corp. Seal)

(Corp. Seal)

Company: _____

Company: _____

Signature: _____

Signature: _____

Name: _____

Name: _____

Title: _____

Title: _____

(Attach Power of Attorney)

135-13914-16001-02

NOTE: Date of BOND must not be prior to date of Contract.

If CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety company executing BOND must be authorized to transact business in the State of Oregon.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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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 form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *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, or both; 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, or both; 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; or (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. 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), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree 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 the 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. *Engineer*—The individual or entity named as such in the Agreement.
21. *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.
22. *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. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

25. *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.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *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.
28. *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.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *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.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *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.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *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.
36. *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.
37. *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 furnished by Owner which are designated for the use of Contractor.

38. *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.
39. *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.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *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.
48. *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 the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. 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. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), 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 executed 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 specifically 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 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility 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.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items 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 items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall 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.

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, shall mean 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, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the 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 Documents 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 Documents 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 shall 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 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 thereunder.
- 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 give written notice to Owner and Contractor 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 editions, 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 shall preclude 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 thirtieth 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 sixtieth day after the day of Bid opening or the thirtieth 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 shall 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 shall 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 shall 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 the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 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. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall 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 utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. 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.
- E. Paragraph 8.03 governs 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.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times 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.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- 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; 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 7.12, 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 at law; 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 shall conform to applicable Laws and Regulations.

- C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site 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 known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); 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 upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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 either:
 - 1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 - 2. is of such a nature as to require a change in the Drawings or Specifications; or
 - 3. differs materially from that shown or indicated in the Contract Documents; or

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

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 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 the necessity of Owner's obtaining 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 above; 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. *Possible Price and Times Adjustments:*
 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, 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 conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
 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; or
 - 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 as 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, or both, then any such adjustment shall 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, or both, 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.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. 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 in the Contract Documents, or was not shown or indicated 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), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; 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 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. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, 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. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. 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, or both, then any such adjustment shall 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, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. 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 Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for 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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, 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.
- 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 or 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.H shall obligate 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 shall obligate 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 all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, 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 shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. 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.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

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. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. 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, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

- F. If either party does not purchase or maintain all of 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect 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 shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
 - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 - 2. claims for damages insured by reasonably available personal injury liability coverage.
 - 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
 - 1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.

- b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial

Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
 1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) 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 Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. 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.

6.05 *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 full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this

Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed 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.

- C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- 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 notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance*: 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 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. 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 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 Subcontractors, all individuals or entities identified in the Supplementary Conditions as 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. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by,

arising out of, or resulting from fire or other perils whether or not insured by Owner;
and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial 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.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work 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 any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 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 6.05 shall 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, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

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

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, 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.

7.03 *Services, Materials, and Equipment*

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

7.04 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the 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 material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

- a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- 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 shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment 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 material or equipment under the circumstances described below. To the extent possible such requests shall 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 material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.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 material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall 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 that specified, and
 - 3) be suited to the same use as that 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 that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall 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 shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity 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 five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. 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, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, 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, Supplier, or other individual or entity, whether initially or as a replacement, shall 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 fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of 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

7.09 *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.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work 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 shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give 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 notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *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.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when 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.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor 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).

- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall 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.

7.13 *Safety Representative*

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

7.14 *Hazard Communication Programs*

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

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 threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

- A. *Shop Drawing and Sample Submittal Requirements:*
 - 1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 - 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.
 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.D.
 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. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction 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 shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 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.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 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, shall 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, Sample, or other submittal shall 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.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.
- D. 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 shall 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 and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

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 utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.

- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

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 at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner 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, or both. 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 shall 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. When applicable, any such equitable adjustment in Contract Price shall 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 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 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. 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 to 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.

- C. 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 to Contractor.
- D. 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 shall 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 Documents (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 10.08. 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 *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 Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *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.

10.07 *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.

10.08 *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, shall create, impose, or give rise to any duty in

contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *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 (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not 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, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* 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 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: 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. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes 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 shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate 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.

11.03 *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.

11.04 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall 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); or
 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 11.04.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 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.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 five 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 shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall 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 will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. 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. The supporting data shall 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. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall 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.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *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 that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 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 11.02, (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 in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *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 shall be submitted 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; and
 - 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.
- 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 shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall be incorporated in a Change Order 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. 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 shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing

Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or

indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as 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 shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 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. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

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

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, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 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 will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

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 shall 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 shall 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 shall 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 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 shall 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 special 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, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, 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 shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

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 rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 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 on account of 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. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- 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, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 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 on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of 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 that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated 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;
 - l. there are other items entitling 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 shall 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 shall be treated as an amount due as determined by Paragraph 15.01.C.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 seven 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 shall 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 seven 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 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 6.05 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 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall 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 disputes that Contractor believes are unsettled; 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 Application and Acceptance:*
1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall 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. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. 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. *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.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- 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 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 terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then 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 other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not 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, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall 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) ten 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) 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 seven 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 shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; 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 on account of loss of anticipated overhead, profits, or revenue, 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 seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 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, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph 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; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising 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; or
 - 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 Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

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 shall not constitute a waiver of that provision, nor shall 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 or completion of the Contract or termination 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 *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® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01. Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

Engineer is the designated employee of the Owner acting directly or through duly authorized representatives in the administrative management of the contract.

Provide--Wherever and whatever manner used, Provide shall be understood to mean provide complete in place, that is, furnish and install.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02.A. Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to the Contractor up to five copies of the Contract Documents including reduced size Drawings, and up to two copies of full size Drawings only. Additional copies will be furnished, upon written request, at the cost of reproduction, handling, and mailing, shipping, and delivery

**ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
HAZARDOUS ENVIRONMENTAL CONDITIONS**

SC-5.03.B Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

A. No reports or drawings related to Subsurface and Physical Conditions at the Site are known to Owner.

SC-5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

B. Not Used.

ARTICLE 6 – BONDS AND INSURANCE**SC-6.02 Delete paragraph 6.02.B and replace with the following:**

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

SC-6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

- K. The limits of liability for the insurance required by Paragraph 6.03 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 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>
Employer's Liability	\$ <u>\$500,000</u>

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	\$ <u>2,000,000</u>
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Products - Completed Operations Aggregate	\$ <u>1,000,000</u>
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Personal and Advertising Injury	\$ <u>1,000,000</u>
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Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>
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3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ <u>1,000,000</u>
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Each accident	\$ <u>1,000,000</u>
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Property Damage:

Each accident	\$ <u>1,000,000</u>
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4. Excess or Umbrella Liability:

Per Occurrence	\$ <u>2,000,000</u>
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General Aggregate	\$ <u>2,000,000</u>
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5. Contractor's Pollution Liability:

Each Occurrence	\$ <u>N.A.</u>
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General Aggregate	\$ <u>N.A.</u>
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6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following:

Tetra Tech, Inc.
City of Carlton, Oregon

7. Contractor's Professional Liability:

Each Claim	\$ <u>N.A.</u>
Annual Aggregate	\$ <u>N.A.</u>

ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES

SC-7.02.B Add the following new subparagraphs immediately after Paragraph 7.02.B:

1. Regular working hours will be 7:00 am to 5:00 pm.

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

- B. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Owner at the site or assist Owner in observing the progress and quality of the Work.

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

SC-15.03.B Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 17 - FINAL RESOLUTION OF DISPUTES

SC-17.01 Delete Paragraph 17.01 in its entirety and insert the following in its place:

17.01. Third Party Neutral Evaluation

- A. Engineer’s or Owner’s action under Paragraph 10 or 12 shall become final and binding 30 days after receipt of written notice of Engineer’s or Owner’s action or decision unless, within that time period, Owner or Contractor gives to the other party written notice of intent to submit the Claim to a third-party neutral as set forth below.
- B. Within 30 days of delivery of the written notice described in Paragraph SC 17.01.A, Owner and Contractor shall meet and agree on a qualified neutral individual to evaluate the Claim and make a non-binding recommendation for its resolution. In the event the parties cannot so agree within this 30 day period, either party may request that the American Arbitration Association appoint a qualified third-party neutral.
- C. Within 30 days of the appointment of the third-party neutral, Owner, Contractor, and the neutral shall attend a meeting to discuss the Claim and provide the neutral with information and documentation for evaluation of the Claim.

- D. Within 30 days of the conclusion of the meeting described in SC 17.01.C, the neutral shall issue a non-binding recommendation for settlement, including a statement of the rationale and Contract provisions relied upon.
- E. The fees and expenses of the American Arbitration Association and the neutral shall be shared equally by Owner and Contractor.
- F. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10 or an Owner's denial of a claim under Paragraph 12 shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. gives to the other party written notice of intent to submit the Claim to a court of competent jurisdiction, or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process.
- G. Notwithstanding any applicable statute of limitations, a party giving notice under Paragraph SC 17.01.C.1 shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and Engineer's or Owner's action or denial shall become final and binding.

17.02 Arbitration:

- A. Subject to the provisions of Paragraph 17.01, if a Claim is not resolved through negotiation, the use of a third party neutral, or mediation, Owner shall have the exclusive option with regard to such Claim either to have the resolution of the Claim determined by an action in a court of law or by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. Owner shall exercise said option by commencing a court action or by commencing an arbitration proceeding. If Contractor first commences a court action with respect to a dispute which Owner desires to have determined by arbitration, or an arbitration proceeding which Owner desires to have determined by a court action, Owner shall have the right to have said court action or arbitration proceeding, as the case may be, stayed if Owner within a reasonable time shall commence the arbitration proceeding or court action desired by Owner.
- B. If the elections afforded Owner herein are not enforceable, then Contractor and Owner shall be bound to arbitrate the Claim if the disputed amount is more than \$100,000 and litigate the Claim if they total a lesser amount.
- C. If the Claim is arbitrated, the provisions of Paragraphs 17.02.D through I shall apply.
- D. All Claims or counterclaims, disputes, or 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 have been waived by the making or acceptance of final payment) including but not limited to those not resolved under the provisions of Paragraph SC-17.01 will be decided by arbitration, subject to the conditions and limitations of this Paragraph SC-17.02. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- E. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within a reasonable time after the Claim or counterclaim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such Claim or matter in question would be barred by the applicable statute of limitations.

- F. If, within a time frame that is more than 45 days prior to the agreed date for the hearing on the merits, and either party, in good faith, determines that a just adjudication of the matter requires involvement of a party or parties other than Owner and Contractor, and the third party(ies) refuses to be joined as a party in the arbitration, and cannot be compelled to join, then both Owner and Contractor agree that the statute of limitations with respect to the pending claims will be tolled and a lawsuit shall be initiated joining such third party(ies). Once the lawsuit has been filed and the parties served, the arbitration may be dismissed without prejudice, with the costs of the arbitrator and (if used) arbitration service split evenly between the parties.
- G. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include: (i) a concise breakdown of the award; and (ii) a written explanation of the award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Controlling Law relating to vacating or modifying an arbitral award.
- I. The fees and expenses of the arbitrators and any arbitration service utilized (which need not necessarily be the American Arbitration Association) shall be shared equally by Owner and Contractor.”

ARTICLE 18 - MISCELLANEOUS

SC-18.07 Amend Article 18.07 to read as follows:

18.07 Controlling Law and Jurisdiction. This Contract shall be governed in all respects by the laws of the State of Oregon. Jurisdiction and Venue for any litigation filed in connection with the Contract Documents shall lie in the Circuit Court in and for Yamhill County, Oregon, and not in any other state or federal court or forum.

END OF SECTION 00800

BOLI - STATE PREVAILING WAGE RATES

Prevailing wage rate booklets are published twice a year; usually in January and July. Amendments to the rates are published quarterly.

The prevailing wage rates in effect at the time the bid specifications are first advertised are those that apply for the duration of the project.

Oregon BOLI wage rates are included by reference. For complete copies of the referenced wage rate publication(s), see

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

**SECTION 01010
SUMMARY OF WORK**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The work covered by this contract includes furnishing of all labor, materials and equipment for construction of improvements to the City of Carlton, Oregon - Clearwell Recoating Project shown on the Drawings and as specified in this document.
 - 1. Work consists of removal of existing interior coating of the 0.3 MG welded steel clearwell tank, surface preparation, application of primer and new coatings for steel surfaces. Work also includes surface preparation, application of primer and new coatings for exterior of the clearwell tank. Work includes protection of existing surfaces not to be coated, curing, touch ups and repairs, testing, inspections, disinfection and other work as defined in the bid documents.
 - 2. The work includes miscellaneous improvements to the City's clearwell including replacing the seal to the roof access hatch, applying a non-skid surface to the clearwell roof as indicated in the construction documents, replacing the screen to the clearwell vent, and installing a tank base sealing to the outside of the clearwell tank as indicated in the construction documents.
 - 3. Work consists of repainting of the existing above ground process piping and pressure vessels located indoors at the City's water treatment plant as defined in the bid documents
 - 4. Removing the in-plant water booster pump station, providing and installing a new package water booster pump station. This includes connecting to the existing piping, and providing electrical connections as shown on the plans.
- B. The above description is for general information only. Provide all work required by the Contract Documents.
- C. The water treatment plant is off line and will be for the duration of this project, and the clearwell is empty.

1.02 CONTRACT DOCUMENTS

- A. The contract drawings indicate the general arrangement and location of equipment, pipe, fixtures, outlets, etc. It is desired that the indicated positions be followed as closely as possible. The exact location of the various items is subject to building construction and the actual equipment furnished by the Contractor. The Contractor shall verify the location of all items furnished, installed, or connected.
- B. The Drawings are not to be scaled. All implied locations shall be determined at the building site after field measurements have been taken.

- C. Should interferences or discrepancies prevent the installation of any part of the work, the Engineer shall be notified and will determine the steps necessary to complete the true development of the intent of the Drawings and Specifications.

1.03 TIME OF COMMENCEMENT AND COMPLETION

- A. Notice to proceed: Within ten (10) days after the execution of the contract, written notice to proceed will be provided by the Owner to the Contractor or as required in the General Conditions. The Contractor shall begin the work upon receipt of the notice to proceed. Notwithstanding any other provision of the contract, the Owner shall not be obligated to accept or to pay for any work furnished by the Contractor prior to delivery of notice to proceed, whether or not the Owner has knowledge of the furnishing of work.
- B. The calendar work day count will commence on the date specified in the "Notice to Proceed or as required in the General Conditions."
- C. Substantial Completion
 - 1. Substantial completion of the Work and completion of all items of Work shall be as set forth in the Agreement.

1.04 SPECIFICATIONS

- A. The following standard specifications, including current revisions and supplements may be referred to in these contract documents to establish minimum standards for materials, construction, and inspection procedures. Unless otherwise shown or specified, the provisions for measurement and payment contained in such standard specifications will not apply.

____ Oregon Standard Specifications for Construction, 2015, as prepared by the Oregon State Department of Transportation (ODOT) and the Oregon State Chapter of the American Public Works Association (APWA).

____ American Society for Testing Materials (ASTM).

____ American Water Works Association (AWWA).

____ American National Standard Institute (ANSI).

____ National Association of Sewer Service Companies (NASSCO).

____ Manual on Uniform Traffic Control Devices (MUTCD).

____ Steel Structures Painting Council (SSPC)

____ National Association of Corrosion Engineers (NACE)

____ City design standards and specifications.

- B. In case of conflict between the several parts of the specifications and between the various referenced standard specifications, the most stringent shall govern as determined by the Engineer. Where these specifications refer to recognized standards, such as ASTM, Federal Specifications, N.F.P.A., the reference shall be to the latest edition, unless specified otherwise.

1.05 CONTRACTOR'S COPIES OF CONTRACT DOCUMENTS

- A. The Contractor will be supplied by the Owner with up to two sets of full-size drawings and two sets of specifications, which include half-size drawings. At least one complete set of Contract Documents, including one full-size set of Drawings shall be kept at the site of construction in good condition, and at all times available to the Owner and Engineer. Additional copies of the Contract Documents, if required, will be furnished by the Engineer at net cost of reproduction to the Contractor.

1.06 COORDINATION OF WORK WITH OWNER AND OTHERS

- A. The Contractor shall coordinate their work with other contractors who may be working on and or in the project area and cooperate with them. They shall also coordinate their activities with the Owner.
- B. Prior to construction, the Owner will shutdown the water treatment plant to allow for Work inside the clearwell and for a simultaneously occurring dredging project at the Owner's raw water reservoir. Water will be supplemented from the City of McMinnville Water and Light intertie located at the water treatment site during construction. Construction shall not start until the Owner has emptied and isolated the clearwell and the intertie has been connected and is fully functional. Contractor shall provide updated project timelines to the Owner and Engineer on a bi-weekly basis, every Monday, for review of project schedules and timelines.

1.07 PERMITS AND FEES

- A. The acquisition of all permits required, and payment of all fees, inspection charges and other similar costs shall be the responsibility of the Contractor.
- B. A Yamhill County building permit is not required.

1.08 EXISTING UTILITIES

- A. In general, the locations of existing major underground utilities and some minor utilities are indicated on the Drawings. This information has been obtained from utility maps and from oral descriptions provided by the various agencies involved. Owner does not guarantee the accuracy or completeness of this information, and it is to be understood that other above ground or underground facilities not shown on the Drawings may be encountered during the course of the work.
- B. Existing above ground utilities including, but not limited to, power transmission and distribution, telephone, television and traffic control systems, whether shown on the Drawings or not, shall be protected as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to the Owner. No utilities shall be removed without notifying owners and operators of the utility.

- C. Existing major underground utilities and appurtenance structures, whether shown on the Drawings or not, shall be maintained, relocated, rerouted, removed and restored by the Contractor in a manner satisfactory to owners and operators of the utilities and to the Owner. In the following special cases, the Contractor will be reimbursed in accordance with Article 11 of the General Conditions for all costs of modifying, rerouting or relaying major underground utilities:
 - 1. An existing utility is shown on the Drawings as being above or below the pipeline or structure to be constructed under this contract but is found during construction to be in conflict with the proposed work.
 - 2. An existing utility is shown on the Drawings in plan, but not in profile, and is found during construction to be in conflict with the proposed work.
 - 3. An existing utility is not shown on the Drawings, but is found during construction to be in conflict with the proposed work.
 - 4. An existing utility is not shown on the Drawings and is found during construction to cross or project into the allowable excavation for the proposed work at an angle of 30 degrees or less at any elevation.
- D. For the purposes of this section, an existing underground utility shall be considered to be in conflict with the proposed work if it crosses or projects into the allowable excavation for the proposed work at an elevation between the top and bottom of the proposed pipeline or structure.
- E. Minor underground utilities service lines including, but not limited to sanitary and drainage service laterals up to eight inches in diameter, house or yard drains, electric or telephone services, catch basin leads serving the immediate intersection, shall be maintained, relocated, rerouted, removed and restored by the Contractor with least possible interference of such services, and in no case shall the interference of such service lines be considered for extra compensation under any of these special cases listed here and before.
- F. The right is reserved by owners of public utilities and franchises to enter upon any street, road, right-of-way or easement for the purpose of maintaining their property and for making necessary repairs or changes caused by the work.

1.09 RESTORATION OF STRUCTURES AND SURFACES

- A. General: Whenever any of the work is accomplished on or through property other than that owned by the Owner, the Contractor shall furnish the Owner, before final acceptance of the work by the Owner, a written release from the subject property owner or proper authority citing for the owner of the property affected, stating that the restoration of structures and surfaces has been satisfactorily accomplished. If in the opinion of the Owner the release is arbitrarily withheld, the Owner may, at its sole discretion, accept the portion of the work involved and cause final payment therefore to be made.
- B. In addition to the requirements of any applicable utility permit, street use permit or franchise relating to this contract, the Contractor shall, as a minimum for any

restoration work, conform to standard plans and specifications of the agency which controls the use of the right-of-way in which this construction work is performed.

- C. Structures: The Contractor shall remove such existing structures as may be necessary for the performance of the work and, if required, shall rebuild the structures thus removed in as good a condition as found with minimum requirements as herein specified. He shall also repair all existing structures which may be damaged as a result of the work under this contract.
- D. All curbs, gutters, driveways, sidewalks and similar structures that are broken or damaged by the installation of the work shall be reconstructed by the Contractor. Reconstruction shall be of the same kind of material with the same finish and in not less than the same dimensions as the original work. All concrete shall be as specified herein unless otherwise indicated. Repairs shall be made by removing and replacing the entire portions between joints or scores and not merely refinishing any damaged part. All work shall match the appearance of the existing improvements as nearly as possible.
- E. All roads and streets in which the surface is removed, broken or damaged, or in which the ground has caved or settled due to work under this contract, shall be resurfaced and brought to the original grade and crown section unless otherwise indicated. Before resurfacing material is placed, edges of pavements shall be trimmed back far enough to provide clean, solid, vertical faces and shall be free of any loose material. Paving shall be as indicated and specified. Roadways used by the Contractor for hauling materials, equipment, supplies, etc., shall be cleaned and repaired if the condition of the roadway is damaged or otherwise affected due to the Contractor's operations.
- F. Cultivated areas and other surface improvements: All cultivated areas, either agricultural or lawns, and other surface improvements which are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition.
- G. Existing stakes and marks: All section, section subdivision, property corners, plat, U.S.C. and G.S., U.S.G.S., and other official monuments or bench marks, shall be carefully preserved or replaced. In the event any such monument or marker is disturbed as a result of the Contractor's operations, the Contractor shall effect the replacement or resetting of the monument or marker in a manner satisfactory to the Engineer and shall provide a survey map to be recorded with the County. Replaced or reset monuments shall be of acceptable type and quality, and shall be, located so as to clear existing utilities or any other interferences. They shall be placed in a manner consistent with good and recognized engineering and surveying practices.
- H. All waterways, channels, drainage ditches, drains, culverts and similar facilities that are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition. Where necessary, the contractor shall provide temporary facilities or temporarily realign such watercourses to maintain a continuously serviceable facility until it is restored to its original location and condition. Restoration of such facilities shall be as shown and specified.

