



# PROJECT MANUAL

for the

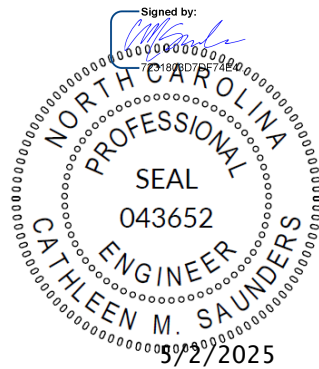
## City of Elizabeth City

# KE White Water Tower Disinfection Improvements

May 3, 2025

WithersRavenel Project No. 23-1097-004

Cathleen Saunders, P.E.



WithersRavenel

8466 Caratoke Highway, Building 400 | Powells Point, NC 27966

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## ADVERTISEMENT FOR BIDS

Project: KE White Tower Disinfection Project  
Owner: City of Elizabeth City  
410 Pritchard Street, Elizabeth City, NC 27909  
Engineer: WithersRavenel  
8466 Caratoke Highway, Building 400, Powells Point, NC 27966

The City of Elizabeth City will receive separate sealed formal bids for the KE White Tower Disinfection Project at the City of Elizabeth City's Public Works 2<sup>nd</sup> Floor Conference Room, located at 410 Pritchard Street, Elizabeth City, NC 27909, until Thursday, May 29<sup>th</sup>, 2025, at 3 PM, local prevailing time, at which time the Bids received will be publicly opened and read. Bids received after this time will not be accepted. Bids may be submitted by UPS or hand delivery only at the Public Works building located at 410 Pritchard Street, Elizabeth City, NC 27909. While there is an option to attend the Bid Opening virtually, hardcopy bids are still required to be received. Sealed bids should be marked clearly:

**City of Elizabeth City**  
**RE: KE White Tower Disinfection Project**  
**C/O: R. Lassiter or D. Bell**  
**410 Pritchard Street**  
**Elizabeth City, NC 27909**

The project consists of installation of a Monoclor<sup>®</sup> Residual Control System (RCS) within the KE White Elevated Water Tower. The proposed booster pump disinfection improvement system includes a submerged tank mixer, water quality sampling system, submerged pump, injector assembly, hypochlorite storage tank, liquid ammonium storage tank, individual dosing skids for each chemical, and all associated appurtenances including, but not limited to, piping, control panels, chemical and electrical conduit. The booster pump disinfection system materials are to be provided by the City as detailed on the plan. All remaining materials are to be provided by the contractor.

A non-mandatory Pre-Bid Conference will be held on Monday, May 19<sup>th</sup>, 2025, at 3 PM local time, virtually, and at the City of Elizabeth City's Public Works 2<sup>nd</sup> Floor Conference Room, located at 410 Pritchard Street, Elizabeth City, NC 27909. Interested parties are encouraged to attend this conference to review the plans. Attendance is strongly encouraged.

To participate in the virtual Pre-Bid Conference, you must email Erin Spencer at [espencer@withersravenel.com](mailto:espencer@withersravenel.com) by 10:00 am local time on Friday, May 16<sup>th</sup>, 2025, to be provided with the information to join the meeting.

Complete digital bidding documents are available at <http://withersravenel.com/bid/> or [www.questcdn.com](http://www.questcdn.com). You may download the digital documents for \$25.00 by inputting Quest project # 9656265 on the website's search page. Please contact QuestCDN.com at (952) 233-1632 or [info@questcdn.com](mailto:info@questcdn.com) for assistance in membership registration, downloading, and working with this digital project information. Contract documents may also be examined by downloading them under the project notices at [www.elizabethcitync.gov](http://www.elizabethcitync.gov), or [evp.nc.gov](http://evp.nc.gov).

All questions related to this bid shall be submitted in writing to [espencer@withersravenel.com](mailto:espencer@withersravenel.com) and [rlassiter@elizabethcitync.gov](mailto:rlassiter@elizabethcitync.gov) prior to 5 PM local time on Tuesday, May 20<sup>th</sup>, 2025 to receive consideration. Questions received after that time will not be answered or accepted. A Final Addendum will be provided prior to the Bid Date.

Bidders are responsible for the review of any addenda for the project and shall acknowledge the addenda on the bid form. To qualify, all bids shall be submitted using bid forms contained in the Contract Documents.

Incomplete or segregated bids will not be accepted. All bids must be accompanied by a certified or cashier's check or bid bond in the amount of 5% of the total amount bid made payable to the Owner. The bid deposit shall be retained by the Owner if the successful bidder fails to execute contracts or fails to provide the required bonds, as stated above, within ten (10) days after the proper notice of award of the contract. No bid shall be withdrawn for a period of **60 consecutive calendar days** after bid opening except as provided in Information for Bidders. Bidders must show evidence that they are licensed to perform the work in the Bid Documents as required by the North Carolina General Statutes Chapter 87. The Owner reserves the right to reject any/all bids, to waive formalities, or to reject non-conforming, non-responsive, or conditional bids. The Owner reserves the right to award a contract to the lowest, responsive, responsible bidder or bidders, taking into consideration quality, performance, and time.

The Owner is an Equal Opportunity Employer. The Owner encourages bidding from small, minority and female (M/WBE), disadvantaged business enterprise (DBE), historically underutilized businesses (HUB). Bidders shall be required to submit with their Bids affidavits of "Good Faith Efforts" in the recruitment of MBEs.

Dwan Bell, Public Utilities Director

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EJCDC® C-200, Instructions to Bidders for Construction Contracts.

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## **ARTICLE 1 – DEFINED TERMS**

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

## **ARTICLE 2 – COPIES OF BIDDING DOCUMENTS**

- 2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

## **ARTICLE 3 – QUALIFICATIONS OF BIDDERS**

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit, with the bid, (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
- A. Evidence of Bidder's authority to do business in the state where the Project is located
- B. Bidder's state or other contractor license number, if applicable
- C. Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others"
- D. Other required information regarding qualifications
- 3.02 A Bidder's failure to submit required qualification information with the bid may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- 3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

## **ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE**

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

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

#### 4.02 *Existing Site Conditions*

##### A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:
  - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
  - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
  - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
  - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

#### 4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

#### 4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

#### 4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the General Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

### **ARTICLE 5 – BIDDER'S REPRESENTATIONS**

#### 5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study 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. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding 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 Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 6 – PRE-BID CONFERENCE**

- 6.01 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

#### **ARTICLE 7 – INTERPRETATIONS AND ADDENDA**

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

## **ARTICLE 8 – BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or one day longer than the number of days to bid withdrawal as described in Article 2 of the Bid Form, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

## **ARTICLE 9 – CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

## **ARTICLE 10 – LIQUIDATED DAMAGES**

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

## **ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS**

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. 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. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.
- 11.02 All prices that Bidder sets forth in its Bid 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.

## **ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 All bidders shall submit to Owner with Bid a list of the Subcontractors or Suppliers proposed for the Work. If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

## **ARTICLE 13 – PREPARATION OF BID**

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown. The corporate seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary.

- 13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.05 A Bid by an individual shall show the Bidder's name and official address.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

#### **ARTICLE 14 – BASIS OF BID**

##### **14.01 *Unit Price***

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

##### **14.02 *Allowances***

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

#### **ARTICLE 15 – SUBMITTAL OF BID**

- 15.01 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the

Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation:

BID ENCLOSED

KE White Tower Disinfection Project

**Bids may be submitted by UPS or hand delivery only at the Public Works building:**

R. Lassiter or D. Bell

City of Elizabeth City

410 Pritchard Street

Elizabeth City, NC 27909

- 15.02 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

#### **ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID**

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 72 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned; all in accordance with North Carolina General Statute 143-129.1. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

## **ARTICLE 17 – OPENING OF BIDS**

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

## **ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

## **ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT**

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder whose bid is in the best interests of the Owner.
- 19.03 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
  - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder 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.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

## **ARTICLE 20 – BONDS AND INSURANCE**

- 20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

## **ARTICLE 21 – SIGNING OF AGREEMENT**

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

## **ARTICLE 22 – SALES AND USE TAXES**

22.01 The Contractor shall pay all applicable sales, consumer, use and other similar taxes required by law. The Contractor is responsible for reviewing the pertinent State Statutes involving the sales tax and sales tax exemption and complying with all requirements. The Contractor shall include all Federal, State, and local taxes in his bid. The Contractor shall indemnify, defend and hold harmless, Owner, Engineer and their employees, agents and representatives from and against any and all claims, damages, losses, penalties, fines and tax liabilities whatsoever resulting from Contractor's failure to include such taxes in his bid, pay any such tax, or comply with any applicable tax requirements or statutes.

## **ARTICLE 23 – RETAINAGE**

23.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

## **ARTICLE 24 – CONTRACTS TO BE ASSIGNED**

24.01 Not Used

SECTION 00 03 00  
INFORMATION AVAILABLE TO BIDDERS

The following information is available:

Prior to reviewing the information and/or Report(s), interested Bidders will be required to sign a release form stating that it is understood the information is for general information purposes only; no warranties or guarantees are implied. A copy of the report(s) is attached to the end of this section.

"CONTRACTOR" hereby acknowledges and agrees that the following information and/or report(s) are provided by OWNER solely for general information purposes and are not part of the Contract Documents; no warranties or guarantees are implied.

CONTRACTOR:

\_\_\_\_\_  
(Name of Company)

Accepted By:

\_\_\_\_\_  
(Name of the CONTRACTOR's Representative)

Title:

\_\_\_\_\_  
(Title of the CONTRACTOR's Representative)

Date:

\_\_\_\_\_

END OF SECTION

SECTION 00 03 40  
NON-COLLUSIVE AFFIDAVIT

being first duly sworn, deposes and says that:

\_\_\_\_\_

1. He/She is the \_\_\_\_\_, (OWNER, Partner, Officer, Representative or Agent) of \_\_\_\_\_ (the Bidder that has submitted the attached Bid);
2. He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affidavit, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Bid in connection with the Work for which the attached Bid has been submitted; or to refrain from bidding in connection with such Work; or have in any manner, directly or indirectly, sought by agreement or collusion, or communication, or conference with any Bidder, firm, or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit, or cost elements of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Work;
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

Dated:

\_\_\_\_\_  
(CONTRACTOR)

By:

\_\_\_\_\_

State Of:

\_\_\_\_\_

County Of:

\_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ Day of \_\_\_\_\_

Notary Public

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

END OF SECTION

SECTION 00 03 50  
AUTHORITY TO EXECUTE CONTRACT

If the Bidder is a Corporation, attach to this page a certified copy of corporate resolutions of the Board of Directors of the Corporation authorizing an officer of the Corporation to execute the Agreement contained within this document on behalf of the Corporation.

END OF SECTION

**BID FORM**

**City of Elizabeth City  
KE White Water Tower  
Disinfection Improvements**

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EJCDC® C-410, Bid Form for Construction Contracts.

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and American Society of Civil Engineers. All rights reserved. Page i

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**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

R. Lassiter or D. Bell  
City of Elizabeth City  
410 Pritchard Street  
Elizabeth City, NC 27909

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

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 5 consecutive calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

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

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder 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. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding 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 Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. 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.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at

artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

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.

#### **ARTICLE 5 – BASIS OF BID**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

##### **See Attached Bid Form**

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

#### **ARTICLE 6 – TIME OF COMPLETION**

6.01 Bidder agrees that the Work will be substantially complete within 30 consecutive calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 60 consecutive calendar days after the date when the Contract Times commence to run.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

#### **ARTICLE 7 – ATTACHMENTS TO THIS BID**

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

A. Required Bid security; in an amount of five (5) percent (%) of the total price bid in the form of a (CIRCLE ONE):

Bid Bond

Certified Check

Cashier's Check

B. 00 03 00 - Information Available to Bidder's - Acknowledgement

C. 00 03 40 - Non-collusive Affidavit

D. 00 04 10 - Bid Form - Addenda Acknowledgement

E. 00 04 12 - E-Verify Affidavit

F. 00 04 20 – Bidders Qualifications Forms

- G. Contractor License
- H. 00 04 21 - DBE Affidavits (If Required)
  - 1. Affidavit A - Listing of Good Faith Efforts
  - 2. Affidavit B - Intent to Perform Contract With Own Workforce

**ARTICLE 8 – DEFINED TERMS**

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

**ARTICLE 9 – BID SUBMITTAL**

BIDDER: *[Indicate correct name of bidding entity]*

By:

*[Signature]* \_\_\_\_\_

*[Printed name]* \_\_\_\_\_

*(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest:

*[Signature]* \_\_\_\_\_

*[Printed name]* \_\_\_\_\_

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

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

Address for giving notices:

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

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

Contact Name and e-mail address: \_\_\_\_\_

\_\_\_\_\_

Bidder's License No.: \_\_\_\_\_

*(where applicable)*

City of Elizabeth City				Base Bid Schedule	
USCG Elizabeth City Water Quality Improvement					
Item No.	Item Description	Unit	Est. Quan.	Unit Price	Extended Price
1	Mobilization to include obtaining applicable building permits	LS	1	\$	\$
2	Installation of Equipment as supplied by the City of Elizabeth City. Including, but not limited to, wet installation of the mixer, Control Center, Smart Control Center, Hypochlorite Storage Tank, Chlorine Chemical Feed System, Liquid Ammonia Storage Tank, Ammonia Chemical Feed System, Submersible Pump, and Water Quality Station including design and supply of anchor bolts for equipment, mounting, wiring, and associated appurtenances for commissioning and testing of a complete and operable system.	LS	1	\$	\$
3	12.5% Sodium Hypochlorite Supply	GAL	120	\$	\$
4	40% Liquid Ammonium Sulfate Supply	GAL	60	\$	\$
5	Labeling of the site including chemical storage tanks and panels to meet local regulating agency requirements.	LS	1	\$	\$
6	All interconnected piping, tubing, and casing pipe necessary for system connections, including between chemical storage accessories, chemical skids, water supply, and water piping from the booster pump outlet to the tank hatch. This line item should include valves, Fittings and appurtenances not specified in Bid Note 3 as provided by the City of Elizabeth City.	LS	1	\$	\$
7	Electrical Conduit, wiring, electrical material (including disconnect switches) between control panel, hypochlorite tank, metering pumps, and SCADA as specified on the plans	LS	1	\$	\$
8	All required stainless steel straps for casing pipe(s) support including electrical conduits, two (2) chemical conduits, and sample line conduit.	LS	1	\$	\$
9	Insulation and freeze protection for all tubing and all piping external to the reservoir.	LS	1	\$	\$
				Total Base Bid	\$
(Write Out In Words)					

Award of the contract shall be in accordance with North Carolina General Statute Chapter 143, Article 8 of the State Public Contracts Code and City of Elizabeth City Purchasing Manual including Resolution R94084 and award shall be based on the Total Bid Shown above.

**Additive Bid Item No. 1:**

**Description:** All work associated with the installation of a second capped 7/16" nylon reinforced PVC chemical carrier pipe within the 1.5" SCH 80 PVC casing pipe and a second capped 3/8" nylon reinforced PVC chemical carrier pipe within the 1.5" SCH 80 PVC casing pipe. The casing pipes will remain unchanged, but the additive bid should take into account any deduction necessary for reduced freeze protection. The casing pipes, a single 7/16" nylon reinforced PVC carrier pipe, and a single 3/8" nylon reinforced PVC carrier pipe are shown on plans prepared by WithersRavenel dated 5/3/2025.

Total Additive Bid Item No. 1   \$

(Write Out In Words)

**Bid Notes:**

1. Refer to Special Provisions for incidental which may not be listed.
2. On acceptance of this bid for said work, the undersigned does or do hereby bind themselves to enter into a written contract within ten (10) days of award with the said authority, and to perform said work for the consideration above named.
3. It should be noted that the City of Elizabeth City has purchased the following items through sole-source. The contractor shall include installation and testing of these items within their bid total only:
  - a. PWM250 Mixer Wet Assembly, including the mixer, 2HP motor, power cable, replacement chain and injection stems.
  - b. Control Center with SCADA Compatibility, including NEMA 4 Enclosure, light indicators, and cooling fan.
  - c. 230VAC single phase, rated to 3.0 HP Variable Frequency Drive
  - d. SCADA outputs including RS-485 dry contact connections, digital output signal indicating motor running, fault, and remove motor on/off.
  - e. 130' of Flat-jacketed 4 conductor cable.
  - f. Smart Control Center including Programmable Logic Controller, LCD touchscreen, two wire twisted cable, RS-485 port only, SCADA connections only, and Type 4 rated enclosure.
  - g. Chlorine Chemical Feed Skid including a single pump on skid, a spare pump, SCH 80 PVC (on the skid only), secondary containment, controller including connection ports only, calibration column, pressure relief valve, wye strainer, pressure transmitter, and back pressure regulator.
  - h. Liquid Ammonium Sulfate Storage Tank including tank fittings and level transmitter.
  - i. Ammonia Chemical Feed Skid including a single pump on skid, a spare pump, SCH 80 PVC (on the skid only), secondary containment, controller including connection ports only, calibration column, pressure relief valve, wye strainer, pressure transmitter, and back pressure regulator.
  - j. Water Quality Station including 3/8" push connect, RS-485 connection, and Type 3R rated enclosure.
  - k. Submersible Sample pump.

SECTION 00 04 12  
E-VERIFY AFFIDAVIT

State of \_\_\_\_\_

County of \_\_\_\_\_

NOW COMES Affiant, first being sworn, deposes and says as follows:

1. I have submitted a bid for contract or desire to enter into a contract with the City of Elizabeth City;
2. As part of my duties and responsibilities pursuant to said bid and/or contract, I attest that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
  - After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
  - I employ less than twenty-five (25) employees in the State of North Carolina.
3. As part of my duties and responsibilities pursuant to said bid and/or contract, I attest that to the best of my knowledge any subcontractors employed as a part of this bid and/or contract are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
  - After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
  - Employ less than twenty-five (25) employees in the State of North Carolina.

Specify subcontractor \_\_\_\_\_

This the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

\_\_\_\_\_  
Affiant

Sworn to and subscribed before me, this the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

[OFFICIAL SEAL]

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

My Commission Expires \_\_\_\_\_

END OF SECTION

SECTION 00 04 20  
BIDDERS QUALIFICATIONS FORMS

(Submit with necessary attachments along with bidding documents.)

The undersigned warrants the truth and accuracy of all statements and answers herein contained. Include additional sheets if necessary.

How many years has your organization been in business as a (circle one) General Contractor/Subcontractor?

---

Describe and give the date and owner of the last project that you have completed similar in type, size, and nature as the one proposed?

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List any projects that you have completed similar in type, size, and nature as the one proposed.

Name of Project 1: \_\_\_\_\_

Location: \_\_\_\_\_

OWNER: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

Date Started: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Value of Contract: \_\_\_\_\_

Description of Project: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of Project 2: \_\_\_\_\_

Location: \_\_\_\_\_

OWNER: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

Date Started: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Value of Contract: \_\_\_\_\_

Description of Project: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of Project 3: \_\_\_\_\_

Location: \_\_\_\_\_

OWNER: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

Date Started: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Value of Contract: \_\_\_\_\_

Description of Project: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Have you ever failed to complete work awarded to you? If so, where and why?

---

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Name three individuals or corporations for which you have performed work and to which you refer: (Attach additional sheets if necessary)

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Have you personally inspected the site of the proposed work? Describe any anticipated problems with the site and your proposed solutions: (Attach additional sheets if necessary)

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Will you Subcontract any part of this Work? If so, please list the names and addresses of the subcontractors to be used for the portions of the work listed below. Additional information will be required in accordance with the Instructions to Bidders, Article 12.

Subcontractor Name	Service Provided

Please list the names and addresses of the suppliers to be used for the Project. Additional information will be required in accordance with the Instructions to Bidders, Article 12.

Supplier Name	Product(s) Provided

List your organization's Insurance Interstate Experience Modification Rate (EMR) for the three most recent years.

\_\_\_\_\_

State the true and exact, correct, and complete name under which you do business.

Bidder Is:

---

(Bidder Name)

---

(Individual's Signature)

---

(Individual's Name)

END OF SECTION

## 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 Elizabeth City

410 Pritchard Street

Elizabeth City, NC 27909

BID

Bid Due Date: **May 29, 2025**

Description (*Project Name— Include Location*): KE White Tower Disinfection Project – City of Elizabeth City, North Carolina

The project consists of installation of a Monoclor® Residual Control System (RCS) within the KE White Elevated Water Tower. The proposed booster pump disinfection improvement system includes a submerged tank mixer, water quality sampling system, submerged pump, injector assembly, hypochlorite storage tank, liquid ammonium storage tank, individual dosing skids for each chemical, and all associated appurtenances including, but not limited to, piping, control panels, chemical and electrical conduit. The booster pump disinfection system materials are to be provided by the City as detailed on the plan. All remaining materials are to be provided by the contractor.

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:

By:

\_\_\_\_\_  
Signature

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

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest:

Attest:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
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.

## NOTICE OF AWARD

---

Date of

Issuance:

Owner: City of Elizabeth City

Owner's Contract No.:

Engineer: WithersRavenel

Engineer's Project No.: 23-1097-004

Project: KE White Water Tower Disinfection Contract Name:  
Improvements

Bidder: (Contractor)

Bidder's  
Address: (Contractor Address 1)

(Contractor Address 2)

(Contractor Address 3)

### TO BIDDER:

You are notified that Owner has accepted your Bid dated May 29, 2025 for the above Contract, and that you are the Successful Bidder and are awarded a Contract for: KE White Water Tower Disinfection Improvements project.

The Contract Price of the awarded Contract is: (Contract Amount \$)

(three) copies of the proposed Performance Bond, Payment Bond, and Agreement accompany this Notice of Award.

(three) sets of the fully executed Contract Documents and Drawings will be delivered separately or otherwise made available to you immediately after execution. You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner (three) counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security [*e.g., performance and payment bonds*] and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.

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

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

---

Owner: City of Elizabeth City

Contractor:

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Authorized Signature

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

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

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

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

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

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

Copy:Engineer



Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 60 consecutive calendar days after the date when the Contract Times commence to run.

#### 4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial 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 \$500 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 \$500 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 Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item) as shown on the Bid form. The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

### **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 or about the 25th day of each month during

performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
  - a. 95% of Work completed (with the balance being retainage); and
  - b. 95% of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
2. When 50% of the Work of the original Contract has been completed and in the opinion of the Owner the Contractor continues to perform satisfactorily and nonconforming work identified in writing prior to that time by the Engineer or OWNER has been corrected by the Contractor and accepted by the Owner, the Owner with written consent of surety will adjust future partial payments so that 2½% of the original Contract Price is retained.
3. The project shall be deemed 50% complete when the Contractor's gross project invoices, excluding the value of materials stored off-site, equals or exceeds 50% of the original value of the contract, except the value of materials stored on-site shall not exceed 20% of the Contractor's gross invoices for the purpose of determining whether the project is 50% complete.
4. If the Owner determines it is appropriate to reduce retainage, the method used for such adjustment shall be to fix retainage at 2½% of the original Contract amount (when the work is 50% complete) and to pay all subsequent Partial Payment Requests to the full approved amount. The intent of such an adjustment is to gradually reduce retainage to 2½% of the original Contract amount when the work is 100% complete. Following 50% completion of the project, the Owner may also withhold additional retainage from any subsequent periodic payment, not to exceed 5%, in order to allow the Owner to retain 2½% total retainage through the completion of the project.
5. If the Owner determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage for each subsequent periodic payment application up to a maximum amount of 5% of the original Contract amount.
6. Within 60 days after the submission of a final pay application, the Owner with written consent of the surety shall release to the Contractor all retainage on payments held by the Owner if (1) the Owner receives a certificate of substantial completion from the Engineer, or (2) the Owner receives beneficial occupancy or use of the project. However, the Owner may retain sufficient funds to secure completion of the project or corrections on any work. If the Owner retains funds, the amount retained shall not be more than 2½ times the Engineer's estimated value of the work to be completed or

corrected. Any reduction in the amount of the retainage on payments shall be with the written consent of the Contractor's surety.

7. Retainer provisions contained in Contractor's subcontracts may not exceed the terms and conditions for retainage provided herein. Contractors are further required to satisfy the retainage provisions of N.C.G.S. 143-134.1(b2) with regard to subcontracts for early finishing trades (structural steel, piling, caisson, and demolition) and to coordinate the release of retainage for such trades from the retainage held by the Owner from the Contractor pursuant to statute.
8. Nothing shall prevent the Owner from the withholding payment to the Contractor in addition to the amounts identified herein for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the Owner or reasonable evidence that a third-party claim will be filed.

#### 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 at the rate of 8 percent per annum.

### **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
  - 2. Performance bond
  - 3. Payment bond
  - 4. General Conditions
  - 5. Supplementary Conditions
  - 6. Specifications as listed in the table of contents of the Project Manual
  - 7. Construction Drawings dated May 3, 2025.
  - 8. Addenda (numbers to , inclusive)
  - 9. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid
  - 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    - a. Notice to Proceed.
    - b. Work Change Directives.
    - c. Change Orders.
    - d. Field Orders.

- 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 any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

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

10.06 *Other Provisions*

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

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 Elizabeth City \_\_\_\_\_

(Contractor) \_\_\_\_\_

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:  
410 Pritchard Street

Address for giving notices:  
(Contractor Address 1)

Elizabeth City, NC 27909

(Contractor Address 2)

(Contractor Address 3)

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.*

SECTION 00 05 30  
CERTIFICATE OF OWNER'S FINANCE OFFICER

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

By:

\_\_\_\_\_  
Signature of Owner's Finance Officer

\_\_\_\_\_  
(Print Name & Title)

\_\_\_\_\_  
Date

END OF SECTION

SECTION 00 05 40  
CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, hereby certify that I have examined the foregoing instrument and bond and approve the same as to their form.

By:

\_\_\_\_\_  
Signature of Owner's Attorney

\_\_\_\_\_  
(Print Name & Title)

\_\_\_\_\_  
Date

END OF SECTION

**NOTICE TO PROCEED**

---

Owner:	City of Elizabeth City	Owner's Contract No.:	
Contractor:	(Contractor)	Contractor's Project No.:	
Engineer:	WithersRavenel	Engineer's Project No.:	23-1097-004
Project:	USCG Elizabeth City Water Quality Improvement	Contract Name:	
		Effective Date of Contract:	(Effective Date of Agreement)

---

**TO CONTRACTOR:**

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on (Notice to Proceed Date).

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the number of days to achieve Substantial Completion is 30 consecutive calendar days, and the number of days to achieve readiness for final payment is 60 consecutive calendar days.