1.10 LIMITS OF WORK

- A. The Contractor shall conduct construction operations in a manner to minimize the impact to surrounding area and property.

1.11 EXCESS MATERIALS AND DEBRIS

- A. Disposal of excess materials and debris shall comply with all local, State and Federal requirements.

1.12 OVERTIME

- A. The number of calendar days provided in the contract is admitted to be sufficient time to complete the project without overtime work. If the Engineer is required to pay overtime for observation or engineering on the contract as a result of the Contractors extended operations, as determined at the sole discretion of the Engineer, then the Engineer shall be reimbursed for all overtime hours at the rate of \$135.00 per hour. The Engineer shall inform the Owner of the overtime incurred for which the Owner shall reimburse the Engineer and deduct such sums from the next payment to the Contractor.

END OF SECTION 01010

**SECTION 01014
CONSTRUCTION SEQUENCE AND WORK PARAMETERS**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section specifies completion times, milestones, construction sequence and constraints, hours of work, and liquidated damages.
- B. The existing City of Carlton Clearwell is currently and continuously receiving, disinfecting, and distributing clean drinking water to the City following treatment at the water treatment plant located on site. Prior to construction, the Owner will shutdown the water treatment plant to allow for Work inside the clearwell and for a simultaneously occurring dredging project at the Owner's raw water reservoir. Water will be supplemented from the City of McMinnville Water and Light intertie located at the water treatment site during construction. Construction shall not start until the Owner has emptied and isolated the clearwell and the intertie has been connected and is fully functional. The Contractor shall coordinate the work with the Owner to ensure construction does not damage or interrupt the operation of any facilities or equipment. This Section specifies some but not all constraints and work sequences for the performance of, or scheduling of, work.
- C. Schedule and conduct all work in a manner consistent with the Contract and comply with the Contract milestones, construction sequence, and constraints of the work as specified.

1.02 LIMITATIONS OF CONSTRUCTION

A. PROJECT CONSTRAINTS:

- 1. Project constraints include the following items. The purpose of this paragraph is:
 - a. To comply with the requirements of the EPA Safe Drinking Water Act;
 - b. To comply with the requirements of the OHA Public Health Division;
 - c. To ensure the availability of normal utility power and standby power;
 - d. To ensure the availability of support systems at all times during the completion of this Contract;
 - e. To ensure that the Contractor understands the limitations placed on its work by the specific characteristics of the water supply facility;
- 2. The site shall remain secure through the life of the Contract.
- 3. The Contractor shall coordinate its activities and shall schedule and conduct its

work in a manner consistent with achieving these purposes.

C. SCHEDULE FOR EARLY SUBMITTALS:

1. Prior to the commencement of construction, the Contractor shall prepare submittals requiring immediate attention, in accordance with Section 01300. Submittals shall include layout drawings for temporary services and provide product data on materials to be incorporated, together with other activities leading up to commencing work.

1.03 CONSTRUCTION SEQUENCE AND CONSTRAINTS

A. The following are requirements for the construction sequencing:

1. Construction shall not start until the Owner has emptied and isolated the clearwell and the intertie has been connected and is fully functional.
2. The Contractor and Engineer shall review the tank after surface preparation is completed to determine where spot repairs are required. Repairs shall be performed prior to coating the clearwell interior.
3. The clearwell shall be disinfected and tested according to Specifications prior to being brought back into service.
4. The Contractor shall coordinate with the Owner to ensure safety measures are taken and communicated to City staff prior to work.
5. The Contractor shall coordinate with the Owner to ensure all equipment is protected and offline as necessary prior to painting the piping and pressure vessels inside the water treatment plant.
6. Operation of City owned valves, equipment, or system controls shall be done by the City staff.

B. The following paragraphs describe general work activities and associated constraints that the Contractor shall include in planning and scheduling the Contract work. The Contractor shall propose their own construction schedule and the order in which activities are to be performed within each phase for review and concurrence of the Owner as part of the Construction Schedule specified in Section 01300. The proposed construction schedule and sequence that activities follow shall ensure that the frequency and duration of planned outages are not materially changed from the following paragraphs. Where descriptions of work to be performed differ between this section and other sections, the descriptions in other sections shall take precedence.

1. Phase 1a – Clearwell Recoating: Provide surface preparation and recoating as described in these specifications including interior and exterior coating of the clearwell, spot welding repairs as required, application of a non-skid surface to the roof of the clearwell, and replacement of the vent screen.
2. Phase 1b – Process Pipe and Pressure Vessels Repainting: Provide surface

preparation and recoating as described in these specifications for the interior water treatment plant process piping, valves, pumps and pressure vessels. Phases 1a and 1b can be performed concurrently.

3. Phase 2 – Return Clearwell Back Into Service: Following Owner acceptance of reservoir recoating, disinfect the existing tank as described in Section 11003 of these specifications. Perform System Testing and Commissioning as described below.
 4. System Testing and Commissioning: The Contractor shall complete testing and commissioning. The Contractor shall determine which tasks can be completed concurrently. System testing and commissioning shall include the following:
 - a. All testing and commissioning activities shall be reasonably allowed for and shown on the Construction Schedule.
 - b. Once the clearwell is placed back into permanent service, a 7-day performance test period shall commence. During this testing period, the clearwell and all ancillary facilities shall operate in automatic mode with no interruptions to service and shall meet all water quality regulatory requirements.
 - c. If the existing water reservoir system fails to meet the 7-day performance test requirements, the Contractor shall repair the system and repeat the performance test until such it passes this test.
- C. The Contractor shall propose their own construction sequence for review by and concurrence of the Engineer as part of the Construction Schedule submittal required in Section 01300.

1.04 HOURS OF WORK

- A. The contractor shall have access to the site 8am through 5pm, Monday through Friday. No work on legal holidays shall be permitted without specific authorization from the Owner. If the Contractor intends to work weekends or extended days, then the City shall be notified 48 hours in advance.
- B. The Contractor shall submit a schedule of working hours in accordance with Section 00700. The Contractor shall reimburse the costs of Owner and other regulatory agencies for all overtime inspecting in accordance with Section 00700.

2. PRODUCTS (NOT USED)

3. EXECUTION (NOT USED)

END OF SECTION 01014

**SECTION 01060
REGULATORY AND SAFETY REQUIREMENTS**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section specifies regulatory requirements applicable to this project that include, but shall not be limited to, the Department of Labor and Industries, Environmental Protection Agency, Occupational Safety and Health Administration (OSHA), Oregon OSHA, Bureau of Labor Industries, WRD, and other applicable federal, state and local governmental regulations.

1.02 WATER AND AIR POLLUTION CONTROL

- A. During the term of the Contract, Contractor's operations shall conform to applicable laws and regulations of the Oregon Department of Environmental Quality (DEQ), and other agencies of the State and Federal government, as well as, local Ordinances and Resolutions designed to prevent, control and abate water and air pollution.
- B. During all phases of the Work, or when directed, protect work sites, storage, and disposal areas from washout and erosion. Take precautions to control or abate dust nuisance and air pollution by cleaning up, sweeping, sprinkling, covering, enclosing or sheltering work areas, and stockpiles, and by promptly removing earth or other material which may become airborne or may be washed into waterways or drainage systems.
- C. Chlorinated water shall meet the requirements of DEQ for chlorinated water discharges prior to discharging.
- D. Take precautions to control or abate dispersion of paint by the wind.

1.03 NOISE

- A. Measures shall be taken to minimize noise. The Contractor shall review the site and understand the relationship of the site to surrounding facilities.

1.04 SAFETY AND HEALTH REGULATIONS

- A. The Contractor shall comply with safety and health regulations for construction.

1.05 POSTING OF REGULATIONS

- A. The Contractor shall comply with all Oregon OSHA posting regulations.
- B. State and Federal Labor Law requirements.

1.06 RESPONSIBILITY FOR DAMAGE

- A. The Contractor shall bear sole responsibility for damage to completed portions of the project or to property located off the project caused by erosion, siltation, run-off, or other related items during the construction of the project.
- B. The Contractor shall also bear sole responsibility for any pollution of rivers, streams, groundwater or other waters which may occur as a result of construction operations. The Contractor shall exercise all necessary precautions throughout the life of the project to prevent pollution, erosion, siltation, and property damage.

END OF SECTION 01060

**SECTION 01091
REFERENCE STANDARDS**

1. GENERAL

1.01 QUALITY ASSURANCE

- A. Titles of sections and paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and are not to be used to define the limits of subcontracts.
- B. Applicable publications: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.
- D. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. Conflicts shall be brought to the attention of the Engineer for written clarification and directions prior to ordering or providing any materials or labor. The Contractor shall bid the most stringent requirements.
- E. Applicable standard specifications: The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein; (except, that wherever references to "Standard Specifications" are made, the provisions therein for measurement and payment shall not apply).
- F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. The contractual relationship of the parties to the Contract, the duties and responsibilities of Owner, Contractor and Engineer mentioned in any reference document shall be governed by General Conditions contained herein.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. The following documents or agencies may be referenced in the Contract Documents.

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturer's Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ADC	Air Diffusion Council
AEIC	Associated Edison Illumination Companies
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AGC	Associated General Contractors of America
AGMA	American Gear Manufacturer's Association
AHAM	Association of Home Appliance Manufacturer's
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
AREA	American Railway Engineering Association
ARI	Air-Conditioning and Refrigeration Institute
ASA	Acoustical Society of America
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASPA	American Sod Producers Association
ASQC	American Society of Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CBM	Certified Ballast Manufacturers
CDA	Copper Development Association
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLPCA	California Lathing and Plastering Contractors Association
CLFMI	Chain Link Fence Manufacturer's Institute

CMA	Concrete Masonry Association
COE	Corp of Engineers
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DCDMA	Diamond Core Drill Manufacturer's Association
DOE	Department of Ecology
DOT	Department of Transportation
EEI	Edison Electric Institute
EIA	Electronic Industries Association
EJCDC	Engineer's Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturer's Association
EPA	Environmental Protection Agency
ETL	Electrical Test Laboratories
FGMA	Flat Glass Marketing Association
FM	Factory Mutual
FS	Federal Specification
GA	Gypsum Association
IBC	International Building Code
ICBO	International Conference of Building Officials
ICC	Interstate Commerce Commission
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IMIA	International Masonry Industry All-Weather Council
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MFMA	Maple Flooring Manufacturer's Association
MIL	Military Specification
ML/SFA	Metal Lath/Steel Framing Association
MPTA	Mechanical Power Transmission Association
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NGLI	National Lubricating Grease Institute
NMA	National Microfilm Association
NWMA	National Woodwork Manufacturers Association
OAC	Oregon Administrative Code
OSHD	Oregon Department of Transportation - Highway Division
OSSC	Oregon Structural Specialty Code

OSEPA	Oregon State Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PS	Product Standard
RCO	Revised Code of Oregon
RIS	Redwood Inspection Service
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SDI	Steel Deck Institute
SDI	Steel Door Institute
SIS	Swedish Standards Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPR	Simplified Practice Recommendation
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

B. Standard Specifications

1. Where indicated in these Contract Documents, Work shall be in accordance with the referenced sections of the Oregon Standard Specifications for Construction, 2015, prepared by the Oregon State Department of Transportation and the Oregon State Chapter of the American Public Works Association, hereinafter referred to as "Standard Specifications."
2. The Specifications of these Contract Documents shall supersede any provisions of the Standard Specifications in conflict herewith.
3. Reference to measurements and payment in the Reference Specifications do not apply to this Contract.
4. References to Engineer, department, secretary, State or other similar terms in the Standard Specifications shall mean Owner.

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2. PRODUCTS (NOT USED)
3. EXECUTION (NOT USED)

END OF SECTION 01091

**SECTION 01150
MEASUREMENT AND PAYMENT**

1. GENERAL

1.01 MEASUREMENT AND PAYMENT AND DESCRIPTION OF BID ITEMS

A. Partial payment of bid items shall be in conformance with the General Conditions. Partial payment for work completed, and materials on site, which will become an integral part of the finished work, shall be determined by the Owner and shall be made on the basis of duly certified and approved estimates of the work, which, in the opinion of the Owner, has been satisfactorily completed. It is understood that the determination by the Owner as to whether or not a certificate or estimate for payment should be issued, or the amount of said payment, shall be based entirely upon the opinion of the Owner. Said determination shall include without limitation the following factors:

1. All phases of the work being accomplished in a proper manner and being pursued in a proper sequence of operation, particularly with regard to testing, clean-up and surface restoration.
2. The observance by the Contractor of the requirement that all work and operations be preceded by necessary submittals and approvals.
3. On the monthly estimates, partial payments for work performed but not completed, may be made in accordance with the following schedule, except as otherwise noted in the specifications:

Cost of material delivered to the site.	95% of the invoice cost of the material.
Materials installed.	95% of unit price for material in place.
Clean-up and surface restoration completed.	95% of unit price.
Testing and Startup Completed	100% of unit price upon satisfactory completion.

4. Retainage will be deducted from the above amounts as specified in the Contract Agreement.

B. The contract price shall constitute full compensation for furnishing all plant, labor, equipment and materials, and performing all operations required to complete the work, as specified, and as shown on the drawings, or as otherwise directed.

1.02 BID ITEMS

A. Bid Item 1 – Mobilization – Lump Sum

The lump sum price constitutes full compensation for mobilization, demobilization, bonds, insurance, permits, clean-up, closeout and all Indirect Expenses. Mobilization

shall be no more than 12% of the total bid price. Demobilization shall be no less than 25% of this bid item.

- B. Bid Item 2 – Exterior Recoating of 300,000-gal Welded Steel Clearwell including non-skid roof coating – Lump Sum

The lump sum price constitutes full compensation for recoating the existing 300,000 gallon (nominal) capacity steel clearwell, including surface preparation, application of all exterior coating materials including non-skid coating on roof of reservoir, disposal of materials, curing, testing, replace vent screen, install hatch seal, install foundation seal and other miscellaneous items required.

- C. Bid Item 3 – Interior Recoating of 300,000-gal Welded Steel Clearwell – Lump Sum

The lump sum price constitutes full compensation for recoating the existing 300,000 gallon (nominal) capacity steel clearwell, including surface preparation, application of all interior coating materials, tank disinfection, disposal of materials, curing, testing, door sheet and other miscellaneous items required and successfully placing the clearwell back into service.

- D. Bid Item 4 – Welding – per hour

The lump sum price constitutes full compensation for 24 hours of spot welding.

- F. Bid Item 5 – Repainting of water treatment plant process piping, valves, pumps and pressure vessels – Lump Sum

The lump sum price constitutes full compensation for repainting the interior process piping at the water treatment plant. Work includes surface preparation, painting the pressure vessels/piping/valves/fittings, curing, testing and other miscellaneous items required.

- G. Bid Item 6 – Package Water Booster Pump Station – Lump Sum

The lump sum price constitutes full compensation for the package water booster pump station. The work includes demolition and disposal of the existing pump station, concrete foundation and anchor bolts, complete package pump station, connection to the existing piping system, electrical work to connection the WTP power and control panel, testing, disinfection, training, O&M manual and other miscellaneous items as required.

END OF SECTION 01150

**SECTION 01200
ADMINISTRATIVE PROCEDURES**

1. GENERAL

1.01 GENERAL

- A. Project meetings will be held to accomplish the following:
 - 1. Coordinate the work of the project.
 - 2. Establish a sound working relationship between the Contractor and the Engineer.
 - 3. Establish sound working procedures.
 - 4. Review job progress, quality of work and approval and delivery of materials.
 - 5. Expedite the work to completion within the scheduled time limit.

1.02 PRECONSTRUCTION CONFERENCE

- A. The Engineer will call for the preconstruction conference at City Hall. They will notify all parties concerned of the time and place of the meeting.
- B. The meeting will be conducted by the Engineer. In order to ensure completeness, uniformity and orderly procedures, an agenda for the meeting will be developed.
- C. Meeting minutes will be taken by the Engineer.

1.03 BI-WEEKLY JOB MEETINGS

- A. Unless otherwise directed, bi-weekly job meetings will be held by the City. Present at these meetings shall be the Contractor or their duly authorized representative, such subcontractor's representatives as may be needed, the Engineer and other interested parties, such as public utility, local government representatives and suppliers when needed.
- B. The specific purpose of the bi-weekly meetings is to coordinate the efforts of all concerned so that the project progresses without delay to "on time" completion, with the least inconvenience.
- C. The meetings will be held at the project site.

END OF SECTION 01200

**SECTION 01300
SUBMITTALS**

1. GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Other provisions pertaining to submittals are included in the General Conditions, the Supplementary General Conditions and in the various sections of the specifications.

1.02 SUBMITTAL REQUIREMENTS

A. General:

1. Wherever submittals are required in the Contract Documents, submit them to the Engineer. Electronic submittals in a word-searchable format are acceptable.

All submittals shall be identified by project title and number and shall include Contractor's name, date and revision date. In addition, shop drawings, product data and samples shall include names of subcontractor and supplier, applicable specification section number and Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

2. All submittals shall be accompanied by a submittal transmittal form. Equipment numbers shall be listed for items being submitted. A separate form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

3. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor. Resubmittal shall have the following format: "XXX-Y"; where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals; i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of Submittal 25.

4. Submittal Completeness: Submittals which do not have all the information required to be submitted are not acceptable and will be returned without review.

- B. Shop drawings: Submit 5 copies of each shop drawing required by the Specifications. Show the information, dimensions, connections and other details necessary to ensure that the shop drawings accurately interpret the contract documents. Show adjoining work in such detail as required to indicate proper connections. Where adjoining

connected work requires shop drawings or product data, submit such information for review at the same time so that connections can be accurately checked.

- C. Product data: Submit 5 copies of each item of product data required by the specifications. Modify product data by deleting information which is not applicable to the project or by marking each copy to identify pertinent products. Supplement standard information, if necessary, to provide additional information applicable to project. It is recognized that in some cases manufacturer's product data will be adequate and further shop drawings as stated in the specifications may not be required, unless requested by the Engineer.
- D. Samples
 - 1. Submit 2 (unless specific number is specified) of each sample required by the specifications. Samples shall show the quality, type, range of color, finish and texture of the material intended to be furnished for the work.
 - 2. Samples shall become the property of the Owner unless specifically stated otherwise, and will not be incorporated in the work.
- E. Review Procedure: Unless otherwise specified, within 21 days after receipt of the submittal, the Engineer will review the submittal. The returned submittal will indicate one of the following actions:
 - 1. If the review indicates that the material, equipment, or work method is in general conformance with the design concept and complies with the Drawings and specifications, submittal copies will be marked "NO EXCEPTION TAKEN" and given review action 1. In this event the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
 - 2. If the review indicates that limited corrections are required, copies will be marked "NOTE MARKINGS" and given review action 2. The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided; otherwise no further action is required.
 - 3. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "COMMENTS ATTACHED". If the comments are of a nature that can be confirmed without a resubmittal, copies will be further marked "CONFIRM" and given review action 3. If the comments require a revision and resubmittal, copies will be further marked "RESUBMIT" and given review action 4. Except at its own risk, the Contractor shall not undertake work covered by this submittal until the attached comments have been either confirmed by a separate written communication or the submittal has been revised, resubmitted and returned marked with "NO EXCEPTIONS TAKEN" or "NOTE MARKINGS".
 - 4. If the review indicates that the material, equipment, or work method is not in general conformance with the design concept or in compliance with the

Drawings and specifications, copies of the submittal will be marked "REJECTED" and given review action 5. Except at its own risk, the Contractor shall not undertake work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "NOTE MARKINGS".

- F. Effects of Review of Contractor's Submittals: Review of Drawings, method of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer on behalf of the Owner, and the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark of "NO EXCEPTIONS TAKEN" or "NOTE MARKINGS" shall mean that the Engineer has no objection to the Contractor, upon the Contractor's own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

1.03 SCHEDULE

- A. The Contractor shall provide the following schedules and submit them not later than 10 days after notice to proceed.

1. Contractor's construction schedule:

- a. The Contractor will be required to prepare and submit to the Engineer for review an overall construction schedule covering all work to be performed.
- b. The schedule shall indicate the sequence of the work, the time of starting and completion of each part and the installation dates for major items.
- c. The schedule shall be submitted to the Engineer for review. This schedule shall be revised and resubmitted as necessary until it is acceptable to the Engineer. Action on payment requests will be contingent upon receipt of an acceptable construction schedule.
- d. The construction schedule shall include, but not be limited to the following items:
 - 1) Material and equipment order and delivery.
 - 2) Coating of clearwell interior.
 - 3) Clearwell touch ups.
 - 4) Coating of clearwell exterior, tank base sealing, non-skid surface, vent screen replacement, and hatch seal replacement.
 - 5) Clearwell coating testing.
 - 6) Disinfection and testing.

- 7) Water treatment plant pipe and pressure vessel recoating.
 - 8) Installation and testing of package house water system.
 - 9) Final cleanup.
 - 10) Allowance for inclement weather.
- e. The construction schedule shall be a series of line diagram showing a step by step sequence of each construction activity. Construction activities proceeding simultaneously should be shown as parallel lines. Each activity shall be labeled and the estimated number of days to complete the activity shall be shown on the schedule.
 - f. Should the Contractor fail to meet any critical dates within the schedule, the Contractor shall immediately undertake appropriate action which shall assure an acceptable return to the approved construction schedule.
 - g. The Contractor will be required to accept the risk of any delays caused by the rate of progress of the work to be performed under the above contract, and that in the event the Contractor is delayed in the prosecution and completion of his work because of such conditions, he shall have no claim for damages or contract adjustment.
2. Contractor's list of subcontractors: Establish the items of work proposed to be accomplished by subcontractors, the name and address of each proposed subcontractor and the date proposed to award each subcontract.
 3. Schedule of submittals: Establish for each item for which shop drawings, product data or samples are required, the date of submission will be made and the date approval is required for the installation to be completed in accordance with the Construction Schedule.
 4. The Contractor's list of subcontractors and schedule of submittals shall be based upon the Contractor's progress schedule so that the work can progress in accordance with the approved progress schedule.
- B. The Contractor shall immediately advise the Engineer of any proposed changes in their submitted schedules. If, in the opinion of the Engineer, any submitted schedule is inadequate to ensure completion of work within the time limit, or is otherwise not in accordance with the specification, or if the work is not being adequately or properly prosecuted in any respect, the Engineer shall have the right to require the Contractor to submit new schedules providing for proper and timely completion of the work.
 - C. During the term of this Contract, the Engineer may require any schedule to be modified so that the changes in the work of this Contract or related contracts (if any) are properly reflected in the schedule.

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1.04 DETAILED BREAKDOWN OF LUMP SUM PRICES

A. Provide Schedule of Values in accordance with Section 00300.

END OF SECTION 01300

**SECTION 01400
QUALITY CONTROL**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Work under this Section includes all testing required by the Contract as specified herein and further specified in the technical sections.

1.02 BUILDING CODE

- A. Conform to the requirements of the most recent addition of the International Building Code IBC, including Oregon Codes for structural, mechanical, electrical, plumbing and others as required by the City.

1.03 TESTING METHODS

- A. All tests shall be made in accordance with commonly recognized standards of national organizations unless alternate specific testing methods are set forth in the technical specifications.

1.04 COSTS

- A. The Contractor shall employ and pay for an independent testing laboratory to perform all testing services as specified in the technical sections. Additional inspection and tests required because of defective work or ill-timed notices are performed at the Contractor's expense.

1.05 QUALITY ASSURANCE

- A. Samples: The Contractor shall supply samples if and when required by the Specifications or the Engineer. These samples or test specimens shall be prepared and furnished with information as to their source in such quantities and size as may be required for proper examination and tests, with all freight charges prepaid. All samples shall be submitted before shipment of materials to the site of the work and in ample time to permit the making of proper tests, analysis, examination, rejections and resubmissions before the time required to incorporate the materials into the work. No such materials shall be used in work until they have been reviewed in writing by the Engineer. Samples of materials will be retained by the Engineer for reference and comparison purposes.
- B. Certification: Producers and associations which have instituted approved systems of quality control and have been, approved by the building department may submit certifications of compliance in lieu of further testing. Concrete mixing plans, plants producing fabricated concrete products certified by building department lumber and plywood grademarks by approved associations and materials for equipment bearing Underwriter's Laboratory label require no further plan inspection and testing, unless

more restrictive requirements are required, or otherwise specifically required in the specifications.

1.06 TESTING LABORATORIES

- A. The Contractor shall submit to the Engineer, for review and approval, the names of the testing laboratories they propose to use in the work.

1.07 CONTRACTOR'S RESPONSIBILITY

- A. Access: Furnish free access to various parts of the work and assist testing inspection personnel in performance of their duties at no additional cost to the Owner
- B. Concealed work: When directed by the Engineer, the Contractor shall open for inspection any part of the work which has been concealed. Should the Contractor refuse or neglect such a request, the Owner may employ any other person to open up the same or do so himself. If any parts of the work have been concealed in violation of the Engineer's instructions or, if on being opened, it is found not to be in accordance with the terms of the contract documents, the expense of opening and recovering, whether done by the Contractor or not, shall be charged to the Contractor.
- C. Data: Furnish samples, records, drawings, certificates and similar data as may be required by testing and inspection personnel to assure compliance with the contract documents
- D. Notices: The Contractor shall notify the Engineer not less than 48 hours before work requiring inspection is started. The Contractor shall schedule portions of the work requiring inspection and additional testing by the Engineer, so that the agency's time on the project is continuous and as brief as possible. Provide notice to the Engineer 48 hours prior to concealment.

1.08 INSPECTORS

- A. Appointment: The Engineer or Owner may appoint inspectors to inspect any and all portions of the work. Such inspection may extend to any or all parts of the work, and to the preparation or manufacture of materials to be used.
- B. Authority of Inspector: Inspectors are not authorized to revoke, alter, enlarge or relax the provisions of the Contract Documents, and the inspector is placed on the work to keep the Engineer informed as to the progress of the Work and the manner in which it is being done. They may also call the attention of the Contractor to any deviations from the plans or specifications. Failure of the inspector or the Engineer to call the attention of the Contractor to faulty work or deviation from the Contract Documents shall not constitute acceptance of said work. An inspector is not authorized to approve or accept any portions of the Work or to issue instructions contrary to the contract documents. The inspector will exercise only such additional authority as may be specially delegated to them by the Engineer, notice of which will be given in writing to the Contractor.

1.09 TEST REPORTS

- A. Independent testing and inspection agency and/or agencies will prepare logs, test reports and certificates applicable to specific tests and inspections. Reports shall include description of method of test, identification of samples and portions of the work tested. They shall state description of location of work, time and date of obtaining and testing samples, weather and climatic conditions, temperature, and evaluation of results of tests, including recommendations for action. As a minimum, the following copies shall be submitted.

Owner	-	1
Engineer	-	1
Contractor	-	1

1.10 DEFECTIVE WORK

- A. Remove and replace any work found defective or not complying with requirements of contract documents, at no additional cost to the Owner.
- B. Work will be checked as it progresses, but failure to detect any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor shall it obligate the Engineer for final acceptance.

END OF SECTION 01400

**SECTION 01500
TEMPORARY FACILITIES AND CONTROLS**

1. GENERAL

1.01 PUBLIC SAFETY AND CONVENIENCE

- A. The Contractor shall comply with all rules and regulations of the city, state and county authorities regarding the closing of public streets or highways to the use of public traffic. No roads shall be closed to the public except by express permission of the Engineer. The Contractor shall conduct the work so as to ensure the least possible obstruction to traffic and normal commercial pursuits.
- B. The Contractor shall protect all obstructions within traveled roadways with approved signs, barricades and lights where necessary or where ordered by the Engineer for the safety of the public. The convenience of the general public and residents along the Work area, and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.
- C. Whenever the Contractor's operations create a hazardous condition, they shall furnish flagperson and guards as necessary to give adequate warning to the public of any dangerous condition encountered.
- D. The Contractor shall patrol daily the traffic control area and reset all disturbed signs and traffic control devices immediately. All nonapplicable signs shall be removed or covered during periods not required. All signs and barricades necessary for nighttime traffic control shall be fully reflectorized. The Contractor shall provide and maintain, at their own expense, all labor, tools, materials, and equipment required to maintain traffic, including flagging.

1.02 CONSTRUCTION UTILITIES AND MISCELLANEOUS FACILITIES

- A. General: The Contractor shall provide the temporary facilities and controls as hereinafter specified and as required by law.
- B. Power: Unless otherwise specified, the Contractor shall provide all necessary power and special connections to power lines.
- C. Water: Limited potable water is available for the Contractor's use on the work site, and shall be coordinated with the City operator. The Contractor shall provide for additional water if necessary for its operations.
- D. Sanitary facilities: The Contractor shall provide adequate toilet facilities for all workers employed on the project. The Contractor shall maintain the same in a sanitary condition from the beginning of the Work until completion and shall then remove the facilities and disinfect the premises. All portions of the Work shall be maintained at all times in a sanitary condition.

- E. Equipment storage: The Contractor shall be responsible for storing equipment and materials.
- F. Constructions signs: No commercial or advertising signs shall be allowed on the site of the Work.

1.03 BARRIERS

- A. The Contractor shall erect and maintain guard rails or other suitable barriers where required.

1.04 FIRE PREVENTION CONTROL

- A. General: Take all precautions necessary and required to prevent fires. Comply with the requirements of local authorities having jurisdiction.
- B. Fuel for cutting and heating torches shall be gas only, and shall be contained in Underwriter's Laboratory approved containers.
- C. Provide and maintain a 20-pound capacity, dry-chemical type fire extinguisher in the immediate vicinity of the work when welding tools or torches of any type are in use.
- D. Do not use volatile liquids for cleaning agents or as fuels for motorized equipment or tools within building, except with the written approval of the Engineer.
- E. Tarpaulins shall be securely anchored and flameproofed when attached to any wood scaffolding, and when used to enclose any portion of a building.

1.05 POLLUTION CONTROL

- A. The Contractor shall not dispose of volatile fluid wastes (such as mineral spirits, oil or paint thinner), or any other wastes which are prohibited by local, state and federal ordinances, into storm or sanitary system or into stream or waterways.

1.06 RUBBISH REMOVAL

- A. General:
 - 1. Clean up the debris resulting from work at least once a day and more often, if it interferes with the work of others or presents a fire hazard. Closely pile debris where directed.
 - 2. Remove and dispose of all debris at once if it presents a fire hazard, or when directed.

1.07 DISCONTINUANCE, CHANGES AND REMOVAL

- A. When directed and no longer required, remove the temporary facilities specified herein. If any of the permanent systems are used for temporary facilities, restore them to "as new" condition. Material used for temporary facilities, which are removed, shall

become the property of the Contractor which shall be removed from the site by the Contractor.

1.08 SECURITY

- A. The Contractor is responsible for security of their own operations at all times. The Contractor shall coordinate with the City for access to the City's water treatment plant site and facilities.

1.09 TRAFFIC CONTROL

- A. The Contractor at the Contractor's own expense shall furnish, install, and maintain all barricades, construction signs, warning signs, and detour signs and provide all flagging as necessary to warn and protect the public at all times from injury or damage as a result of the Contractor's operations.
- B. The Contractor shall check daily the traffic control devices and reset all disturbed signs, barricades, and traffic control devices immediately. All nonapplicable signs shall be removed or covered during periods not required. All signs and barricades necessary for nighttime traffic control shall be fully reflectorized.
- C. The Contractor shall comply with all rules and regulations of State and City authorities regarding the closing of public streets to the use of public traffic. No roads or lanes shall be closed to the public except by express permission of the City.

END OF SECTION 01500

**SECTION 01600
MATERIAL AND EQUIPMENT**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section includes general requirements pertaining to materials and equipment. Any such requirements as may be specified elsewhere or required by law are additional to the provisions included in this section.

1.02 SOURCE OF MATERIALS

- A. No source has been provided for any of the materials required for construction of this project. The Contractor shall make their own arrangements to obtain this material at their own expense and all costs of acquiring, producing and placing this material in the finished work will be considered incidental to the bid item involved.

1.03 QUALITY AND QUANTITY

- A. Material and equipment: Material and equipment shall be new and of a quality equal to that specified or accepted, and shall be furnished in quantities required to avoid delays in the progress of the work. Mechanical and electrical equipment shall be the products of established manufacturers of good reputation regularly engaged in the fabrication of such equipment.
- B. The Work shall be executed in conformity with the best accepted standard practice of the trade so as to contribute to maximum efficiency of operation, accessibility and appearance, minimum cost of maintenance and construction of future alternations and additions. It shall be so executed that the completed work will conform and adjust itself to any existing installation.
- C. When materials are specified: When materials are specified to conform to ASTM, Federal, or other reference specifications, the materials delivered to the site shall bear the manufacturer's printed labels stating that the materials meet the requirements of such referenced specifications.

1.04 TRANSPORTATION AND HANDLING

- A. Factory-packed products: Factory-packed products shall be delivered in the manufacturer's original containers.
- B. Products: Products shall be transported and handled in such a manner as to prevent their damage.
- C. Arrangements: Arrange for delivery of products within the time limits established by the Engineer.

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- D. Furnish: Furnish workmen to receive and unload products delivered to the site. Do not deliver, or have delivered, any products to the site unless such forces are available.

1.05 STORAGE AND PROTECTION

- A. Neatly pile, store and protect: Neatly pile, store and protect products in safe locations.
- B. Protect: Protect products subject to damage by temperature or other weather conditions.

END OF SECTION 01600

**SECTION 01650
TRAINING, SYSTEM STARTUP AND TESTING**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide complete startup, testing and operator training services to ensure system operability.

1.02 FIELD TESTS AND ADJUSTMENTS

- A. General: All mechanical and electrical equipment and all alarms and operating modes for each such piece of equipment shall be tested by the Contractor to the satisfaction of the Engineer before any facility is put into operation. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, aligned and connected. Any changes, adjustments or replacements required to make the equipment operate as specified shall be carried out by the Contractor as part of the work.
- B. At least 14 days before the time allowed in his construction schedule for commencing testing and startup procedures, the Contractor shall submit to the Engineer in duplicate, details of the procedure he proposes to adopt for testing and startup of all mechanical and electrical equipment, except when such procedures have been covered in the specifications.
- C. The Contractor's testing and startup procedures shall include detailed descriptions of all preoperational electrical, mechanical and instrumentation testing work. The testing procedures shall include each control device, item of mechanical, electrical and instrumentation equipment. The testing procedures shall be described in a stepwise, logical sequence to ensure that all equipment has been properly serviced, aligned, connected, calibrated and adjusted prior to operation. The Contractor is advised that failure to observe these precautions may place the acceptability of the subject equipment in question, and he may be required to replace it as determined by the Engineer. Testing procedures shall be designed to duplicate as nearly as possible all conditions of operations, and shall be carefully selected to ensure that the equipment is not damaged. Once the testing procedures have been accepted by the Engineer the Contractor shall produce checkout, alignment and adjustment, and calibration signoff forms for each item of equipment, which shall be used in the field by the Contractor and the Engineer jointly, to ensure that each item of electrical, mechanical and instrumentation equipment has been properly installed and tested.
- D. Testing shall be witnessed by the Owner. The Owner shall be present during startup of the Temporary System and at the time of placing the existing water system back into permanent service.

- E. A master test log book shall be maintained by the Contractor containing test results for piping, equipment, and electrical items. The master test log book shall be provided with loose leaf pages which shall be copied weekly after updating for transmittal to the Engineer.
- F. The Contractor shall be responsible for the startup, adjustment, preliminary maintenance and checkout of all equipment and instrumentation. All systems shall be carefully checked for conformance with the design criteria.
- G. If any equipment or system does not operate properly, the Contractor shall immediately replace or repair components until it operates properly.
- H. When the equipment startup is complete, the Contractor shall submit a startup report to the Engineer.
- I. During the testing of the mechanical, instrumentation, and electrical equipment, the Contractor shall make available as necessary representatives of the manufacturers of all the various pieces of equipment or other qualified persons who shall instruct the City's personnel in the operation and care thereof. Instructions shall include written step-by-step operation and troubleshooting procedures with a complete description of all necessary test equipment and all protective device settings.

1.03 SYSTEM STARTUP AND TESTING

- A. General requirements: After all equipment has been tested and adjusted, the equipment shall be put into operation.
- B. Adjustments: When a motor, valve, meter, instrument or other item of equipment is found to be in conflict with the stated design criteria, an adjustment shall be made to the item by an experienced representative of the manufacturer.
- C. If adjustments fail to correct the operation of a piece of equipment, remove the equipment from the project site and replace it with a workable replacement that will meet the specification requirements.
- D. Lubrication: Immediately prior to final acceptance, make a final check of all lubrication requirements, and leave all equipment properly lubricated, ready for City's use.
- E. For consistency throughout the facility, all oil products shall be manufactured by one manufacturer acceptable to the Owner.
- F. Testing devices:
 - 1. Gages, meters, recorders and monitors shall be provided by the Contractor as required by the Engineer to properly demonstrate that all equipment fully satisfies the requirements of this project manual. All devices employed for the purpose of measuring the performance of the facility's equipment and systems shall be specifically selected to be consistent with the variables to be monitored. All instruments shall be recently calibrated, and the Contractor shall be prepared

at all times to demonstrate, through recalibration, the accuracy of all instruments employed for testing purposes. Calibration procedures shall be in accordance with applicable standards of ASTM, ISA, and IEEE. The adequacy of all gages, meters, records and monitors shall be subject to review of the Engineer. Written evidence of the calibration at each device and its serial number is required.

2. Records: The Contractor shall provide signoff forms for all installed and operational testing to be accomplished under this contract. Signoff forms shall be provided for each item of mechanical and electrical equipment provided or installed under the Contract, referenced by equipment number, and shall contain provisions for recording relevant performance data for original testing and not less than three retests. Separate sections shall be provided to record values for the preoperation checkout, initials of representatives of the equipment manufacturers, the Contractor, the Engineer, and the date and hour of each test.
 - a. The Contractor shall maintain a master file of all equipment signoff sheets, which shall be available for inspection by the Engineer. Upon completion of testing, the Contractor shall furnish the Engineer with the original and two copies of the signoff sheets for each equipment item.

1.04 OPERATOR TRAINING

- A. The Contractor shall schedule all training sessions a minimum of 14 days in advance with the Engineer and Owner. There shall be a minimum of 1 day of training for the package pump station.

END OF SECTION 01650

**SECTION 01700
PROJECT CLOSEOUT**

1. GENERAL

1.01 SUMMARY

A. Section includes:

1. Description of procedures to be followed and related work required to accomplish an orderly transfer of project deliverables from the Contractor to the Owner.

1.02 DEFINITIONS

- A. Punch List: The stated qualification accompanying either the Engineer's Certificate of Substantial Completion or the Certificate of Final Payment, or any list of construction items found to be deficient or incomplete through review of the Work by Engineer and communicated in writing to Contractor at any time during the Contract Period.
- B. Substantial Completion: See Sections 00700 and 00800.
- C. Record Drawings: Drawings showing changes made during actual construction.

1.03 SUBMITTALS

A. Substantial Completion:

1. Contractor to notify Engineer that the Contractor considers the Work as a whole or portions of the Work, in the form of Project Classified Systems, to be Substantial Completion and request for a Substantial Completion inspection. The Contractor shall attach to this notice a list of all work items that remain to be completed and defective work that remains to be corrected.
2. Record Drawings.
3. Operation and maintenance manual.
4. A list of Work by Project Classified Systems not to be considered for Substantial Completion.
5. Registry of training sessions conducted and lists of attendees for:
 - a. Procurement Contractor's operation and maintenance training during facility startup.
6. Register of final maintenance and lubrication of filter and/or oil lube-protected equipment.

7. Inventory of any extra materials and spare parts ready for delivery to the Owner.

a. Organize by specification sections.

B. Final Completion:

1. Contractor to notify Engineer that the Contractor considers the entire Work to have progressed to final completion.

2. When final completion and Substantial Completion are coincidental:

a. Submittals required for substantial Completion,

b. Record drawings,

c. Lien waivers, if requested by Owner,

d. Accepted final operation and maintenance manuals, and

e. Certification that all subcontractors and suppliers have been paid.

3. When final completion does not coincide with Substantial Completion:

a. Substantial Completion submittals for portions of the Work not previously considered substantially complete, if any,

b. Record drawings,

c. Lien waivers, if required by Owner,

d. Accepted final operation and maintenance manuals, and

e. Certification that all subcontractors and suppliers have been paid.

1.04 WRITTEN GUARANTEES

A. Written guarantees, in duplicate, addressed to the Owner, but submitted to the Engineer.

1. Guarantee by Contractor: Guarantee by Contractor covering the entire work for the 1-year period from date of certificate of substantial completion as specified hereinbefore. Letter to be substantially as follows:

(Re: Project)

(Owner) (Address)

Gentlemen:

"I (We) the undersigned do hereby guarantee for a period of one year(s) from date of certificate of substantial completion all work performed under the terms of the contract documents. I (We) will remedy at my (our) expenses any defects appearing during that period due to poor materials or workmanship and will pay for any damage to other work resulting from occurrence of said defects or the correction of same. The Contractor agrees to maintain the Performance Bond through the guarantee period.

This guarantee shall not be interpreted as holding the Contractor responsible for any deterioration of the work due to normal use or the abuse of the work by the Owner.

Very truly yours,

_____ Contractor

2. A guarantee bond for the face value of the contract shall be provided to the Owner for the one-year guaranteed period."