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

Paragraph 2.01 of the General Conditions provides that you must deliver the required bonds and evidence of insurance (with copies to Engineer and other identified additional insureds and loss payees) in accordance with the Contract Documents.

---

<i>Owner:</i>	<i>City of Elizabeth City</i>	Contractor:	
	_____		_____
	Authorized Signature		Authorized Signature
By:	Dwan Bell, Public Utilities	By:	
Title:	_____	Title:	_____

---

EJCDC® C-550, Notice to Proceed.

---

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

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

Copy: Engineer

## PERFORMANCE BOND

CONTRACTOR (*name and address*):

(Contractor)

(Contractor Address 1)

(Contractor Address 2)

(Contractor Address 3)

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

City of Elizabeth City

410 Pritchard Street

Elizabeth City, NC 27909

### CONSTRUCTION CONTRACT

Effective Date Of

Agreement:

(Effective Date of Agreement)

Amount:

(Contract Amount \$)

Description (*name and location*):

KE White Water Tower Disinfection Improvements - City of Elizabeth City, North Carolina

The project consists of installation of a Monoclor® Residual Control System (RCS) within the KE White Elevated Water Tower. The proposed booster pump disinfection improvement system includes a submerged tank mixer, water quality sampling system, submerged pump, injector assembly, hypochlorite storage tank, liquid ammonium storage tank, individual dosing skids for each chemical, and all associated appurtenances including, but not limited to, piping, control panels, chemical and electrical conduit. The booster pump disinfection system materials are to be provided by the City as detailed on the plan. All remaining materials are to be provided by the contractor.

**BOND**

Bond

Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount

:

Modifications to this Bond

Form:

Non

e

See Paragraph 16

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

**CONTRACTOR AS PRINCIPAL**

**SURETY**

(Seal)

(Seal)

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

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

By:

\_\_\_\_\_  
Signature

By:

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

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest:

\_\_\_\_\_  
Signature

Attest:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

***Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.***

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:
  - 3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
  - 3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
  - 3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
  - 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
  - 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
  - 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
  - 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    - 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
    - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
  - 7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

- 7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
- 7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent

is that this Bond shall be construed as a statutory bond and not as a common law bond.

#### 14. Definitions

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

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

## PAYMENT BOND

CONTRACTOR (*name and address*):

(Contractor)

(Contractor Address 1)

(Contractor Address 2)

(Contractor Address 3)

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

City of Elizabeth City

410 Pritchard Street

Elizabeth City, NC 27909

### CONSTRUCTION CONTRACT

Effective Date of

Agreement:

(Effective Date of Agreement)

Amount:

(Contract Amount \$)

Description (*name and location*):

KE White Water Tower Disinfection Improvements - City of Elizabeth City, North Carolina

The project consists of installation of a Monoclor® Residual Control System (RCS) within the KE White Elevated Water Tower. The proposed booster pump disinfection improvement system includes a submerged tank mixer, water quality sampling system, submerged pump, injector assembly, hypochlorite storage tank, liquid ammonium storage tank, individual dosing skids for each chemical, and all associated appurtenances including, but not limited to, piping, control panels, chemical and electrical conduit. The booster pump disinfection system materials are to be provided by the City as detailed on the plan. All remaining materials are to be provided by the contractor.

BOND

Bond

Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount

:

Modifications to this Bond

Non

Form:

e

See Paragraph 18

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

**CONTRACTOR AS PRINCIPAL**

**SURETY**

(Seal)

(Seal)

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

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

By:

\_\_\_\_\_  
Signature

By:

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

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest:

\_\_\_\_\_  
Signature

Attest:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

***Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.***

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

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

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

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

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

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes

made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

SECTION 00 06 16  
CERTIFICATES OF INSURANCE

(Attach Certificates of Insurance to this Section)

END OF SECTION



**Contractor's Application for Payment No.** \_\_\_\_\_

Application Period:		Application Date:
To (Owner): City of Elizabeth City	From (Contractor):	Via (Engineer): WithersRavenel
Project: KE White Water Tower Disinfection Improvements	Contract: (Contractor)	Funding Project No.:
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.: 23-1097-004

**Application For Payment  
Change Order Summary**

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

**Contractor's Certification**

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

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and

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

---

**Contractor Signature**

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

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is recommended by: \_\_\_\_\_ (Date) \_\_\_\_\_ (Engineer) \_\_\_\_\_ (Date)

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is approved by: \_\_\_\_\_ (Date) \_\_\_\_\_ (Owner) \_\_\_\_\_ (Date)

Approved by: \_\_\_\_\_ (Date) \_\_\_\_\_ (Funding or Financing Entity (if applicable)) \_\_\_\_\_ (Date)







**APPENDIX E**

**MBE DOCUMENTATION FOR CONTRACT PAYMENTS**

Prime Contractor/Architect: \_\_\_\_\_

Address & Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

SCO Project ID: \_\_\_\_\_

Pay Application #: \_\_\_\_\_ Period: \_\_\_\_\_

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* TYPE OF MBE	AMOUNT PAID THIS MONTH (With This Pay App)	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

\*Minority categories: Black (B), Hispanic (H), Asian American (AA), American Indian (AI), White Female (WF), Socially and Economically Disadvantaged (SED)

Approved/Certified By:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**SUBMIT WITH EACH PAY REQUEST - FINAL PAYMENT - FINAL REPORT**

**CONTRACTOR'S SALES TAX REPORT**  
**North Carolina State and Local Sales Tax and Use Tax**

OWNER:	City of Elizabeth City	CONTRACTOR:	(Contractor)
ADDRESS:	410 Pritchard Street	ADDRESS:	(Contractor Address 1)
	PO Box 347		(Contractor Address 2)
	Elizabeth City, NC 27907		
PROJECT:		PERIOD:	

VENDOR	ADDRESS	INVOICE NUMBER	DATE	INVOICE AMOUNT	NORTH CAROLINA TAX	COUNTY TAX	COUNTY

**CONTRACTOR'S SALES TAX REPORT**  
**North Carolina State and Local Sales Tax and Use Tax**

OWNER:	City of Elizabeth City	CONTRACTOR:	(Contractor)
ADDRESS:	410 Pritchard Street	ADDRESS:	(Contractor Address 1)
	PO Box 347		(Contractor Address 2)
	Elizabeth City, NC 27907		
PROJECT:		PERIOD:	

VENDOR	ADDRESS	INVOICE NUMBER	DATE	INVOICE AMOUNT	NORTH CAROLINA TAX	COUNTY TAX	COUNTY
TOTAL							

\*Complete one sheet for each County in which Purchases were made.

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

Subscribed and sworn to me this \_\_\_\_\_ day of \_\_\_\_\_  
 Notary Public \_\_\_\_\_  
 My Commission Expires \_\_\_\_\_

**APPENDIX E**

**MBE DOCUMENTATION FOR CONTRACT PAYMENTS**

Prime Contractor/Architect: \_\_\_\_\_

Address & Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

SCO Project ID: \_\_\_\_\_

Pay Application #: \_\_\_\_\_ Period: \_\_\_\_\_

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* TYPE OF MBE	AMOUNT PAID THIS MONTH (With This Pay App)	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

\*Minority categories: Black (B), Hispanic (H), Asian American (AA), American Indian (AI), White Female (WF), Socially and Economically Disadvantaged (SED)

Approved/Certified By:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**SUBMIT WITH EACH PAY REQUEST - FINAL PAYMENT - FINAL REPORT**

## CERTIFICATE OF SUBSTANTIAL COMPLETION

---

Owner:	City of Elizabeth City	Owner's Contract No.:	
Contractor:	(Contractor)	Contractor's Project No.:	
Engineer:	WithersRavenel	Engineer's Project No.:	23-1097-004
Project:	KE White Water Tower Disinfection Improvements	Contract Name:	

---

**This [preliminary] [final] Certificate of Substantial Completion applies to:**

All Work  The following specified portions of the Work:

---

### Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

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

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities:  None  
 As follows

Amendments to  
Contractor's  
responsibilities:

None

As

follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

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

---

EXECUTED BY ENGINEER:		RECEIVED:	RECEIVED:
By: _____	By: _____	By: _____	By: _____
(Authorized signature)	Owner (Authorized	Contractor (Authorized	
Title: _____	Title: _____	Title: _____	Title: _____
Date _____	Date _____	Date _____	Date _____

SECTION 00 06 30  
CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS

City of Elizabeth City

---

To: Owner

KE White Water Tower Disinfection Improvements

---

Project:

(Effective Date of Agreement)

---

Contract Date:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

Exceptions:

---

---

Supporting Documents Attached Hereto:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

\_\_\_\_\_  
(CONTRACTOR)

(Contractor Address 1)  
Address: \_\_\_\_\_

(Contractor Address 2)  
\_\_\_\_\_

(Contractor Address 3)  
\_\_\_\_\_

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

Notary: \_\_\_\_\_

State Of: \_\_\_\_\_

County Of: \_\_\_\_\_

Subscribed and sworn to before me  
this \_\_\_\_\_ Day of \_\_\_\_\_

Printed Name: \_\_\_\_\_

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

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.

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, 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 00 08 00

SUPPLEMENTARY CONDITIONS

PART 1 CONTENTS

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ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS	3
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These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract NSPE-ASCE-ACEC Document EJCDC C-700, 2013 Edition and other provisions of the Contract Documents as indicated below. All provisions not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the same meanings indicated in the Standard General Conditions of the Construction Contract. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

## **ARTICLE 1 - DEFINITIONS AND TERMINOLOGY**

### **SC 1.01.A.3 INSERT AT THE END OF THE PARAGRAPH TO READ AS FOLLOWS:**

**The Application for Payment form to be used on this Project is EJCDC No. C-620. Contractor may use their standard computerized forms for providing detail payment breakdown as an attachment to summary sheet. Agency must approve all Applications for Payment before payment is made.**

### **SC 1.01.A.8 INSERT AT THE END OF THE PARAGRAPH TO READ AS FOLLOWS:**

**The Change Order form to be used on this Project is EJCDC No. C-941. Agency approval is required before Change Orders are effective.**

### **SC 1.01.A.48 ADD NEW DEFINITIONS AFTER DEFINITION 1.01.A.48. OF THE GENERAL CONDITIONS TO READ AS FOLLOWS:**

**A.49. The term "minority business" means a business:**

- a. In which at least fifty-one percent (51%) is owned by one or more minority persons or socially and economically disadvantaged individuals, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and**
- b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.**

**A.50. The term "minority person" means a person who is a citizen or lawful permanent resident of the United States and who is:**

- a. Black, that is, a person having origins in any of the black racial groups in Africa;**
- b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands,**

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regardless of race;

c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, or the Pacific Islands;

d. American Indian, that is, a person having origins in any of the original Indian peoples of North America; or

e. Female.

A.51. The term "socially and economically disadvantaged individual" means the same as defined in 15 U.S.C. 637; "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged."

A.52. Notice of Violation - A written notification from a governmental agency that the Owner has violated a law or regulation that the agency has jurisdiction over. Notice will take the form used by the agency and may outline action to be taken by the Owner to correct the violation and may include a monetary fine.

A.53. Regular Working Hours - Regular working hours for the project are defined as 8:00 am to 5:00 pm, Eastern Standard Time.

#### ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC 4.05.C.2 Add a new paragraph after paragraph 4.05.C.2. of the General Conditions to read as follows:

- (a) **Abnormal weather** is defined as precipitation that is greater than the 5-year average. The 5-year average shall be based on the Local Climatological Data provided by the National Oceanic and Atmospheric Administration for the time in question and station closest to the project area.
- (i) As a precondition to CONTRACTOR making a claim for a delay arising out of abnormal weather conditions, CONTRACTOR shall submit data from the National Oceanic Atmospheric Administration (NOAA) showing the number of days where precipitation or other inclement weather occurred during the period for which the claim is made along with daily weather logs which must be kept at the job site and which must indicate that adverse or abnormal weather or site conditions

precluded at least four-hours of Work at the site during daylight hours. CONTRACTOR agrees that a comparison of: (1) the number of days of precipitation for the month or months in question during the Project; and (2) the average number of days where precipitation for the month or months in question during the previous five years is a proper comparison by which to determine CONTRACTOR's entitlement for extension of time for weather delays. CONTRACTOR acknowledges that it has taken weather conditions into account in agreeing to perform the Work within the Contract Times, and that CONTRACTOR shall only be allowed an extension of time based upon the comparison set forth in this Article. Notwithstanding anything else contained in this Article or this Agreement, CONTRACTOR shall not be entitled to an extension of time unless it can show that the abnormal weather or site conditions specifically affected the critical path, and it meets all of the requirements for such a claim under this Agreement.

- (ii) Notwithstanding anything else to the contrary, in the event that CONTRACTOR believes that it has been delayed in the completion of the Work for reasons over which it has no reasonable control, then CONTRACTOR shall inform OWNER in writing of the reason for such delay and the estimated amount of such delay within five-days after the commencement of the event giving rise to the delay. Unless CONTRACTOR complies with the requirements of this Article, it shall not be entitled to any claim for delay, extension of the Contract Times, or additional compensation for its claim. If CONTRACTOR makes any claim for delay, CONTRACTOR shall specifically set forth how and why the delay in question affected the critical path, including a diagram showing such effect.
- (iii) The CONTRACTOR shall not be entitled to additional compensation as a result of time extensions.

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

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

- A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures 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 Add the following paragraph immediately after Paragraph 6.02.B:**

- 1. Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.**

**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>
Jones Act coverage, if applicable:	
Bodily injury by accident, each accident	\$ <u>                    </u>
Bodily injury by disease, aggregate	\$ <u>                    </u>

<b>Employer’s Liability:</b>	
Bodily injury, each accident	\$ <u> 500,000</u>
Bodily injury by disease, each employee	\$ <u> 500,000</u>
Bodily injury/disease aggregate	\$ <u> 500,000</u>

**For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker’s compensation or commercial general liability policy with a minimum limit of:**

	\$ <u> 500,000</u>
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Foreign voluntary worker compensation	<u>Statutory</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>
Personal and Advertising Injury	\$ <u>1,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>

**3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:**

**Bodily Injury:**

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

**Property Damage:**

Each accident	\$ <u>1,000,000</u>
<i>[or]</i>	
Combined Single Limit of	\$ <u>1,000,000</u>

**4. Excess or Umbrella Liability:**

Per Occurrence	\$ <u>5,000,000</u>
General Aggregate	\$ <u>5,000,000</u>

**5. Contractor's Pollution Liability:**

Each Occurrence	\$ _____
General Aggregate	\$ _____

If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

**6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: [Additional Insured]**

**SC 6.05.A. Delete Paragraph 6.05.A of the General Conditions and substitute the following in its place:**

**Contractor shall provide and maintain installation floater insurance for property under the care, custody, or control of Contractor. The installation floater insurance shall be a broad form or "all risk" policy providing coverage for all materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work. Coverage under the Contractor's installation floater will include:**

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1. any loss to property while in transit,
2. any loss at the Site, and
3. any loss while in storage, both on-site and off-site.

Coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable. The Contractor will be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment that will be incorporated into the Work while in transit or in storage. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

## **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 Monday –Friday 8am-5 pm.
2. Owner's legal holidays are New Years Day, Martin Luther King Day, Good Friday, Memorial Day, Juneteenth July 4<sup>th</sup>, Labor Day, Veterans Day, Thanksgiving, Christmas Eve, Christmas Day. These holiday’s will be confirmed at the pre-construction conference.

**SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:**

Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer’s services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if 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.

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

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as \$245.00 per hour for Engineer and \$145.00 per hour for Resident Project Representative.  
  
D. Limitation on Value of Subcontracts – The policy of the OWNER requires that the total value of all subcontracted work shall not exceed 50 percent of the total value of the Contract. The intent of this policy is to require that the CONTRACTOR perform at least 50 percent of the work with its own forces and equipment.

## **ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION**

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

- B. The responsibilities of the Resident Project Representative (RPR) are detailed in Specification Section 01 05 50 – Responsibilities of Resident Project Representative.

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## ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC 13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
1. if the extended price of a particular item of Unit Price Work amounts to 25 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
  2. if there is no corresponding adjustment with respect to any other item of Work; and
  3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

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

SC 15.01.C Add the following new paragraph immediately after Paragraph 15.01.C.6.e

7. The Owner will, within ten (10) days of presentation of an approved Application for Payment, review, approve, and submit the Application for Payment to the funding agency.

SC 15.01.D Delete Paragraph 15.01.D in its entirety and insert the following in its place:

*D. Payment Becomes Due:*

1. Within three (3) workdays of the receipt of funds the Owner will pay the Contractor a progress payment on the basis of the approved Application for Payment less the retainage.

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-17.02 Add the following new paragraph immediately after Paragraph 17.01.**

**SC-17.02 Mediation**

- A. All matters subject to final resolution under this Article will be decided by mediation in accordance with the rules set forth in Section 000810 – Dispute Resolution.**

SECTION 00 08 10  
DISPUTE RESOLUTION

RULES IMPLEMENTING MEDIATED  
SETTLEMENT CONFERENCES IN  
NORTH CAROLINA PUBLIC CONSTRUCTION PROJECTS

ADOPTED  
FEBRUARY 26, 2002

TABLE OF RULES

A. RULE

1. Initiating Mediated Settlement Conferences
  - a. Purpose of Mandatory Settlement Conferences
  - b. Initiating the Dispute Resolution Process
2. Selection of Mediator
  - a. Selection of Certified Mediator by Agreement of the Parties
  - b. Nomination and Court Approval of a Non-Certified Mediator
  - c. Appointment of Mediator by the SCO
  - d. Mediator Information Directory
  - e. Disqualification of Mediator
3. The Mediated Settlement Conference
  - a. Where Conference is to be Held
  - b. When Conference is to be Held
  - c. Request to Extend Deadline for Completion
  - d. Recesses
  - e. The Mediated Settlement Conference shall not be cause for the Delay of the Construction Project which is the focus of the Dispute.
4. Duties of Parties and Other Participants in Formal Dispute Resolution Process
  - a. Attendance
  - b. Finalizing Agreement
  - c. The Mediation Fee shall be paid in accordance with G.S. 143-128(f1)
  - d. Failure to Compensate Mediator

5. Authority and Duties of Mediators
  - a. Authority of Mediator
  - b. Duties of Mediator
6. Compensation of the Mediator
  - a. By Agreement
  - b. By Appointment
7. Mediator Certification
8. Rule Making
9. Definitions
10. Time Limits

1. RULE 1. INITIATING MEDIATED SETTLEMENT CONFERENCES

- a. Purpose of Mandatory Settlement Conferences. Pursuant to G.S. 143-128(f1) 143-135.26(11), these Rules are promulgated to implement a system of settlement events which are designated to focus the parties' attention on settlement rather than on claim preparation and to provide a structured opportunity for settlement negotiations to take place. Nothing herein is intended to limit or prevent the parties from engaging in settlement procedures voluntarily at any time prior to or during commencement of the dispute resolution process.
- b. Initiating the Dispute Resolution Process
  - 1) Any party to a public construction contract governed by Article 8. Ch. 143 of the General Statutes and identified in G.S. 143-128(f1) and who is a party to a dispute arising out of the construction process in which the amount in controversy is at least \$15,000 may submit a written request to the public owner for mediation of the dispute.
  - 2) Prior to submission of a written request for mediation to the public owner, the parties requesting mediation,
    - a) If a prime contractor, must have first submitted its claim to the Project Designer for review as set forth in Exhibit A. If the dispute is not resolved through the Project Designer's instructions, then the dispute becomes ripe for mediation in the Formal Dispute Resolution Process, and the party may submit his written request for mediation to the public owner.
    - b) If the party requesting mediation is a subcontractor, it must first have submitted its claim for mediation to the prime contractor with whom it has a contract. If the dispute is not resolved through the Prime Contractor's involvement, then the dispute becomes ripe for mediation in the Formal Dispute Resolution Process, and the party may submit its written request for mediation to the public owner.
    - c) If the party requesting mediation is the Project Designer, then it must first submit its claim to the public owner to resolve. If the dispute is not resolved with the public owner's involvement, then the Project Designers' dispute is ripe for mediation in the Formal Dispute Resolution Process, and the Project Designer may submit its written request to the public owner for mediation.

2. RULE 2. SELECTION OF MEDIATOR

- a. Selection of Certified Mediator by Agreement of the Parties. The parties may select a mediator certified pursuant to the Rules by agreement within 21 days of requesting mediation. The requesting party shall file with the State Construction Office (hereinafter collectively referred to as the "SCO") or public owner if a non-State project a Notice of Selection of Mediator by Agreement within 10 days of the request; however, any party may file the notice. Such notice shall state the name, address and telephone number of the mediator selected; state the rate of compensation of the mediator; state that the mediator and

opposing counsel have agreed upon the selection and rate of compensation; and state that the mediator is certified pursuant to these Rules.

- b. Nomination and Public Owner Approval of a Non-Certified Mediator. The parties may select a mediator who does not meet the certification requirements of these rules but who, in the opinion of the parties and the SCO or public owner, is otherwise qualified by training or experience to mediate the action.
- c. If the parties select a non-certified mediator, the requesting party shall file with the SCO a Nomination of Non-Certified Mediator within 10 days of the request. Such
- d. nomination shall state the name, address and telephone number of the mediator; state the training, experience or other qualifications of the mediator; state the rate of compensation of the mediator; and state that the mediator and opposing counsel have agreed upon the selection and rate of compensation.
- e. The SCO or public owner shall rule on said nomination, shall approve or disapprove of the parties' nomination and shall notify the parties of its decision.
- f. Appointment of Mediator by the SCO. If the parties cannot agree upon the selection of a mediator, the party or party's attorney shall so notify the SCO or public owner and request, on behalf of the parties, that the SCO or public owner appoint a mediator. The request for appointment must be filed within 10 days after request to mediate and shall state that the parties have had a full and frank discussion concerning the selection of a mediator and have been unable to agree. The request shall state whether any party prefers a certified attorney mediator, and if so, the SCO or public owner shall appoint a certified attorney mediator. If no preference is expressed, the SCO or public owner may appoint a certified attorney mediator or a certified non- attorney mediator.
- g. Mediator Information Directory. To assist the parties in the selection of a mediator by agreement, the parties are free to utilize the list of certified mediators maintained in any county participating in the Superior Court Mediation Settlement Conference Program.
- h. Disqualification of Mediator. Any party may request replacement of the mediator by the SCO or public owner for good cause. Nothing in this provision shall preclude mediators from disqualifying themselves.

### 3. RULE 3. THE MEDIATED SETTLEMENT CONFERENCE

- a. Where Conference is to be Held. Unless all parties and the mediator otherwise agree, the mediated settlement conference shall be held in the county where the project is located. The mediator shall be responsible for reserving a place and making arrangements for the conference and for giving timely notice of the time and location of the conference to all attorneys, unrepresented parties and other persons and entities required to attend.
- b. When Conference is to be Held. The deadline for completion of the mediation shall be not less than 30 days nor more than 60 days after the naming of the mediator.

- c. Request to Extend Deadline for Completion. A party, or the mediator, may request the SCO or public owner to extend the deadline for completion of the conference. Such request shall state the reasons the extension is sought and shall be served by the moving party upon the other parties and the mediator. If any party does not consent to the request, said party shall promptly communicate its objection to the SCO or public owner.
  - d. The SCO or public owner may grant the request by setting a new deadline for completion of the conference.
  - e. Recesses. The mediator may recess the conference at any time and may set times for reconvening. If the time for reconvening is set before the conference is recessed, no further notification is required for persons present at the conference.
  - f. The mediated settlement conference shall not be cause for the delay of the construction project which is the focus of the dispute.
4. RULE 4. DUTIES OF PARTIES AND OTHER PARTICIPANTS IN FORMAL DISPUTE RESOLUTION PROCESS
- a. Attendance
    - 1) All parties to the dispute originally presented to the Designer or Prime Contractor for initial resolution must attend the mediation. Failure of a party
    - 2) to a construction contract to attend the mediation will result in the public owner's withholding of monthly payment to that party until such party attends the mediation.
    - 3) Attendance shall constitute physical attendance, not by telephone or other electronic means. Any attendee on behalf of a party must have authority from that party to bind it to any agreement reached as a result of the mediation.
    - 4) Attorneys on behalf of parties may attend the mediation but are not required to do so.
    - 5) Sureties or insurance company representatives are not required to attend the mediation unless any monies paid or to be paid as a result of any agreement reached as a result of mediation require their presence or acquiescence. If such agreement or presence is required, then authorized representatives of the surety or insurance company must attend the mediation.
  - b. Finalizing Agreement. If an agreement is reached in the conference, parties to the agreement shall reduce its terms to writing and sign it along with their counsel.
  - c. The mediation fee shall be paid in accordance with G.S. 143-128(g).
  - d. Failure to compensate mediator. Any party's failure to compensate the mediators in accordance with G.S. 143-128(f1) shall subject that party to a withholding of said amount of money from the party's monthly payment by the public owner.

- e. Should the public owner fail to compensate the mediator, it shall hereby be subject to a civil cause of action from the mediator for the 1/3 portion of the mediator's total fee as required by G.S. 143-128(f1).

5. RULE5. AUTHORITY AND DUTIES OF MEDIATORS

a. Authority of Mediator

- 1) Control of Conference. The mediator shall at all times be in control of the conference and the procedures to be followed.
- 2) Private Consultation. The mediator may communicate privately with any participant or counsel prior to and during the conference. The fact that private communications have occurred with a participant shall be disclosed to all other participants at the beginning of the conference.
- 3) Scheduling the Conference. The mediator shall make a good faith effort to schedule the conference at a time that is convenient with the participants, attorneys, and mediator. In the absence of agreement, the mediator shall select the date for the conference.

b. Duties of Mediator

- 1) The mediator shall define and describe the following at the beginning of the conference:
  - a) The process of mediation;
  - b) The difference between mediation and other forms of conflict resolution;
  - c) The costs of the mediated settlement conference;
  - d) That the mediated settlement conference is not a trial, the mediator is not a judge, and the parties retain their legal rights if they do not reach settlement;
  - e) The circumstances under which the mediator may meet and communicate privately with any of the parties or with any other person;
  - f) Whether and under what conditions communications with the mediator will be held in confidence during the conference;
  - g) The inadmissibility of conduct and statements as provided by G.S. 7A-38.1(1);
  - h) The duties and responsibilities of the mediator and the participants; and
  - i) That any agreement reached will be reached by mutual consent.
- 2) Disclosure. The mediator has a duty to be impartial and to advise all participants of any circumstance bearing on possible bias, prejudice, or partiality.
- 3) Declaring Impasse. It is the duty of the mediator timely to determine that an impasse exists and that the conference should end.
- 4) Reporting Results of Conference. The mediator shall report to the SCO or public owner within 10 days of the conference whether or not an agreement

was reached by the parties. If an agreement was reached, the report shall state the nature of said agreement. The mediator's report shall inform the SCO or public owner of the absence of any party known to the mediator to have been absent from the mediated settlement conference without permission. The SCO or public owner may require the mediator to provide statistical data for evaluation of the mediated settlement conference program.