2. PRODUCTS (NOT USED)

3. EXECUTION

3.01 SUBSTANTIAL COMPLETION, ADJUSTMENT AND RELEASE OF RETAINAGE

- A. When the Work is found to be in a state of Substantial Completion with stated qualifications:
 1. Engineer will determine the value of the punch list work using either the Project approved schedule of values or other method at their discretion.
 2. The value of incomplete work will be multiplied by 2 and retainage reduced to that amount.
- B. No partial payments for the Substantial Completion retainage will be allowed.
- C. The Substantial Completion retainage will be released with final payment.

3.02 DELIVERY OF EXTRA MATERIALS AND SPARE PARTS

- A. Provide security and protection from the elements and maintenance for the entire Contract Period.
- B. No deliveries of partial inventories accepted.

- C. Upon Substantial Completion, Engineer will notify Contractor in writing that extra materials and spare parts may be delivered.
 - 1. Deliver to Owner through Engineer unless otherwise directed in writing.
 - 2. Contractor and representatives of Owner and Engineer shall inspect and inventory all items delivered.
 - 3. Inventory shall be revised to indicate any items delivered that were damaged or defective.
 - 4. Contractor and Owner's and Engineer's representatives shall sign inventory certifying that all items listed were delivered and that, unless otherwise noted on the inventory, all items were in good condition at the time of delivery to Owner.
- D. Engineer will review inventory for completeness and inform Contractor promptly of any deficiencies therein.
- E. Contractor shall replace all damaged and defective items noted on the inventory before requesting final inspection.

3.03 INSPECTION FOR FINAL ACCEPTANCE AND PAYMENT

- A. When the items of Work on the Punch List(s) have been completed, and Contractor considers the Work of the entire Project is complete, they shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of Owner's representative and are operational.
 - 5. Work is completed and ready for final inspection.
- B. Engineer and Owner will make an inspection with the Contractor to verify the status of completion within five calendar days after receipt of such certification.
- C. Should Engineer consider that the Work is incomplete or defective, the following actions will occur:
 - 1. Engineer: Notify the Contractor in writing within five calendar days listing the incomplete or defective work.
 - 2. Contractor: Remedy the stated deficiencies and send a second written certification to Engineer that the Work is complete.

3. Engineer will reinspect the Work.

D. When Engineer finds the Work acceptable in accordance with the Contract Documents, Engineer requests Contractor to make closeout submittals.

3.04 FINAL APPLICATION FOR PAYMENT

A. Complete demobilization prior to submitting final application for payment.

B. Submit final application for payment in accordance with procedures and requirements stated in the Conditions of the Contract.

C. Engineer will review application and recommend final payment within five calendar days of receipt of application.

END OF SECTION 01700

**SECTION 09900
COATINGS**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This specification covers preparation of surfaces, performance and completion of painting of all interior piping and equipment surfaces as required by the drawings and as specified herein.

1.02 REFERENCE STANDARDS

- A. Steel Structures Painting Council (SSPC)
- B. Federal Standards and Testing Methods.

1.03 SUBMITTALS

- A. A list of coating materials giving the manufacturer's name, product name and product line number for each material.
- B. Two copies of the manufacturer's technical data sheet for each coating giving descriptive data, curing time, mixing, thinning application instructions and performance criteria.
- C. Color samples:
 - 1. Two color samples of each color specified for the project.
 - 2. Prepare samples of finishes on the same type and grade of substrate specified for the project.
 - 3. Make color samples at least 3-inch by 5-inch in size for metal surfaces.

1.04 QUALITY ASSURANCE

- A. Include on label or containers:
 - 1. Manufacturer's name.
 - 2. Product name and number.
 - 3. Color.
 - 4. Factory batch number.

- B. Field quality control/mock-up:
 - 1. First item shall be reviewed by Engineer.
 - 2. First item shall be used as the project standard for the rest of the work.
- C. Notify the Engineer immediately of any problems experienced or anticipated using the coatings systems specified.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in sealed containers with manufacturer's label intact.
- B. Storage of materials:
 - 1. Store materials in a well ventilated protected area at an ambient temperature between 40 degrees F. and 110 degrees F.
 - 2. Open and mix materials in storage area.

1.06 JOB CONDITIONS

- A. Apply coatings only under the following prevailing environmental conditions:
 - 1. Air and surface temperatures are not below 45 degrees F. or above 110 degrees F.
 - 2. Relative humidity is not higher than 85% and the surface temperature is at least 5 degrees F. above the dew point.
 - 3. Wind velocity is under 15 mph for exterior spray painting.
 - 4. The atmosphere is relatively free of airborne dust.
- B. Surfaces not to be painted are covered or otherwise protected.

2. PRODUCTS

2.01 MANUFACTURERS

- A. Products of the following manufacturers similar to those specified herein will be acceptable for use on the project when approved in writing by the Engineer but are not limited to, the following:
 - 1. Tnemec Company, Inc. (Tnemec).
 - 2. Or approved equal.
- B. Use products of the same manufacturer for each coating system and for each type of surface unless noted specifically otherwise herein.

2.02 SUBSTITUTIONS

- A. Make substitutions in compliance with Section 01300.
- B. Submit substitute paint schedule listing all proposed products by coating system for each surface, area or item.
- C. Obtain Engineer's acceptance in writing before purchase and delivery.

2.03 MATERIALS

- A. Products manufactured by the Tnemec Company, Inc. are used herein to establish quality and type.
- B. Product numbers listed in the painting schedule identify the type of material to be used.
- C. Products shall be submitted with supporting test data showing performance characteristics which meet or exceed those standards set forth herein.
- D. Generic names, performance criteria, or performance equivalents of federal specifications listed in Paragraph 2.05, Coating System identify the type of coatings to be used.

2.04 COATING SYSTEM

- A. Ferrous metal (steel):
 - 1. Coating System: F-1
 - a. Polyamidoamine Epoxy (2 coat system):
 - 1) Minimum volatile organic compounds (VOC) of 2.80 lbs/gallon when thinned 10%
 - 2) Solids by volume of primer: 67 +/- 2.0%

3. EXECUTION

3.01 INSPECTION

- A. Examine surfaces to be coated and report in writing to the Engineer any conditions that would adversely affect the appearance or performance of the coating systems and which cannot be put into an acceptable condition by the Contractor.
- B. Do not proceed with surface preparation and application until the surface is acceptable or authorization to proceed is given in writing by the Engineer.

3.02 SURFACE PREPARATION

- A. General:

1. Dislodge dirt, plaster nibs, mortar spatter and other dry material by scraping or brushing. Remove dust and loose material by brushing, sweeping, vacuuming or blowing with high-pressure air.
 2. Remove oil, wax and grease by scraping off heavy deposits and cleaning with mineral spirits or hot trisodium phosphate solution followed by a water rinse.
 3. Verify that surfaces to be coated are dry, clean and free of dust, dirt, oil, wax, grease or other contaminants.
- B. Ferrous metal (steel):
1. Enclosed or protected dry exposure:
 - a. SSPC-SP2 Hand Tool Cleaning: Refer to Steel Structures Painting Manual, Vol. 2, Systems and Specifications.
 - b. SSPC-SP3 Power Tool Cleaning: Refer to Steel Structures Painting Manual, Vol. 2, Systems and Specifications.
 - c. Minimum profile for Coating system F-1 shall be a 1 mil profile or per manufacturer's requirements.
 2. Mild exterior exposure:
 - a. SSPC-SP6 Commercial Blast Cleaning: Refer to Steel Structures Painting Manual, Vol. 2, Systems and Specifications.
 3. Immersion service or severe exposure:
 - a. SSPC-SP10 Near White Blast: Refer to Steel Structures Painting Manual, Vol. 2, Systems and Specifications.

3.03 APPLICATION

- A. Materials shall be mixed, thinned and applied according to the manufacturer's printed instructions.
- B. Allow each coat to dry thoroughly before recoating.
- C. All work shall be cut in neatly and finish coats shall be uniform in color and texture without streaks, laps, heavy build-ups, runs, sags or missed areas.

3.04 APPLICATION SCHEDULE

- A. Ferrous metal (steel):
 1. Interior:
 - a. Coating System: F-1
 - 1) Finish: Satin

2) Dry Film Thickness:

- a) 1st Coat: Tnemec Series N69 (or equal): 3.0 to 5.0 mils
- b) 2nd Coat: Tnemec Series N69 (or equal): 3.0 to 5.0 mils
- c) Total Dry Film Thickness: 6.0 to 10.0 mils

3.05 TOUCH-UP AND REPAIR

- A. At completion, all painted surfaces and coatings shall be inspected. All damaged spots, whether due to defective materials or workmanship or defects of surfaces covered shall be touched up and the finish restored.

3.06 WORKMANSHIP AND CLEANUP

- A. The premises shall be clean at all times and all rubbish will be removed as often as directed by the Engineer. All debris shall be removed from the grounds.
- B. Areas disturbed by construction shall be painted to match surrounding wall, floor, or ceilings. Paint piping, equipment, and piping and equipment supports unless insulated.

3.07 COATING APPLICATION SCHEDULE

	<u>Surface or Item</u>	<u>Exposure</u>	<u>Color</u>	<u>Paint System</u>
A.	Equipment Pressure vessels			
	1. Steel	INT	*	F-1
B.	Pipe and Fittings:			
	2. Cast Iron and Ductile Iron	INT	*	F-1
	3. Steel	INT	*	F-1

Note: *Color to be selected by Owner.

END OF SECTION 09900

**SECTION 09902
WELDED STEEL TANK COATING**

1. GENERAL

1.01 DESCRIPTION OF WORK

A. This Section includes the following requirements:

1. Coating systems for exterior overcoating of welded steel water tanks
2. Coating systems for interior of welded steel water tanks
3. Coating system for non-skid surface
4. Tank base sealing system

1.02 GENERAL

A. In lieu of the sequence specified in AWWA Standard D100, the tank and appurtenances shall be coated inside and out prior to testing for leaks. The coating shall comply with AWWA D102, the Steel Structures Painting Council, the National Association of Corrosion Engineers, the paint manufacturers' printed application instructions, and as specified in this Section.

1.03 REFERENCES

ANSI A159.1 SSPC	Steel Structures Painting Council, Surface Preparation Specifications
ANSI Z87.1	Occupational and Educational Personal Eye and Face Protection Devices
ANSI Z89.1	Industrial Head Protection
ASTM C920	Standard Specification for Elastomeric Joint Sealants
ASTM D16	Standard Terminology for Paint, Related Coatings, Materials, and Applications
ASTM D610	Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
AWWA D100	Welded Steel Tanks for Water Storage
AWWA D102	Coating Steel Water-Storage Tanks
NACE	National Association of Corrosion Engineers

ANSI/NSF 61	Drinking Water System Components
SCAQMD	South Coast Air Quality Management District
SSPC-SP 12	High Pressure Washing
SSPC-SP 10/NACE 2	Near-White Metal Blast Cleaning

1.04 DEFINITIONS

- A. Definitions of Painting Terms: ASTM D16, unless otherwise specified
- B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

1.05 SUBMITTALS

- A. Bid Submittal: Refer to the Quality Assurance paragraphs in this specification Section.
- B. Construction schedule showing the order the Contractor proposes to carry out the coating work, dates of anticipated commencement and completion of the coating work and salient components thereof, and estimated percentage of work to be completed at any time during the construction period.
- C. Manufacturer's data sheets for each coating, painting, and caulking material to be used.
- D. Manufacturer's recommendations for height profile for each coating and painting material to be used.
- E. Methods for surface preparation, prime coating, finish coating, ventilation, and lighting.
- F. For exterior paint finish coat only, color sample (4-inch x 4-inch minimum on metal panel).
- G. Warranty: Submit manufacturer's standard warranty.
- H. Submit certified documentation that interior coating in contact with potable water has been certified in accordance with the National Sanitation Foundation Standard No. 61.
- J. NDT of welding to be in accordance with AWWA D100 for welding procedure and field testing.
- I. Submit in accordance with Section 01300 "Submittals".

1.06 QUALITY ASSURANCE

- A. Contractor Experience: Due to the nature of the project, it is the intent of these Specifications to obtain a first class product with emphasis on overall safety, quality, and quality control, both during and after the construction process. Only Contractors

experienced in the interior and exterior coating of welded steel tanks for potable water storage are qualified to bid on and construct this tank project. Contractors shall have successfully completed at least three (3) similar projects within the last five (5) years. If the coating construction is subcontracted, the coating subcontractor shall be required to meet the above-specified experience qualifications in lieu of the Contractor.

- B. **Quality Assurance Submittals:** The bidder will be required to furnish a statement of experience indicating the above experience, a list of machinery, plant and other equipment available for the proposed work, and a financial statement, including a complete statement of the Contractor's financial ability and experience in performing similar painting and coating work. The statement of the experience shall list the three (3) projects, description of the projects, name of contractor, name of engineer, name of coating manufacturer, approximate area of coatings applied, date of completion, and the name and telephone number of the project owner's representative. The Owner reserves the right to prevent painting work by any Contractor who cannot provide the proper qualifications.
- C. **Bid Requirements:** A bid may not be considered responsive unless the coating Contractor's experience requirements have been submitted with the bid.
- D. **Manufacturer's Qualifications:**
 - 1. Specialize in manufacture of coatings with a minimum of 10 years successful experience.
 - 2. Able to demonstrate successful performance on comparable projects.
 - 3. **Single Source Responsibility:** Coatings and coating application accessories shall be products of a single manufacturer.
- E. **Applicator's Qualifications:**
 - 1. Experienced in application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this Work.
 - 2. **Applicator's Personnel:** Employ persons trained for application of specified coatings.
- F. **Welders Credentials:**
 - 1. Before any welding is performed, the Contractor shall make certain that all welders or welding operators have their credentials for acceptance and are certified as outlined in AWWA D100 Section 8 and 11.
- G. **Welding:**
 - 1. All welding shall conform to D1.1-75 code for arc and as welding in building construction. Electrodes shall be E70XX low hydrogen group.

H. Pre-application Meeting: Convene a pre-application meeting on the first day of production before start of application of coating systems. Require attendance of parties directly affecting work of this section, including Contractor, Engineer, applicator, and manufacturer's representative. Review the following:

1. Environmental requirements
2. Protection of surfaces not scheduled to be coated
3. Surface preparation
4. Application
5. Disinfections
6. Repair
7. Field quality control
8. Cleaning
9. Protection of coating systems
10. One-year inspection
11. Coordination with other work

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:

1. Coating or material name
2. Manufacturer
3. Color name and number
4. Batch or lot number
5. Date of manufacture
6. Mixing and thinning instructions

B. Storage:

1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
2. Keep containers sealed until ready for use.

3. Do not use materials beyond manufacturer's shelf life limits.

C. Handling: Protect materials during handling and application to prevent damage or contamination.

2. MATERIALS

2.01 MATERIAL SOURCES

A. All coating materials shall be materials that have a record of satisfactory performance in industrial plants, manufacturing facilities, water storage reservoirs, and water and wastewater treatment plants. The named coatings manufacturer in these specifications is Themec or approved equal.

2.02 PAINTING EQUIPMENT

A. The Contractor's coating and painting equipment shall be designed for the application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. The Contractor's equipment shall be subject to approval of the Owner's Representative.

B. All equipment shall be maintained in good order and shall be comparable to that described in the printed instructions of the coating manufacturer. All equipment shall be thoroughly cleaned before and after use with the appropriate cleaning solution as indicated by the coating manufacturer.

2.03 AIR QUALITY REQUIRMENTS

A. All applicable local rules and requirements shall be complied with. Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWA D 102.

2.04 COMPATIBILITY OF COATINGS

A. Use products by the same manufacturer for prime coats, intermediate coats, and finish coats on the same surface, unless specified otherwise.

2.05 INTERIOR COATING SYSTEM PERFORMANCE

A. Coating manufacturer shall submit certified documentation that interior coating in contact with potable water has been certified in accordance with the National Sanitation Foundation Standard No. 61. Meets zinc-rich primer requirements of AWWA D102-03 system ICS-5.

B. Galvanic Protection:

Method: Primer applied to SSPC SP10 Near White Blast Clean hot rolled carbon steel.

Requirement: The average measured potential of primer is -878 millivolts.

C. Adhesion:

Method: ASTM D 4541 (TTM-34) Type V Posltester

Requirement: Not less than 1,730 psi (14.36 MPa) adhesion, average of three trials.

D. Salt Spray (Fog):

Method: ASTM B 117 applied SSPC SP10 hot rolled steel.

Requirement: No blistering, cracking, rusting or delamination of film. No more than ¼” rusting at scribe after 10,000 hours exposure.

2.06 INTERIOR COATING SYSTEM

Type: Epoxy

Surface Preparation: Surface Preparation shall be as described in Part 3 of this specification section.

Coating Systems: Prime: Prepared surfaces with one coat of Tnemec Series 94H2O (or equal) at 2.5 to 3.5 mils dry film thickness.

Stripe Coat: Coat all weld lanes, outside corners, ladders, bolts, and other dimensional steel surfaces with Tnemec Series N140 (or equal) applied at 3.0 to 5.0 mils dry film thickness.

Finish: Coated surfaces receive one coat of Tnemec Series 22 Epoxoline (or equal) at 20.0 to 25.0 mils dry film thickness.

NOTE: Minimum dry film thickness shall be 19.0 mils.

2.07 EXTERIOR COATING SYSTEM PERFORMANCE

ASTM D412 Tensile Strength, Method C Elongation

Tensile strength = 436 psi

Elongation @ break = 237%

FLEXIBILITY: CONICAL MANDREL, ASTM-D-522

No cracking

Water Vapor Transmission: ASTM D1653

	WVT	Metric Perms	Perms
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2c 118 @ 13.6 mils –	21.91 g/m ² /24 hrs	1.13 g/m ² /24 hrs	1.71 g/ft ² / hour
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ASTM D 4587 (UVA-340 bulbs, Cycle 4: 8 hours UV/4 hours condensation).

No blistering, cracking, chalking or delamination. No more than 2.6 DED FMCII (MacAdam units) color change after 2,000 hours exposure.

2.08 EXTERIOR COATING SYSTEM FOR STEEL

Type:	Unibond Mastic / Endurashield
Surface Preparation:	High Pressure Wash, see Part 3 of this specification section
Spot Prime:	All prepared bare steel surfaces with one coat of Tnemec Series 118 Unibond Mastic (or equal) at 6.0 to 8.0 mils dry film thickness.
Prime:	All prepared surfaces with one coat of Tnemec Series 118 Unibond Mastic (or equal) at 6.0 to 8.0 mils dry film thickness. Prime coat is a full coat.
Finish:	All primed surfaces with one coat of Tnemec Series 1095 EnduraShield (or equal) at 3.0 to 5.0 mils dry thickness.
	NOTE: Minimum dry film thickness shall be 4.0 mils.
Color:	Color to be determined by Owner.

2.09 “NON-SKID” SURFACE

- A. A “non-skid” surface shall be applied to the tank roof as indicated on the Plans.
- B. The non-skid surface shall be applied after application of the exterior coating system of the clearwell tank and before the manufacturer’s maximum recoat window has been reached.
- C. All surfaces to receive the “non-skid” surface shall receive one (1) base coat of Series 1095 (or equal) at 2.0 to 3.0 mil DFT. Immediately after placement and before setting up broadcast to refusal a 30-50 mesh silica sand onto the paint to saturation.
- D. After the 1095 has been allowed the proper drying cycle, the excess sand residue shall be swept off the area to be provided with a “non-skid” surface.
- E. After sweeping off the excess sand residue, the surfaces to receive the “non-skid” surfaces shall then receive one (1) additional coat of series 1095 (or equal) at 2.0 to 3.0 mil DFT. Color of finish coat shall be a similar color to the tank but with a lighter shade. Color to be decided by Owner

2.10 TANK BASE SEALING

- A. The named tank base sealing manufacturer in these specifications is Belzona or equal. Substitutions shall be considered but must be approved by the Engineer prior to bid deadline. A tank base sealing shall be applied around the entire base of the tank as indicated on Plans using Belzona® 3111 flexible membrane (or equal), Belzona® 9311 Reinforcing sheet (or equal), and Belzona® 3921 condition (or equal), and additional products required per manufacturer's recommendation.
- B. Surface Preparation: Refer to Section 3 for information on surface preparation for the tank base sealing.
- C. Coating Application:
 - 1. Condition with Belzona® 3921 to annular ring and tank base. Use masking tape to define application area normally between 5 to 10 inch either side of the annular ring. Select dimensions to suit width of tank base and annular ring and confirm with Engineer before applying. When dry apply a 2 to 3 inch bridging (duct) tape across the tank/tank base joint. A Backer-Rod may be required if the gap requires such. Follow manufacturer's instructions for Use.
 - 2. Mask off the application area just within the Conditioned area to ensure a neat finish and to ensure application is not extended beyond the Conditioned area. Within the overcoating time of Belzona® 3921, using a soft bristled brush, apply Belzona® 3111 @ 10 mils DFT directly onto the conditioned surface.
 - 3. While still wet, Belzona® 9311 Reinforcing Sheet should be stippled in, cutting and positioning as necessary to ensure the reinforcement follows the surface contours as closely as possible without stretching or creasing. Ensure an overlap of approximately ½ to 1 inch.
 - 4. Allow to dry then apply second coat of Belzona® 3111 at 6 to 10 mils DFT. Apply at right angles to the first layer. All pinholes and areas not wetted out previously should be fully covered and filled by the second layer to produce a continuous unbroken film. Ensure relevant coverage rates specified on the IFU are achieved. Remove masking tape before system has fully dried.
 - 5. Apply a top-coat of Tnemec Series 1029 Enduratone (or equal) per manufacturer's recommendation as a finish coat to match the color of the clearwell exterior coating selected by the Owner.

2.11 THINNING

- A. The Contractor shall not add thinner to any coating product without prior approval of the Owner's Representative and the coating manufacturer. Only thinner manufactured by the coating manufacturer will be allowed if thinning is approved.

2.12 ACCESSORIES

- A. Coating application accessories:

1. Accessories required for application of specified coatings in accordance with manufacturer's instructions, including thinners.
2. Products of coating manufacturer.

2.13 ADDITIONAL MATERIAL TO OWNER

- A. Following completion of work, Contractor shall supply Owner with a minimum of five gallons of each finish coat utilized in coating the reservoir interior and exterior. Life span of material delivered to the Owner shall be a minimum of one year at the time of delivery and color of material shall be identical to that utilized in coating the reservoirs.

3. EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which coating systems are to be applied. Notify Engineer of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable area or conditions have been corrected.

3.02 PAINT CONTAINERS AND STORAGE

- A. All coating materials shall be delivered to the job site in their original, unopened containers bearing the manufacturer's name, brand, and batch number and shall not be used until approved by the Owner.
- B. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paints shall be stored to conform to city, county, and state safety codes for flammable coating or paint materials.

3.03 WEATHER CONDITIONS

- A. No coating work shall be performed under unfavorable weather conditions, unless the work is well protected from such conditions, and then only with the specific approval of the Owner. No coating work shall be performed when the air temperature is less than 60°F, when the relative humidity is greater than 70 percent, or when the surface temperature is less than 5°F above the dew point. If dew or moisture condensation should be anticipated, and if such conditions are prevalent, coating work shall be delayed until surfaces are dry. Further, the day's painting shall be completed well in advance of the probable time when condensation will occur, in order to permit the film sufficient drying time prior to the formation of moisture.
- B. No paint shall be applied on any surface with a temperature of less than 60°F or more than 120°F or when the surface temperature exceeds manufacturer's recommendations. No paint shall be applied on any wet or damp surface.
- C. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
- D. Wind: Do not spray coatings if wind velocity is above manufacturer's limit.

3.04 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

- A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
- B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

3.05 HEAD AND FACE PROTECTION AND RESPIRATORY DEVICES

- A. Equipment shall include protective helmets conforming to the requirements of ANSI Standard Z89.1, and shall be worn by all persons while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices meeting the requirements of ANSI Standard Z87.1 and OSHA Regulations for Sandblasting Operations, and air purifying, half mask or mouthpiece respirator with appropriate filter.

3.06 SOUND LEVELS

- A. Whenever the occupation noise exposure exceeds the maximum allowable sound levels as set forth in Table D 2 of Subpart C, Section 1926.52 of the OSHA Regulations for construction, the Contractor shall provide and require the use of approved ear protective devices.

3.07 ILLUMINATION

- A. The Contractor shall provide adequate illumination while work is in progress. Whenever required by the Owner, the Contractor shall provide additional illumination to cover all areas to be observed. The level of illumination for observation purposes shall be determined by the Owner's Representative.

3.08 TEMPORARY LADDERS AND SCAFFOLDING

- A. All temporary ladders and scaffolding shall conform to the applicable requirements of Subpart L, Section 1926.45 and 1926.451 of the OSHA Regulations for Construction. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer. The Contractor shall obtain and maintain, on the job site during work, all permits for the scaffolding as required by CAL OSHA.

3.09 DOOR SHEET

- A. A door sheet may be used for access to the interior of clearwell tank. The door sheet dimensions may have a height up to the first weld line of the tank and may be a maximum of 8-feet wide. Any deviations from the maximum dimensions must be approved by the Engineer prior to performing work.
- B. Inspection:

1. Radiographic inspection as specified in AWWA D100 shall be performed to determine the quality of field welding. All radiographic testing shall be at the Contractor's expense. A written report shall be submitted at the conclusion of work as per Section 11.2 of AWWA D100. Negatives shall become the property of the Owner and shall be delivered to Engineer within 48 hours after development together with interpretation. Any additional expenses incurred as a result of deficient test shall be at the Contractor's expense.

C. Testing:

1. Welds shall be tested using the vacuum test procedure as specified in AWWA D100.

3.10 SEQUENCE OF WORK

- A. Unless specified otherwise, reservoir coating and painting shall be performed in the following sequence:
 1. Reservoir interior surfaces (other than floor)
 2. Reservoir interior spot welding touch ups.
 3. Reservoir floor surfaces
 55. Tank Base Sealing
 6. Reservoir exterior (all coats)
 7. Non-skid surface to top of reservoir
- B. After the reservoir interior surface (other than floor) coating has been completed, the Contractor shall check for specified dry film thickness and holidays in the presence of the Owner's Representative. The check is anticipated to require approximately five working days. Contractor shall temporarily terminate other work until said check is completed. Contractor shall repair all defects in reservoir interior surface (other than floor) coating prior to beginning reservoir floor coating work. All repairs shall be performed as directed by Owner. If repair work is required, Owner will check the repairs and additional time will be required therefore. Contractor shall temporarily terminate work until checks are completed.
- C. After the reservoir floor coating has been completed, Contractor shall perform dry film thickness and holiday detection on the floor in the presence of the Owner's Representative. Contractor shall repair all defects in reservoir floor coating until all holidays are eliminated. Lower shell course shall be re-checked for damage caused to coating by floor sandblasting operations. All holidays shall be repaired by Contractor. Reservoir floor shall be completed, checked, repaired, and approved by Owner's Representative prior to starting reservoir exterior work.

- D. Repair work performed by Contractor will not justify adjustment of Contract Completion Date(s). Said work will subject Contractor to liquidated damages if work extends beyond Contract Completion Date(s).

3.11 WELDS AND IRREGULAR SURFACES

- A. All welds and irregular surfaces except for stainless steel surfaces, including all bolts, nuts, corners, edges, etc., shall receive a brush coat of the coating prior to application of the first complete coat.

3.12 SURFACE PREPARATION AND PRIMING

- A. Interior: All interior steel components of the tank shall be blast cleaned as specified in SSPC Surface Preparation Specification No. 10 (Near White Blast Cleaning). All primers shall be completely compatible in every way with succeeding coats of paint. All surfaces to be painted or coated shall be clean, dry, and free from all paint, rust, mill scale, dirt, dust, grease, oils, salts, oxides, corrosion products, and other deleterious matter in accordance with SSPC-SP 10/NACE 2.
- B. Exterior: Exterior surface preparation shall meet requirements of SSPC-SP 12 - High Pressure Washing. All exterior existing coated surfaces shall receive a high-pressure wash - 3,000 PSI at 3.5 gallons per minute minimum. Surface is to be clean, dry, and free of contaminants. The Contractor shall take precautions not to damage or remove tightly adherent paint or primer in preparing the exterior surface of the structure for painting. If the pressure rating and washing distance for the high pressure washer removes tightly adherent paint or primer, then the Contractor shall reduce the pressure and/or change the spraying distance from nozzle to reservoir at the Owner's immediate request such that the existing paint systems remains intact. The request and the Contractor's compliance to and performance of same shall not be considered a change of condition and as such will not be subject to any additional monies to the Contractor.
- C. Tank Base Sealing:
 - 1. Badly corroded metallic surfaces shall be grit blasted in order to remove all loose surface contaminants to give as surface finish to SP-10 using a suitable abrasive blast. No blast profile is required.
 - 2. All surfaces to be treated shall be clean, dry, and free from surface contaminants including oils, grease, rust, and previous deteriorated surface treatments.
 - 3. Remove any existing mastics and sealants. Also remove any loose concrete from between the tank base and the concrete pad.
 - 4. Any weld, cutting scale, or surface laminations (tears or shelling) should be removed using chipping hammers or suitable grinding tools and all mechanical repairs completed.
 - 5. Porous surfaces such as concrete that have been contaminated by moss, lichen or other vegetation should be treated with a proprietary fungicidal wash, applied in accordance with the manufacturers instructions for use to kill off residual spores.

6. All blasted steel surface should have product applied prior to flash rust occurring.
 7. All other metallic surfaces either painted or lightly corroded may be hand abraded or needle gunned to ensure a tight, clean surface free from loose or flaking oxides and paints.
 8. Any damaged concrete or asphalt around the tank base should be restored using either Belzona repair mortars 4124 or 4111 (or equal). Under no circumstances should cement repairs be carried out prior to application. Should cement repairs be appropriate, then cement shall be left for at least 28 days prior to Tank Base Sealing application.
 9. Avoid flooding the area with water to clean any debris, any use of water should be through dampened brush or wet pad. Allow to dry thoroughly before beginning the Tank Base Sealing application.
 10. Use warm air blowers if necessary to drive out localized moisture around the tank base.
 11. Remove all contamination using brushes or a suitable vacuum machine.
 12. Wash the tank base with a suitable cleaner degreaser such as MEK to remove any traces of dust, oil, and grease from the surface to be treated.
- D. All sharp edges, burrs, and weld spatter shall be removed.
- E. All surface preparation shall be per manufacturer's recommendation or as specified herein, whichever is more stringent.
- F. SSPC Specifications: Wherever the words "Solvent cleaning", "hand tool cleaning", "wire brushing", or "blast cleaning" or similar words are used in these specifications or in the paint manufacturer's specifications, they shall be understood to refer to the applicable SSPC specifications listed below:
- SP-1 Solvent Cleaning
 - SP-2 Hand Tool Cleaning
 - SP-3 Power Tool Cleaning
 - SP-5 White Metal Blast Cleaning
 - SP-6 Commercial Blast Cleaning
 - SP-7 Brush-Off Blast Cleaning
 - SP-8 Pickling
 - SP-10 Near White Blast Cleaning

SP-11 Power Tool Cleaning to Bare Metal

SP-12 NACE 5 Surface Preparation and Cleaning of Steel and Other Hard Materials by High-and Ultra High-Pressure Water Jetting Prior to Recoating

SP-13 Surface Preparation of Concrete

- G. Field blast cleaning for all surfaces shall be done with clean metal beads. Silica sand shall not be used for the interior of a potable water tank
- H. Maximum particle size of abrasives used in blast cleaning shall be that which will produce a one and one half to two mil surface profile or in accordance with recommendations of the manufacturer of the coating system used in the work.
- I. During blast cleaning operations, caution shall be exercised to ensure that existing coatings or paint are not exposed to abrasion from blast cleaning.
- J. The Contractor shall keep the area of their work in a clean condition and shall not permit blasting materials to accumulate so as to constitute a nuisance or hazard to the prosecution of the work or operation of the existing facilities.
- K. All blast material, abrasive, and blast residue shall be thoroughly removed from inside the tank and around the project site. All excess material shall be discarded at an approved dump site by the Contractor.
- L. Sandblast or prepare only as much surface area as can be coated in one day. Surface shall be primed within 8 (eight) hours of blasting. If priming is not completed with 8 hours of blasting, the area shall be re-blasted prior to priming.

3.13 APPLICATION

- A. Apply coatings in accordance with manufacturer's instructions.
- B. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.
- C. Keep containers closed when not in use to avoid contamination.
- D. Do not use mixed coatings beyond pot life limits.
- E. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.
- F. Uniformly apply coatings at spreading rate required to achieve specified DFT.
- G. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
- H. Interior: With freshly applied finish brush critical locations on steel such as welds, corners, and edges, followed by a spray applied finish.

- I. Exterior: Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer.

3.14 COATING SYSTEM

- A. All lap welded roof seams, scraped, or damaged paint surfaces shall be field blasted, primed, and coated with the same epoxy coating system as adjacent areas.
- B. All galvanized surfaces shall be treated as required by the coating manufacturer prior to the application of epoxy coatings.
- C. Coating Curing: After interior coatings are completed, continuous forced air ventilation of the reservoir shall be provided per the “Ventilation” paragraphs of this Section.
- D. The total thickness of any one coat of material shall not exceed the maximum thickness as recommended by the coating manufacturer.
- E. Sufficient coating shall be applied the same day as the surface preparation to prevent rusting from exposure. Where rusting occurs through the coating, such area shall be sandblasted back to the bare metal and recoated.
- F. Drying Time: Minimum between coat drying times, as stated in the printed instructions of the coating manufacturer, shall be carefully observed. The final interior coats of paint shall be allowed to air dry as specified under the “Ventilation” paragraphs of this Section before water is permitted to enter the reservoir.

3.15 DISINFECTION

- A. Disinfections of Water Contact Surfaces and Filling of Water Storage Tanks:
 - 1. Contractor shall not disinfect water contact surfaces or fill water storage tanks until application of coating systems is complete, coatings have fully cured, and field quality control inspection is complete.
 - 2. Allow number of days in accordance with manufacturer’s instructions and as directed by Engineer for full cure of coating systems on water contact surfaces before flushing, disinfecting, or filling with water.
 - 3. Disinfection: refer to Specifications Section 11003.

3.16 REPAIR

- A. Damaged Materials: Repair or replace damaged materials and surfaces not scheduled to be coated.
- B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.

- C. Coating defects: Repair in accordance with manufacturer's instructions coatings exhibit film characteristics or defect that would adversely affect performance of coating systems.

3.17 VENTILATION

- A. Continued forced air ventilation and, if necessary, dehumidification shall be provided by the Contractor during and after coating application on the tank interior per AWWA Standard D102, Section 7.2, except that forced air ventilation shall continue for a minimum of fourteen days after coating application has been completed or until the coating has cured as determined by the Engineer.
- B. Ventilating fans shall be attached to all reservoir shell manholes to provide air exhaust near bottom of reservoir. All reservoir roof openings shall be left open to provide air supply. Fans shall be located as necessary to provide proper air movement throughout the entire reservoir.
 - 1. During coating application, Contractor shall ventilate tank coating with ventilating fans with a capacity of at least 300 cfm per gallon of coating applied per hour.
 - 2. At the end of each work day, Contractor shall force ventilate reservoir interior until the next work day with a minimum of one complete air change each hour. Contractor shall force ventilate reservoir interior over weekends and holidays with one complete air change each hour. Ventilation fans shall operate 24 hours each day. Without restricting proper ventilation, Contractor shall prevent sand, dust, or other material from adhering to the coating using barriers, screen or other Owner approved methods. Damaged surfaces shall be repaired to the Owner's satisfaction.
 - 3. After each reservoir interior coat has been completed, Contractor shall force ventilate reservoir interior for a minimum of 72 hours with one complete air change each hour. Ventilation fans shall operate 24 hours each day.
 - 4. Following the application of each epoxy floor coating and as directed by Owner, additional fans shall be located inside the reservoir to facilitate proper air movement throughout the lower portion of the reservoir. Combined capacity of additional fans shall equal one complete air change per hour. Floor surface area per fan shall not exceed 2,500 square feet. Placement of fans shall occur after coating has cured sufficiently to prevent damage to the floor coating. Additional fans shall operate a minimum of 48 continuous hours prior to placement of the next floor coating. Existing coatings shall be protected when placing fans and any damaged areas shall be repaired under Owner's supervision and holiday tested at the Contractor's expense.
 - 5. Following acceptance of the floor coating by the Owner, said fans shall remain in continuous operation during the 14-day forced ventilation of the reservoir interior.

6. After reservoir interior coating has been completed, inspected, and accepted by Owner, Contractor shall force ventilate reservoir interior for a minimum of 14 days with one complete air change each hour. Ventilation fans shall operate 24 hours each day.
7. Contractor shall furnish all required equipment and labor to ventilate reservoir interior including fans, generators, fuel, vandal proof protective barriers, wind barriers, and manpower to insure adherence to the ventilation requirements.

3.18 CONSTRUCTION OBSERVATION

A. Unless specified otherwise, Owner will observe the work as follows:

1. **Equipment:** At the first on site observation, Contractor shall provide Owner with written information concerning all equipment to be utilized. Said information shall include type, model, serial number, and year manufactured. Contractor shall provide any additional information requested. All equipment shall be clean and in good working order with all appropriate safety devices. Equipment which leaks, routinely malfunctions, creates a safety hazard, creates an environmental hazard, or fails to meet Owner or manufacturer requirements shall be removed from the site.
2. **Surface Preparation:**
 - a. After surface preparation of each section of the reservoir, it shall be checked and approved by Owner prior to the application of any coating or paint. Owner will check for specified height profile by the use of a profile meter. To allow Owner the opportunity to check each sandblasted area, Contractor shall clean said surfaces with a fine bristle broom and air. Contractor shall also furnish scaffolding and lighting (including moving of same) to permit observation as requested by Owner.
 - b. Surface preparation will be based upon comparison with: "Pictorial Surface Preparation Standards of Painting Steel Surfaces", SSPC Vis 1; ASTM D610; and as described below. Anchor profile for prepared surfaces shall be measured by use of a nondestructive instrument such as a Keane Tator Surface Profile Comparator
3. **Material Preparation:** Owner shall approve all onsite paint or coating material preparation including unsealing and opening of all material containers, material mixing, mixing equipment, addition of thinners, and temperature of all material prior to application.
4. **Coating:** Each coat shall be approved by Owner for specified cleaning before subsequent coats are applied. All areas coated or painted without said approval shall be sandblasted to remove all coatings and recoated after the specified inspection.
5. **Holiday Detection and Dry Film Thickness Verification**

- a. All interior and exterior painting shall be tested per AWWA Standard D102.
 - b. The Contractor shall check dry film thickness using a magnetic thickness gauge and add coatings as necessary. The dry film thickness readings shall be provided to the Owner or owner representative. Dry film thickness verification and documentation will be performed by the contractor and witnessed by the Owner after the Contractor has checked and made repairs.
 - c. A check for holidays shall be performed by the Contractor in the presence of the Owner on all tank interior and exterior coatings except the roof and roof framing members. The Contractor shall provide all holiday inspection equipment including a wet sponge low voltage holiday detector in compliance with AWWA Standard D102. The Contractor shall also provide a minimum of two of their personnel at the top of each scaffold to check for holidays. The Contractor shall mark and repair all holidays.
6. Illumination and Scaffolding: Whenever and wherever required by the Observer, Contractor shall furnish illumination (level of illumination determined by Owner) and scaffolding (level of scaffolding as determined by Owner) to permit observation prior to acceptance of work. Contractor shall move lights and scaffolding as directed by the Observer to enable him to inspect all surfaces, inside and out.
7. Guaranty Inspection: Refer to Section 01400 "Quality Control".

3.19 ONE-YEAR INSPECTION

- A. Owner will set date for one-year inspection of coating systems.
- B. Inspection shall be attended by Owner, Contractor, Engineer, and manufacturer's representative.
- C. Repair deficiencies in coating systems as determined by Engineer in accordance with manufacturer's instructions.

END OF SECTION 09902

**SECTION 11003
DISINFECTION**

1. GENERAL

1.01 DESCRIPTION OF WORK

A. Section Includes:

1. Disinfect all inside surfaces with which water may come in contact in the following structures, pipelines, equipment, and accessories:
 - a. Clearwell tank
 - b. Connecting pipes and valves.
2. Dispose of disinfection solution.

1.02 REFERENCES

A. American Water Works Association (AWWA):

1. C651 AWWA Standards for Disinfecting Water Mains
2. C652 AWWA Standard for Disinfection of Water Storage Facilities
3. C655 AWWA Field Dechlorination
4. Oregon Administrative Rules Chapter 333 Public Water Systems

1.03 SCHEDULING

- A. Schedule and coordinate the work with operating personnel. Once disinfection has been satisfactorily accomplished, no further entry to the interior of the facilities will be allowed unless entry must be made to perform repairs, in which case repeat disinfection on a localized basis is required at no additional cost to the Owner. The Contractor shall be responsible for maintaining security of the disinfected facilities.

1.04 SUBMITTALS

- A. Submit in accordance with Section 01300.
- B. Submit a Disinfection Plan including the procedures, methods, materials, and schedules proposed for disinfecting the required surfaces and method of disposal of chlorinated water.

1.05 QUALITY ASSURANCE

- A. Laboratory testing related to disinfection will be coordinated by and paid for by the Contractor.

2. PRODUCTS

2.01 MATERIALS

- A. Water: Water for disinfection of the City's clearwell may be taken from the City water system. Coordinate the usage with City staff.
- B. Chlorine for disinfection may be in one of the following forms:
 - 1. Sodium hypochlorite liquid containing approximately 5 to 15% available chlorine by volume, per ANSI/AWWA B300.
 - 2. Calcium hypochlorite, granular or in 5g tablets containing approximately 65% available chlorine by weight, per ANSI/AWWA B301.
 - 3. Liquid chlorine: Only with written authorization of Engineer, in accordance with the requirements of ANSI/AWWA B301 - Liquid Chlorine and only by trained personnel using appropriate safety practices.
- C. Dechlorinate water prior to discharge into any sewer system. Dechlorination agents may be sodium bisulfite, calcium bisulfite, sodium sulfite, or sodium thiosulfate.