- 5) Scheduling and Holding the Conference. It is the duty of the mediator to schedule the conference and conduct it prior to the deadline of completion set by the rules. Deadlines for completion of the conference shall be strictly observed by the mediator unless said time limit is changed by a written order of the SCO or public owner.

#### 6. RULE6. COMPENSATION OF THE MEDIATOR

- a. By Agreement. When the mediator is stipulated by the parties, compensation shall be as agreed upon between the parties and the mediator provided that the provision of G.S. 143-128(f1) are observed.
- b. By Appointment. When the mediator is appointed by the SCO or public owner, the parties shall compensate the mediator for mediation services at the rate in accordance with the rate charged for Superior Court mediation. The parties shall also pay to the mediator a one-time per case administrative rate in accordance with the rate charged for Superior Court mediation, which is due upon appointment.

#### 7. RULE7. MEDIATOR CERTIFICATION

All mediators certified in the Formal Dispute Resolution Program shall be properly certified in accordance with the rules certifying mediators in Superior Court in North Carolina. \*When selecting mediators, the parties may designate a preference for mediators with a background in construction law or public construction contracting. Such requirements, while preferred, are not mandatory under these rules.

All mediators chosen must either demonstrate they are certified in accordance with the Rules Implementing Scheduled Mediated Settlement Conference in Superior Court or must gain the consent of the SCO or public owner to mediate any dispute in accordance with these rules.

\*Except when otherwise allowed by the SCO or public owner upon the request of the parties to the mediation.

#### 8. RULE8. RULE MAKING

These Rules are subject to amendment by rule making by the State Building Commission.

These Rules are mandated for State projects when the contracting state entity has not otherwise adopted its own dispute resolution provision. These rules are optional for all other projects subject to Article 8, Ch. 143 of the General Statutes.

#### 9. RULE9. DEFINITIONS

When the phrase "SCO or public owner" is used in these rules, "SCO" shall apply to state projects, "public owner" shall apply to non-state public projects.

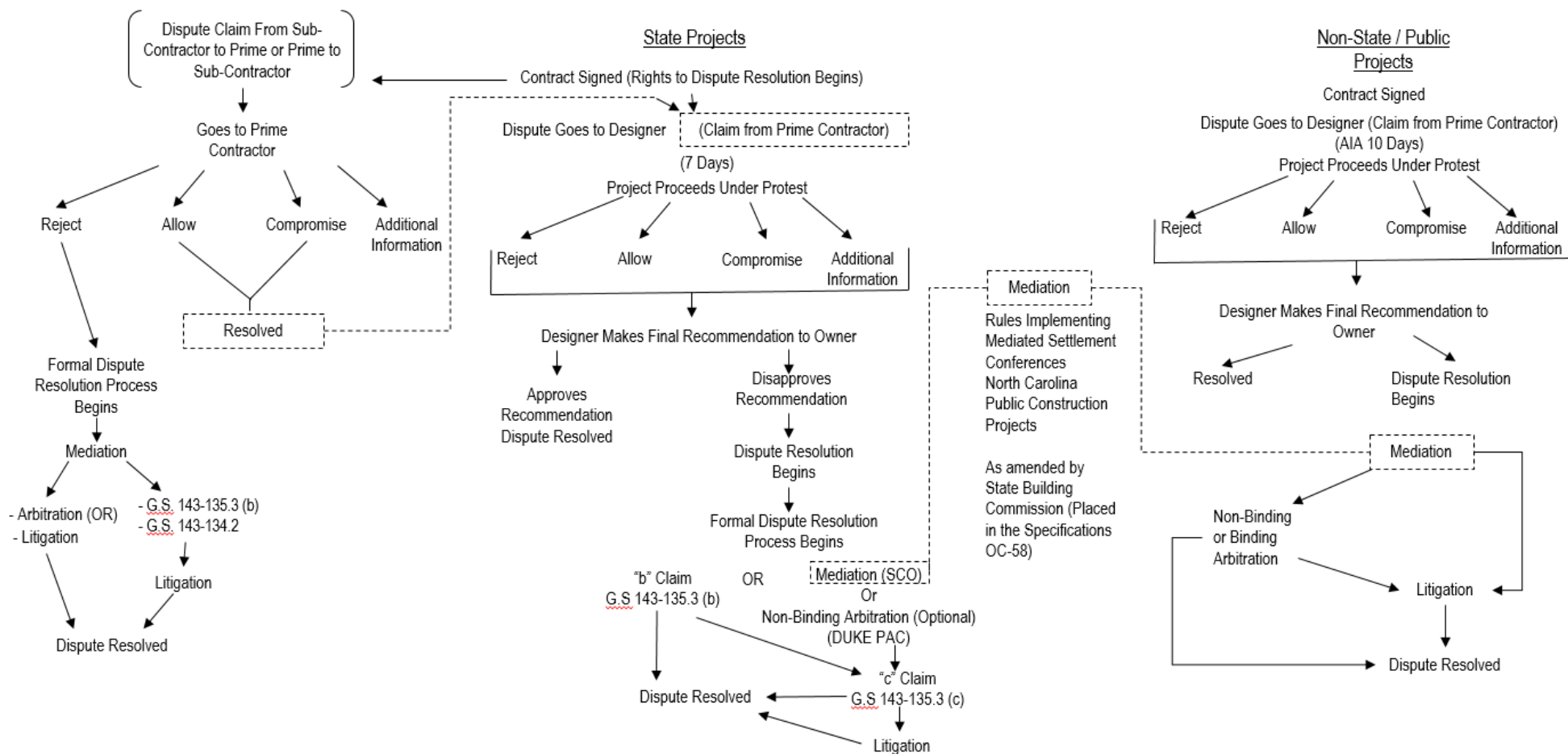
10. RULE 10. TIME LIMITS

On state contracts, any time limit provided for by these Rules may be waived or extended by the SCO for good cause shown.

On non-state contracts, any time limit provided for by these Rules may be waived or extended by the mediator it appoints for good cause shown. If the mediator has not yet been appointed, the designer of record shall decide all waivers or extensions of time for good cause shown.

# Exhibit A

## Dispute Resolution



SECTION 00 09 00  
ADDENDA

(Attach Addenda to this Section)

END OF SECTION

**Work Change Directive No.**

Date of Issuance:

Effective Date:

Owner: City of Elizabeth City

Owner's Contract No.:

Contractor: (Contractor)

Contractor's Project

Engineer: WithersRavenel

Engineer's Project No.: 23-1097-004

Project: KE White Water Tower Disinfection Contract Name:

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

Description:

Attachments: *[List documents supporting change]*

**Purpose for Work Change Directive:**

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

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

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

Contract Price \$ [increase] [decrease].

Contract Time days [increase] [decrease].

**Basis of estimated change in Contract Price:**

- Lump Sum  Unit Price  
 Cost of the Work  Other

RECOMMENDED:

AUTHORIZED BY:

RECEIVED:

By:

By:

By:

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

**Change Order No.** \_\_\_\_\_

Date of Issuance:	Effective Date:
Owner: City of Elizabeth City	Owner's Contract No.:
Contractor: (Contractor)	Contractor's Project No.:
Engineer: WithersRavenel	Engineer's Project No.: 23-1097-004
Project: KE White Water Tower Disinfection Improvements	Contract Name:

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

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
<p>Original Contract Price:</p> <p>\$ _____</p>	<p>Original Contract Times:</p> <p>Substantial Completion:</p> <p>_____</p> <p>_____</p> <p>Ready for Final Payment:</p> <p>_____</p> <p>_____</p> <p style="text-align: center;">days or dates</p>
<p>[Increase] [Decrease] from previously approved Change Orders No. __ to No. __:</p>	<p>[Increase] [Decrease] from previously approved Change Orders No. __ to No. __:</p> <p>Substantial Completion:</p> <p>_____</p> <p>_____</p>

\$ \_\_\_\_\_

Ready for Final Payment:

\_\_\_\_\_  
\_\_\_\_\_  
days

Contract Price prior to this Change Order:

Contract Times prior to this Change Order:

Substantial Completion:

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

\$ \_\_\_\_\_

Ready for Final Payment:

\_\_\_\_\_ days or dates

[Increase] [Decrease] of this Change Order:

[Increase] [Decrease] of this Change Order:

Substantial Completion:

\$ \_\_\_\_\_

Ready for Final Payment:

Contract Price incorporating this Change Order:

Contract Times with all approved Change Orders:

Substantial Completion:

\$ \_\_\_\_\_

Ready for Final Payment:

RECOMMENDED:

ACCEPTED:

ACCEPTED:

By: \_\_\_\_\_  
Engineer (if required)

By: \_\_\_\_\_  
Owner (Authorized Signature)

By: \_\_\_\_\_  
Contractor (Authorized Signature)

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

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

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

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

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

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

Approved by Funding Agency (if applicable)

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

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

**Field Order No.** \_\_\_\_\_

---

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_  
Owner: City of Elizabeth City Owner's Contract No.: \_\_\_\_\_  
Contractor: (Contractor) Contractor's Project No.: \_\_\_\_\_  
Engineer: WithersRavenel Engineer's Project No.: 23-1097-004  
Project: KE White Water Tower Disinfection Contract Name: \_\_\_\_\_  
Improvements

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Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: \_\_\_\_\_  
Specification(s) Drawing(s) / Detail(s)

---

Description:

Attachments:

---

ISSUED: RECEIVED:  
By: \_\_\_\_\_ By: \_\_\_\_\_  
Engineer (Authorized Signature) Contractor (Authorized Signature)

Title:	_____	Title:	_____
Date:	_____	Date:	_____

Copy to: Owner

# **Minority Business Participation Forms**

## **GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS**

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of \$300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

### **SECTION A: INTENT**

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

### **SECTION B: DEFINITIONS**

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
  - a. Black, that is, a person having origins in any of the black racial groups in Africa;
  - b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
  - c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
  - d. American Indian, that is, a person having origins in any of the original peoples of North America; or
  - e. Female
2. Minority Business - means a business:
  - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
  - b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.
3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".
4. Public Entity - means State and all public subdivisions and local governmental units.
5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.
7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.
10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

## **SECTION C: RESPONSIBILITIES**

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

- a. Identify those areas of work for which there are minority businesses, as requested.
- b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
- c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

- (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
- (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
- (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
- (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
- (5) The HUB Office also oversees the minority business program by:
  - a. Monitoring compliance with the program requirements.
  - b. Assisting in the implementation of training and technical assistance programs.
  - c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
  - d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office

The State Construction Office will be responsible for the following:

- a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
  - (1) Project description and location;
  - (2) Locations where bidding documents may be reviewed;
  - (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
  - (4) Date, time and location of the bid opening.
  - (5) Date, time and location of prebid conference, if scheduled.
- b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

- c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
- d. Reviewing of minority business requirements at Preconstruction conference.
- e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
- f. Provide statistical data and required reports to the HUB Office.
- g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

### 3. Owner

Before awarding a contract, owner shall do the following:

- a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
- b. Attend the scheduled prebid conference.
- c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
  - 1. A description of the work for which the bid is being solicited.
  - 2. The date, time, and location where bids are to be submitted.
  - 3. The name of the individual within the owner's organization who will be available to answer questions about the project.
  - 4. Where bid documents may be reviewed.
  - 5. Any special requirements that may exist.
- d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
- e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
- g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
- h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
- i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

### 4. Designer

Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

- a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

- e. During construction phase of the project, review “MBE Documentation for Contract Payment” – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
- f. Make documentation showing evidence of implementation of Designer’s responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager at risk and alternative contracting methods, contractor(s) will:

- a. Attend the scheduled prebid conference.
- b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
- c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
  - (1) A description of the work for which the subbid is being solicited.
  - (2) The date, time and location where subbids are to be submitted.
  - (3) The name of the individual within the company who will be available to answer questions about the project.
  - (4) Where bid documents may be reviewed.
  - (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
- e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
- f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
- g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
- h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
- i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), “MBE Documentation for Contract Payment” – (Appendix E), for designer’s review.
- j. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing, of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

- k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
- l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities

While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

**SECTION 4: DISPUTE PROCEDURES**

It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

**SECTION 5:** These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: [www.nc-sco.com](http://www.nc-sco.com)

**SECTION 6:** In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

## MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

### APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: <http://www.nc-sco.com>

### MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

**OR**

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

**OR**

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

**The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.**

## **MINIMUM COMPLIANCE REQUIREMENTS:**

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

- (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
- (2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
- (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
- (4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- (5) Attending any prebid meetings scheduled by the public owner.
- (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
- (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.



# State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of \_\_\_\_\_

(Name of Bidder)

Affidavit of \_\_\_\_\_

I have made a good faith effort to comply under the following areas checked:

**Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive.** (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

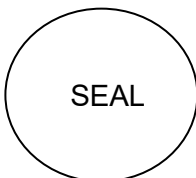
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

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



State of \_\_\_\_\_, County of \_\_\_\_\_

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

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

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

# State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_  
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the \_\_\_\_\_ contract.  
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

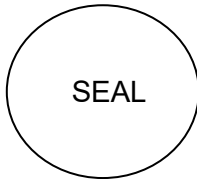
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

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



State of \_\_\_\_\_, County of \_\_\_\_\_

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

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

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

# State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of \_\_\_\_\_

**(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.

This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of \_\_\_\_\_ I do hereby certify that on the \_\_\_\_\_  
(Name of Bidder)

\_\_\_\_\_ (Project Name)  
Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**\*\* HUB Certification with the state HUB Office required to be counted toward state participation goals.**

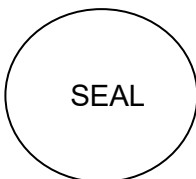
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

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



State of \_\_\_\_\_, County of \_\_\_\_\_

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

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

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

# State of North Carolina

# AFFIDAVIT D – Good Faith Efforts

County of \_\_\_\_\_

**(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of \_\_\_\_\_ I do hereby certify that on the  
 (Name of Bidder)

\_\_\_\_\_  
 (Project Name)  
 Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**\*\* HUB Certification with the state HUB Office required to be counted toward state participation goals.**

**Examples** of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

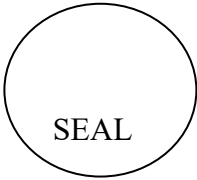
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

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



State of \_\_\_\_\_, County of \_\_\_\_\_

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

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

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

# **Technical Specifications**

## SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Coordination and Project conditions.
- B. Preconstruction meeting.
- C. Progress meetings.
- D. Preinstallation meetings.
- E. Closeout meeting.

#### 1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.
- C. Coordinate space requirements, supports, and installation of utilities. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
  - 1. Coordination Drawings: Prepare as required to coordinate all portions of Work. Show relationship and integration of different construction elements that require coordination during fabrication or installation to fit in space provided or to function as intended. Indicate locations where space is limited for installation and access. Also, indicate locations where sequencing and coordination of installations are important.
- D. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and subcontractors to ensure coordination of Work.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for OWNER's partial occupancy.
- G. After OWNER's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of OWNER's activities.

### 1.3 PRECONSTRUCTION MEETING

- A. ENGINEER will schedule and preside over meeting after Notice of Award.
- B. Attendance Required: ENGINEER, OWNER, Resident Project Representative, Construction Manager, major subcontractors, and CONTRACTOR.
- C. Minimum Agenda:
  - 1. Scope and understanding of work.
  - 2. Submission of executed bonds and insurance certificates.
  - 3. Distribution of Contract Documents.
  - 4. Submission of list of subcontractors, list of products, schedule of values, and Progress Schedule.
  - 5. Designation of personnel representing parties in Contract, and ENGINEER.
  - 6. Communication procedures:
    - a. Contact List and emergency contact number with parties' information including cell numbers, emails, and names.
    - b. Prior to beginning work, the CONTRACTOR shall notify the WithersRavenel (WR) representative.
  - 7. Procedures and processing of requests for interpretations, field decisions, field orders, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
  - 8. Scheduling.
  - 9. Critical Work sequencing.
  - 10. Scheduling activities of Geotechnical Engineer, if applicable.

### 1.4 PROGRESS MEETINGS

- A. ENGINEER will make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.
- B. Attendance Required: Job superintendent, major subcontractors, CONTRACTOR and suppliers, and ENGINEER, OWNER, as appropriate to agenda topics for each meeting.
- C. Minimum Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review of Work progress
  - 3. Field observations and decisions.
  - 4. Identification of problems impeding planned progress.
  - 5. Review of submittal schedule and status of submittals.
  - 6. Review of off-Site fabrication and delivery schedules.
  - 7. Maintenance of Progress Schedule
  - 8. Corrective measures to regain projected schedules
  - 9. Planned progress during succeeding work period
  - 10. Coordination of projected progress
  - 11. Maintenance of quality and work standards
  - 12. Effect of proposed changes on Progress Schedule and coordination
  - 13. Other business relating to Work.

#### 1.5 PREINSTALLATION MEETINGS

- A. When required in individual Specification Sections, convene preinstallation meetings at Project Site before starting Work of specific Section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific Section.
- C. Notify ENGINEER four days in advance of meeting date.
- D. Prepare agenda and preside over meeting:
  - 1. Review conditions of installation, preparation, and procedures.
  - 2. Review coordination with related Work.
- E. Record minutes and distribute copies to participants within two days after meeting, to ENGINEER, OWNER, and those affected by decisions made.

#### 1.6 CLOSEOUT MEETING

- A. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.
- B. Attendance Required: CONTRACTOR, Construction Manager, major subcontractors, ENGINEER, OWNER, and others appropriate to agenda.
- C. Notify ENGINEER four days in advance of meeting date.
- D. Minimum Agenda:
  - 1. Start-up of facilities and systems.
  - 2. Operations and maintenance manuals.
  - 3. Testing, adjusting, and balancing.
  - 4. System demonstration and observation.
  - 5. Operation and maintenance instructions for OWNER's personnel.
  - 6. CONTRACTOR's inspection of Work.
  - 7. CONTRACTOR's preparation of an initial "punch list."
  - 8. Procedure to request ENGINEER inspection to determine date of Substantial Completion.
  - 9. Completion time for correcting deficiencies.
  - 10. Inspections by authorities having jurisdiction.
  - 11. Certificate of Occupancy and transfer of insurance responsibilities.
  - 12. Partial release of retainage.
  - 13. Final cleaning.
  - 14. Preparation for final inspection.
  - 15. Closeout Submittals:
    - a. Project record documents.
    - b. Operating and maintenance documents.
    - c. Operating and maintenance materials.
    - d. Affidavits.

16. Final Application for Payment.
  17. Lien Release documentation.
  18. Warranty Information.
  19. CONTRACTOR's demobilization of Site.
  20. Maintenance.
- E. Record minutes and distribute copies to participants within two days after meeting, to ENGINEER, OWNER, and those affected by decisions made.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

END OF SECTION 013000

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Proposed product list.
- D. Product data.
- E. Use of electronic CAD files of Project Drawings.
- F. Progress Schedule
- G. Shop Drawing Register
- H. Shop Drawings.
- I. Samples.
- J. Design data.
- K. Certified Shop Test reports.
- L. Certificates.
- M. Manufacturer's instructions.
- N. Manufacturer's field reports.
- O. Erection Drawings.
- P. Construction photographs.
- Q. CONTRACTOR review.
- R. ENGINEER review.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require ENGINEER's responsive action.

- B. Informational Submittals: Written and graphic information and physical Samples that do not require ENGINEER's responsive action. Submittals may be rejected for not complying with requirements.

### 1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with ENGINEER-accepted form.
- B. CONTRACTOR shall be required to keep and publish a submittal log for reference by interested parties.
- C. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- D. Identify: Project, CONTRACTOR, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- E. Apply CONTRACTOR's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.
- F. Schedule submittals to expedite Project and submit electronic submittals via email as PDF electronic files. Coordinate submission of related items.
- G. For each submittal for review, allow 15 calendar days excluding delivery time to and from CONTRACTOR.
- H. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- I. Allow space on submittals for CONTRACTOR and ENGINEER review stamps.
- J. When revised for resubmission, identify changes made since previous submission.
- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- L. Incomplete Submittals: ENGINEER will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of ENGINEER.

### 1.4 PROPOSED PRODUCT LIST

- A. Within 15 calendar days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

## 1.5 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to ENGINEER for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit electronic submittals via email as PDF electronic files.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute.

## 1.6 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

- A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Shop Drawings for the Project. Use for other Projects or purposes is not allowed.
- B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
  - 1. Use of files is solely at receiver's risk and by opening/using transmitted information, user accepts terms of ENGINEER's end user license agreement. ENGINEER does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify ENGINEER of discrepancy and use information in hard-copy Drawings and Specifications.
  - 2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
  - 3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
  - 4. Receiver shall not hold ENGINEER responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
  - 5. Receiver shall understand that even though ENGINEER has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
  - 6. Receiver shall not hold ENGINEER responsible for such viruses or their consequences and shall hold ENGINEER harmless against costs, losses, or damage caused by presence of computer virus in files or media.
  - 7. Receiver shall not distribute drawings to unauthorized third parties without the written permission of ENGINEER. Drawings shall remain the property of the ENGINEER under Common Copyright Laws.

## 1.7 PROGRESS SCHEDULE

- A. Within 15 days after issuance of the Notice to Proceed, the CONTRACTOR shall prepare and submit an electronic copy of his proposed progress schedule to the ENGINEER for review and approval.
- B. If so required, the schedule shall be revised until it is approved by the ENGINEER.
- C. Schedule shall be updated monthly, depicting progress to the last day of the month.
- D. An electronic copy of the updated schedule shall be submitted to the ENGINEER not later than the fifth day of the month with the application for progress payment.
- E. The application for progress payment shall be considered incomplete until the updated schedule is received.
- F. Schedule shall be prepared in the form of a horizontal bar chart showing the proposed sequence of the work in sufficient detail and identifying construction activities consistent with the CONTRACTOR's schedule of values in the application for progress payment.
- G. Schedule shall be time scaled, identifying the first day of each week, with the estimated start and complete date of each stage of the work to complete the Project within the Contract time.
- H. Updated schedule shall show all changes since the previous schedule.
- I. All revisions to the schedule must have the prior approval of the ENGINEER.

## 1.8 SHOP DRAWING REGISTER

- A. CONTRACTOR shall prepare and submit an electronic copy of his schedule of shop drawings or shop drawing register to the ENGINEER for review and approval. The shop drawing register shall include all items and information that the CONTRACTOR is required to submit for the ENGINEER to review throughout the course of the project. This shall include all equipment and materials for the project, required CONTRACTOR, subcontractor, or manufacturer qualifications, warranty submittals, etc.
- B. If so required, the schedule shall be revised until it is approved by the ENGINEER.
- C. Schedule shall be updated monthly.
- D. CONTRACTOR shall prepare and submit an electronic copy of the updated schedule to the ENGINEER not later than the fifth day of every month with the application for progress payment.
- E. The application for progress payment shall be considered incomplete until the updated schedule is received.
- F. The updated schedule shall be based on the Progress Schedule developed under the requirements of Section 1.7 of this Section.

- G. Schedule shall be in tabular form with appropriate spaces to insert the following information for principal items of equipment and materials:
1. Date on which Shop Drawings and other information are requested and received from the manufacturer or other appropriate source.
  2. Date on which certification/information is received from the manufacturer or other appropriate source and transmitted to the ENGINEER.
  3. Date on which Shop Drawings and other information are submitted to the ENGINEER and returned by the ENGINEER for revision.
  4. Date on which Shop Drawings and other information are revised by manufacturer and resubmitted to the ENGINEER.
  5. Date on which Shop Drawings and other information are returned by ENGINEER annotated in accordance with ENGINEER review.
  6. Date on which accepted Shop Drawings and other information are transmitted to manufacturer or other appropriate recipient.
  7. Date of manufacturer's scheduled delivery.
  8. Date on which delivery is made.

#### 1.9 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to ENGINEER for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a Professional Engineer registered in the state of North Carolina responsible for designing components shown on Shop Drawings.
1. Include signed and sealed calculations to support design.
  2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
  3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit electronic submittals via email as PDF electronic files.
- E. After review, produce copies and distribute.

#### 1.10 SAMPLES

- A. Samples: Action Submittal: Submit to ENGINEER for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
1. Submit to ENGINEER for aesthetic, color, and finish selection.
  2. Submit Samples of finishes, textures, and patterns for ENGINEER selection.

- C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.
- D. Include identification on each Sample, with full Project information.
- E. Submit number of Samples specified in individual Specification Sections; ENGINEER will retain one Sample.
- F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.
- G. After review, produce copies and distribute.

#### 1.11 DESIGN DATA

- A. Informational Submittal: Submit data for ENGINEER's knowledge as Contract administrator or for OWNER.
- B. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

#### 1.12 CERTIFIED SHOP TEST REPORTS

- A. Each piece of equipment for which pressure, head, capacity, rating, efficiency, performance, function, or special requirements are specified or implied shall be tested in the shop of the manufacturer in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents and applicable test codes and standards.
- B. The CONTRACTOR shall secure from the manufacturers legible electronic copies of the actual test data, the interpreted results and a complete description of the testing facilities and testing setup, all accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company and notarized.
- C. These reports shall be forwarded to the ENGINEER for review.
- D. In the event any equipment fails to meet the test requirements, the manufacturer shall make all necessary changes, adjustments or replacements and the tests shall be repeated, at no additional cost to the OWNER or ENGINEER, until the equipment test requirements are acceptable to the ENGINEER.
- E. No equipment shall be shipped to the Project until the ENGINEER notifies the CONTRACTOR, in writing, that the shop test reports are acceptable.
- F. Copies of certified test data shall be incorporated into the Record Working Drawings.

#### 1.13 CERTIFICATES

- A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or CONTRACTOR to ENGINEER, in quantities specified for Product Data.

- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to ENGINEER.

#### 1.14 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for ENGINEER's knowledge as Contract administrator or for OWNER.
- B. Submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to ENGINEER in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

#### 1.15 MANUFACTURER'S FIELD REPORTS

- A. Informational Submittal: Submit reports for ENGINEER's knowledge as Contract administrator or for OWNER.
- B. Submit report in duplicate within 5 days of observation to ENGINEER for information.
- C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

#### 1.16 ERECTION DRAWINGS

- A. Informational Submittal: Submit Drawings for ENGINEER's knowledge as Contract administrator or for OWNER.
- B. Submit Drawings for information assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by ENGINEER or OWNER.