3. EXECUTION

3.01 MATERIALS

- A. Provide all necessary appurtenances required for the disinfection procedures including taps, temporary piping, connections, and shutoff valves. Submit data on appurtenances, which will be permanently installed for review by the Engineer.
- B. The Contractor is advised that precautions taken to keep surfaces clean during construction and avoiding the entry of deleterious substances on the work during construction will facilitate achieving the disinfection requirements of this project.
- C. Prior to disinfecting, thoroughly clean accessible surfaces of dust, dirt, foreign matter, and deleterious substances; remove any oil by contact with absorbents. Use water sprays, steam cleaning, vacuum cleaning, swabbing, hand brushing, or a combination of methods and rinsing to effect the cleaning, but do not use any method that will be detrimental to the finish surfaces. Flush inaccessible surfaces clean.

3.02 APPLICATION

- A. After completing all construction activities, disinfect the required surfaces with chlorine solutions in accordance with the following procedures. If the specified bacteriological requirements are not satisfied, repeat disinfection procedure until the

requirements are met. Disinfection shall be done for the clearwell tank and connecting piping and valves.

B. Water Storage Facilities

1. Standard: AWWA C652 as amended herein and OAR Chapter 333.
2. Forms of Chlorine: Use sodium hypochlorite or calcium hypochlorite.
3. Method: OAR chapter 333-061-0050 (10) (e) (C) Brush or Spray.

C. Water Pipe & valves shall be disinfection per AWWA standards C651 through C654 as amended by OAR Chapter 333.

3.03 FIELD QUALITY CONTROL

- A. Chlorine Residual Testing: AWWA C652, Appendix A, DPD Drop Dilution Method, except where otherwise specified. Testing shall be performed by Contractor.
- B. Bacteriological Analyses of Water: After the completion of disinfection procedure, including the final flushing as described in AWWA C651 and heretofore, the Contractor will obtain water samples from this system for bacteriological analyses and provide them to the laboratory for testing. Requirements for satisfactory disinfection of water supply are that bacteriological analyses indicate that water samples are negative for coliform organisms and that Heterotrophic plate count (standard plate count) is less than 100 colony forming units per milliliter. If bacteriological analyses do not satisfy the above requirements, then repeat disinfection procedure and retest until these requirements are met.

3.04 DISPOSAL OF DISINFECTION SOLUTION

- A. Dispose of disinfection solution in accordance with applicable regulations. Take care to assure that chlorinated water is not spilled into drains.

3.05 PROTECTION OF DISINFECTED STRUCTURES

- A. If required to re-enter a disinfected structure, the work shall be conducted utilizing techniques and work methods as necessary to maintain the disinfected status. This shall include use of disinfected foot coverings, tools, and the like. In the event the Contractor contaminates the facilities, the Contractor shall effect decontamination at no additional cost to the Owner.

END OF SECTION 11003

**SECTION 13425
SPOT WELDED REPAIRS OF WELDED STEEL RESERVOIR**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall design and furnish all labor and materials as required to perform spot welding repairs for an existing welded steel clearwell and appurtenances prior to recoating in accordance with the Contract Documents.

1.02 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this Work.

1. Section 09902 Painting and Coating

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Commercial Standards:

AWWA/ANSI C652-14 Disinfection of Water Storage Facilities

AWWA/ANSI D100-11 Welded Steel Tanks for Water Storage

ASTM A36-14 Specification for Structural Steel

ASTM A283C-13 Specification for Low and Intermediate Tensile Strength Carbon Steel Plates

1.04 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit mill certificates for welding materials and welder's qualifications. Submittals shall be reviewed and approved by the Engineer prior to the start of fabrication.

2. PRODUCTS

2.01 GENERAL

- A. Materials, procedures and inspections for spot welding repairs on the existing steel reservoir shall be in accordance with AWWA D100-11.

3. EXECUTION

3.01 GENERAL

- A. The Contractor and Engineer shall review the tank after surface preparation is complete to determine where the spot repairs are required.
- B. Where spot repairs are to be done, the surface must be cleaned down to bare metal first.

END OF SECTION 13425

15160
HOUSE WATER PUMP SYSTEM

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The work covered by this section consists of furnishing all labor, materials and equipment required to provide, install, and test a variable speed packaged pump house water system as shown on the drawings and as specified. The house water pump system shall be a package system consisting of two pumps with integrated VFD motors, one diaphragm tank, suction and discharge manifolds, isolation valves, check valves, mounting frames, vibration dampeners, instrumentation, controls, and a control panel. Work also includes connection of the existing supply and discharge piping to the package pump system, construction of a pressure relief valve and discharge piping, construction of a house water pump pad, and electrical work per plans.
- B. These specifications are written for a GrundFos Hydro MULTI-E 2CRE 10-5 3x460V 60 Hz 3599 rpm variable speed packaged pumping system. Alternative equal variable speed packaged pumping systems shall be approved by the Engineer.

1.02 REFERENCE STANDARDS

- A. The work in this section is subject to the requirement of applicable portions of the following standards:
- B. 2021 Oregon Plumbing Specialty Code (OPSC)
- C. American Nation Standards Institute/Hydraulic Institute (ANSI/HI) Standards
- D. NSF/ANSI 61 Drinking Water System Components – Health Effects
 - 1. Any material that is in contact with potable water shall be certified or approved by this standard.
- E. NSF/ANSI 372 Drinking Water System Components – Lead Content
 - 1. Any material that is in contact with potable water shall be certified or approved by this standard.
- F. AWWA C220 Standard for Stainless-Steel Pipe, ½ in. and Larger
- G. American Society for Testing and Materials (ASTM)
- H. Institute of Electrical and Electronics Engineers (IEEE)
- I. National Electrical Manufacturers Association (NEMA)
- J. National Electrical Code (NEC)
- K. International Standards Organization (ISO)

- L. Underwriters Laboratories, Inc. (UL)

1.03 SUBMITTALS

- A. Submit shop drawings in accordance with Section 01300, Submittals, and furnish operation and maintenance manuals in accordance with Section 01700, Project Closeout.
- B. Standard Drawings supplied shall include certified pump curves, pump outlines, materials, motor, couplings, controls, and installation requirements. Submittal with phone numbers as references shall also include a users list of not less than 5 names using the same pumps. Electrical control wiring diagrams shall accompany each submittal.

2. PRODUCTS

2.01 VARIABLE SPEED PACKAGED PUMPING SYSTEM

- A. Furnish and install a pre-fabricated and tested variable speed packaged pumping system to maintain constant water delivery pressure.
- B. The packaged pump system shall be a standard product of a single pump manufacturer. The entire pump system including pumps and pump logic controller, shall be designed, built, and tested by the same manufacturer.
- C. The complete packaged water booster pump system shall be certified and listed by UL (Category QCZJ – Packaged Pumping Systems) for conformance to U.S. Standards.
- D. The complete packaged pumping system shall be NSF 61 / NSF 372 Listed for drinking water and low lead requirements.
- E. The packaged pump system shall be ASHRAE 90.1 – 2010 compliant without the need of a remote mounted sensor. The control logic used to simulate a remote mounted sensor shall be proportional pressure control with squared or linear adaptation. A calculated flow rate based on performance curves (5th order polynomial) loaded into the controller; shall be used to adjust setpoint pressure in proportional pressure control.

2.02 PUMPS

- A. All pumps shall be ANSI NSF 61 / NSF 372 Listed for drinking water and low lead requirements.
- B. The pumps shall be of the in-line vertical multi-stage design.
- C. The head-capacity curve shall have a steady rise in head from maximum to minimum flow within the preferred operating region. The shut-off head shall be a minimum of 20% higher than the head at the best efficiency point.
- D. Two Small Vertical In-Line Multi-Stage Pumps shall be installed and have the following features:

1. Each pump shall be capable of delivering 55 gpm at a 161-foot TDH, and the maximum rated horsepower shall be 5 hp.
2. The pump impeller shall be secured directly to the pump shaft by means of a splined shaft arrangement.
3. The suction/discharge base shall have ANSI Class 250 flange or national pipe thread (NPT) connections as determined by the package pumping system manufacturer.
4. Pump Construction: Construction of the Vertical In-Line Multi-Stage Pumps shall conform to the following requirements:
 - a. Suction/discharge base, pump head, motor stool Cast Iron (Class 30)
 - b. Impellers, diffuser chambers, outer sleeve 304 Stainless Steel
 - c. Shaft 316 or 431 Stainless Steel
 - d. Impeller wear rings 304 Stainless Steel
 - e. Shaft journals and chamber bearings Silicon Carbide
 - f. O-rings EPDM
 - g. Shaft couplings for motor flange sizes 184TC and smaller shall be made of cast iron or sintered steel. Shaft couplings for motor flange sizes larger than 184TC shall be made of ductile iron (ASTM 60-40-18).
 - h. Optional materials for the suction/discharge base and pump head shall be cast 316 stainless steel (ASTM CF-8M) resulting in all wetted parts of stainless steel.
5. The shaft seal shall be a balanced o-ring cartridge type with the following features:
 - a. Collar, Drivers, Spring: 316 Stainless Steel
 - b. Shaft Sleeve, Gland Plate: 316 Stainless Steel
 - c. Stationary Ring: Graphite embedded Silicon Carbide
 - d. Rotating Ring: Graphite embedded Silicon Carbide
 - e. O-rings: EPDM
6. Shaft seal replacement shall be possible without removal of any pump components other than the coupling guard, shaft coupling and motor. The entire cartridge shaft seal shall be removable as a one-piece component.

2.03 INTEGRATED VARIABLE FREQUENCY DRIVE MOTORS

- A. Efficiency: The motors shall be of permanent magnet design meeting IE5 efficiency levels where the combined motor and VFD efficiency exceed NEMA Premium Efficiency standards.

- B. Bearing Current Mitigation: Motors shall use WSB (Winding Set Back) and/or CHS (Coil Head Shield) designs that reduce the Bearing Voltage Ratio (BVR) far enough to eliminate damaging bearing currents. Shaft grounding rings/brushes or common mode filters shall not be required.
- C. Motor Enclosure/Cooling: The motor shall be Totally Enclosed Fan Cooled (TEFC) with a standard NEMA C-Face with Class F insulation and a temperature rise class no higher than Class B. The cooling design of the motor and VFD shall be such that a Class B motor temperature rise is not exceeded at full rated load and speed at a minimum switching frequency of 9.0 kHz.
- D. The power and control electronics shall be housed in a UL Type 3 enclosure and the combined motor/VFD rating shall be IP55 (protection against dust and nozzle directed water from any direction).
- E. The VFD shall be of the PWM (Pulse Width Modulation) design using IGBT (Insulated Gate Bipolar Transistor) technology.
- F. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of motor. The motor current shall closely approximate a sine wave. Motor voltage shall be varied with frequency to maintain desired motor current suitable for centrifugal pump control and to eliminate the need for motor de-rating.
- G. The VFD shall automatically reduce the switching frequency and/or the output voltage and frequency to the motor during periods of sustained ambient temperatures that are higher than the normal operating range. The switching frequency shall be reduced before motor speed is reduced.
- H. An integral RFI filter shall be standard in the VFD.
- I. The VFD shall have a minimum of two skip frequency bands which can be field adjustable.
- J. The VFD shall have internal solid-state overload protection designed to trip within the range of 105-110% of rated current.
- K. The integrated VFD motor shall include protection against input transients, phase imbalance, loss of AC line phase, over-voltage, under-voltage, VFD over-temperature, and motor over-temperature. Three-phase integrated VFD motors shall be capable of providing full output voltage and frequency with a voltage imbalance of up to 10%.
- L. The integrated VFD motor shall have, as a minimum, the following input/output capabilities:
 - 1. Speed Reference Signal: 0-10 VDC, 4-20 mA
 - 2. Digital remote on/off
 - 3. Fault Signal Relay (NC or NO)

4. Fieldbus communication port (RS485)
- M. Motor drive end bearings shall be adequately sized so that the minimum L10 bearing life is 20,000 hours at the minimum allowable continuous flow rate for the pump at full rated speed.

2.04 PUMP SYSTEM CONTROLLER

- A. The pump system controller shall be a standard product developed and supported by the pump manufacturer.
- B. The controller shall be microprocessor based capable of having software changes and updates via personal computer (notebook). The controller user interface shall have a color display for easy viewing of system status parameters and for field programming. Password protection of system settings shall be standard.
- C. Galvanic Isolation: The controller shall provide internal galvanic isolation to all digital and analog inputs as well as all fieldbus connections.
- D. Backup Battery: The controller shall have the ability to be connected to a backup battery to supply power to the controller during periods of loss of supply power.
- E. Home Status Screen: The controller shall display the following as status readings from a single display on the controller (this display shall be the default):
 1. Current value of the control parameter, (typically differential pressure)
 2. Most recent existing alarm (if any)
 3. System status with current operating mode
 4. Status of each pump with current operating mode and rotational speed as a percentage (%)
 5. Estimated flow-rate, (or actual flow if flow sensor is used)
 6. One user defined measured parameter (i.e. power consumption)
- F. Inputs/Outputs: The controller shall have as a minimum the following hardware inputs and outputs:
 1. Three analog inputs (4-20mA or 0-10VDC)
 2. Three digital inputs
 3. Two digital outputs
 4. Ethernet connection (built-in web server)
 5. Field Service connection to PC for advanced programming, software and/or field upgrades and data logging.

- G. Pump system programming: As a minimum, the following parameters shall be available and/or field adjustable:
 - 1. Sensor Settings: Discharge, Differential Pressure [analog supply/range]
 - 2. PI Controller: Proportional gain (Kp) and Integral time (Ti)
 - 3. Low suction: Pressure/level shutdown via digital contact
 - 4. Limit Exceeding function: For low system, low suction warnings and shut down [via analog input]

- H. Pump Curve Data: The actual pump performance curves (5th order polynomial) shall be loaded (software) into the pump system controller. Pump curve data shall be used for the following:
 - 1. Display and data logging of calculated flow rate
 - 2. Variable pressure control (quadratic or proportional)
 - 3. Pump outside of duty range protection
 - 4. Sequence pumps based on efficiency

- I. Variable Pressure Control: The controller shall have variable pressure control to compensate for pipe friction loss by decreasing the pressure set-point at lower flow-rates and increasing the pressure set-point at higher flow-rates by using the calculated flow rate.

- J. Check Valve Failure Detection (Systems with integrated VFD motors): The system controller shall be able to detect motors turning in the opposite direction and give check valve failure notification.
 - 1. For minor leaks the pump shall start with a warning indicated.
 - 2. For major leaks the pump shall remain off to prevent damage with an alarm indication.

- K. Remote Control: The controller shall be capable of receiving a remote analog set-point (4-20mA or 0-10 VDC) as well as a remote system on/off (digital) signal.

- L. Setpoint Ramp: The controller shall be able to adjust the ramp time of a change in set point (increase and decrease).

- M. Warnings and Alarms: The pump system controller shall store up to 24 warnings and alarms in memory. The time, date and duration of each alarm shall be recorded. A potential-free relay shall be provided for alarm notification to the building management system. The controller shall display the following alarm conditions:

Individual pump failure
VFD trip/failure

Check valve failure
Loss of sensor signal (4-20 mA)

Loss of remote set-point signal (4-20 mA)	External Fault
Pump outside of duty range	Limits exceeded

- N. Built-in data log: The controller shall have built-in data logging capability. Logged values shall be graphically displayed on the controller and shall be downloadable to a notebook/pc as a delimited text file. A minimum of 7200 samples per logged value shall be available for the following parameters:
1. Estimated flow-rate
 2. Speed of pumps
 3. Process Value/sensor feedback
 4. Power consumption
 5. Controlling parameter (setpoint)
- O. Redundant Primary Sensor: The controller shall be capable of receiving a redundant sensor input to function as a backup to the primary sensor.
- P. Power and Energy Consumption: The controller shall be capable of displaying instantaneous power consumption (Watts or kilowatts) and cumulative energy consumption (kilowatt-hours).
- Q. Built-in Ethernet: The controller shall have an Ethernet connection with a built-in web server allowing for connection to a building computer network with read/write access to the controller via a web browser.
- R. Service Contact Information: The controller shall have a programmable Service Contact Field that can be populated with service contact information including: contact name, address, phone number(s) and website.

2.05 CONTROL PANEL

- A. SCCR: The complete control panel assembly shall have a Short Circuit Current Rating of 100 kA.
- B. BMS Integration: Standard shall be BACnet MS/TP
1. Other protocols available: BACnet IP, Ethernet IP, Modbus RTU, Modbus TCP, LON.
- C. The pump system controller shall be mounted in a UL Type 3R rated enclosure. A self-certified NEMA enclosure rating shall not be considered equal. The entire UL Type 3R control panel shall be UL 508 listed as an assembly. The control panel shall include a main disconnect, circuit breakers for each pump and the control circuit and control relays for alarm functions. The control panel shall include the following:
1. 80 dB System Fault Audible Alarm with push button to silence

2. Emergency/Normal Operation Switches (Control bypass)
3. Individual Service Disconnect Switches (accessible outside of panel)
4. Pump Run Lights
5. System Fault Light
6. Surge Arrestor

2.06 SEQUENCE OF OPERATION

- A. The system controller shall operate equal capacity variable speed pumps to maintain a constant differential pressure. The system controller shall receive an analog signal [4-20mA] from the factory installed pressure transducer on the discharge manifold.
 1. Standard Cascade Control (Pumping Efficiency Based): The pump system controller shall adjust pump speed as necessary to maintain system set-point pressure as flow demand increases. Utilizing the pump curve information (5th order polynomial), the pump system controller shall stage on an additional pump when pump hydraulic efficiency will be higher with additional pumps in operation. Exception: When the flow and head are outside the operating pumps allowable operating range the controller shall switch on an additional pump thus distributing flow and allowing all pumps to operate in allowable operating range. When the system pressure is equal to the system set-point, all pumps in operation shall reach equal operating speeds. The pump system controller shall have field adjustable Proportional Gain and Integral time (PI) settings for system optimization.
- B. The system controller shall be capable of switching pumps on and off to satisfy system demand without the use of flow switches, motor current monitors or temperature measuring devices.
- C. All pumps in the system shall alternate automatically based on demand, time and fault. If flow demand is continuous (no flow shut-down does not occur), the system controller shall have the capability to alternate the pumps every 24 hours and shall be field adjustable.

2.07 LOW FLOW STOP FUNCTION (CONSTANT PRESSURE APPLICATIONS)

- A. The system controller shall be capable of stopping pumps during periods of low-flow or zero-flow.
- B. Standard Low Flow Stop and Energy Saving Mode: A bladder type diaphragm tank shall be installed with a pre-charge pressure of 70% of system set-point for when a low or no flow shut-down is required (periods of low or zero demand). The tank shall be piped to the discharge manifold or system piping downstream of the pump system. When only one pump is in operation, the system controller shall be capable of detecting low flow (less than 10% of pump nominal flow). When a low flow is detected, the system controller shall increase pump speed until the discharge pressure reaches the stop pressure (system set-point plus 50% of programmed on/off band,

adjustable). The pump shall remain off until the discharge pressure reaches the start pressure (system set-point minus 50% of programmed on/off band, adjustable). Upon low flow shut-down a pump shall be restarted in one of the following two ways:

1. Low Flow Restart: If the low flow condition still exists, the pump shall start and the speed shall again be increased until the stop pressure is reached and the pump shall again be switched off.
2. Normal Flow Restart: If the pump system controller determines a low flow condition no longer exists the pump shall start and the speed shall be increased until the system pressure reaches the system set-point.
3. It shall be possible to change from the standard low flow stop to the optional low flow stop (and vice-versa) via the user interface.

2.08 SYSTEM CONSTRUCTION

A. Water supply piping and fittings:

1. Install Schedule 80 PVC pipe and fittings as required to connect the package pump system to the existing 3" Schedule 80 PVC supply pipe. A Schedule 80 PVC union shall be installed on the suction manifold for connection the package pump system to the water supply pipe.
2. Polyvinylchloride (PVC) material shall conform to ASTM D 1784, Type 1, Grade 1, with 2,000-psi design stress.
3. PVC pipe and fittings shall be Schedule 80. Pipe shall be in accordance with ASTM D 1785. PVC fittings shall match pipe Schedule and be solvent weld socket type conforming to ASTM D 2466/2467.

B. Couplings:

1. Couplings shall be installed as recommended by the coupling manufacturer. All couplings shall receive manufacturer's prime coat and corrosion-resistant finish coat.
2. Dielectric fittings or isolation joints shall be provided between all dissimilar metals.

C. Suction and discharge manifold:

1. Suction and discharge manifold construction shall be in way that ensures minimal pressure drops, minimize potential for corrosion, and prevents bacteria growth at intersection of piping into the manifold. Manifold construction that includes sharp edge transitions or interconnecting piping protruding into manifold is not acceptable. Manifold construction shall be such that water stagnation can not exist in manifold during operation to prevent bacteria growth inside manifold.

2. The pipe manifolds shall be completely assembled ready to connect to the water supply and discharge pipes of the water treatment plant.
3. The suction and discharge manifolds material shall be 316 stainless steel. Manifold connection sizes shall be as follows:
 - a. 3 inch and smaller: Male NPT threaded
4. Stainless steel pipe shall be ASTM A-312, Schedule 10S, type 316 with threaded, flanged or grooved ends as indicated on the drawings. Two-inch and smaller fittings shall be threaded in accordance with ANSI B1.20.1.
5. Stainless Steel Welding Fittings: Welding fittings shall be butt-welding type. Welding fittings shall be forged austenitic stainless steel, ASTM A 403 Grade WP316, conforming to ASME B16.9.