#### 1.17 CONSTRUCTION PHOTOGRAPHS

- A. Provide photographs of Site and construction throughout progress of Work produced by an experienced photographer acceptable to ENGINEER.
- B. Each month submit photographs with Application for Payment.
- C. Take photographs as evidence of existing Project conditions. Preconstruction site documentation shall include, but not be limited to the following:

1. Record video and/or photographs along centerline of proposed pipe trench; minimum one photograph for each 50 feet of pipe trench.
  2. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing site features.
  3. Include Project description, date taken, and sequential number on back of each photograph.
- D. Digital Images: Deliver complete set of digital image electronic files on USB-Drive or other acceptable method to OWNER with Project record documents. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as sensor, uncropped.
1. Digital Images: Uncompressed JPG format, produced by digital camera with minimum sensor size of 4.0 megapixels, and image resolution of not less than 1024 by 768 pixels.
  2. Date and Time: Include date and time in filename for each image.

#### 1.18 CONTRACTOR REVIEW

- A. Review for compliance with Contract Documents and approve submittals before transmitting to ENGINEER.
- B. CONTRACTOR: Responsible for:
1. Determination and verification of materials including manufacturer's catalog numbers.
  2. Determination and verification of field measurements and field construction criteria.
  3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
  4. Determination of accuracy and completeness of dimensions and quantities.
  5. Confirmation and coordination of dimensions and field conditions at Site.
  6. Construction means, techniques, sequences, and procedures.
  7. Safety precautions.
  8. Coordination and performance of Work of all trades.
  9. Reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.
  10. Determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto.
  11. Determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work.
  12. 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.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until verification that submittals have been reviewed by ENGINEER.
- E. No Work shall be performed that is not in accordance with standard manufacturer's installation instructions without the manufacturer's certification of an alternate method.

1.19 ENGINEER REVIEW

- A. Do not make "mass submittals" to ENGINEER. "Mass submittals" are defined as six or more submittals or items in one day or 20 or more submittals or items in one week. If "mass submittals" are received, ENGINEER's review time stated above will be extended as necessary to perform proper review. ENGINEER will review "mass submittals" based on priority determined by ENGINEER after consultation with OWNER and CONTRACTOR.
- B. Informational submittals and other similar data are for ENGINEER's information, do not require ENGINEER's responsive action, and may not be reviewed or returned with comment.
- C. Submittals made by CONTRACTOR that are not required by Contract Documents may be returned without action.
- D. Submittal approval does not authorize changes to Contract requirements unless accompanied by written Change Order or Construction Change Directive.
- E. OWNER may withhold monies due to CONTRACTOR to cover additional costs beyond the second submittal review.
- F. 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.
- G. ENGINEER's review shall in no way relieve the CONTRACTOR of any of their responsibilities under the Contract.
- H. An acceptance of a submittal shall be interpreted to mean that the ENGINEER has no specific objections to the submitted material, subject to conformance with the Contract Drawings and Specifications.
- I. ENGINEER's review will be confined to general arrangement and compliance with the Contract Drawings and Specifications only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, tolerances, interferences, coordination of trades, etc.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 013300

## SECTION 014000 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Labeling.
- E. Mockup requirements.
- F. Testing and inspection services.
- G. Manufacturers' field services.

#### 1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

#### 1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerance errors to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from ENGINEER before proceeding.

#### 1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes or authorities having jurisdiction.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from ENGINEER before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of ENGINEER shall be altered from Contract Documents by mention or inference in reference documents.

#### 1.5 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
  - 1. Model number.
  - 2. Serial number.
  - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

#### 1.6 MOCK-UP REQUIREMENTS

- A. Tests will be performed under provisions identified in this Section and identified in individual product Specification Sections.
- B. Assemble and erect specified or indicated items with specified or indicated attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mockups shall be comparison standard for remaining Work.

#### 1.7 TESTING AND INSPECTION SERVICES

- A. Employ and pay for services of an independent testing agency or laboratory acceptable to OWNER to perform specified testing.

1. Before starting Work, submit testing laboratory name, address, and telephone number, and names of full-time Professional Engineer and responsible officer.
  2. Submit copy of report of laboratory facilities' inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. Independent firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by ENGINEER, OWNER, and/or authorities having jurisdiction as applicable.
1. Laboratory: Licensed and authorized to operate in the state in which the project is to be constructed.
- C. Reports shall be submitted by independent firm to ENGINEER, CONTRACTOR, and authorities having jurisdiction, indicating observations and results of tests and compliance or noncompliance with Contract Documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
1. Notify ENGINEER and an independent firm 48 hours before expected time for operations requiring services.
  2. Make arrangements with independent firm and pay for additional Samples and tests required for CONTRACTOR's use.
- E. Employment of testing agency or laboratory shall not relieve CONTRACTOR of obligation to perform Work according to requirements of Contract Documents.
- F. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from ENGINEER. Payment for retesting or re-inspection will be charged to CONTRACTOR by deducting testing charges from Contract Sum/Price.
- G. Agency Responsibilities:
1. Test Samples of mixes submitted by CONTRACTOR.
  2. Provide qualified personnel at Site. Cooperate with ENGINEER and CONTRACTOR in performance of services.
  3. Perform indicated sampling and testing of products according to specified standards.
  4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
  5. Promptly notify ENGINEER and CONTRACTOR of observed irregularities or nonconformance of Work or products.
  6. Perform additional tests required by ENGINEER.
  7. Attend preconstruction meetings and progress meetings.
- H. Agency Reports: After each test, promptly submit electronic copies of report to ENGINEER, CONTRACTOR, and authorities having jurisdiction. When requested by ENGINEER, provide interpretation of test results.
- I. Limits on Testing Authority:

1. Agency or laboratory may not release, revoke, alter, or enlarge any requirements of Contract Documents.
2. Agency or laboratory may not approve or accept any portion of the Work.
3. Agency or laboratory may not assume duties of CONTRACTOR.
4. Agency or laboratory has no authority to stop the Work.

#### 1.8 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting, and balancing of equipment, and commissioning as applicable, and to initiate instructions when necessary.
- B. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 014000

## SECTION 016000 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.

#### 1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Domestic Products: Except where specified otherwise, domestic products are required and interpreted to mean products mined, manufactured, fabricated, or produced in United States or its territories.
- E. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- F. Furnish interchangeable components from same manufacturer for components being replaced.

#### 1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

#### 1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide bonded off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

#### 1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one or more manufacturers named and complying with Specifications; no options or substitutions allowed.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 016000

## SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Examination.
- B. Preparation.
- C. Coordination of OWNER's portion of the Work.
- D. Field engineering.
- E. Execution.
- F. Cutting and patching.
- G. Protecting installed construction.
- H. Starting of systems.
- I. Demonstration and instruction.
- J. Closeout procedures.
- K. Final adjustment of accounts.
- L. Final application for payment.
- M. Project record documents.
- N. Operation and maintenance data.
- O. Manual for materials and finishes.
- P. Manual for equipment and systems.
- Q. Spare parts and maintenance products.
- R. Product warranties and product bonds.
- S. Warranty requirements.
- T. Final cleaning.

1.2 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Verify that utility services are available with correct characteristics and in correct locations.

1.3 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance according to manufacturer's instructions.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer-required or -recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

1.4 COORDINATION OF OWNER'S PORTION OF THE WORK

- A. Site Access: Provide access to Project site for OWNER's construction personnel.
  - 1. Refer to Section 015000 – Temporary Facilities and Controls required for OWNER-furnished, CONTRACTOR-installed products.
- B. Coordination: Coordinate construction and operations of the Work with Work performed by OWNER's construction personnel.
  - 1. Construction Schedule: Inform OWNER of CONTRACTOR's preferred construction schedule for OWNER's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify OWNER if changes to schedule are required due to differences in actual construction progress.
  - 2. Preinstallation Conferences: Include OWNER's construction personnel at preinstallation conferences covering portions of the Work that are to receive OWNER's Work. Attend preinstallation conferences conducted by OWNER's construction personnel if portions of the Work depend on OWNER's construction.

1.5 FIELD ENGINEERING

- A. Employ Professional Land Surveyor registered in the State in which the project is being constructed.
- B. Locate and protect survey control and reference points. Promptly notify ENGINEER of discrepancies discovered.
- C. Control datum for survey is indicated on Drawings.

- D. Prior to beginning Work, verify and establish floor elevations of existing facilities to ensure that new Work will meet existing elevations in smooth and level alignment except where specifically detailed or indicated otherwise.
- E. Verify setbacks and easements; confirm Drawing dimensions and elevations.
- F. Provide field engineering services. Establish elevations, lines, and levels using recognized engineering survey practices.
- G. Submit copy of Site drawing signed and sealed by Professional Land Surveyor licensed in the state in which the construction is being performed certifying elevations and locations of the Work are in conformance with Contract Documents.
- H. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.
- I. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to ENGINEER.
- J. Final Property Survey: Refer to Section 010400 – Construction Surveying for detailed information related to survey requirements. Prior to Substantial Completion, prepare final property survey illustrating locations, dimensions, angles, and elevations of structures and Site Work that have resulted from construction indicating their relationship to permanent benchmarks and property lines.
  - 1. Show significant features (real property) for Project.
  - 2. Include certification on survey, signed by Professional Land Surveyor licensed in the state in which the construction is being performed, that principal metes, bounds, lines, levels, and elevations of Project are accurately shown.

#### 1.6 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from ENGINEER before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
  - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
  - 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.

3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual effect choices to ENGINEER for final decision.

#### 1.7 CUTTING AND PATCHING

- A. Employ skilled and experienced Installers to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements affecting the following:
  1. Structural integrity of element.
  2. Integrity of weather-exposed or moisture-resistant elements.
  3. Efficiency, maintenance, or safety of element.
  4. Visual qualities of sight-exposed elements.
  5. Work of OWNER or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill to complete Work and to accomplish the following:
  1. Fit the several parts together, to integrate with other Work.
  2. Uncover Work to install or correct ill-timed Work.
  3. Remove and replace defective and nonconforming Work.
  4. Remove samples of installed Work for testing.
  5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

#### 1.8 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects where applicable.
- D. Prohibit traffic or storage upon waterproofed or roofed surfaces.
- E. Prohibit traffic from landscaped areas.

#### 1.9 STARTING OF SYSTEMS

- A. Coordinate schedule for startup of various equipment and systems.
- B. Notify ENGINEER and OWNER seven days prior to startup of each item.

- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute startup under supervision of manufacturer's representative or CONTRACTORS' personnel according to manufacturer's instructions.
- G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.

#### 1.10 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate operation and maintenance of products to OWNER's personnel two weeks prior to date of Substantial Completion.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with OWNER's personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate startup, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, and agreed location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

#### 1.11 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
  - 1. Submit maintenance manuals, Project record documents, digital images of construction photographs, and other similar final record data in compliance with this Section.
  - 2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to OWNER's operating and maintenance personnel as specified in compliance with this Section.
  - 3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.

4. Obtain and submit releases enabling OWNER's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
5. Deliver tools, spare parts, extra stocks of material, and similar physical items to OWNER.
6. Make final change-over of locks eliminating construction master-key system and transmit keys directly to OWNER. Advise OWNER's personnel of change-over in security provisions.
7. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
8. Perform final cleaning according to this Section.

B. Substantial Completion Inspection:

1. When CONTRACTOR considers Work to be substantially complete, submit to ENGINEER and OWNER:
  - a. Written certificate that Work, or designated portion, is substantially complete.
  - b. List of items to be completed or corrected (initial punch list).
2. Within 14 days after receipt of request for Substantial Completion, ENGINEER and/or OWNER will make inspection to determine whether Work or designated portion is substantially complete.
3. Should ENGINEER and/or OWNER determine that Work is not substantially complete:
  - a. ENGINEER will promptly notify CONTRACTOR in writing, stating reasons for its opinion.
  - b. CONTRACTOR shall remedy deficiencies in Work and send second written request for Substantial Completion to ENGINEER and OWNER.
  - c. ENGINEER and/or OWNER will reinspect Work.
4. Reinspection Fees
  - a. Should the ENGINEER perform reinspection due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR:
  - b. OWNER will compensate the ENGINEER for such additional services.
  - c. OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.
5. When ENGINEER and/or OWNER finds that Work is substantially complete, ENGINEER will:
  - a. Prepare Certificate of Substantial Completion, accompanied by CONTRACTOR's list of items to be completed or corrected as verified and amended by ENGINEER and OWNER (final punch list).
  - b. Submit Certificate to OWNER and CONTRACTOR for their written acceptance of responsibilities assigned to them in Certificate.
6. After Work is substantially complete, CONTRACTOR shall:
  - a. Allow OWNER occupancy of Project under provisions stated in Certificate of Substantial Completion.

- b. Complete Work listed for completion or correction within time period stipulated.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
1. When CONTRACTOR considers Work to be complete, submit written certification that:
    - a. Contract Documents have been reviewed.
    - b. Work has been examined for compliance with Contract Documents.
    - c. Work has been completed according to Contract Documents.
    - d. Work is completed and ready for final inspection.
  2. Submittals: Submit following:
    - a. Final punch list indicating all items have been completed or corrected.
    - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
    - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
    - d. Accounting statement for final changes to Contract Sum.
    - e. CONTRACTOR's affidavit of payment of debts and claims on AIA G706 - CONTRACTOR's Affidavit of Payment of Debts and Claims.
    - f. CONTRACTOR affidavit of release of liens on AIA G706A - CONTRACTOR's Affidavit of Release of Liens.
    - g. Consent of surety to final payment on AIA G707 - Consent of Surety to Final Payment Form.

#### 1.12 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the ENGINEER. The statement shall reflect the following:
1. All adjustments to the Contract Sum
  2. The original Contract Sum
  3. Additions and deductions resulting from the following:
    - a. Previous Change Orders
    - b. Allowances
    - c. Unit Prices
    - d. Deductions for uncorrected Work
    - e. Deductions for liquidated damages
    - f. Deductions for reinspection payments
    - g. Other adjustments
  4. Total Contract Sum, as adjusted
  5. Previous payments
  6. Sum remaining due
- B. ENGINEER will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.13 FINAL APPLICATION FOR PAYMENT

- A. CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the General Conditions of the Contract.

1.14 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
1. Drawings.
  2. Specifications.
  3. Addenda.
  4. Change Orders and other modifications to the Contract.
  5. Reviewed Shop Drawings, product data, and Samples.
  6. Field Test Reports.
  7. Construction photographs.
  8. All construction related permits.
  9. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by OWNER.
- C. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
  2. Product substitutions or alternates used.
  3. Changes made by Addenda and modifications.
- D. Record Drawings and Shop Drawings: No work shall be permanently concealed until the required information has been recorded. Legibly mark each item to record actual construction as follows:
1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
  2. Include locations of concealed elements of the Work.
  3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
  4. Actual installed pipe material, class, etc.
  5. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
  6. Identify and locate existing buried or concealed items encountered during Project.
  7. Measured depths of foundations in relation to finish first floor datum.
  8. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  9. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  10. Field changes of dimension and detail.
  11. Details not on original Drawings.
- E. Submit PDF electronic files of marked-up documents to ENGINEER with claim for final Application for Payment.

1.15 OPERATION AND MAINTENANCE DATA

- A. Submit in PDF composite electronic indexed file.
- B. Submit data bound in 8-1/2 x 11-inch text pages, three D side ring binders with durable plastic covers.
- C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project, and subject matter of binder when multiple binders are required.
- D. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- F. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
  - 1. Part 1: Directory, listing names, addresses, and telephone numbers of ENGINEER, CONTRACTOR, subcontractors, and major equipment suppliers.
  - 2. Part 2: Operation and maintenance instructions, arranged by system For each category, identify names, addresses, and telephone numbers of subcontractors and suppliers.
  - 3. Part 3: Project documents and certificates.

1.16 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. ENGINEER will review draft and return one copy with comments. ENGINEER and the OWNER shall be the sole judge of the acceptability and completeness of the manuals and may reject any submittal for insufficient information including incorrect references and/or the manner in which the material is assembled.
- B. For equipment or component parts of equipment put into service during construction and operated by OWNER, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned after final inspection, with ENGINEER comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes within ten days after final inspection.
- E. Submit in PDF composite electronic indexed file of final manual within ten days after final inspection.
- F. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include information for re-ordering custom-manufactured products.

- G. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

#### 1.17 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. ENGINEER and the OWNER shall be the sole judge of the acceptability and completeness of the manuals and may reject any submittal for insufficient information including incorrect references and/or the manner in which the material is assembled.
- B. ENGINEER will review draft and return one copy with comments.
- C. For equipment, or component parts of equipment put into service during construction and operated by OWNER, submit documents within ten days after acceptance.
- D. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy will be reviewed and returned after final inspection, with ENGINEER comments. Revise content of document sets as required prior to final submission.
- E. Submit two sets of revised final volumes within days after final inspection.
- F. Submit in PDF composite electronic indexed file of final manual within ten days after final inspection.
- G. Each Item of Equipment and Each System: Include description of unit or system and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
  - 1. For pumps, the Operation and Maintenance manual cover sheets shall include the following:
    - a. Manufacturer
    - b. Manufacturer's local representative with address and telephone number
    - c. Source of spare parts with address and telephone number
    - d. Operating conditions, i.e., rated capacity and TDH
    - e. Model number, serial number, and impeller diameter
- H. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; by label machine.
- I. Operating Procedures: Include startup, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.
- J. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- K. Include servicing and lubrication schedule and list of lubricants required.

1.18 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.
- B. Deliver to Project Site and place in location as directed by OWNER; obtain receipt prior to final payment.

1.19 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Time of Submittals:
  - 1. For equipment or component parts of equipment put into service during construction with OWNER's permission, submit documents within ten days after acceptance.

1.20 WARRANTY REQUIREMENTS

- A. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty
  - 1. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement.
  - 2. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost
  - 1. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents.
  - 2. The CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Written warranties made to the OWNER are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.
- E. The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.

- F. The OWNER reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work until evidence is presented that entities required to countersign such commitments are willing to do so.
- G. Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.
- H. Each Prime CONTRACTOR is responsible for warranties related to its own Contract.

1.21 FINAL CLEANING

- A. Execute final cleaning prior to final Project payment.
  - 1. Employ experienced personnel or professional cleaning firm.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 017000

## SECTION 079000 - JOINT PROTECTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Sealants and joint backing.
2. Precompressed foam sealers.
3. Hollow gaskets.
4. Accessories.

#### 1.2 REFERENCE STANDARDS

##### A. ASTM International:

1. ASTM C834 - Standard Specification for Latex Sealants.
2. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
3. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
5. ASTM D1056 - Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.
6. ASTM D1667 - Standard Specification for Flexible Cellular Materials – Poly (Vinyl Chloride) Foam (Closed-Cell).
7. ASTM D2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements.

#### 1.3 COORDINATION

- A. Section 013000 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with Sections referencing this Section.

#### 1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit special procedures, surface preparation requirements, and perimeter conditions requiring special attention.

1.5 QUALITY ASSURANCE

- A. Perform Work according to state and local standards.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store products according to manufacturer instructions.
- D. Protection:
  - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
  - 2. Provide additional protection according to manufacturer instructions.

1.7 AMBIENT CONDITIONS

- A. Section 015000 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Maintain temperature and humidity as recommended by sealant manufacturer during and after installation.

1.8 WARRANTY

- A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.
- B. Include coverage for:
  - 1. Installed sealants and accessories failing to achieve watertight seal.
  - 2. Installed sealants and accessories exhibiting loss of adhesion or cohesion.
  - 3. Sealants that do not cure.

PART 2 - PRODUCTS

2.1 JOINT SEALERS

- A. Manufacturers:
  - 1. Bostik, Inc.
  - 2. DAP Products Inc.
  - 3. Dayton Superior Specialty Chemicals.
  - 4. EMSEAL Joint Systems, Ltd.

5. GE Construction Sealants; Momentive Performance Materials Inc.
6. LymTal International Inc.
7. Master Builders Solutions.
8. May National Associates, Inc.; a subsidiary of Sika Corporation.
9. Pacific Polymers®; ITW Polymers Sealants North America.
10. Pecora Corporation.
11. Permathane®/Acryl-R®; ITW Polymers Sealants North America.
12. Polymeric Systems, Inc.
13. Schul International Company, Inc.
14. Sealex, Inc.
15. Sherwin-Williams Company (The).
16. Sika Corporation.
17. The Dow Chemical Company.
18. Tremco Incorporated.
19. Willseal LLC.
20. Substitutions: As specified in Section 016000 - Product Requirements.

## 2.2 JOINT SEALERS BY APPLICATION

### A. High-Performance General-Purpose Exterior (Nontraffic) Sealant:

1. Material: Silicone or Polyurethane.
2. Comply with ASTM C920, Grade NS, Class 25, Uses M, G, and A.
3. Type: Single- or multiple-component.
4. Color: Standard; match finished surfaces.
5. Applications:
  - a. Control, expansion, and soft joints in masonry.
  - b. Joints between concrete and other materials.
  - c. Other exterior nontraffic joints for which no other sealant is indicated.

### B. Exterior Compressible Gasket Expansion Joint Sealer:

1. Description: Hollow neoprene (polychloroprene) compression gasket.
2. Comply with ASTM D2628.
3. Color: Black.
4. Size and Shape: As indicated on Drawings.
5. Applications: Exterior wall and parking area expansion joints.

## 2.3 ACCESSORIES

### A. Primer:

1. Type: Non-staining.
2. As recommended by sealant manufacturer to suit application.

### B. Joint Cleaner:

1. Type: Non-corrosive and non-staining.

2. As recommended by sealant manufacturer.
  3. Compatible with joint forming materials.
- C. Joint Backing:
1. Description: Round foam rod, compatible with sealant.
  2. Comply with ASTM D1056, sponge or expanded rubber.
  3. Size: Oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker:
1. Description: Pressure-sensitive tape.
  2. As recommended by sealant manufacturer to suit application.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for application examination.
- B. Verify that joint openings are ready to receive Work of this Section.
- C. Verify that joint backing and release tapes are compatible with sealant.

#### 3.2 PREPARATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for application preparation.
- B. Comply with ASTM C1193.
- C. Remove loose materials and foreign matter that could impair adhesion of sealant.
- D. Clean and prime joints.
- E. Protect elements surrounding Work of this Section from damage or disfiguration.

#### 3.3 APPLICATION

- A. Comply with ASTM C1193.
- B. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated on Drawings.
- C. Install bond breaker where joint backing is not used.

- D. Apply sealant free of air pockets, foreign embedded matter, ridges, and sags.
- E. Joint Tooling: Concave unless otherwise detailed on Drawings.
- F. Precompressed Foam Sealant:
  - 1. Do not stretch.
  - 2. Avoid joints except at corners, ends, and intersections.
  - 3. Apply with face 1/8 to 1/4 inch below adjoining surface.
- G. Compression Gaskets:
  - 1. Avoid joints except at ends, corners, and intersections.
  - 2. Seal joints with adhesive.
  - 3. Install with face 1/8 to 1/4 inch below adjoining surface.

### 3.4 CLEANING

- A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Clean adjacent soiled surfaces.

### 3.5 PROTECTION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Protect sealants until cured.

END OF SECTION 079000

## SECTION 330110.58 - DISINFECTION OF WATER UTILITY PIPING SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Scope of Work

1. Furnish all labor, equipment, materials and incidentals necessary to perform and complete the disinfection of potable water lines and appurtenances in accordance with the plans. All products and procedures shall be of the type and class specified herein.

##### B. Section Includes:

1. Disinfection of potable water distribution system.
2. Testing and reporting of results.

#### 1.2 REFERENCE STANDARDS

##### A. American Water Works Association:

1. AWWA B300 - Hypochlorites.
2. AWWA C651 - Disinfecting Water Mains.

##### B. North Carolina Administrative Code

1. 15A NCAC 18C – Rules Governing Public Water Systems

#### 1.3 SUBMITTALS

##### A. Section 013300 - Submittal Procedures: Requirements for submittals.

##### B. Disinfection Procedure:

1. Submit description of procedure, including type of disinfectant and calculations indicating quantities of disinfectants required to produce specified chlorine concentration.

##### C. Product Data: Submit manufacturer information for proposed chemicals and treatment doses.

##### D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

##### E. Certify that final water complies with disinfectant quality standards of authority having jurisdiction.

##### F. Test and Evaluation Reports: Indicate testing results comparative to specified requirements.

##### G. Field Quality-Control Submittals: Indicate results of CONTRACTOR-furnished tests and inspections.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.
- B. Disinfection Report:
  - 1. Type and form of disinfectant used.
  - 2. Date and time of disinfectant injection start and completion.
  - 3. Test locations.
  - 4. Name of person collecting samples.
  - 5. Initial and 24-hour disinfectant residuals in treated water in ppm for each outlet tested.
  - 6. Date and time of flushing start and completion.
  - 7. Disinfectant residual after flushing in ppm for each outlet tested.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work according to AWWA C651 and 15A NCAC 18C.

### PART 2 - PRODUCTS

#### 2.1 DISINFECTION CHEMICALS

- A. Chemicals:
  - 1. Sodium Chlorite: Comply with AWWA B300-10.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that piping system has been cleaned, inspected, and pressure tested.
- C. Perform scheduling and disinfecting activity with startup, water pressure testing, adjusting and balancing, and demonstration procedures, including coordination with OWNER and ENGINEER and with related systems.

#### 3.2 PROCEDURE

- A. Provide required equipment to perform Work of this Section.
  - 1. Taps shall be made at the extremities of the line for introducing sodium hypochlorite and for monitoring chlorine concentration and collecting samples.
- B. Flush lines to remove sediment and other foreign matter.