D. Pump isolation valves:

1. Pump Isolation valves shall be provided on the suction and discharge of each pump.
2. Body: Ball valves up to 1-1/2-inch (incl.) in size shall have bronze or nickel plated brass 2-or 3-piece bodies with screwed ends for a pressure rating of not less than 600 psi WOG. Valves 2-inch to 4-inch in size shall have bronze 2-or 3-piece bodies with flanged ends for a pressure rating of ANSI 125 psi or 150 psi unless otherwise indicated.
3. Balls: The balls shall be solid chrome plated brass or bronze, or stainless steel, with full port openings.
4. Stems: The valve stems shall be of the blow-out proof design, of bronze, stainless steel, or other acceptable construction, with reinforced Teflon seal.
5. Seats: The valve seats shall be of Teflon or Buna-N, for bi-directional service and easy replacement.
 - a. Manufacturers, or equal
 - b. Conbraco Industries, Inc. (Apollo)

E. Pump discharge check valves:

1. A spring-loaded non-slam type check valve shall be installed on the discharge of each pump. The valve shall be a wafer style type fitted between two flanges.
2. The head loss through the check valve shall not exceed 5 psi at the pump design capacity.
3. Check valves 1-1/2" and smaller shall have a POM composite body and poppet, a stainless steel spring with EPDM or NBR seats.

4. Check valves 2" and larger shall have a body material of stainless steel or epoxy coated iron (fusion bonded) with an EPDM or NBR resilient seat.
5. The spring material shall be stainless steel. The disk shall be stainless steel or leadless bronze.

F. Diaphragm tank:

1. An expansion tank shall be installed with the package pump system with a minimum capacity of 16.6-gallons. The tank shall have a maximum working pressure of at least 150 psi. The tank shall have a replaceable butyl rubber bladder with FDA approval.
2. The tank shall have a stainless steel connection no smaller than ¾-inch.
3. The expansion tank shall meet the requirements of ASME code Section VIII, Division 1 Standards.
4. The tank shall be supported as required by the manufacturer.

G. Pressure relief valve:

1. A pressure relief valve shall be installed on the discharge manifold preset for 95 psi. The pressure relief valve shall be provided as part of the package pump system and be sized per the manufacturer's requirements. The pressure relief valve shall be furnished with an isolation valve per Section 2.08.B.
2. The Contractor shall provide discharge piping from the pressure relief valve to the nearby floor drain per plans. The drain pipe material shall be copper or schedule 80 PVC as approved by the Engineer.

H. Pressure transmitters:

1. Two Pressure transmitters shall be factory installed on the discharge manifold with one pressure transmitter acting as a redundancy.
2. Pressure transmitters shall be made of 316 stainless steel with Viton gaskets.
3. Transmitter accuracy shall be +/- 1.0% full scale with hysteresis and repeatability of no greater than 0.1% full scale.
4. The output signal shall be 4-20 mA with a supply voltage range of 9-32 VDC.

I. Pressure gauges:

1. A bourdon tube pressure gauge, 2.5 inch diameter, shall be placed on the suction and discharge manifolds.
2. The gauges shall be liquid filled and shall be industrial quality type with Type 304 or 316 stainless steel movement and stainless steel or alloy case. Unless otherwise shown or specified, gauges shall have a 2.5 inch diameter, ¼-inch threaded connection, a Type 304 or 316 stainless steel snubber adapter, and shut-

off valve. Gauges shall be calibrated to read in applicable units, with an accuracy of +/- 1 percent, to 150 percent of the working pressure or vacuum of the pipe or vessel to which they are connected. Gauges for pumps shall read in feet of water. All gauges shall be vibration and shock resistant.

3. Liquid-filled gauges for potable water service shall be filled with an NSF 61-approved liquid.

4. The suction manifold pressure gauge shall be rated for the following pressure ranges:

a. Vacuum range: 30 to 0 inches of Hg

b. Pressure range: 0 to 15 psi

J. A factory installed water shortage protection device shall be factory installed on the suction manifold using a liquid level switch with fittings as required.

K. Pumping system frame:

1. The base frame shall be constructed of corrosion resistant 304 stainless steel.

2. Rubber vibration dampeners shall be fitted between each pumps and base frame to minimize vibration.

L. Control panel mount:

1. the control panel shall be mounted in one of the following ways:

a. On a 304 stainless steel fabricated control cabinet stand attached to the system skid.

b. On a 304 stainless steel fabricated skid, separate from the main system skid.

3. EXECUTION

3.01 INSTALLATION

3.02 TESTING

A. Installation of pumps and other pump station components shall be in strict accordance with the manufacturer's recommendations.

B. The pump manufacturer shall provide start-up services verifying that all adjustments and proper lubrication are made and correct prior to starting the pump. Minimum start-up services shall be two days.

1. Any deficiencies identified by the pump supplier in this final checkout shall be corrected by the Contractor at no cost to the Owner.

2. Field test: The pumps shall be operated over the full range of discharge pressures.

- C. Pumps shall be operated for a minimum of 10 days of normal/automatic operation without operating deficiencies including controls. If there are problems, the problem shall be corrected, and the 10-day testing period shall be restarted. Testing and all necessary re-testing shall be done at no additional cost to the owner.
- D. The tester used for testing the pump system shall be constructed and calibrated according to the requirements of hydraulic test standard ISO 9906.
- E. The entire pump station shall as a minimum be factory tested for functionality and documented results of functionality test supplied with pump station.
 - 1. Functionality testing shall include the following parameters:
 - a. Complete System Hydrostatic Test – 1.5 times the nameplate maximum pressure.
 - b. No-Flow Detection Shutoff Test.
 - c. Water Shortage Test.
 - d. Two-Point Setpoint Performance Test.
- F. Water used for testing shall be treated with three different filtration systems to ensure only clean water is used for testing pump station.
 - 1. 25 micron mechanical filter – removes solid parts from water
 - 2. Activated carbon filter – keeps water clear and eliminates odor
 - 3. Ultraviolet light system – kills all bacteria growth
- G. Performance testing shall include:
 - 1. The manufacturer shall provide the services of a factory engineer to for Witnessed Verified Performance Testing and to supervise package pump system installation.

3.03 WARRANTY

- A. The warranty period shall be a non-prorated period of 24 months from date of installation, not to exceed 30 months from date of manufacture.

3.04 MANUFACTURERS' FIELD SERVICES

- A. In addition to the installation, startup and testing services, manufacturers' representatives shall provide 8 hours instruction to Owner's staff on operation and maintenance of each type of pump.

16000
BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 APPLICABLE PROVISIONS

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

1.2 SUMMARY OF WORK

- A. The scope of this project includes materials, equipment, and installation of electrical work where indicated on the plans as follows:
 - 1. Raceway and wiring
 - 2. Labeling
 - 3. Connection and testing of installation
- B. The following electrical/mechanical equipment and materials are furnished and installed under other specification sections. Branch circuit raceway, wiring, and safety disconnecting means for this equipment shall be furnished and installed under this section and as shown on the drawing.
 - 1. Plant water pump package

1.3 CODES, STANDARDS AND PERMITS

- A. Install in accordance with latest edition of the following Codes:
 - 1. National Electrical Code, ANSI/NFPA 70
 - 2. Oregon State Electrical Codes and adoptions
 - 3. OSHA
 - 4. Other applicable codes having jurisdiction
- B. Obtain and pay for all required licenses, permits, inspections and service fees.
- C. All equipment and devices shall bear Underwriters Laboratories label. If no U.L. label is available, the label of a testing agency recognized and approved by the electrical inspection having jurisdiction is required.

1.4 DRAWINGS

- A. The electrical drawings show the general arrangement of raceways, equipment, and appurtenances, and shall be followed as closely as actual building construction permits. The electrical work shall conform to the requirements shown on all of the drawings. Because of their small scale, electrical drawings are diagrammatic and do not show all offsets, fittings and accessories which may be required. Investigate the structural and finish conditions affecting the work and arrange the work accordingly. Provide fittings and accessories as may be required to fit job conditions.

1.5 CONTRACTOR'S RESPONSIBILITY

- A. Contractor shall give a minimum of 14-calendar days notice to the Owner prior to shutdown of the existing electrical systems servicing the building. Shutdown of services shall be subject to approval by Owner.
- B. Contractor shall make certain that all materials selected by him or by his suppliers, conform exactly to requirements of the drawings and specifications. Transmittal of such specifications and drawing information to person manufacturing and supplying materials to the project, and rigid adherence thereto, is the Contractor's responsibility. Approval of a manufacturer's name by the Owner does not release the Contractor of the responsibility for providing materials, which comply in all details with requirements in the contract documents.
- C. The Contractor shall bring to the Owner's attention any discrepancies within the Contract Documents and between the Contract Documents and field conditions; and any design and layout changes required due to specific equipment selection, etc., prior to equipment and material purchasing and installation. Corrective work necessitated by discrepancies after purchasing and installation shall be at the Contractor's expense.
- D. Obtain and adhere to manufacturer's installation details as applicable. Provide any special wiring or fittings called for by manufacturer. Provide complete manufacturer's schematic drawings for each system. Any deviations between schematic drawings and contract documents shall be outlined in a separate cover letter. Said deviations will be subject to approval by the Owner.
- E. Installation of work under this division in existing construction will require Contractor to provide additional slots, chases, recesses and openings. Contractor shall be responsible for restoration of same to match existing. All new openings and restoration work shall be approved by and scheduled with the Owner.
- F. Contractor is responsible for restoration of damage to existing structure and finished to the extent that damage was caused by the Contractor's activities.
- G. Obtain approval from the Owner for the method of installation and final location of all equipment and raceways before final installation of the work.

1.6 QUALITY ASSURANCE

- A. For the actual fabrication, installation and testing of the work of this section, use only thoroughly trained and experienced personnel who are completely familiar with the requirements for this work and with the installation recommendations of the manufacturers of the specified items.

1.7 EQUIPMENT IDENTIFICATION

- A. Provide nameplates for the following, but not limited to:
 - 1. Motor Control Center load buckets
 - 2. Pump skid Local Control Panel
- B. All nameplates shall adequately describe the function or operation of the identified equipment. Submit nameplate inscriptions to Owner for approval.
- C. Nameplates shall be laminated phenolic plastic, with lettering etched through the outer covering. Character size as appropriate for the application, approved by Owner. Nameplates shall be securely fastened with epoxy adhesive. Colors shall black with white lettering.
- D. All conductors in pull boxes, cabinets and panelboards shall be arranged in a neat manner, grouped and bound together with nylon ties and identified with circuit numbers. Phase identification shall be consistent throughout the system.
- E. Identify each conductor of all systems at each panel, pull box and outlet with permanently attached wrap-around adhesive markers as manufactured by Brady or approved.
- F. Round or square junction boxes 4" or 4 11/16" concealed above accessible ceilings shall be neatly identified on the cover with a permanent type black marking pen. Identification shall include system, circuit number(s), function, etc.
- G. Provide circuit schedule(s) for panel board. Schedule(s) shall be typed. Spare circuits shall be hand written in pencil. Submit schedule(s) to Engineer for approval.

1.8 ACTION SUBMITTALS

- A. Submit shop drawings in bound folders with tabs to Owner in accordance with approved schedule and in sequence so as not to cause delay in the work. Items requiring submittal information:
 - 1. Conductors
 - 2. Raceway
 - 3. Labels

- B. Submit M.S.D.S. (Manufacturer's Safety Data Sheets) for all chemicals or hazardous materials. All chemicals and hazardous materials shall meet NIOSHA Permissible Exposure Levels (P.E.L.) and OSHA Time Weighted Average (T.W.A.) requirements.

1.9 RECORD DRAWINGS

- A. Prepare Detail Layout Drawings to a larger scale than the contract drawings in areas where the work is of sufficient complexity to warrant additional detailing. Prepare these drawings on tracings the same size as the contract drawings and submit with each set of Owner's record drawings. In general, do not submit these drawings for approval unless deviations from the contract drawings are required.
- B. Any detailed raceways and wiring layouts prepared by Contractor shall be included in record drawing information forwarded to Owner.

1.10 AS-BUILT DRAWINGS

- A. The Contractor shall continuously maintain a marked job set of as-built drawings as the job progresses, to indicate all significant deviations from the original design, including change orders. Maintain records of all concealed wiring and of actual equipment locations. Provide dimensions from accepted reference lines as needed. These as-built drawings shall be kept on-site and available for inspection by the Owner.
- B. At the project closeout, the Contractor shall modify one complete set of reproducible Mylar copies, with all as-built information and submit these drawings to the Owner for approval. Reproducible Mylar copies will be furnished by the Owner upon request. Each sheet shall be marked "CORRECTED TO AS-BUILT". If there are no changes, drawings shall be marked "NO CHANGES, INSTALLATION PER PLAN".
- C. Contractor shall transfer all as-built information from the marked job set and other information as appropriate.

1.11 WARRANTY

- A. Except for special equipment warranties specified elsewhere, the complete installation shall be guaranteed for a period of one (1) year after date of project completion. All corrective work required during the guarantee period shall be provided in a timely manner without cost to the owner.

1.12 INSTRUCTIONS OF OWNER'S REPRESENTATIVES

- A. After the electrical installation is complete and operating, and prior to acceptance of the work, Contractor shall conduct instruction period(s) at the site, to point out locations of servicing and maintenance points, and instruct the Owner's representatives in the operation of systems and/or equipment as needed. These instructions shall include demonstrations under operating conditions.

1.13 CONSTRUCTION POWER FACILITIES

- A. The owner will furnish all required electrical energy for construction free of charge. Available power is limited to 20 amp, 120 volt 1 phase for small tools and temporary lighting. Verify temporary power source with Owner.

1.14 MATERIAL HANDLING

- A. Protection: Use all means necessary to protect electrical materials before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs to replacements necessary to the approval of, and at no additional cost to the Owner.

1.15 CONTRACT CLOSE-OUT

- A. Upon completion of the work, and before final acceptance and payment, the Contractor shall:
 - 1. Remove from the site and dispose of all surplus and discarded materials, rubbish, temporary buildings, equipment and identifiable debris which may have accumulated during the execution of the work. All equipment shall be thoroughly clean and in proper condition prior to final observation
 - 2. Submit approved as-built Drawings and maintenance manuals
 - 3. Submit written warranty statements for equipment, materials and installation
 - 4. Conduct instruction period

PART 2 - PRODUCTS

2.1 RACEWAYS

- A. Liquid-tight flexible metal conduit (Seal-tite Flex) shall be UL-360, File Reference E26540, approved. Helical galvanized steel core with extruded and bonded PVC outer-jacket. Impervious to water and oil with temperature rating of 60C (wet) minimum. Outer jacket shall be grey color.
- B. Schedule 40 Poly-vinyl chloride (PVC40) manufactured and approved per UL651 and NEMA TC2.

2.2 RACEWAY FITTINGS

- A. Fittings for PVC40 raceways shall be of identical material, secured to raceways with Manufacturer-approved cement adhesive. Provide threaded fittings where required for transition to seal-tite flex.

- B. Seal-tite flex fittings shall be threaded-type, impervious to liquids. Provide sealing washers, lock nuts and other appurtenances required for a complete installation.

2.3 WIRE

- A. All conductors shall be soft drawn copper. Aluminum conductors shall not be permitted, unless specifically indicated.
- B. 600 volts nominal wiring shall be minimum No. 12 AWG. Insulation shall be XHHW.
- C. Color coding for power and branch circuit wiring:
 - 1. 208Y/120 volt, 3 phase 4 wire: Phase A = black; B = Red; C = Blue; Neutral = White
 - 2. 480Y/277 volt, 3 phase 4 wire: Phase A = Brown; B = Orange; C = Yellow; Neutral = Gray.
 - 3. Equipment grounding conductors shall be green.
 - 4. Isolated ground conductor shall be green with yellow tracer.
- D. Pull tape for installation in empty raceway shall be conduit measuring type, Ideal #31-347 or approved.
- E. Provide a ground wire in all conduits. Ground wires to be green in color and sized per the National Electrical Code latest edition.

2.4 WIRE CONNECTING DEVICES

- A. All taps and splices in No. 8 or smaller wire shall be fastened together by means of "solderless, hard shell, twist-on type" connectors. All taps and splices in wire larger than No. 8 shall be made with solderless compression or indenter type lugs taped to provide insulation equal to wire.

2.5 BOXES

- A. Boxes shall accommodate any devices to be installed and shall be sized as required by the applicable codes for number and size of conduits and conductors entering and leaving. Round boxes will not be permitted. Boxes if required shall be gasketed non-metallic with NEMA 250, 3R rating.

2.6 DISCONNECTS

- 1. Safety disconnects for packaged pump equipment are furnished by the Manufacturer for Contractor field connection.

PART 3 - EXECUTION

3.1 RACEWAY INSTALLATION

- A. Conduits, or surface metal raceway, shall be securely supported and fastened at intervals of nominally every 8 feet and within 36" of each outlet, ell, fitting, panel, etc. Caddy clips or wire ties using not less than No. 14 wire and "lather-ties" which will prevent displacement, may be used only for concealed runs of conduit up to 1 ½". Single runs of exposed conduit shall be supported with steel pipe straps. Conduit shall not be supported from ducts, plumbing or other piping or from other conduits but only from building structural elements.
- B. Do not cut, notch or drill structural framing members for the installation of conduit without the Owner's approval in each case.
- C. Joints shall be cut square and shall butt solidly into couplings. Cut ends of conduit shall be reamed.
- D. Wherever conduit may be affected by dissimilar movements of the supporting structure provide expansion or deflection couplings as required.
- E. Conduits, raceways and boxes surface mounted in public areas and visible to the occupant shall be painted to match adjacent surfaces.

3.2 WIRE INSTALLATION

- A. Wire and cable shall be run in raceways, except where specifically approved otherwise.
- B. All empty conduits shall have a conduit measuring pull-tape installed.
- C. All equipment to be bonded and/or grounded according to the National Electrical Code.

3.3 SUPPORTS

- A. Provide all necessary supports and backing for all enclosures and equipment.
- B. Attach boxes, outlets, straps, cabinets and equipment to wood with wood or lag screws, to metal with machine screws or bolts, and to concrete with expansion anchors or self-drilling metal anchors and machine screws or bolts. Use size and number of attachments as required to support equipment weight with a safety factor of 4 (min.)

END OF SECTION 16000

CITY OF CARLTON CLEARWELL RECOATING

15350 SW SEQUOIA PARKWAY, SUITE 220
 PORTLAND, OR 97224
 PHONE: (503) 684-9097 FAX: (503) 598-0583
 www.tetrattech.com



SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
G-001	COVER
G-002	GENERAL NOTES, ABBREVIATIONS, LEGEND & SYMBOLS
CA100	WATER TREATMENT PLANT SITE PLAN
CA101	CLEARWELL SITE PLAN
CA501	CLEARWELL DETAILS
DA101	WATER TREATMENT PLANT DEMOLITION PLAN
DA102	WATER TREATMENT PLANT IMPROVEMENTS PLAN
DA103	WATER TREATMENT PLANT PAINTING PLAN
DA301	WATER TREATMENT PLANT PAINTING SECTIONS
DA501	WATER TREATMENT PLANT DETAILS
E-100	ELECTRICAL SYMBOLS AND ABBREVIATIONS
EA501	ELECTRICAL DETAILS

PROJECT SITE - WATER TREATMENT PLANT



PROJECT LOCATION:

NW PANTHER CREEK RD
 WATER TREATMENT PLANT

CLIENT INFORMATION:

CITY OF CARLTON
 191 E MAIN ST
 CARLTON, OR 97111

Tt PROJECT No.:

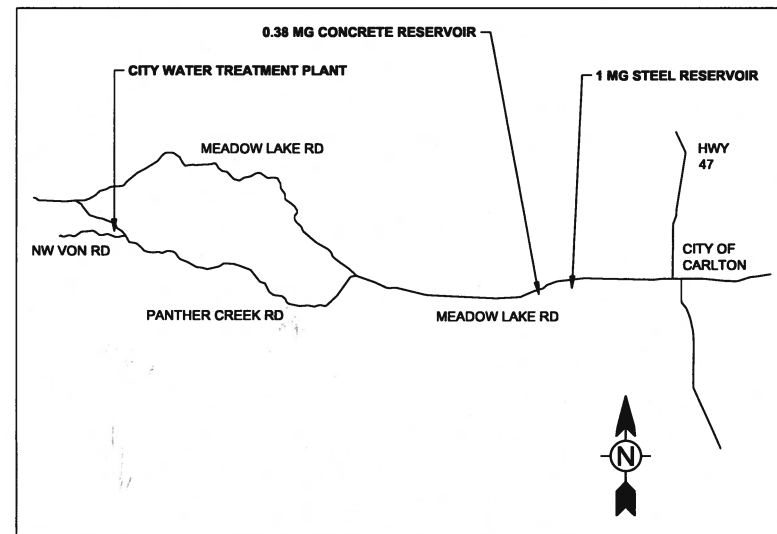
135-13914-16001-02

CLIENT PROJECT No.:

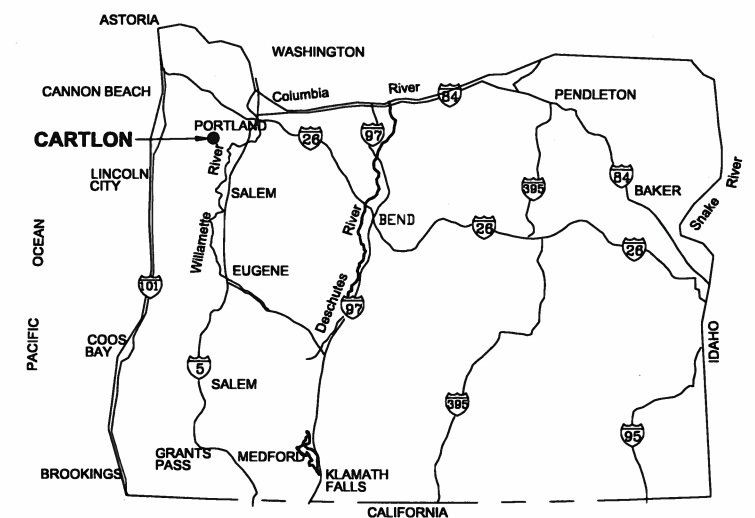
PROJECT DESCRIPTION / NOTES:

ISSUED:

VICINITY MAP



LOCATION MAP:



GENERAL SHEET NOTES

- 01 ALL EXISTING WATER VALVES SHALL BE OPERATED BY WATER SYSTEM OWNER (CITY OF CARLTON OR MCMINNVILLE WATER AND LIGHT, AS APPLICABLE).
- 02 CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL DEBRIS RESULTING FROM WORK SHOWN.
- 03 PIPING LOCATION ARE APPROXIMATE; CONTRACTOR TO FIELD VERIFY ALL LOCATIONS AND FIELD MEASUREMENTS AS NEEDED.
- 04 PIPING, APPARATUS AND EQUIPMENT ARE SHOWN ON THE PROJECT PLANS AT APPROXIMATE LOCATIONS ONLY. CHANGE LOCATIONS TO SUIT THE JOB CONDITIONS, AS DIRECTED BY THE ENGINEER, OR REARRANGED AS REQUIRED FOR BUILT-IN FIXTURES OR EQUIPMENT.