- C. Introduce sodium hypochlorite solution into piping system to provide a uniform distribution of chlorine throughout the piping system. Powdered hypochlorite and hypochlorite tablets shall not be added directly to piping systems.
  - 1. All pipe, valves, fittings, and appurtenances connected to and forming a part of a potable water supply shall be disinfected in accordance with the procedures described in AWWA C651 Section 4.4.3 (The Continuous Feed Method).
  - 2. A solution of water containing concentrated sodium hypochlorite with 5-15% available chlorine shall be introduced into the line by regulated pumping.
    - a. The solution shall be of such concentration that the line shall have a uniform minimum concentration of not less than 25 ppm total chlorine immediately after introduction.
    - b. The sodium hypochlorite solution shall be distributed in the piping system by manipulating the chemical feed pump, the introduction of potable water, hydrants and taps at the extremities of the line to produce an even distribution of chlorine throughout the piping system.
    - c. Pipelines may, at the option of the CONTRACTOR and in coordination with the OWNER and ENGINEER, be chlorinated in sections isolated by means of gate valves or other approved means.
    - d. All valves on the lines being disinfected shall be opened and closed several times during the disinfection contact period, except those used to isolate the pipe from the main system.
    - e. Disinfecting shall take place in the presence of the ENGINEER.
- D. The chlorine solution shall remain in contact with interior surfaces of the piping system for a period of 24 hours, minimum.
  - 1. Free residual chlorine after 24 hours shall be not less than 10 ppm.
  - 2. Disinfecting shall be repeated as often as necessary and as directed by the ENGINEER and/or the OWNER until the minimum requirements are reached.
  - 3. The CONTRACTOR shall exercise extreme caution to ensure that the sodium hypochlorite solution does not enter active water mains.
- E. Disposal:
  - 1. Neutralize disinfectant solution before disposal.
  - 2. Legally dispose of disinfection solution off Project Site.
- F. After final flushing and before the new main is connected to the distribution system two (2) consecutive samples, taken at least 24 hours apart (unless otherwise specified by authority having jurisdiction), shall be collected.
  - 1. After water mains have been disinfected and flushed, the CONTRACTOR shall collect samples for turbidity and bacteriological analysis. Payment for testing shall be borne by the CONTRACTOR.
  - 2. All sampling shall be done in the presence of the ENGINEER or a representative of a certified laboratory and shall follow proper chain of custody procedures.
  - 3. The requirements of AWWA C651 shall dictate the number and locations of samples to be collected and tested based on the length and configuration of the constructed system. No water samples shall be collected from a fire hydrant.
  - 4. Bacteriological tests shall be performed by a State Certified Laboratory.
  - 5. Test results shall be provided to the ENGINEER by the authorized testing agency/firm immediately upon completion of the testing procedure.
  - 6. If test results are unsatisfactory, the CONTRACTOR shall re-flush and re-sample the line at no additional cost to the OWNER. If check samples fail then the disinfection procedure

shall be repeated until two (2) consecutive tests, taken at least 24 hours apart (unless otherwise specified by authority having jurisdiction), provide acceptable results.

7. If bacteriological tests of the samples indicate that the water quality is satisfactory, the OWNER may elect to place the water mains in service.

- G. Replace permanent system devices that were removed for disinfection.

### 3.3 FIELD QUALITY CONTROL

- A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.

END OF SECTION 330110.58

## SECTION 330505.31 - HYDROSTATIC TESTING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Hydrostatic testing of pressure piping.
- B. Scope of Work
  - 1. Furnish all labor, equipment, materials, and incidentals necessary to perform and complete hydrostatic testing of all piping in accordance with the plans. All testing materials and procedures shall be of the type specified herein.

#### 1.2 REFERENCE STANDARDS

- A. American Water Works Association:
  - 1. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
  - 2. AWWA C605 – Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings
- B. North Carolina Administrative Code
  - 1. 15A NCAC 18C – Rules Governing Public Water Systems

#### 1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Submit following items prior to start of testing:
  - 1. Testing procedures.
  - 2. List of test equipment.
  - 3. Testing sequence schedule.
  - 4. Provisions for disposal of flushing and test water.
  - 5. Certification of test gage calibration.
- C. Test and Evaluation Reports: Indicate results of piping tests.
- D. Qualifications Statement:
  - 1. Submit qualifications for applicator.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work according to 15A NCAC 18C and AWWA standards.

## PART 2 - PRODUCTS

### 2.1 HYDROSTATIC TESTING

#### A. Equipment:

1. Pressure pump.
2. Pressure hose.
3. Water meter.
4. Test connections.
5. Pressure relief valve.
6. Pressure Gage: Calibrated to 0.1 psi.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that piping is ready for testing.
- C. Verify that trenches are backfilled.
- D. Verify that pressure piping thrust restraints have been installed.

### 3.2 FIELD QUALITY CONTROL

- A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- C. Testing shall be in accordance with authorities having jurisdiction. If there are no indicated testing requirements by authorities with jurisdiction, then Testing shall be in accordance with the below requirements.
- D. Testing of Pressure Piping:
  1. Test system according to AWWA C600 and following:
    - a. All testing shall be performed in the presence of the Owner, the Engineer, or other authorized representative.
    - b. Prior to testing any segment of pressure main, care shall be taken to prevent the pipe from moving while under pressure.
    - c. Water for testing purposes will be provided by the Owner. Contractor shall follow all policies and procedures to obtain, measure, and pay for the use of testing water.

- d. Water used for testing pressure main installations shall be disposed of in a near-by sanitary sewer, as authorized by the local sewer authority, or in another location in accordance with state and federal laws and regulations.
  - e. The pressure test may be performed concurrently or separately with the leakage test.
  - f. The pressure test shall be performed after the pressure main has been backfilled and at least seven days after the pouring of the last thrust block.
  - g. At no time shall more than 1,000 linear feet of main be tested except as approved by the Owner or Engineer.
  - h. Tests of insulated and concealed piping shall be made before the piping is covered or concealed. No leakage will be allowed under the above tests for piping under or in buildings.
  - i. The Contractor shall notify the Engineer when the work is ready for testing with all testing done in the presence of the Engineer. All labor, equipment, water, and materials, including meters and gauges shall be furnished by the Contractor at his own expense.
  - j. When hydrants are in the test section, the test shall be made against the main valve in the hydrant.
2. Pressure test piping system according to AWWA C600 (ductile iron pipe), C605 (PVC pipe), and following:
  3. Test Pressure
    - a. Not less than 150 psig, or not less than 1.25 times the working pressure of the pipe at the high point, or not less than 1.5 times the working pressure at the low point, whichever is greater.
    - b. Conduct hydrostatic test for a minimum of two consecutive hours.
    - c. Introduced water from a temporary connection made in the pressure main or as approved by Engineer and Owner.
    - d. Slowly fill (approximately one foot per second) section to be tested with water; expel air from piping at high points. Pressure shall be applied to the main by means of a hand pump for small lines or by use of a mechanical pump for larger lines.
    - e. If permanent air vents are not located at all high points, the Contractor shall install corporation cocks at such points so the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied.
    - f. Raise pressure to specified test pressure. Test duration shall be 2 hours minimum.
    - g. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
    - h. Compute maximum allowable leakage using following formula:

$$L = \frac{SD\sqrt{P}}{C}$$

L = testing allowance, gph.

S = length of pipe tested, feet.

D = nominal diameter of pipe, inches.

P = average test pressure during hydrostatic test, psig.

C = 148,000.

- i. If pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.
- j. Leakage:
  - 1) If test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
  - 2) Correct visible leaks regardless of quantity of leakage.
  - 3) The allowable leakage for various pipe sizes and test pressures is graphically represented below:

Allowable Makeup Water per 1,000 Feet of Pipeline (Gallons/Hour)														
Test Pressure (P.S.I.)	Pipe Diameter													
	2	3	4	6	8	10	12	14	16	18	20	24	30	36
100	0.14	0.20	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62	2.03	2.43
125	0.15	0.23	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.51	1.81	2.27	2.72
150	0.17	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99	2.48	2.98
175	0.18	0.27	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15	2.68	3.22
200	0.19	0.29	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29	2.87	3.44
225	0.20	0.30	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43	3.04	3.65
250	0.21	0.32	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56	3.21	3.85
275	0.22	0.34	0.45	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.24	2.69	3.36	4.03
300	0.23	0.35	0.47	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.34	2.81	3.51	4.21

- 4. Pressure test HDPE piping according to the following:
  - a. Test Pressure: Not less than 150 psig based on the elevation of the highest point of the line or section under test.
  - b. The pressure testing of an HDPE line section shall be tested separately from the PVC and DIP line sections.
  - c. Maximum duration for pressure test, including initial and final phase of the test, shall not exceed eight (8) hours. If the test is not completed due to leakage, equipment failure, etc., depressurize the test section and then allow it to “relax” for at least eight (8) hours before bringing the test section up to test pressure again.
  - d. Introduce water from a temporary connection made in the pressure main or as approved by Engineer and Owner. Bleed as much air as possible.
  - e. Slowly fill (approximately one foot per second) section to be tested with water; expel air from piping at high points. Pressure shall be applied to the main by means of a hand pump for small lines or by use of a mechanical pump for larger lines.
  - f. Initially, the pressure within the test section shall be raised to approximately 160 psi and then allowed to be idle (no additional make-up water to be injected) for approximately 3 hours. During this 3-hour period, the test section shall be allowed to stabilize and come to an equilibrium stage. No additional make-up water shall be injected to the test section during this 3-hour stabilization period unless the line

- pressure drops below 140 psi. In this case, make-up water shall only be injected to the test section to maintain a minimum of 140 psi (during the 3-hour stabilization period).
- g. The final phase of the pressure test shall involve injecting make-up water to achieve an “Initial test pressure” of 150 psi (minimum) / 155 psi (maximum). The test section is then allowed to be idle (no additional make-up water to be injected) for a period of 2 hours. After this 2-hour period, make-up water is injected to re-establish the “initial test pressure.”
  - h. Maintain pressure within plus or minus 5 psi of test pressure.
  - i. Leakage is defined as the quantity of water necessary to maintain test pressure during period of test.
  - j. If pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.
  - k. Leakage:
    - 1) If test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
    - 2) Correct visible leaks regardless of quantity of leakage.
    - 3) The allowable leakage for various pipe sizes is graphically represented below. If the actual make-up water quantity is equal to or less than the allowable amount, the pressure test passes. If the actual make-up water quantities are greater than the allowable amount, the pressure test fails.
  - l. Hydrostatic Pressure Testing of Gravity Lines
    - 1) Where indicated on the drawings, gravity lines shall conform to materials, testing methods, and acceptability standards meeting water main standards. A hydrostatic pressure test shall be conducted in accordance with the testing requirements except that the test pressure shall be as indicated on the drawings. The test shall be performed prior to the installation of any services.

END OF SECTION 330505.31

## SECTION 331413 - PUBLIC WATER UTILITY DISTRIBUTION PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Scope of Work

1. Furnish all labor, equipment, materials, and incidentals necessary to install and complete installation of potable water lines and appurtenances in accordance with the plans. All pipe and appurtenance material shall be of the type and class specified herein.
2. All pipeline and appurtenance excavation, bedding, pipe laying, jointing and coupling of pipe joints shall be completed as described herein.

##### B. Section Includes:

1. Pipe materials and fittings for public water distribution systems.
2. Tapping sleeves and valves.
3. Positive-displacement meters.
4. Pipe support systems.
5. Bedding and cover materials.

#### 1.2 REFERENCE STANDARDS

##### A. American Society of Mechanical Engineers:

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

##### B. ASTM International:

1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
3. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
4. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
5. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
6. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

##### C. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

5. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
7. AWWA C153 - Ductile-Iron Compact Fittings.
8. AWWA C206 - Field Welding of Steel Water Pipe.
9. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
10. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings.
11. AWWA C606 - Grooved and Shouldered Joints.
12. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In., for Water Transmission and Distribution.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

E. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

F. North Carolina Department of Transportation:

1. Standard Specifications for Roads & Structures, latest edition.

### 1.3 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with utility Owner/Jurisdiction and Engineer.

C. Do not interrupt service to facilities occupied by Owner/Jurisdiction or others unless approved by the Engineer and Owner no fewer than 72 hours in advance of proposed interruption and after arranging to provide temporary water distribution service and fire flow protection.

### 1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit product technical information regarding pipe materials, pipe fittings, valves, hydrants, and other appurtenances.

C. Product technical information shall be furnished to the Engineer for his review and approval prior to installation of any materials. The Engineer may augment the technical information or product or request substitute products and technical information if, in his opinion, it will best serve the interest of the Owner/Jurisdiction.

D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

- E. Preconstruction Photographs and/or Video: Submit digital files of photographs and/or video of Work areas and material storage areas in accordance with Section 013300.00 Submittal Procedures.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements
- B. Project Record Documents: Record actual locations of piping, valves, connections, thrust restraints, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### 1.6 QUALITY ASSURANCE

- A. Perform Work according to 15A NCAC 18C.
- B. Valves: Mark valve body with manufacturer's name and pressure rating.
- C. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372, including marking "NSF-pw" on piping.
- D. Perform Work according to the following requirements:
  - 1. Comply with all requirements of utility Owner including the tapping of water mains and backflow prevention.
  - 2. Comply with all standards of authorities having jurisdiction for potable water service piping, including materials, installation, testing, and disinfection.
  - 3. Comply with standards of authorities having jurisdiction for fire suppression water service piping, including materials, hose threads, installation, and testing.

#### 1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.
- B. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience in installation of liner materials.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements:
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:

1. Store materials according to manufacturer instructions.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
4. Store PE and PVC materials out of sunlight.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Plastic materials shall be supported to prevent sagging and bending.
3. Plastic materials shall be covered with tarps.
4. Provide additional protection according to manufacturer instructions.

## 1.9 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

## PART 2 - PRODUCTS

### 2.1 WATER PIPING

A. General Requirements

1. All materials shall be first quality with smooth interior and exterior surfaces, free from cracks, blisters, honeycombs, and other imperfections, and true to industry-specified shapes and forms throughout. All materials shall be subject to the inspection of the Engineer at the plant, trench, or other point of delivery, for the purpose of culling and rejecting material which does not conform to the requirements of these specifications. Such material shall be marked by the Engineer, and the Contractor shall remove it from the project site upon notice being received of its rejection.
2. The use of couplings will not be allowed except as necessary and approved by the Engineer.
3. When the work requires the use of a transition coupling, the use of such couplings shall be as approved by the Engineer. When the nominal diameter of the pipe does not change, an approved transition coupling may be used, as necessary. In these cases, a ductile iron, mechanical joint, solid sleeve shall be used to join these materials. The solid sleeve shall be as specified for fittings and shall be the long body type. The appropriate gaskets shall be selected based on the outside diameter(s) of the material(s) being joined. All gaskets shall be as specified. In all cases, the gap between the pipe sections being joined shall not exceed 0.25 inches.
4. Where the nominal diameter of an existing water line changes as part of a rehabilitation project, an appropriate ductile iron, mechanical joint reducer, as specified for fittings, shall be used to joint these materials. The appropriate gaskets shall be selected based on the outside diameter(s) of the material(s) being joined. All gaskets shall be as specified.

5. All rubber gaskets for DIP pipe and fittings shall be in accordance with AWWA C111 and ASTM F477 for PVC pipe and fittings. All gaskets shall be a product of the pipe manufacturer, made specifically for the pipe being installed, and shall match the shape and configuration of the joint.
  6. Pipes shall be insulated to protect against freezing to 5-degrees Fahrenheit.
  7. Gaskets
    - a. Gasket material shall be Styrene Butadiene Copolymer (SBR) unless otherwise noted.
- B. Pressure Class Polyvinyl Chloride (PVC) Pipe
1. Comply with AWWA C900 (4" through 60") DR18 or DR14.
  2. Fittings shall be ductile iron mechanical joint as described herein.
  3. Joints:
    - a. The pipe shall have bell and spigot ends with push-on, O-ring rubber gasket, compression type joints meeting the requirements of ASTM D3139 and ASTM F477.
    - b. The lubricant used in making up the joints shall be furnished by the pipe manufacturer and shall be NSF approved.
    - c. Solvent-cement couplings are only permitted on above ground or exposed piping where specified by the Engineer. Solvent cement shall conform to ASTM D2564.
- C. PVC: Scheduled PVC
1. Scheduled PVC shall be used only in above ground, interior plumbing.
  2. Comply with ASTM D1784 and D1785.
  3. Schedule: 40, 80, or as shown on the Drawings. All piping to be NSF Certified Nylon Reinforced PVC.
    - a. SCHEDULE 80 PVC PIPE
      - 1) Chemical feed, interior and sampling piping shall conform to ASTM 1785, Schedule 80. Material used to produce the pipe, couplings and fittings shall conform to ASTM D-1784, Type 1, Grade 1, 2000 psi design stress. Fittings shall conform to ASTM D-2467 for socket type and ASTM D-2464 for threaded type.
    - b. SCHEDULE 40 PVC PIPE
      - 1) Exterior piping for the non-potable water system shall be Schedule 40 PVC conforming to ASTM D-1785. Pipe and fittings shall be manufactured in conformance with ASTM D-1784, Type 1, Grade 1.
  4. Fittings shall be ductile iron mechanical joint as described herein.
  5. Joints:
    - a. The pipe shall have bell and spigot ends with push-on, O-ring rubber gasket, compression type joints meeting the requirements of ASTM D3139 and ASTM F477.
    - b. The lubricant used in making up the joints shall be furnished by the pipe manufacturer and shall be NSF approved.
    - c. Solvent-cement couplings are only permitted on above ground or exposed piping. Solvent cement shall conform to ASTM D2564.

## 2.2 FITTINGS

### A. General

1. All fittings for any type of water distribution piping shall be ductile iron.
2. All fittings shall be installed per manufacturer's installation instructions. This may include the removal of spacers depending upon the pipe material.
3. Compact mechanical joint fittings shall be used for subsurface installations and compact flanged fittings shall be used for above-ground installations.
4. Coating and Lining:
  - a. Bituminous Coating: Comply with AWWA C110.
  - b. Cement-Mortar Lining: Comply with AWWA C104.

B. 2" Ductile Iron Fittings

1. Material: Grade 65-45-12 ductile iron in accordance with ASTM A536. Fittings shall have deep bell push-on joints with gaskets meeting ASTM F477. Transition gaskets are not allowed.

C. 3" through 64" Ductile Iron Fittings

1. Material: Ductile iron; comply with AWWA C110.
2. Compact Fittings (mechanical joint and flanged): Comply with AWWA C153.

## 2.3 UNDERGROUND PIPE LOCATION

A. Warning Tape

1. Provide and install an early warning detection tape above all underground piping.
2. Tape shall be 3" wide by 4 mils thick. Tape shall be solid blue in color with continuously printed caption in black letters "CAUTION – BURIED WATER LINE BELOW". Tape shall have a minimum tensile strength in accordance with ASTM D882.
3. Install approximately 18" below ground and directly over pipeline.

B. Tracer Wire

1. Where specified, provide and install tracer wire meeting the following.
  - a. Wire shall be a minimum #14 AWG high strength copper clad steel conductor wire secured to the pipe at 10' maximum spacing and rated for direct burial use at 30 volts.
  - b. Wire shall be insulated with 30 mil, high density, high molecular weight polyethylene (HDPE).
  - c. Wire break load shall be a minimum 250 lbs.
  - d. Install wire at the 12 o'clock position, directly atop the pipeline.

C. Tracer Wire Access Point

1. A tracer wire testing station shall be installed in every valve box.

## 2.4 PIPE SUPPORTS AND ANCHORING

A. Metal for Pipe Support Brackets:

1. Material: Structural steel.
2. Finish: Galvanized.
3. Coating: Bituminous paint.

B. Metal Tie Rods and Clamps or Lugs:

1. Material: Stainless steel.

## 2.5 CONCRETE ENCASEMENT AND CRADLES

- A. Concrete:
1. Concrete design: As specified.
  2. Type: Reinforced, air entrained.
  3. Compressive Strength: 4,000 psi at 28 days.
  4. Finish: Rough troweled.
  5. Reinforce concrete as specified.

## 2.6 MATERIALS

- A. Bedding and Backfill:
1. General: No rock, boulders, stone or debris larger than four inches shall be allowed in the bedding or backfill material. Deficient or unsuitable bedding or backfill material shall be replaced or substituted with suitable bedding or backfill material. Excavated material intended for use as bedding or backfill shall not be used if exceedingly wet nor shall trenches be backfilled if flooded or excessively wet.
  2. Stone: Stone used for pipe bedding and trench stabilization shall meet the gradation requirements of standard aggregate size No. 67.
  3. Soil: Soils for bedding and backfill are described in the ASTM D2487 Figure 1 soils classification chart, and, for purposes of these Specifications, are grouped into five (5) categories as follows, according to their suitability
    - a. Class I Soil -Angular, 6 to 40 mm (¼" to 1½'), graded stone, including a number of fill materials that have regional significance, such as coral, slag, cinders, crushed stone, and crushed shells.
    - b. Class II Soil - Coarse sands and gravels with maximum particle size of 40 mm (1½"), including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW, and SP are included in this class.
    - c. Class III Soil - Fine sand and clayey gravels, including fine sands, sand clay mixtures, and gravel clay mixtures. Soil types GM, GC, SM, and SC are included in this class.
    - d. Class IV Soil Silt, silty clays, and clays, including inorganic clays and silts of medium to high plasticity and liquid limits. Soil types MH, ML, CH, and CL are included in this class. These materials are not recommended for bedding, haunching, or initial backfill.
    - e. Class V Soil - Includes the organic soils types OL, OH, and PT, as well as soils containing frozen earth, debris, rocks larger than 1½ inches in diameter, and other foreign materials. These materials are not recommended for bedding, haunching, or initial backfill for any of the accepted pipe materials.

## 2.7 ACCESSORIES

- A. Steel Rods, Bolt, Lugs, and Brackets:
1. Comply with ASTM A36 and A307.
  2. Grade A carbon steel.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that existing utility water main size, location, and invert are as indicated on Drawings.
- C. Existing Utilities
  - 1. The Contractor shall be required to excavate to determine the precise location of utilities or other underground obstructions which are shown on the Plans and/or marked by the utility owners. Such location and excavation shall be performed prior to installation of the pipeline.
  - 2. The Contractor shall notify all utility owners prior to excavation as required by the 1985 Underground Damage Prevention Act. Utility owners who are members of NC 811 may be notified by calling 811 (toll free) before any excavation or drilling. The Contractor will be fully responsible for damage to any utilities if the Owners have not been properly notified as required by the Underground Damage Prevention Act. All damage to such structures and pipelines and all damage to property or persons resulting from damage to such structures and pipelines shall be borne by the Contractor and shall be completely repaired within a reasonable time. No claim shall be made against the Owner for damage or delay of the work on account of the proximity of, or the leakage from, such structures and pipelines. Where high pressure gas lines are to be crossed, they shall be uncovered by hand excavation methods before other excavation near them is started.
  - 3. Utility Owners may, at their option, have representatives present to supervise excavation in the vicinity of their utilities. The cost of such supervision, if any, shall be borne by the Contractor.
  - 4. Conflicts with underground utilities may necessitate changes in alignment and/or grade of this construction. The Contractor shall notify the Engineer promptly upon the discovery of such conditions. Changes in alignment and/or grade shall be approved by the Engineer before construction may proceed.
  - 5. When underground obstructions not shown on the Plans are encountered, the Contractor shall promptly report the conflict to the Engineer and shall not proceed with construction until the conflict is resolved.

### 3.2 PREPARATION

- A. Preconstruction Site Documentation shall be in accordance with Section 013300.00 – Submittal Procedures.
- B. Pipe Cutting:
  - 1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
  - 2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
  - 3. Grind edges smooth with beveled end for push-on connections.
  - 4. In the case of slip joint pipe, the cut ends shall be tapered with a portable grinder or coarse file to match the manufactured taper.

- C. Remove scale and dirt on inside and outside of pipe before assembly.
- D. Prepare pipe connections to equipment in accordance with equipment manufacturer's requirements.

### 3.3 INSTALLATION

#### A. General:

- 1. Pipe and fittings shall be laid as shown on the Drawings.
- 2. Contractor shall provide all materials, labor, tools, equipment and incidentals required for the excavation, installation, backfilling and testing of water mains and associated appurtenances.
- 3. Do not use flanged pipe, fittings, or valves or unions for underground (buried) piping. Fittings and valves for underground (buried) piping shall be mechanical joint. Flanged pipe, fittings and valves and unions shall be used on aboveground piping and piping in vaults.
- 4. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used as specified, unless otherwise indicated.
- 5. All pipe fittings, valves, hydrants and accessories shall be carefully lowered into the trench with suitable equipment in a manner that will prevent damage to pipe and fittings. Under no circumstances shall pipe or accessories be dropped or dumped into the trench. Any defective, damaged, or unsound material shall be repaired or replaced as directed by the Engineer.

#### B. Bedding and Backfill:

- 1. General:
  - a. Place bedding material to the level shown on the Drawings.
  - b. Work material carefully around the pipe to ensure adequate haunching.
  - c. Minimum cover on pipes shall be 3 feet, unless otherwise required by authorities with jurisdiction.
- 2. PVC Pipe:
  - a. After excavation is completed, bed with 4" of Class I, Class II, or No. 67 stone material to bring trench bottom to grade. Excavated native material may be used if material conforms to this specification.
  - b. After the joint has been made, backfill to spring line of pipe with Class I, Class II, or No. 67 stone material. Additional bedding requirements are outlined in project drawings and shall be followed.
- 3. Ductile Iron Pipe:
  - a. After excavation and the joint has been made, bed with 4" of Class I, II, III, or IV bedding material. This may be the native trench bottom if material conforms to this specification.
  - b. Compact backfill by hand tamping under the haunches of the pipe barrel to assure a firm circular bearing surface for the pipe taking care not to move or raise the pipe or in any way create a non-uniform bearing surface. Additional bedding requirements outlined in project drawings and shall be followed.
- 4. Compaction:
  - a. Backfill in 6- to 12-inch lifts. Tamp each lift carefully and uniformly so as to eliminate the possibility of lateral displacement of the pipeline.
  - b. Compact pipe bedding and embedment material to 95% Standard Proctor.

- C. Piping:
1. Comply with AWWA C600, C605, M41, and M23.
  2. Handle and assemble pipe according to manufacturer instructions.
  3. Steel Rods, Bolts, Lugs, and Brackets: Coat buried steel before backfilling.
  4. Pipe Separation
    - a. Lateral Separation of Sewers and Water Mains
  5. Maintain 10 feet of horizontal separation between water main and sewer piping.
    - a. If local conditions or barriers prevent a 10-foot separation:
      - 1) The water main shall be laid in a separate trench with the elevation of the bottom of the water main at least 18 inches above the top of the sewer; or
      - 2) The water main shall be laid in the same trench as the sewer with the water main located at one side on a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.
    - b. Crossing a Water Main over a Sewer
      - 1) The water main shall be laid at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer, unless local conditions or barriers prevent an 18 inch vertical separation in which case both the water main and sewer shall be constructed of ferrous materials and with joints that are equivalent to water main standards for a distance of 10 feet on each side of the point of crossing.
    - c. Crossing a Water Main under a Sewer
      - 1) Both the water main and the sewer shall be constructed of ferrous materials and with joints equivalent to water main standards for a distance of 10 feet on each side of the point of crossing. A section of water main pipe shall be centered at the point of crossing.
    - d. Crossing a Storm Sewer
      - 1) All water lines shall have a minimum 12 inches of vertical separation from storm sewers.
  6. Pipe Insulation
    - a. All outdoor piping 4" in diameter and smaller which is not buried shall be insulated except where specifically stated otherwise on the Drawings or in these specifications.
    - b. Provide heat tape and controls as recommended by manufacturer for temperatures down to -10° f. This requirement shall also apply to piping in vaults.
    - c. The piping shall be insulated with 1" thick polyfoam with the insulation laminated to an outside jacket of PVC with a finished color of white. The material shall be furnished in standard 25' rolls with insta-grip closure.
    - d. Fittings and valves shall be insulated with preformed white insulated fitting covers with 1" thick polyurethane foam insert.
    - e. Pipe insulation shall be wrapped around pipe and trac locked down in position. Insulation shall be held in place by sealing trac with fastener-weld or equal.
    - f. All butt joints and fitting covers shall be sealed with silicone sealant and then taped in place to provide a vapor barrier.
    - g. Installation procedures and accessory materials shall all be in accordance with the pipe insulation manufacturer's written instructions.
  7. Connection to Existing Water Main/System
    - a. The Contractor shall make connection to the old mains when and as directed by the Engineer. In no case shall the Contractor shut off the water or operate the fire hydrants or gate valves of the old distribution system. In case it becomes necessary to delay the cut-off, such instructions shall be given and obeyed without recourse.

- At no time shall the Contractor operate any valves, gates, pumps, etc. All of these operations must be done by Owner's personnel.
- b. In making connections to the old distribution system, valves shall be set as shown on the plans or at such designated place as the Engineer may direct. If due to unforeseen conditions, these locations have to be changed or additional valves or fittings added, the Contractor shall install the valves or fittings at the new locations upon approval by the Engineer. Payment for special fittings or couplings will not be made unless approved by the Engineer prior to installation.
  - c. The Contractor shall be responsible for determining and utilizing all measures required by the water utility Owner in tapping existing water mains. The Contractor shall also make appropriate arrangements with the water utility Owner based on the size and location of the tap indicated on the drawings.
  - d. If the proposed water extension does not begin at an existing valve, a new tapping sleeve and valve of the size specified shall be installed at the required location as specified. All tapping sleeves and valves shall be installed in accordance with MSS SP-60. Alternately, if water service interruption is acceptable to the Owner, a valve may be installed at the appropriate location in the existing water piping.
  - e. The Contractor shall be responsible for installing all backflow prevention devices or other "jumpers" as may be required by the Plans or the water utility Owner at the point of connection with the existing water system. For extensions of the existing system, the valve isolating the new system from the existing system will not be opened until all other water system construction has been completed and satisfactorily passed all testing in compliance with these specifications unless specifically authorized by the water utility Owner.
8. Thrust Block Installation
- a. All turns, fittings, etc., that induce pressure which would cause separation of pipe, break-age, etc., shall be provided with adequate thrust blocks, unless otherwise shown on the drawings. Thrust blocks shall be constructed to the minimum dimensions shown on the drawings or as directed by the Engineer.
  - b. Thrust blocks shall be made of ready mix concrete with a minimum compressive strength at 28 days of not less than 3,000 PSI when tested in accordance with ASTM C39. Sakrete or any similar material will not be permitted under any circumstances.
  - c. Blocking shall be formed and placed in such a manner that the pressure to be exerted at the point of blocking shall be transferred to firm, undisturbed earth. Where possible, the concrete shall be placed so that the fitting joints will be accessible for repair.
  - d. All bolts and pipe joints shall be protected against contact with thrust block concrete by the installation of a 20 mil polyethylene film placed between the fittings and the concrete. Where any section of a main is provided with concrete thrust blocks, the hydrostatic pressure test shall not be made until seven days after installation of the concrete thrust blocks unless otherwise approved by the Engineer. Where trench conditions are, in the opinion of the Engineer, unsuitable for thrust blocks, the Contractor shall provide steel tie rods and socket clamps to adequately anchor the piping. All tie rods and clamps shall be given a bituminous protective coating or shall be galvanized.
  - e. The Contractor shall also be responsible for any damage or repairs caused by blow-outs of any insufficiently blocked pipe.
9. Joint Construction

- a. All pipe joints shall be constructed in strict accordance with the pipe manufacturer's specifications and materials and any deviation must have prior approval of the Engineer.
  - b. The maximum deflection per joint of flexible joint pipe shall be that deflection recommended by the manufacturer. However, at no time will a deflection greater than 3 degrees (11 inches in an 18'-0" pipe section) be allowed.
  - c. Mechanical Joints
    - 1) Clean last 8-inches outside the spigot, and the inside of the bell of mechanical joint pipe to remove oil, grit, tar (other than standard coating) and other foreign matter from the joint and then paint area clean with an approved soap solution. The ductile iron gland shall then be slipped on the spigot end of the pipe with the extension of the gland toward the socket or bell end. The rubber gasket shall be painted with the soap solution and placed on the spigot end with thick edge toward the gland.
    - 2) Push entire section of pipe forward to seat spigot end in the bell. Press gasket into place within the bell, being careful to have the gasket evenly located around the entire joint. Move ductile iron gland along the pipe into position for bolting, insert all bolts and screw nuts up tightly with fingers. Tighten all nuts with a suitable (preferably torque-limiting) wrench. Tighten nuts that are spaced 180 degrees apart alternately in order to produce equal pressure on all parts of the gland. If effective sealing is not obtained by tightening the bolts to the specified torques, the joint shall be disassembled and reassembled after thorough cleaning.
    - 3) An adapter having a fitting bell and a mechanical joint socket may be used by the Contractor when joining an existing bell and spigot to a new mechanical joint.
  - d. Push-on Joints
    - 1) Clean gasket and spigot and inside of bell thoroughly to remove all dirt and other foreign matter.
    - 2) Insert gasket furnished by the pipe manufacturer into the gasket groove in the bell. Gasket shall be properly seated in the grooves provided in the pipe bell.
    - 3) Using a non-toxic vegetable soap, apply a film by hand to the inside surface of the gasket that comes into contact with the entering pipe and to the first 1" of the spigot end of the entering pipe. Use only lubricant specified by the pipe manufacturer.
    - 4) Align entering pipe with the bell to which it is to be joined. Enter the spigot end into the bell until it just makes contact with the gasket. Apply sufficient pressure to force the spigot end past the gasket up to solid contact with the bell.
    - 5) When it is necessary to field cut pipe with rubber gaskets, chamfer the cut end 1/8 inch x 30 degrees and check for roundness before inserting into a rubber gasket bell.
  - e. Copper Joints: Pressure-sealed joints for copper tubing shall be made using proprietary crimping tool and procedure recommended by copper, pressure-seal-fitting manufacturer.
10. Ductile-Iron Piping and Fittings: Comply with AWWA C600.
  11. Grooved and Shouldered Pipe Joints: Comply with AWWA C606.
  12. Field Welding Materials: Comply with AWWA C206.
  13. Exposed Piping

- a. All exposed piping to be installed inside tanks, wetwells, vaults and buildings shall be installed as shown on the Drawings. All exposed pipe shall be ductile iron utilizing flanged joints unless otherwise noted.
  - b. All exposed ductile iron pipe, fittings and valves shall be field painted with two (2) coats of epoxy paint as recommended by the paint manufacturer. Color of paint shall be as selected by the Owner.
14. No pipe shall be laid except in the presence of the Engineer or his Representative or with special permission from the Engineer.
  15. Route pipe in straight line, and re-lay pipe that is out of alignment or grade.
  16. Pipe shall be removed at any time if broken, injured or displaced in the process of laying same, or of backfilling the trench.
  17. High Points:
    - a. Pipe shall be installed in a manner that minimizes localized high points in the piping.
    - b. If unforeseen field conditions arise that necessitate high points, install air-release valves as specified, as indicated on Drawings, or as directed by the Engineer.
  18. Bearing:
    - a. Maintain bearing along entire length of pipe.
    - b. Excavate bell holes to permit proper joint installation.
    - c. Do not lay pipe in wet or frozen trench.
  19. Prevent foreign material from entering pipe during placement.
  20. Allow for expansion and contraction without stressing pipe or joints.
  21. Close pipe openings with watertight plugs during Work stoppages.
  22. Establish elevations of buried piping with not less than 3 feet of cover.
    - a. Measure depth of cover from final surface grade to top of pipe barrel.
- D. PE Encasement:
- a. Encase piping in PE where indicated to prevent contact with surrounding backfill material.
  - b. Comply with AWWA C105.
  - c. Terminate encasement 3 to 6 inches above ground where pipe is exposed.
- E. Backfilling: Backfill around sides and to top of pipe as specified.

### 3.4 FIELD QUALITY CONTROL

- A. Testing: Pressure test and disinfect as specified.

END OF SECTION 331413

SECTION 331417.10 MONOCLOR® RESIDUAL CONTROL SYSTEM (BULK)

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work

1. This Section covers the work necessary by the Contractor, Residual Control System (RCS) Supplier, Owner, and Engineer, to furnish, install, test, and make ready for operation, a Residual Control System.
2. The RCS includes, but is not limited to the system control cabinet with PLC, water sampling cabinet, tank mixer, piping, valves, ancillary equipment as specified herein, installation, related testing, start-up, and training services.
3. The RCS Supplier shall furnish an entire Residual Control System consisting of the following major components:
  - a. Compatible Tank mixing system as manufactured and supplied by PSI Water Technologies, Inc.
  - b. Smart Control Center (SCC) – Integrated control panel with Human Machine Interface and data acquisition system.
  - c. Water Quality Station (WQS) – Reagentless, amperometric probe type analyzer to be used in continuous measurement of Total Chlorine, pH, Temperature, and ORP simultaneously.
  - d. Chemical Feed Skids (CFS) – Skid mounted system for injecting ammonia (liquid ammonium sulfate with typical concentration of 38%-40%) and chlorine (liquid sodium hypochlorite with typical concentration of 12.5%) in potable water.

B. System Description

1. The Monoclor® RCS is an automated system designed to continuously monitor the disinfectant level and precisely dose chemicals in order to control and maintain a disinfectant concentration target.
2. The Monoclor® RCS shall improve water quality through multiple processes:
  - a. The reservoir shall have high energy, active mixing that ensures instantaneous reaction of introduced chemicals and ensure a homogenous water body that will not stratify.
  - b. The Monoclor® RCS shall allow for optimization of the chloramine residual curve by continuous monitoring of water quality parameters and controlled dosing of ammonia and chlorine.
3. The system shall be designed for the following operating conditions
  - a. Ambient Temperature: 0 to 35 °C (33 to 90 °F).

- b. Relative humidity: 0 to 95%, non-condensing.
- 4. The system must maintain the incoming disinfectant residual within  $\pm 0.2$  ppm of the desired set-point within 48 hours after initial system start-up.

#### 1.02 RELATED SECTIONS

- A. All electrical, mechanical, metal, painting and instrumentation work included herein shall conform to the applicable Sections or Divisions of this project except as otherwise shown or specified.

#### 1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. American National Standards Institute (ANSI).
- B. Underwriter Laboratory (UL): UL 508A- Industrial Control Panel
- C. Occupational Safety and Health Administration (OSHA)
- D. National Electrical Manufacturers Association (NEMA)
- E. National Electrical Code (NEC)

#### 1.04 QUALITY ASSURANCE

- A. RCS Supplier Requirements
  - 1. All equipment provided under this section shall be obtained from a single manufacturer, who shall:
    - a. Assume full responsibility for the completeness and proper operation of the RCS.
    - b. Have experience, be reputable, and be qualified in designing and manufacturing Residual Control equipment.
    - c. Have at least five years with Residual Control equipment for storage tanks ranging in capacity from 0.5 MG to 49 MG.
    - d. Supply units containing all necessary appurtenances and components for a complete and operating system conforming to this specification. The tank mixer shall be pre-assembled, piped, and factory-inspected to assure compliance with all operational requirements. Loose tank mixer components shall not be acceptable. No field assembly or wiring will be permitted with the exception of external conduits. Equipment footprint as shown on the drawings shall not be exceeded.
  - 2. To ensure quality and complete unit responsibility, components of the RCS must be assembled to the furthest extent possible and inspected by the RCS Supplier at its facility. The complete RCS must be a regularly-marketed product of that manufacturer. The RCS Supplier must have physical plant, technical and design staff, and fabricating personnel to complete the work specified.
  - 3. The Owner reserves the right to be present at the fabricator's facility for visual inspection of equipment to be supplied.

B. Specified Manufacturer

1. Residual Control System shall be Monoclor<sup>®</sup> RCS as manufactured and supplied by PSI Water Technologies, Inc., Campbell, California, (408) 370-6540.
2. No equal.

C. Warranty

1. Prior to acceptance of the Residual Control System, provide written warranty from the RCS Supplier that includes the following statements:
  - a. RCS Supplier has inspected the installation during and after completion and the Residual Control system is free from faults and defects and is in conformance with the Contract Documents.
2. Equipment shall be warranted to be substantially free from defects in material and workmanship and conform to the specifications applicable to the product for 12 months from installation (with the completion of an Installation Activity Report completed by an authorized PSI representative) or 18 months from shipment, whichever occurs first.

D. Product Submittals

1. The following product data shall be electronically submitted by the RCS Supplier for review and approval by the Engineer that the product provided conforms to the site-specific requirements prior to the fabrication of the systems:
  - a. A certificate demonstrating that the mixer is tested and certified to meet NSF Standard 61 for Drinking Water System Components and NSF-Annex G for California Low-Lead Standards.
  - b. General equipment specifications and data sheets for both the tank mixer.
  - c. Product data sheets.
  - d. Installation, start-up, operation and maintenance instructions.
  - e. Factory-recommended maintenance schedule and list of recommended spare parts.
  - f. Diagram indicating the electrical wiring to be installed onsite by which responsible party prior to and during the Monoclor<sup>®</sup> Residual Control System installation.
  - g. Site specific information.

E. Operation and Maintenance Manuals

1. Detailed operation and maintenance (O&M) manuals for the RCS shall be provided by the Supplier to the Engineer for review and approval. At a minimum, the following shall be included:

- a. Required Operation Data.
  - 1. Complete, detailed operating instructions for each piece of equipment.
  - 2. Explanations for all safety considerations relating to operations.
  - 3. Recommended spare parts lists.
  
- b. Required Maintenance Data.
  - 1. All information and instructions required by plant personnel to keep equipment properly cleaned, lubricated, and adjusted so that it functions economically throughout its full design life.
  - 2. Maintenance summary forms.
  - 3. Explanation with illustrations as necessary for each maintenance task
  - 4. Recommended schedule of maintenance tasks.
  - 5. Lubrication charts and table of alternate lubricants
  - 6. Troubleshooting instructions.
  - 7. List of maintenance tools and equipment.
  - 8. Name, address, and phone number of manufacturer and manufacturer's local service representative for major system components.

F. Manufacturer Services

- 1. Prior to scheduling services by the RCS Supplier, the Contractor shall verify the equipment installation and provide the completed installation checklist with photo documentation. Upon receipt of the completed installation checklist with photo documentation, the RCS Supplier shall schedule start-up and training to take place no sooner than two (2) weeks. The Contractor shall coordinate testing requirements and scheduling with the Engineer.
  
- 2. The RCS Supplier shall be present at each jobsite for the following after the system is installed:
  - a. Certification of proper installation, system startup, and functional testing.
    - 1. Installation inspection shall include supervising the correction of any defective or faulty work before acceptance by Owner.
    - 2. System startup shall include testing, calibrating, and adjustment of all components for optimum performance.
    - 3. Functional testing shall include inspection of integration of the provided equipment's controls to the Owner's SCADA system, etc.
  
  - b. Training Owner's personnel and providing detailed instructions in the operation, maintenance, and troubleshooting for the system including calibration procedures, alarm and fault conditions, monitoring and operational procedures.
    - 1. Upon request, a training manual will be provided with an outline of the training procedures.
    - 2. If requested, in addition to the initial training during startup, PSI will provide operator training at a per diem rate, with topic of instruction based on RCS operation and personnel needs.

- c. Provide one trip for each jobsite for two days, travel time excluded, for tasks a and b above.
3. Services shall be provided by a technician that is factory-trained by the RCS Supplier and has demonstrated ability and experience in the installation and operation of the equipment.

## PART 2 – PRODUCTS

### 2.01 RESIDUAL CONTROL SYSTEM

- A. A PLC-based control panel containing system controls, water quality analyzer, tank mixer, chemical storage tanks, chemical feed skids, and all other necessary interconnecting wiring and hardware shall form a complete Residual Control System. Components of the RCS shall comply with this specification. All components of the Residual Control system shall be pre-assembled, piped, and factory-inspected prior to shipping. The installation contractor shall provide all interconnecting piping and conduit, which shall be PVC.

### 2.02 WATER QUALITY STATION

- A. Water Quality Station consists of a reagentless amperometric probe type analyzer able to read at least residual chlorine or chloramine, pH, ORP, and temperature simultaneously.
- B. At a minimum, the Water Quality Station shall have the following features, components, and functionality:
  1. Materials
    - a. Housing: Powder coated steel
    - b. Enclosure Rating: NEMA 3R
  2. Power Requirements: 115 VAC, 60 Hz
  2. Sampling and discharge flow rate: 10 GPH
  3. Maximum inlet pressure of flow cell: 30 PSI
  4. HMI: 3.8" LCD Touch Screen
  5. SCC Communication: Modbus RS-485
  6. SCADA Communication: 8 analog outputs
  7. Real-time data acquisition on USB Flash Drive.
  8. Sensors
    - a. Total Chlorine Sensors
      - i. Dual probe configuration
      - ii. Type: 3-electrode amperometric
      - iii. Measuring Range: 0 - 20 mg/L
      - iv. Resolution: 0.01 mg/L
    - b. pH Sensor
      - i. Type: Combined 2-electrode type pH probe
      - ii. Measuring Range: 0 – 14
      - iii. Resolution: 0.01
    - b. ORP Sensor
      - i. Type: Single Junction
      - ii. Measuring Range: +/-2000mV or range of ORP meter

iii. Measuring surface: Platinum Extended Tip

2.03 SMART CONTROL CENTER

- B. The Smart Control Center (SCC) shall continuously monitor the water quality data from the WQS and issue dosing commands to the Chemical Feed Skids (CFS) to maintain residual levels at a predetermined set-point. The control panel shall house the operator interface terminal (OIT), PLC, and terminal strips to fully support the functions of water quality monitoring, and chemical feed skid dosing to precisely add disinfectant chemicals.
- C. The control panel shall display all relevant operating parameters and/or alarm conditions. The OIT will serve as the operator interface, data input screen, and alarm log.
- D. At a minimum, the Smart Control Center shall have the following features, components, and functionality:
  - 1. Materials
    - a. Housing: Powder coated steel
    - b. Enclosure Rating: NEMA 4
  - 2. Power Requirements: 115 VAC, 60 Hz
  - 3. Allen Bradley MicroLogix 1400 programmable logic controller (PLC) with Ethernet communication protocol.
  - 4. Human-machine interface (HMI): Magelis DT351 7.4" LCD touch screen
  - 5. Ethernet based access to HMI software from computer or smartphone within same network
  - 6. SCADA Communication:
    - a. Modbus TCP/IP
  - 7. Chemical feed skid controls.
  - 8. Alarm Management System will produce an automated alert on the HMI if monitored parameters fall out of range of set-point values.
  - 9. Real-time data acquisition on USB Flash Drive.
  - 10. Three different levels of access: Viewer, Operator or Administrator.
  - 11. Three operating modes: Off, Manual and Auto.

2.04 CHEMICAL STORAGE TANK

- A. High density linear polyethylene (HDLPE) chemical storage tank(s) shall be provided for the following operating conditions:

CHEMICAL STORED	DIAMETER	WALL HEIGHT	CAPACITY (GALLONS)
Sodium Hypochlorite (12.5%)	33"	47"	120
Liquid Ammonium Sulfate (40%)	27"	47"	65

Under no circumstances will HDLPE tanks greater than 72" high be acceptable.

- B. The chemical storage tank shall be upright, cylindrical, flat bottom, double wall tanks molded in a one-piece seamless construction by the rotational molding process (laminated or fabricated tanks will not be accepted. The material used shall be virgin polyethylene resin as compounded and certified by the manufacturer. All polyethylene resin material shall contain a minimum of a U.V. 15 stabilizer as compounded by the resin manufacturer.
- C. The standard design specific gravity shall be 1.9. The minimum required wall thickness for the cylinder straight shell must be sufficient to support its own weight in an upright position without any external support. The top head must be integrally molded with the cylinder shell. The minimum thickness of the top head shall be equal to the top of the straight wall.
- D. The chemical storage tank shall be properly vented and have a minimum of three inches clearance on all sides to allow for expansion and contraction.
- E. The RCS Supplier shall provide one (1) submersible level transmitter per chemical storage tank according to the following specifications:
  - 1. Operating pressure: 0-13 ft. w.c. (+/- 0.5% Accuracy)
  - 2. 4-20mA output to chemical dosing controller
  - 3. Materials: PVC housing and cable. Ceramic sensor diaphragm.
  - 4. Model 59P as manufactured by Viatran or equal.
- F. Unless otherwise specified, all pipe and fittings shall be Sch 80 PVC and all fasteners stainless steel.

## 2.05 CHEMICAL FEED SKIDS

- E. Chemical Feed Skids contain chemical dosing controllers which provide feedback to and receives commands from the Smart Control Center and transmits signals to the chemical dosing pumps. One (1) chlorine feed skid and one (1) ammonia feed skid will be provided per Monoclor<sup>®</sup> Residual Control System.
- F. Chemical Dosing Controller
  - 1. Pump Control Options: Digital relay, analog (4-20mA), or power switch
  - 2. Power Requirements: 115 VAC, 60 Hz
  - 3. SCC Communication: Modbus RS-485
  - 4. Housing: Black Polycarbonate
  - 5. Enclosure Rating: NEMA 3R
  - 6. Dimensions: 10.0" x 8.0" x 6.0"
- G. Chemical Feed Skid:
  - 1. Containment:
    - a. Chemical resistant, UV protected black polypropylene
    - b. 9 Gallons secondary containment
  - 2. Peristaltic Pump:
    - a. Metering pump is a positive displacement, peristaltic type tubing pump with a brushless variable speed motor, non-spring loaded roller assembly

- located in the pump head, integral leak detection system, and flexible tubing with attached connection fittings.
- b. Pump head is a single, unbroken track which requires no-tools maintenance and can be mounted on the left or right of the pump.
  - c. Pump provides front panel user touchpad controls for stop/start and configuration menu access and navigation, operating mode selection, and priming.
  - d. Pump is equipped with a 3.5" TFT color display for menu driven configuration settings, pump output value, service alerts, leak detection system alarms status, and remote input signal values.
  - e. Pump provides the manual control of pump output volume via flowrate setpoint.
  - f. Pump is used to remote control of pump output volume via 4-20mA signal.
  - g. Enclosure Rating: NEMA 4X (IP66)
  - h. Metering pumps shall be a Watson-Marlow Qdos CWT Peristaltic Pump or equal.
3. Piping/Unions: PVC Schedule 80
  4. Seals: Viton or EPDM
  5. Tubing:
    - a. Sodium Hypochlorite: 1/4" I.D. reinforced PVC tubing.
    - b. Ammonia: 3/8" O.D. flexible polyethylene tubing.
    - c. NSF-61 Approved.
  6. Pump skid accessories:
    - a. PVC calibration column.
    - b. PVC backpressure relief valve.
    - c. PVC pressure relief valve.
    - d. Wye strainer.
    - e. Pressure transmitter
      - i. Operating pressure: 0-100 PSI (+/- 0.5% Accuracy)
      - ii. 4-20mA output
      - iii. Digital display
  7. Mounting:
    - a. Mounting Clips: Chemical resistant, UV protected black polypropylene
    - b. Pump Mounting Brackets: 316 Stainless Steel
    - c. Mounting Hardware: 316 Stainless Steel

## 2.06 SCOPE FOR A SUBMERSIBLE PAX MIXER

- A. This section covers submersible tank mixing systems up to 2.0 HP in size intended for continuous use while submersed in potable water storage tanks. Each mixer shall have the ability to function continuously on a year-round basis, regardless of drain and fill cycles. Each mixer shall consist of a water-filled submersible motor, an impeller and a non-submersible control center that houses all control electronics.

#### THE REQUIREMENT

- A. CONTRACTOR shall furnish a PWM400V3 PAX Water Mixer with a PCC405V3 PAX Control Center and install submersible mixing system together with controls and accessories necessary for a complete and operable system.
- B. UTILITY shall furnish electrical conduit with either 115VAC or 230VAC Single Phase voltage based on System configuration, a Safety disconnect switch and a 20 Amp non-GFCI circuit breaker up to the point of installation of the mixing system control center.
- C. UTILITY shall also provide conduit from control center to tank penetration for submersible motor cable and penetration through tank for same cable.

#### REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Comply with the applicable reference specifications as specified in the General Requirements
- B. Occupational Safety and Health Administration, OSHA
- C. NSF/ ANSI Standard 61
- D. Underwriters Laboratories Inc., UL 508

#### 2.07 CONTRACTOR SUBMITTALS

- A. NSF Certification
  - 1. Copies of the NSF-61 certified listing for all submersible mixer material being placed inside the tank and headspace, including the motor and power cable.
- B. Installation, Operations, and Maintenance Manuals shall be obtained from the equipment manufacturer and submitted. The following sections shall be included:
  - 1. General equipment specifications and data sheets
  - 2. Installation, start-up, operation, and maintenance instructions
  - 3. Factory-recommended maintenance schedule
  - 4. Wiring diagrams specifying what electrical wiring needs to be done onsite during and prior to the installation, and by which responsible party
  - 5. List of equipment or tooling necessary for diagnostics, trouble-shooting, repair or general maintenance

#### 2.08 QUALITY ASSURANCE

- A. Each mixing system shall be tested prior to deployment according to standard engineering practices at the factory testing facilities.
- B. Complete mixing system is NSF/ANSI Standard 61 certified by NSF

#### 2.09 WARRANTY

- A. For the period beginning with shipment to Buyer and ending on the time periods listed below, the Product is warranted to be substantially free from defects in material and workmanship and to conform to Seller's specifications applicable to the Product –
  - 1. Two (2) years on all supplied parts

2. One hundred twenty (120) days labor

## 2.10 PERFORMANCE

- A. Mixing system shall completely mix reservoir according to the following minimum performance requirements. These requirements can be measured and validated after installation by operators with readily-available tools such as temperature probes and total chlorine grab samplers.