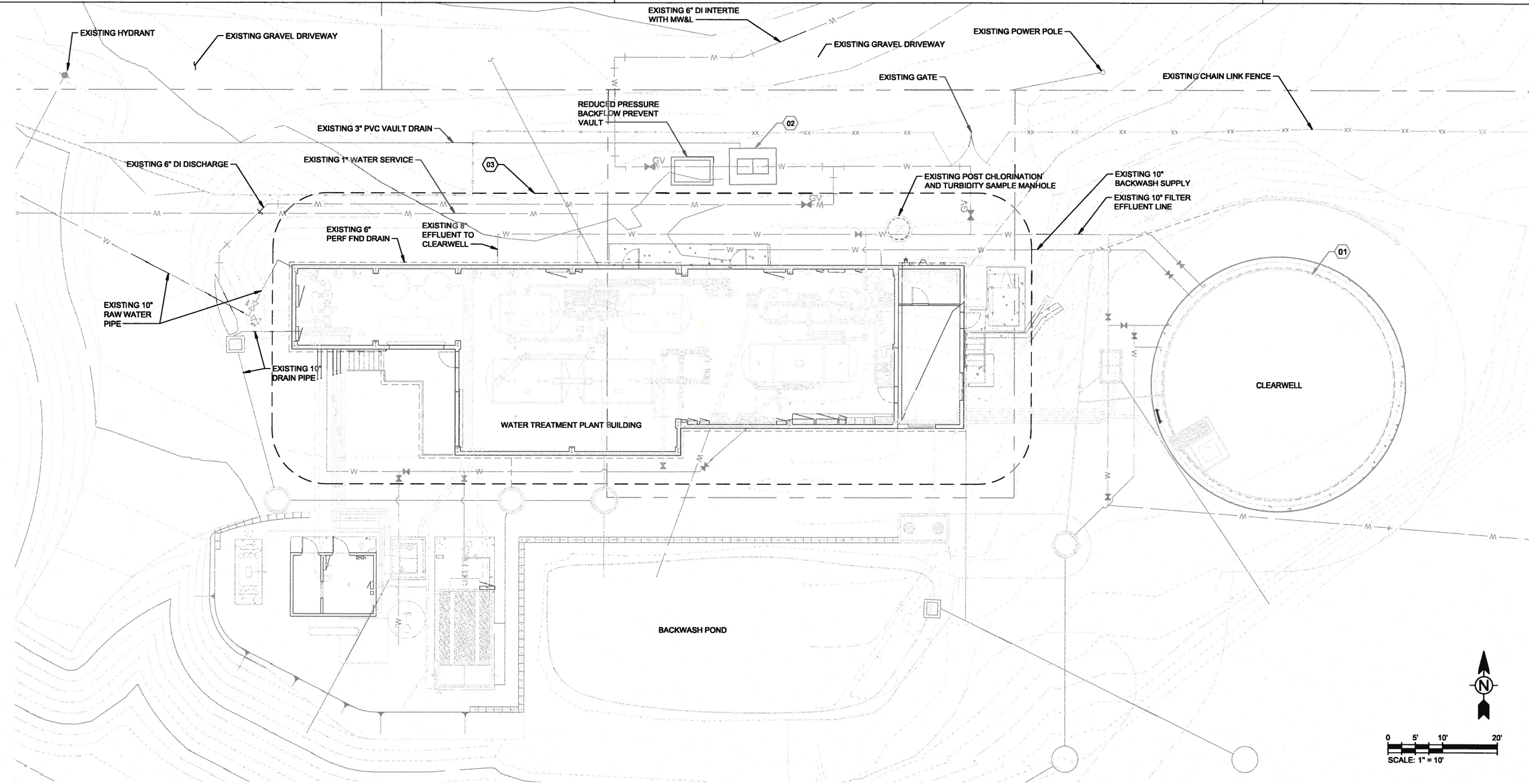
SHEET KEYNOTES

- 01 CLEARWELL RECOATING; RE: SHEET CA101.
- 02 INTERTIE METERING AND CONTROL VAULT CONTROLS TO BE KEPT ONLINE DURING CONSTRUCTION.
- 03 WATER TREATMENT PLANT IMPROVEMENTS. REFER TO PROCESS AND ELECTRICAL SHEETS.

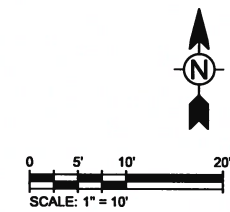
SURVEY NOTES

- 01 SURVEY INFORMATION ON PANTHER CREEK ROAD AND EAST OF WATER TREATMENT PLANT IS BASED ON JUNE 2011 SURVEY BY L.A. RYDELL.
- 02 SURVEY INFORMATION WEST OF WATER TREATMENT PLANT IS BASED ON AUGUST 2004 CONSTRUCTION RECORD DRAWINGS BY TETRA TECH.
- 03 ELEVATIONS ARE BASED ON 100.0' ELEVATION AT CONTROL POINT #1.
- 04 NORTHING AND EASTING COORDINATES ARE BASED ON WATER TREATMENT PLANT BUILDING CORNERS, AS SHOWN ON 2004 CONSTRUCTION RECORD DRAWINGS.

1:1/15/2021 19:00:07 - N:\T\LOCAL\GFS\USVOLUME\LEGACY\TTS9007\FSCALE\WPROJECTS\13914\135-13914-16001\DOCS\WATER IMPROVEMENTS\CLEARWELL RECOATING\CAD\ISHEET\FILES\CA100 WATER TREATMENT PLANT SITE PLAN.DWG - ZOEBELEIN, CONOR



1 WATER TREATMENT PLANT SITE PLAN
SCALE: 1" = 10'



TETRA TECH
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REGISTERED PROFESSIONAL ENGINEER
14,047
JUL 26, 1988
GORDON A. MUNRO
EXPIRES: 12/31/22

CARLTON INC. 1899
OREGON

MARK	DATE	DESCRIPTION

CITY OF CARLTON
NW PANTHER CREEK RD
CLEARWELL RECOATING
WATER TREATMENT PLANT SITE PLAN

PROJ: 135-13914-16001-02
DESN: CMZ
DRWN: CMZ
CHKD: GAM

CA100

Copyright: tetra tech
Bar Measures 1 inch, otherwise drawing not to scale

11/15/2021 10:01:27 - N:\T\LOCAL\GFS\US\LEGACY\T\9007\52\VIEW\PROJECTS\135-13914-16001\DCS\WATER IMPROVEMENTS\CLEARWELL RECOATING\CAD\SHEETFILES\DA102 WATER TREATMENT PLANT IMPROVEMENTS PLAN.DWG - ZOEBELEIN, CONOR

SHEET KEYNOTES

01 INSTALL NEW PACKAGE HOUSE WATER SYSTEM AND PAD; RE: DA501.

02 INSTALL COPPER PRESSURE RELIEF VALVE DISCHARGE PIPE. PIPE SIZE SHALL MATCH MANUFACTURER'S REQUIREMENT. SUPPORT PIPE WITH UNISTRUT AND PIPE CLAMPS WITH ISOLATION MATERIAL OR APPROVED EQUAL. ROUTE TO EXIST DRAIN. INSTALL A DOWN-TURNED ELBOW INTO DRAIN AND SUPPORT PIPE WITHIN 1-FOOT OF ELBOW. PIPE DISCHARGE SHALL MAINTAIN AN AIR GAP OF 1-INCH OR TWICE THE DIAMETER OF THE PIPE PER OHA REQUIREMENTS 333-061-0020(5).

GENERAL SHEET NOTES

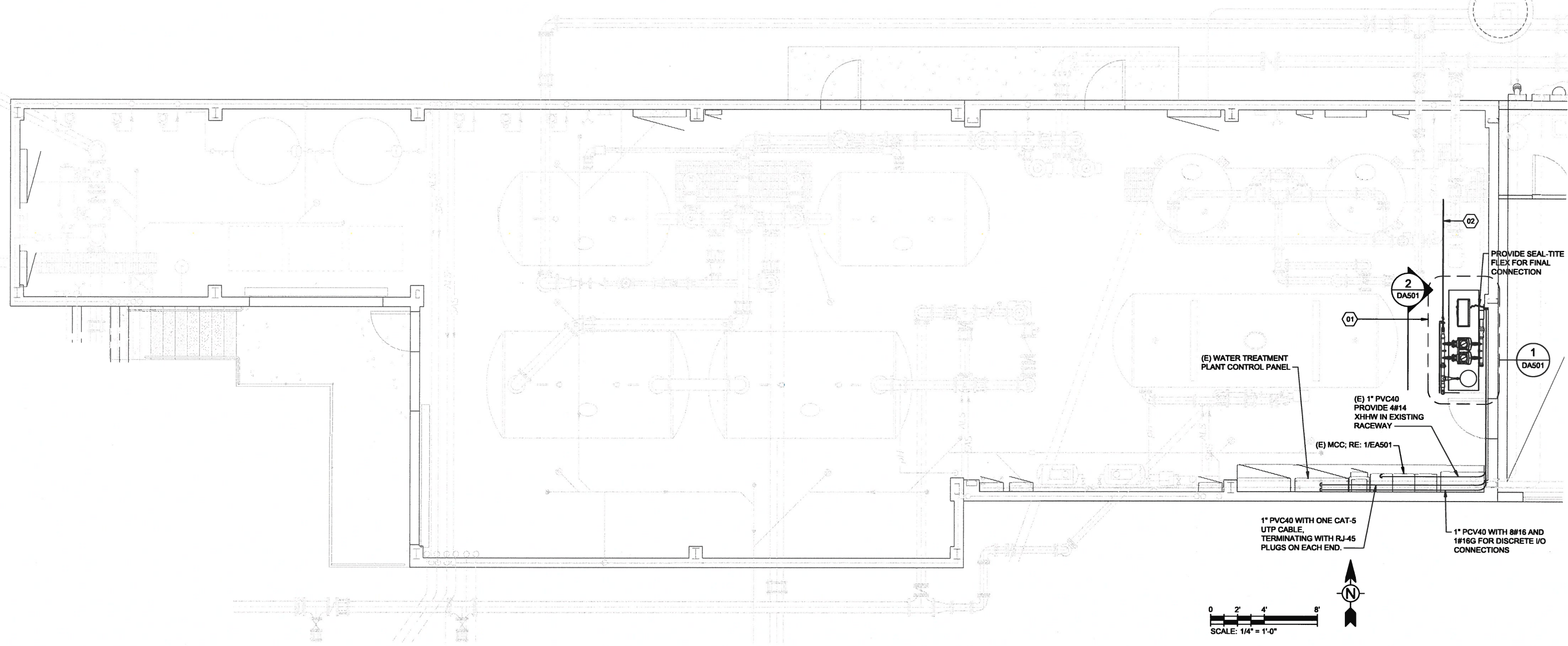
01 MATERIALS SHALL BE REMOVED AND LEGALLY DISPOSED AT THE EXPENSE OF THE CONTRACTOR.

02 CONTRACTOR SHALL PROTECT PIPES, FITTINGS, EQUIPMENT, AND APPURTENANCES DURING CONSTRUCTION.

03 CONTRACTOR TO COVER AND PROTECT PIPE OPENINGS DURING CONSTRUCTION.

04 CONTRACTOR SHALL CONFIRM ALL DIMENSIONS AND LOCATIONS IN THE FIELD.

05 PIPING LOCATION ARE APPROXIMATE; CONTRACTOR TO FIELD VERIFY ALL LOCATIONS AND FIELD MEASUREMENTS.



1 WATER TREATMENT PLANT IMPROVEMENTS PLAN
SCALE: 1/4" = 1'-0"



MARK	DATE	DESCRIPTION	BY

CITY OF CARLTON
NW PANTHER CREEK RD
CLEARWELL RECOATING

**WATER TREATMENT PLANT
IMPROVEMENTS PLAN**

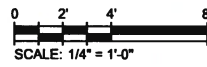
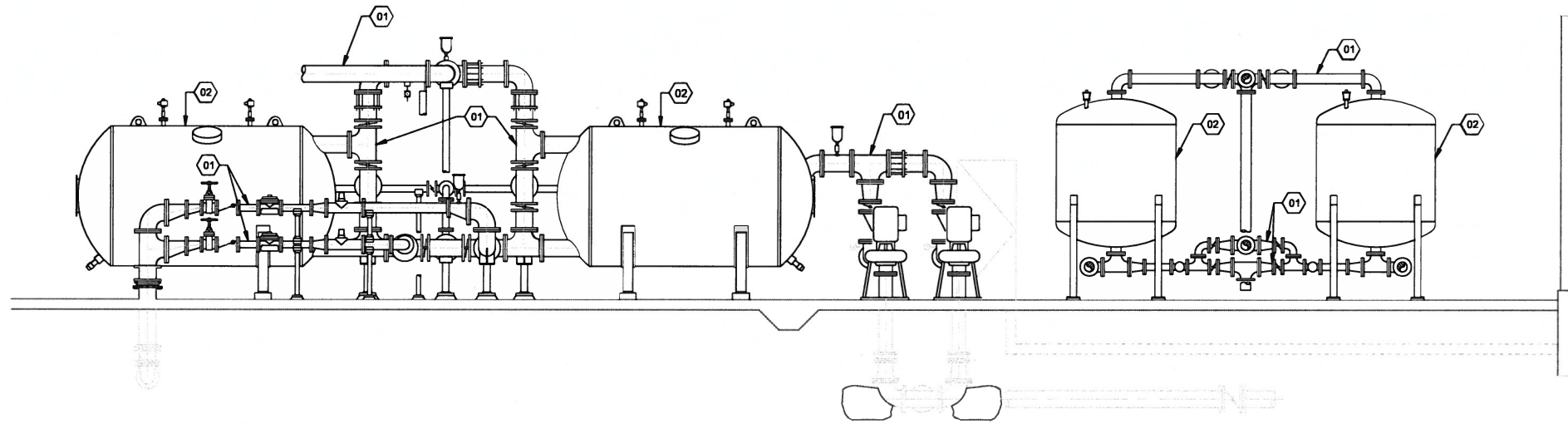
PROJ: 135-13914-16001-02
DESN: CMZ
DRWN: CMZ
CHKD: GAM

DA102

Copyright: Tetra Tech

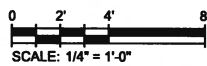
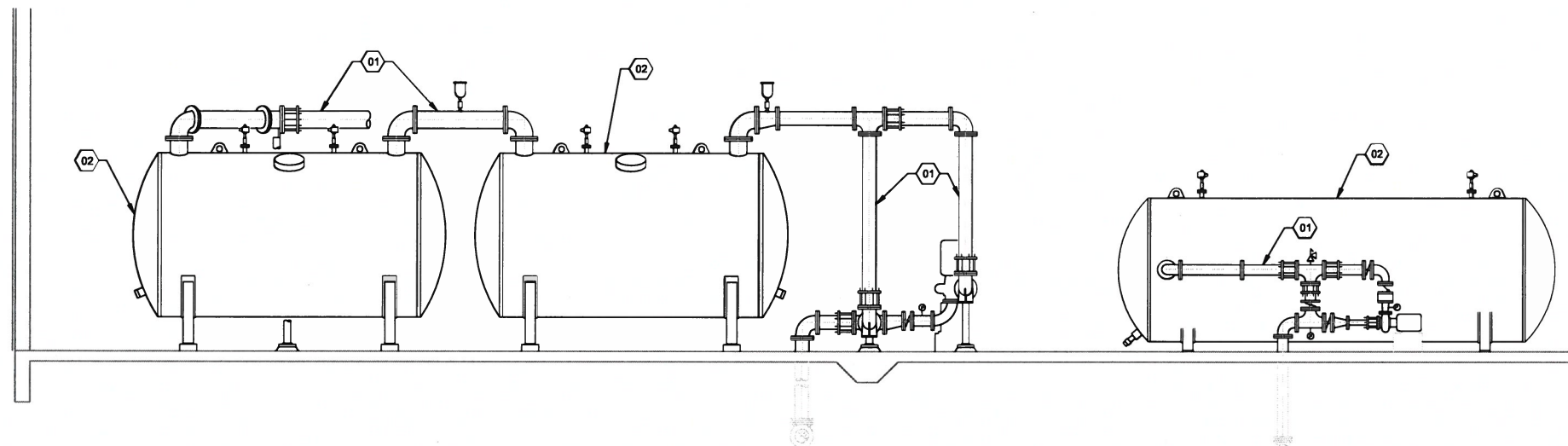
Bar Measures 1 inch, otherwise drawing not to scale

11/15/2021 18:01:38 - I:\T\LOCAL\GFS\VOL\LEGACY\TTS007FS\2\VIEW\PROJECTS\13914\135-3914-16001\DOCS\WATER IMPROVEMENTS\CLEARWELL RECOATING\CAD\ISHEETFILES\DA301 WATER TREATMENT PLANT PAINTING SECTIONS.DWG - ZOEBELEIN, CONOR



1 PROCESS PIPING AND PRESSURE VESSELS PAINTING SECTION

DA103 SCALE: 1/4"=1'-0"



2 PROCESS PIPING AND PRESSURE VESSELS PAINTING SECTION

DA103 SCALE: 1/4"=1'-0"

GENERAL SHEET NOTES

- 01 CONTRACTOR SHALL PROTECT PIPES, FITTINGS, EQUIPMENT, AND APPURTENANCES DURING CONSTRUCTION.
- 02 PIPING LOCATIONS ARE APPROXIMATE; CONTRACTOR TO FIELD VERIFY ALL LOCATIONS AND FIELD MEASUREMENTS.
- 03 CONTRACTOR TO REPAINT EXISTING PIPING AND PRESSURE VESSELS PER SPECIFICATIONS SECTION 09900.
- 04 PROCESS PIPING AND PRESSURE VESSELS TO BE REPAINTED ARE SHOWN WITH DARK LINES.
- 05 NOTIFY THE ENGINEER IMMEDIATELY OF ANY PROBLEMS EXPERIENCED OR ANTICIPATED USING THE COATING SYSTEMS.
- 06 CONTRACTOR TO ENSURE SURFACES NOT TO BE PAINTED ARE PROTECTED.
- 07 COLORS SHALL BE SELECTED BY THE OWNER PER SPECIFICATIONS SECTION 09900.
- 08 IT IS THE INTENT THAT ALL METAL PIPES, VALVES, PUMPS, TANKS, AND APPURTENANCES BE PAINTED WHETHER SPECIFICALLY SHOWN AND CALLED OUT ON THE PLANS, THE FACILITIES SHOWN ARE INFORMATIONAL.

SHEET KEYNOTES

- 01 PROCESS PIPING TO BE PAINTED ARE SHOWN WITH DARK LINES.
- 02 PRESSURE VESSELS TO BE PAINTED ARE SHOWN WITH DARK LINES.

TETRA TECH



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15550 SW SEQUOIA PARKWAY, SUITE 220
PORTLAND, OR 97224
PHONE: (503) 884-8097 FAX: (503) 598-0583



EXPIRES: 12/31/22



BY	DESCRIPTION	DATE	MARK

CITY OF CARLTON
NW PANTHER CREEK RD
CLEARWELL RECOATING
**WATER TREATMENT
PLANT PAINTING PLAN
SECTIONS**

PROJ: 135-13914-16001-02
DESN: CMZ
DRWN: CMZ
CHKD: GAM

DA301

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