1. Temperature Uniformity

For tanks up to 2,000,000 gallons in volume: All temperatures shall converge to within 0.50°C (0.9°F) within 24 hours after mixer is installed and activated.

2. Disinfectant Residual Uniformity

For tanks up to 2,000,000 gallons in volume: Disinfectant residual within top five feet of tank and bottom five feet of tank will converge to within 0.20 ppm within 24 hours after mixer is installed and activated. During continuous operation of the mixer, under normal disinfectant dosing parameters, disinfectant residual will converge to within 0.20 ppm at least once every 24 hours.

## 2.2 GENERAL

- A. Mixing system consists of an impeller mounted on a submersible motor and supported approximately three feet in height from the tank floor in order for it to launch a jet of water from the bottom of the tank up toward the surface of the water. Mixer control and operation shall be independent of tank drain and fill cycles to ensure constant mixing. Wet-side of Mixer shall weigh less than 60 pounds (~27 kg) and dry-side shall weigh less than 70 pounds (~32 kg). Both wet-side and dry-side shall be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.
- B. Mixing system active components shall be elevated at a minimum of 18 inches above tank floor to avoid disturbing accumulated tank sediment or entraining particles and causing accelerated wear of moving parts.
- C. Mixers using submersible pump with slit or “water sheet” or horizontal motor mounting designs are not acceptable.
- D. Mixers shall include a buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor
- E. Mixers shall include integrated power cable as a lowering mechanism for simplicity
- F. Mixer provider must have more than 1000 installation of similar equipment in potable water tank
- G. Mixers shall have no oil-filled parts
- H. All wet-side mixer components shall be certified by NSF to the NSF/ANSI Standard 61

- I. Dry-side mixer components shall include sine filter to prolong motor life and reduce noise level.
- J. Power source for mixer shall be 230VAC single phase grid power to allow unit to continue 24/7 operation where necessary.
- K. No maintenance required on the wet-side components in typical potable water application
- L. No passive mixing system allowed.

## 2.3 CONSTRUCTION

- A. Components – wet-side: shall be NSF/ANSI Standard 61 certified.

Equipment entering tank shall not adhere to, scratch or otherwise cause damage to internal tank coating or put undue stress on the materials of the tank construction. Equipment shall fit through a standard hatch of size 18-inch x 18-inch or larger. UTILITY may prefer to puncture side-wall or ceiling of tank (in place of puncturing the hatch-way) to allow motor cable entry into the tank for ease of installation and protection against freezing/ice damage.

Each submersible mixer shall consist of the following components, regardless of the power source selected:

- 1. Nozzle
  - AISI Type 316 Stainless Steel
- 2. Nozzle housing
  - AISI Type 316 Stainless Steel
  - Brush finish to minimize surface corrosion
  - Buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor
  - Chlorine/chloramine resistant rubber foot pad to avoid scratching tank floor
  - Integrated power cable and lowering mechanism for simplicity
- 3. Motor
  - AISI Type 304 Stainless Steel body
  - Chlorine/Chloramine resistant rubber seals
  - Fully submersible

- B. Components – dry-side: 230VAC control center shall consist of the following components:

- 1. Enclosure
  - Type 4 (NEMA 4) Lockable
  - Weather Resistant

- Overall weight of control center not to exceed 50 lbs.
- Green and Red LED Indicator lights show motor status
- White Power Indicator Led
- Cooling Fan
- 2. Motor Controller/VFD
  - Rated to 3.0 HP
  - Operating temperature range -4 °F to 131 °F (-20 °C to 55 °C)
  - HOA Switch
  - Manual speed control
  - Thermal shut-off protection built-in
  - Current overload protection built-in
  - SCADA outputs included:
    - Digital Output signal indicating motor running
    - Digital Output signal indicating fault
    - Digital Input/output signal allowing remote motor on/off
    - RS-485 or Dry Contact connections
    - 4-20mA Signal
- 3. Branch Circuit Protection
  - Panel equipped with a 230VAC 20-Amp main breaker
- 4. Sine Filter

## 2.4 CONTROLS

- A. Each unit shall be equipped with all necessary controls, inter-wired, to provide the following minimum functions:
  - 1. On/Off switch to control power to mixer.
  - 2. Automatically-activated motor shut-off if water level drops below motor height in tank.
  - 3. Sine filter
  - 4. Any other controls shown on electrical and instrumentation drawings.

## 2.5 ACCEPTABLE MANUFACTURERS:

- A. PAX Water Technologies (Richmond, California)

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. The CONTRACTOR shall furnish services of a factory-trained installation contractor or crew having experience with installation procedures and operation and maintenance requirements for the type of equipment installed under these specifications. Mixer must be able to be installed through a 18"x18" hatch. Mixer must be able to be installed without draining tank or taking tank out of service. Wet-side of Mixer shall weigh less than 60 pounds (~27 kg) and dry-side shall weigh less than 70 pounds (~32 kg). Both wet-side and dry-side shall be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.
- B. Tank penetration is recommended to be above tank water line, typically through the hatch side-wall.
1. Fitting will prevent moisture intrusion into tank and ideally be horizontally oriented.
  2. Fitting shall be 1" diameter fitting to allow cable to pass through.
  3. Strain relief for power cable shall be part of the contractor-supplied fitting for tanks more than 30' in depth.
  4. For tanks more than 70' in depth, or at customer's discretion, a water-tight penetration may be installed under the water-line.
- C. Installation of the in-tank ("wet-side") components may be performed in any of the following ways:
1. Installation by a factory-trained and drinking-water-certified potable water tank diver.
  2. Installation by personnel with confined space training while the tank is drained and empty.
  3. Installation by tank manufacturer personnel during tank manufacture.
  4. Installation below a hatch opening in a full tank utilizing a chain.
- D. Installation of the outside-of-tank ("dry-side") components may be performed by:
1. Third party representatives or CONTRACTORS according to the manual provided.
  2. UTILITY personnel according to the manual provided
- E. The mixer and control center shall be installed in accordance with approved procedures submitted and as shown, unless otherwise approved in writing from the Factory.

### 3.01 TRAINING

- A. PAX Water Technologies staff (or their representatives) will instruct designated UTILITY personnel in the safe and proper operation of the PAX Water Mixer. This training will reference the operations manual provided with equipment and show how to check for proper functioning of the equipment.

### 3.02 FACTORY ASSEMBLY AND TESTING

- A. The RCS shall be pre-assembled at the manufacturing location.
- B. Factory testing shall include visual inspection of all equipment, complete assembly, and functional testing of equipment including leak testing, piping and instrumentation check, verification of control panel wiring and operation, and confirmation of proper operating parameters.
- C. Engineer and/or Owner reserve the right to be present at the RCS Supplier's manufacturing facility to witness factory inspection. Engineer and/or Owner shall provide intent to witness factory inspection at the time of the design submittal review and approval, and RCS Supplier shall provide notice to Engineer and/or Owner regarding the scheduled time of the factory inspection at least five business days in advance of the proposed factory inspection.
- D. The RCS Supplier shall maintain Quality Control documentation that includes system test settings and measured performance.

### 3.03 DELIVERY, STORAGE, AND HANDLING

- A. The RCS shall be packaged and shipped so as not to incur damage to any portion of the equipment through handling and installation of the system itself.
- B. The Contractor shall be responsible for the delivery, storage, and handling of products in accordance with the RCS Supplier's recommendations.
- C. The Owner shall inspect all equipment and materials against approved Shop Drawings at time of delivery. Equipment and materials damaged or not meeting requirements of the approved Shop Drawings shall be immediately returned to the RCS Supplier for replacement or repair.
- D. Equipment and materials shall be stored in a dry, chemical-free location and protected from the elements according to the RCS Supplier's instructions.
- E. Equipment and materials shall be handled in an approved manner according to the RCS Supplier's instructions.

### 3.04 INSTALLATION

- A. Manufacturer trained installation contractor, specific to the equipment under these specifications need to be provided.

- B. The installation and startup is performed in accordance with manufacturer Operation and Maintenance Manual and instructions by personnel experienced in the operation of this equipment.
- C. The PSI Service Team or an authorized contractor will complete the Installation Activity Report, which certifies the equipment installation it has been completed in accordance with Manufacturer's specification.
- D. Qualified personnel will be provided by the equipment manufacturer to survey the equipment installation.

### 3.05 MANUFACTURER'S SERVICE AND START-UP

- A. A factory technician from the RCS Supplier shall be present at the jobsite for initial system start-up and commission of equipment as specified in section 1.04.F. Factory technician will insure that the system is properly installed, start-up the system, and train the Owner's personnel.
- B. Contractor and RCS Supplier shall make equipment adjustments required to place system in proper operating condition.

### 3.06 IDENTIFICATION AND MARKING:

- A. The RCS, along with all applicable components, shall be marked and identified for all health, flammability, and reactivity of hazardous materials as required by all applicable jurisdictional building codes, statues, standards, regulations, and laws.

END OF SECTION

# CITY OF ELIZABETH CITY KE WHITE WATER TOWER DISINFECTION IMPROVEMENTS

ELIZABETH CITY, NC 27929 PASCAGOETA COUNTY

APRIL 2023

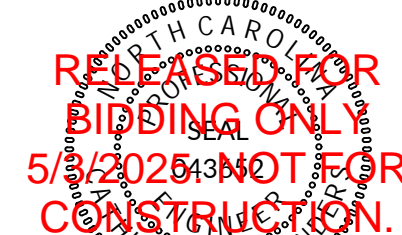


**Sheet Legend**

Sheet Number	Sheet Title
	COVER
G1.00	GENERAL NOTES, LEGEND & ABBREVIATIONS
G1.01	SHEET INDEX
C1.00	SITE PLAN
C2.00	ELEVATED TANK PLAN DETAILS
C2.01	ELEVATED TANK SECTION DETAILS
E 0.01	ELECTRICAL NOTES, LEGEND, & ABBREVIATIONS
E 1.00	ELECTRICAL ELEVATED TANK PLAN
E 7.00	ELECTRICAL SPECIFICATIONS

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**PREPARED BY**

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**OWNER**

**CITY OF ELIZABETH CITY**

P.O. BOX 347  
ELIZABETH CITY, NC 27907  
PHONE #: 252-337-6628  
ATTENTION: DWAN BELL-PUBLIC UTILITIES DIRECTOR



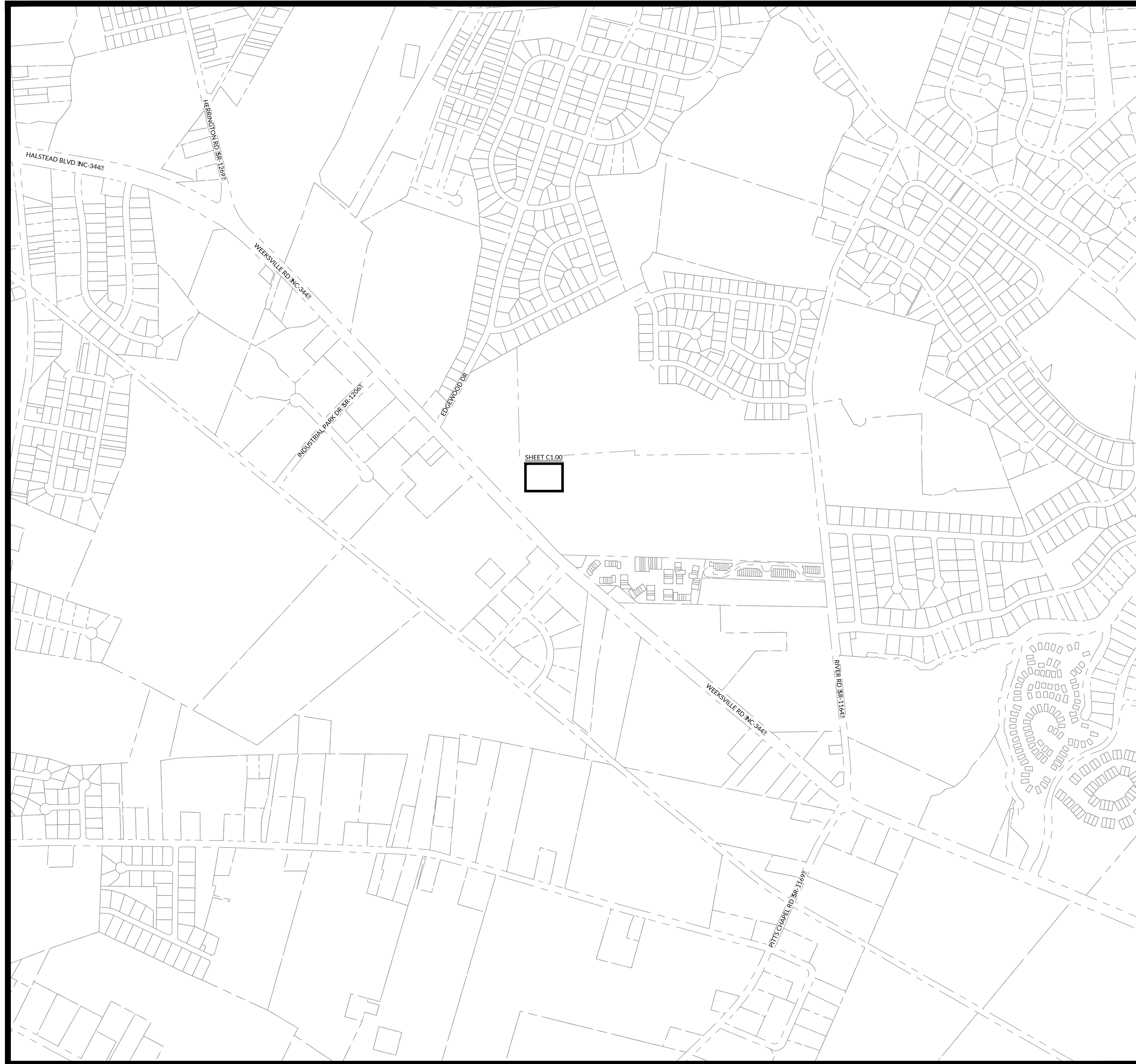
CONSTRUCTION PLANS  
CITY OF ELIZABETH CITY  
KE WHITE WATER TOWER  
DISINFECTION IMPROVEMENTS  
WR PROJECT NO.23-1097-004

**FINAL DRAWING**  
FOR REVIEW PURPOSES ONLY  
NOT RELEASED FOR CONSTRUCTION





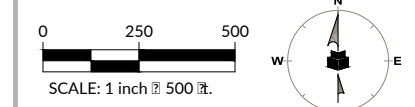
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SHEET INDEX  
SCALE: 1" = 500'



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CONSTRUCTION.



INITIAL PLAN DATE: 03/06/2025  
REVISIONS:  
1 - 04/04/2025 RKP  
PWS SUBMITTAL

WR JOB NUMBER 23-1097-004  
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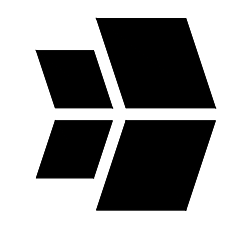
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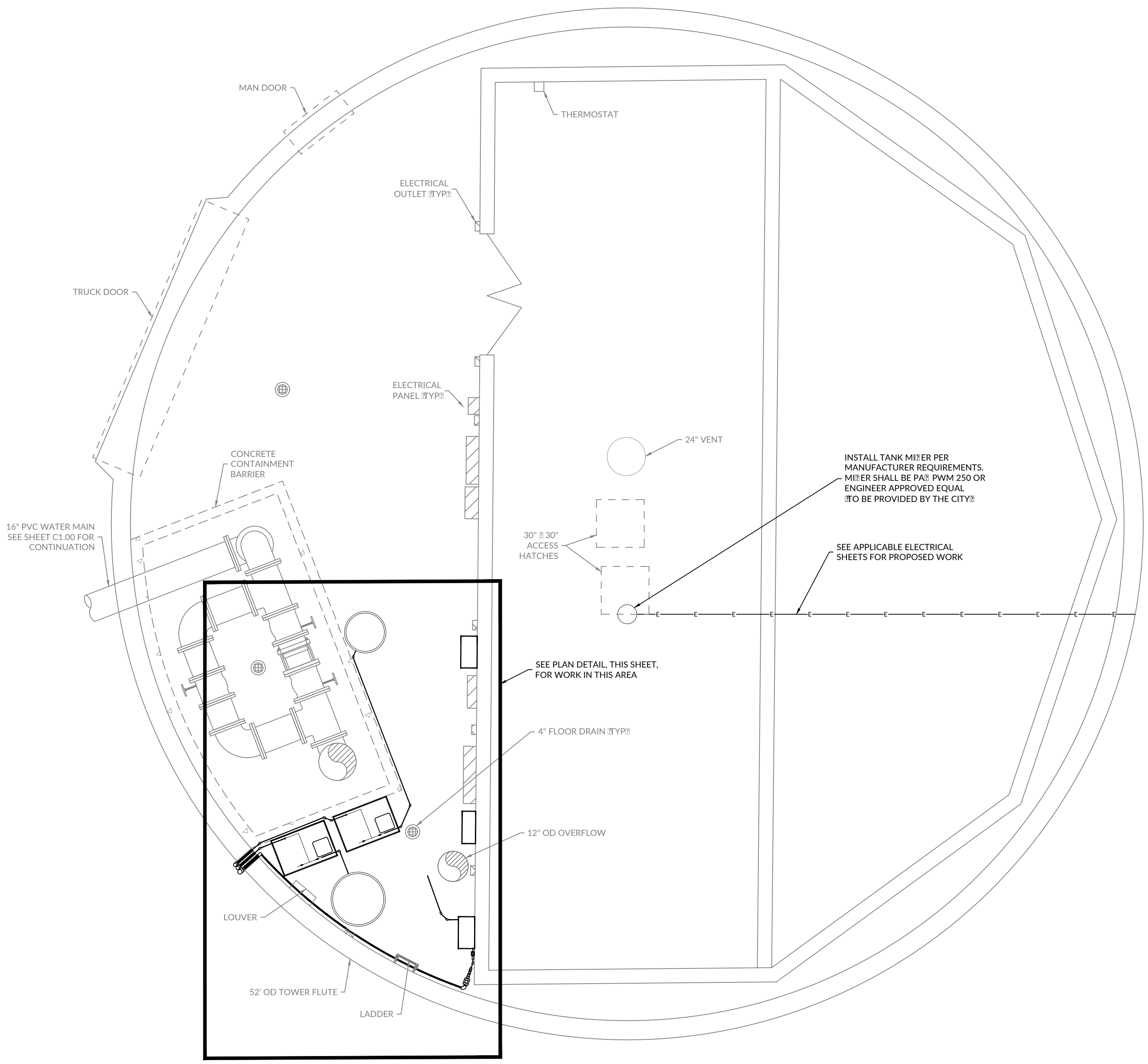
**FINAL DRAWING**  
FOR REVIEW PURPOSES ONLY  
NOT RELEASED FOR CONSTRUCTION

CONSTRUCTION PLANS  
**CITY OF ELIZABETH CITY**  
**KE WHITE WATER TOWER**  
**DISINFECTION IMPROVEMENTS**  
ELIZABETH CITY, NC 27909 | PASQUOTANK COUNTY

**CITY OF ELIZABETH CITY**  
P.O. BOX 3372  
ELIZABETH CITY, NC 27902

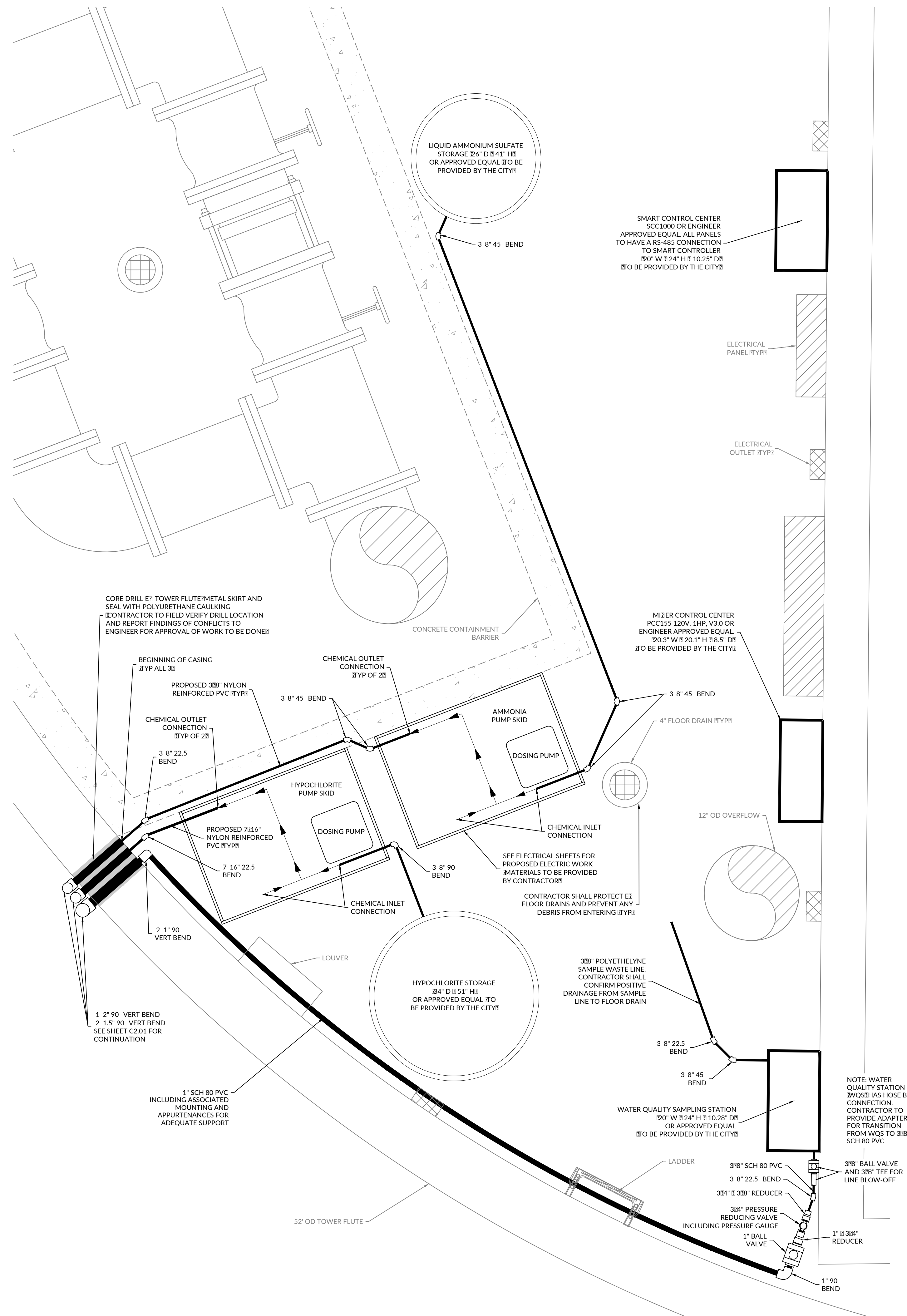


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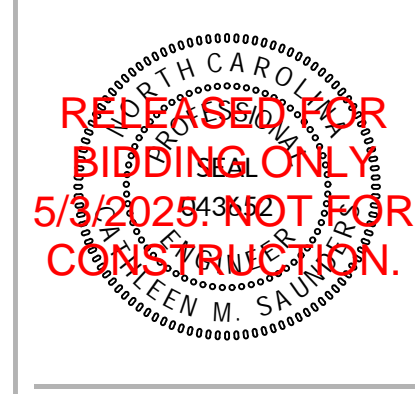
**ELEVATED TANK PLAN DETAIL**  
SCALE: 1/4" = 1'-0"

- NOTES:**
- LOCATION OF EXISTING ELECTRICAL OUTLETS, CONDUIT AND EQUIPMENT IS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.
  - ALL 90-DEGREE BENDS SHALL BE LONG SWEEP BENDS.
  - ALL MATERIALS NOT LISTED AS PROVIDED BY THE CITY SHALL BE PROVIDED BY THE CONTRACTOR, ENCOMPASSING, BUT NOT LIMITED TO, ANY ELECTRICAL CONDUIT RUNS, WIRING, DISCONNECT SWITCHES, ELECTRICAL MATERIALS AND ALL INTERCONNECT PIPING, HOSE, PIPE AND TUBING SUPPORTS, FREEZE PROTECTION FOR ALL TUBING AND PIPING, HATCH/SKIRT PENETRATIONS, VALVES, FITTINGS AND APPURTENANCES NEEDED FOR A FULL AND COMPLETE OPERATIONAL SYSTEM.
  - ALL CHEMICALS AND FEED EQUIPMENT SHALL BE NSF CERTIFIED.
  - ALL PIPING, FITTINGS AND EQUIPMENT INTERIOR TO THE TANK SHALL BE NSF CERTIFIED.



**ELEVATED TANK PLAN DETAIL**  
SCALE: 1/4" = 1'-0"

**FINAL DRAWING**  
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NOT RELEASED FOR CONSTRUCTION



INITIAL PLAN DATE: 03/06/2025  
REVISIONS:  
1 - 04/04/2025 RKP  
PWS SUBMITTAL

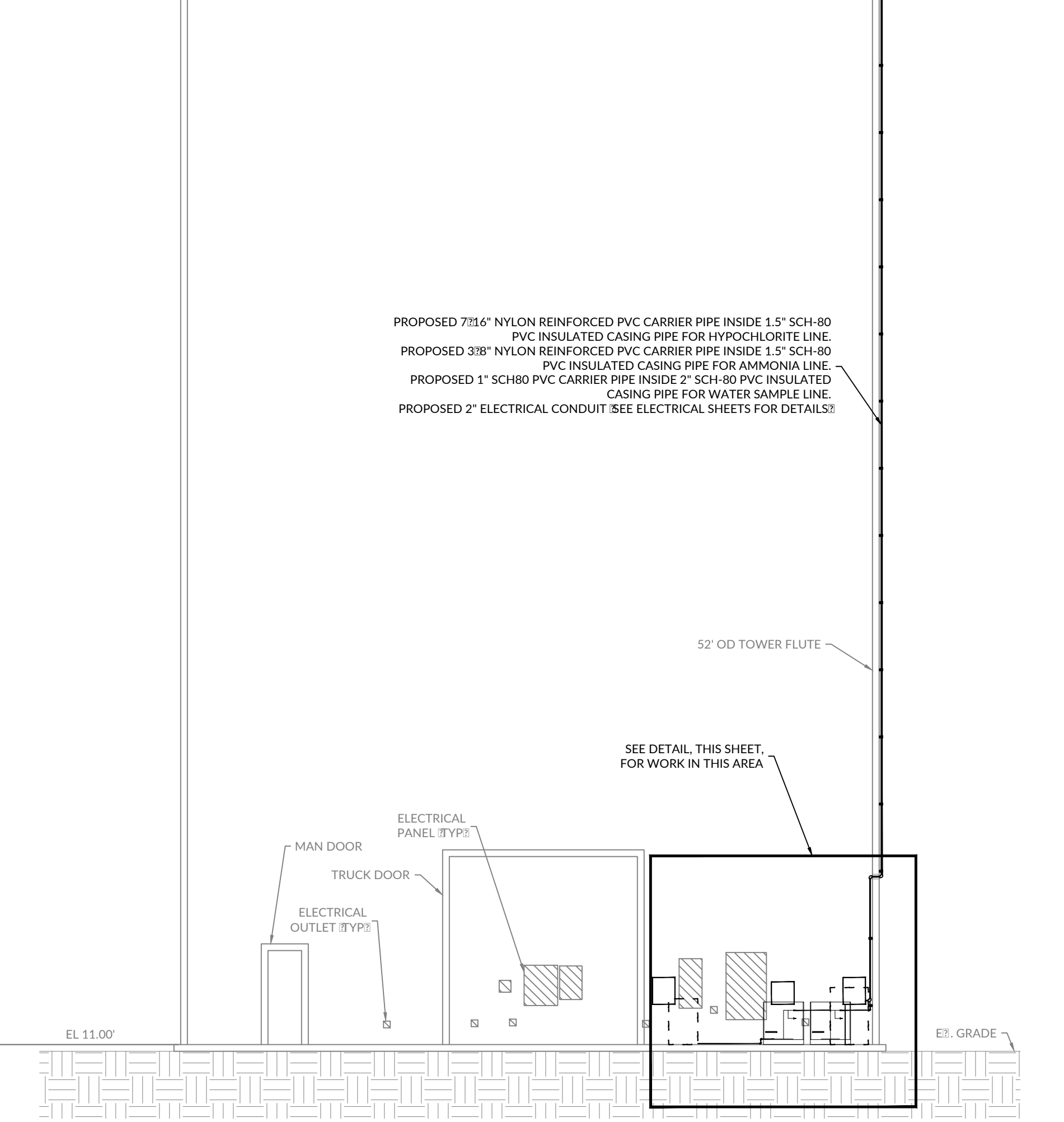
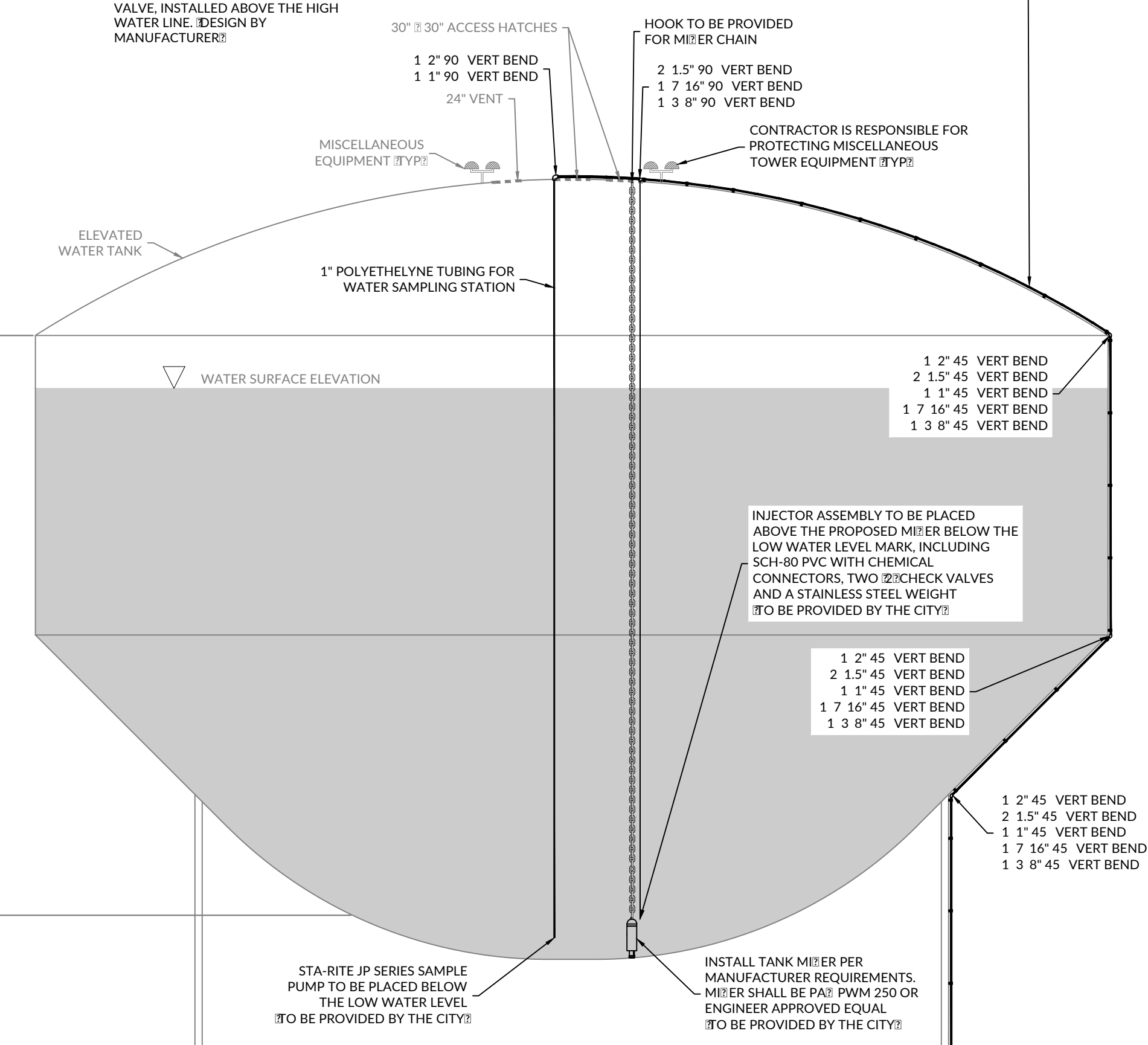
WR JOB NUMBER: 23-1097-004  
DRN: RKP DGN: CMS CKD: TSP

**ELEVATED TANK**  
**PLAN DETAILS**



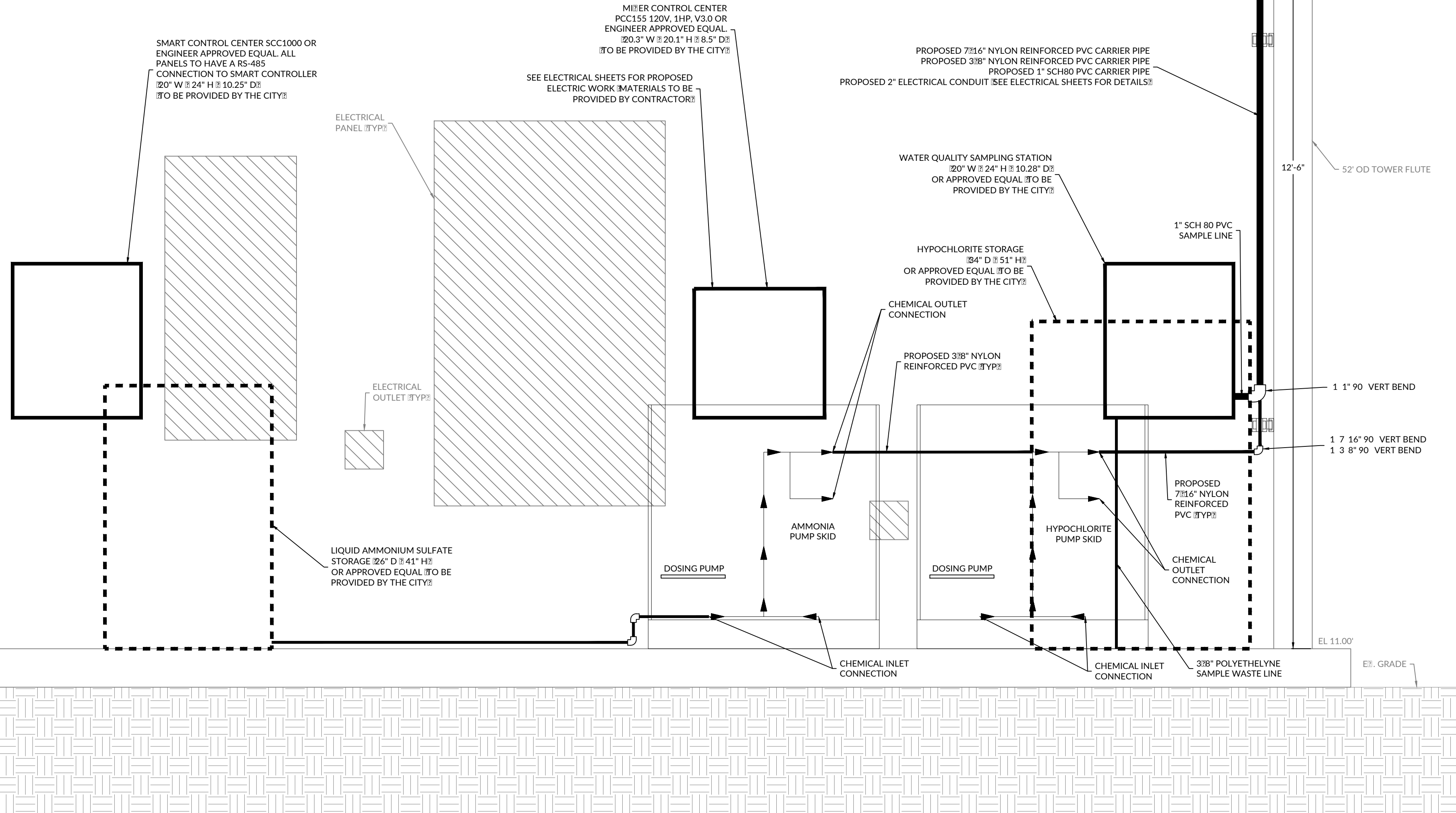
NOTE: A GLOBE VALVE WITH A WATER RETURN LOOP FROM THE WATER SAMPLING TUBING TO BE PROVIDED. CONTRACTOR TO PRICE FOR LOOP INTERIOR TO THE TANK INCLUDING PVC TEE, 5 LF OF ADDITIONAL TUBING, AND GLOBE VALVE. INSTALLED ABOVE THE HIGH WATER LINE. DESIGN BY MANUFACTURER.

ELECTRIC TO BE PROVIDED TO THE MIXER AND SAMPLING PUMP. ALL ELECTRICAL WIRING TO MEET NEC CODE AND BE NFP COMPLIANT. SEE APPLICABLE ELECTRICAL SHEETS FOR PROPOSED WORK



ELEVATED TANK ELEVATION  
SCALE: NTS

- NOTES:
- LOCATION OF EXISTING ELECTRICAL OUTLETS, CONDUIT AND EQUIPMENT IS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.
  - SECTION VIEWS OF THIS SHEET SHOWN FOR DESIGN CLARITY ONLY. REFER TO SHEET C2.00 FOR LOCATION OF PROPOSED WORK.
  - ALL 90-DEGREE BENDS SHALL BE LONG SWEEP BENDS.
  - ALL MATERIALS NOT LISTED AS PROVIDED BY THE CITY SHALL BE PROVIDED BY THE CONTRACTOR. ENCOMPASSING, BUT NOT LIMITED TO, ANY ELECTRICAL CONDUIT RUNS, WIRING, DISCONNECT SWITCHES, ELECTRICAL MATERIALS AND ALL INTERCONNECT PIPING, HOSE, PIPE AND TUBING SUPPORTS, FREEZE PROTECTION FOR ALL TUBING AND PIPING, HATCH/SKIRT PENETRATIONS, VALVES, FITTINGS AND APPURTENANCES NEEDED FOR A FULL AND COMPLETE OPERATIONAL SYSTEM.
  - ALL CHEMICALS AND FEED EQUIPMENT SHALL BE NSF CERTIFIED.
  - ALL PIPING, FITTINGS AND EQUIPMENT INTERIOR TO THE TANK SHALL BE NSF CERTIFIED.



ELEVATED TANK ELEVATION  
SCALE: NTS

PROPOSED 7/8 INCH NYLON REINFORCED PVC CARRIER PIPE INSIDE 1.5 INCH SCH-80 PVC INSULATED CASING PIPE FOR HYPOCHLORITE LINE.  
PROPOSED 3/8 INCH NYLON REINFORCED PVC CARRIER PIPE INSIDE 1.5 INCH SCH-80 PVC INSULATED CASING PIPE FOR AMMONIA LINE.  
PROPOSED 1 INCH SCH-80 PVC CARRIER PIPE INSIDE 2 INCH SCH-80 PVC INSULATED CASING PIPE FOR WATER SAMPLE LINE.  
PROPOSED 2 INCH ELECTRICAL CONDUIT. SEE ELECTRICAL SHEETS FOR DETAILS.

SECURE PIPES TO TOWER FLUTE WITH STAINLESS STEEL STRAPS AND HARDWARE AT MAX 5' INTERVALS. SECURE PIPE TO PREVENT VERTICAL MOVEMENT (TYP).

CORE DRILL E: TOWER FLUTE METAL SKIRT AND SEAL WITH POLYURETHANE CAULKING. CONTRACTOR TO FIELD VERIFY DRILL LOCATION AND REPORT FINDINGS OF CONFLICTS TO ENGINEER FOR APPROVAL OF WORK TO BE DONE.

MINIMUM 12'-6" OF PIPING TO BE INSTALLED INSIDE. CONTRACTOR SHALL FIELD VERIFY FIRST FLOOR CEILING HEIGHT AND REPORT FINDINGS TO ENGINEER FOR APPROVAL OF WORK.

MIXER CONTROL CENTER PCC155 120V, 1HP, VFD OR ENGINEER APPROVED EQUAL. 20.3" W x 20.1" H x 8.5" D. TO BE PROVIDED BY THE CITY.

SMART CONTROL CENTER SCC1000 OR ENGINEER APPROVED EQUAL. ALL PANELS TO HAVE A RS-485 CONNECTION TO SMART CONTROLLER. 20" W x 24" H x 10.25" D. TO BE PROVIDED BY THE CITY.

PROPOSED 7/8 INCH NYLON REINFORCED PVC CARRIER PIPE INSIDE 1.5 INCH SCH-80 PVC INSULATED CASING PIPE FOR AMMONIA LINE.  
PROPOSED 1 INCH SCH-80 PVC CARRIER PIPE INSIDE 2 INCH SCH-80 PVC INSULATED CASING PIPE FOR WATER SAMPLE LINE.  
PROPOSED 2 INCH ELECTRICAL CONDUIT. SEE ELECTRICAL SHEETS FOR DETAILS.

WATER QUALITY SAMPLING STATION 20" W x 24" H x 10.25" D. OR APPROVED EQUAL. TO BE PROVIDED BY THE CITY.

HYPOCHLORITE STORAGE 34" D x 51" H. OR APPROVED EQUAL. TO BE PROVIDED BY THE CITY.

LIQUID AMMONIUM SULFATE STORAGE 26" D x 41" H. OR APPROVED EQUAL. TO BE PROVIDED BY THE CITY.

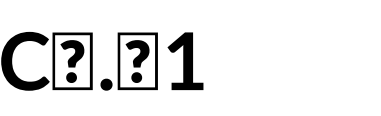


INITIAL PLAN DATE: 03/06/2025  
REVISIONS:  
1 - 04/04/2025 RKP  
PWS SUBMITTAL

WR JOB NUMBER 23-1097-004  
DRN: RKP DGN: CMS CKD: TSP

**ELEVATED TANK SECTION DETAILS**

**FINAL DRAWING**  
FOR REVIEW PURPOSES ONLY  
NOT RELEASED FOR CONSTRUCTION



## GENERAL ELECTRICAL NOTES

**GENERAL:** UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL WORK SHOWN ON ELECTRICAL DRAWINGS IS NEW WORK TO BE PROVIDED UNDER THIS CONTRACT.

**COORDINATION:** COORDINATE AND COOPERATE WITH ALL TRADES ON THE PROJECT. THE CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS INCLUDING CIVIL DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL COORDINATE AND ADJUST ACCORDINGLY AS DIRECTED BY THE ENGINEER.

**AS-BUILT DRAWINGS:** SECURE AN EXTRA SET OF ELECTRICAL DRAWINGS TO BE KEPT ON SITE AND MARK, DAILY, THE DRAWINGS IN RED AS THE PROJECT PROGRESSES IN ORDER TO KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK SHOWN ON THE DRAWINGS AND THE WORK WHICH IS ACTUALLY INSTALLED. THESE MARKED DRAWINGS SHALL REFLECT ANY AND ALL CHANGES AND REVISIONS TO THE ORIGINAL DESIGN WHICH EXISTS IN THE COMPLETED WORK. DELIVER THE MARKED DRAWINGS TO THE ENGINEER AT PROJECT CLOSE-OUT.

**TESTS:** TEST ALL WIRING FOR CONTINUITY AND GROUNDS BEFORE CONNECTING ANY FIXTURES OR DEVICES. PERFORM INSULATION RESISTANCE TESTS ON ALL WIRING #6 OR LARGER TO ENSURE THAT ALL PORTIONS ARE FREE FROM SHORT-CIRCUITS AND GROUNDS.

**INSPECTIONS:** ARRANGE ALL NECESSARY INSPECTIONS. DELIVER ALL REQUIRED INSPECTION CERTIFICATES TO THE OWNER.

**GROUNDING:** PROVIDE GROUNDING IN ACCORDANCE WITH THE NEC FOR THE ENTIRE ELECTRICAL SYSTEM INCLUDING EQUIPMENT FRAMES CONDUITS, SWITCHES, CONTROLLERS, WIRE-WAYS, NEUTRAL CONDUCTORS, AND OTHER EQUIPMENT. PROVIDE A GROUNDING CONDUCTOR IN ALL POWER CONDUITS.

**LABELS:** PROVIDE LABELS FOR ALL PANELBOARDS, CABINETS, SAFETY SWITCHES, MOTOR-DISCONNECT SWITCHES, AND MOTOR CONTROLLERS. LABELS SHALL BE MACHINE ENGRAVED, LAMINATED PLASTIC, PERMANENTLY ATTACHED WITH SELF-TAPPING SCREWS OR RIVETS. DO NOT USE SELF-ADHESIVE LABELS. LABEL SHALL INDICATE EQUIPMENT DESIGNATION AND ASSOCIATED PANEL AND CIRCUIT THAT SERVES IT.

**J-BOX LABELING:** LABEL ALL JUNCTION BOXES WITH PERMANENT MARKER IDENTIFYING CIRCUIT NUMBER AND PANELBOARD OF CIRCUITS WITHIN.

**WIRING DEVICES:** LABEL ALL WIRING DEVICES WITH PANELBOARD AND CIRCUIT DESIGNATION PERMANENTLY ATTACHED WITH BLACK TYPED DESIGNATION ON CLEAR TAPE.

**PANEL DIRECTORY:** PROVIDE TYPEWRITTEN PANELBOARD DIRECTORY CARD IN EACH PANELBOARD WITH CIRCUIT LOAD INFORMATION AND ROOM NUMBER CLEARLY IDENTIFIED. USE ACTUAL ROOM NUMBERS IN THE BUILDING, NOT THE ROOM NUMBERS SHOWN ON THE CONTRACT DRAWINGS, AS THEY ARE OFTEN DIFFERENT.

**MOTOR COORDINATION:** MOTORS, MOTOR STARTERS, CONTROLLERS, INTEGRAL DISCONNECT SWITCHES, AND CONTACTORS SHALL BE PROVIDED WITH THEIR RESPECTIVE PIECES OF EQUIPMENT BY THE EQUIPMENT SUPPLIER. COMMUNICATE WITH THE TRADES PROVIDING THE EQUIPMENT, VERIFYING ALL REQUIREMENTS, PROVIDE ALL ELECTRICAL CONNECTIONS REQUIRED THEREIN, AND INSTALL MOTOR STARTERS.

**MOTOR DISCONNECTS:** ALL MOTORS SHALL HAVE DISCONNECTING MEANS.

**MOTOR CONTROLLERS:** ALL 3-PHASE MOTORS SHALL HAVE MAGNETIC MOTOR CONTROLLERS WITH SOLID STATE OVERLOAD RELAY PROTECTION. THE SOLID STATE OVERLOAD RELAY SHALL HAVE PHASE LOSS AND PHASE OVERCURRENT PROTECTION WITH AUTOMATIC RESET UPON RETURN OF NORMAL POWER.

**MOTOR FUSE PROTECTION:** WHERE FUSE PROTECTION IS SPECIFICALLY REQUIRED BY THE EQUIPMENT MANUFACTURER, PROVIDE FUSED SWITCHES IN LIEU OF NON-FUSED SWITCHES OR IN LIEU OF ENCLOSED CIRCUIT BREAKERS, OR OTHER DEVICES INDICATED.

**CONNECTION DETAILS:** SECURE APPROVED SHOP DRAWINGS SHOWING WIRING DIAGRAMS, ROUGH-IN AND HOOK UP DETAILS FROM OTHER INVOLVED CONTRACTORS FOR EQUIPMENT WHICH MUST BE CONNECTED ELECTRICALLY.

**COORDINATION DETAILS:** WATER EQUIPMENT WILL BE FURNISHED AND INSTALLED BY THE WATER CONTRACTOR. THE LOCATIONS SHOWN ON THE ELECTRICAL DRAWINGS ARE APPROXIMATE. COORDINATE WITH THE WATER CONTRACTOR TO DETERMINE THE EXACT LOCATION OF EACH PIECE OF EQUIPMENT AND DETERMINE THE EXACT ROUGH-IN AND CONNECTION REQUIREMENTS.

**WORKING CLEARANCE:** COORDINATE FINAL LOCATIONS OF ELECTRICAL EQUIPMENT WITH MECHANICAL DUCTWORK, PIPING ETC. AND ENSURE WORKING CLEARANCE REQUIRED BY NEC WILL BE MET. SUFFICIENT ACCESS AND WORKING SPACE SHALL BE PROVIDED AND MAINTAINED AROUND ELECTRICAL EQUIPMENT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL COORDINATE FINAL LOCATION OF EQUIPMENT PROVIDED AND INSTALLED BY OTHER TRADES.

**CLEAN UP:** ON PROJECT CLOSE-OUT CLEAN ALL ELECTRICAL DEVICES, AND REMOVE ALL PAINT SPATTERS FROM DEVICES, FIXTURES AND PLATES.

## ELECTRICAL LEGEND

### POWER

THE FOLLOWING SUBSCRIPTS SHALL APPLY TO RECEPTACLES WHERE USED:

- WP: WEATHER RESISTANT GFI RECEPTACLE WITH WEATHERPROOF WHILE-IN-USE COVER.

Ⓢ DUPLEX CONVENIENCE RECEPTACLE 20A, 120V, 18" AFF, UON

Ⓢ EQUIPMENT CONNECTION

Ⓢ WP WEATHERPROOF JUNCTION BOX

Ⓢ MOTOR CONNECTION

Ⓢ M WP MOTOR RATED SWITCH WITH THERMAL OVERLOADS 20A, 120V, UON, MOUNTED WITHIN SIGHT OF MOTOR IN WEATHERPROOF ENCLOSURE.

Ⓢ SAFETY SWITCH, 60A-3P, FU @ 30A, 3R

SWITCH RATING  
NUMBER OF POLES  
FUSE RATING (NF INDICATES NON-FUSED)  
NEMA ENCLOSURE IF OTHER THAN NEMA 1

— ELECTRICAL PANELBOARD

— ELECTRICAL CIRCUIT RUN IN CONDUIT AND CIRCUIT HOMERUN TO PANELBOARD (PANEL AND CIRCUIT DESIGNATION AS INDICATED). AS A MINIMUM CONDITION, EACH SINGLE PHASE CIRCUIT SHALL HAVE 1 #12 PHASE CONDUCTOR, 1 #12 NEUTRAL CONDUCTOR AND 1 #12 GROUNDING CONDUCTOR IN 1/2" CONDUIT. PROVIDE ADDITIONAL PHASE CONDUCTORS AS REQUIRED FOR "MULTIPLE PHASED" ELECTRICAL LOADS. GROUNDING CONDUCTORS MAY BE SHARED AS ALLOWED BY THE NEC. NEUTRAL CONDUCTORS SHALL NOT BE SHARED. MULTI-POLE BREAKERS SHALL BE PROVIDED IN ACCORDANCE WITH THE NEC WHERE MULTI-WIRE BRANCH CIRCUITS ARE REQUIRED. CONDUIT LARGER THAN 1/2" AND CONDUCTORS LARGER THAN #12 SHALL BE AS INDICATED.

— AND

— AND

EXISTING PANELBOARD MDP SCHEDULE											
150 MCB, 120/240V, 1Ø, 3W, SURFACE MOUNT											
LOAD SERVED	LOAD (AMPS)		BKR TRIP	CKT NO.	PHASE	CKT NO.	BKR TRIP	LOAD (AMPS)		LOAD SERVED	
	A	B						A	B		
VALVE VAULT LIGHTS	2.0		20/1P	1		2	20/1P	3.0		OUTER WALL RECEPT	
STORAGE AREA LIGHTS		2.0	20/1P	3		4	20/1P		3.0	STORAGE AREA RECEPT	
LOWER LADDER LIGHTS	2.0		20/1P	5		6	20/1P	3.0		STORAGE AREA RECEPT	
DRY RISER LIGHTS		2.0	20/1P	7		8	20/1P			SPARE	
OUTSIDE DOOR LIGHTS	2.0		20/1P	9		10	20/1P	3.0		EXHAUST FAN	
SPARE			25/1P	11		12	20/1P		3.0	OUTER WALL RECEPT	
CATHODIC PROTECTION	5.0		20/1P	13		14	20/1P	8.0		HEAT PUMP COMP	
TELEMETRY		5.0	20/1P	15		16	20/1P		8.0		
AIR HANDLER RECEPT	1.5		20/1P	17		18	20/1P	10.0		AIR HANDLER HEATER	
OBSTRUCTION LIGHTNG		2.0	20/1P	19		20	20/1P		10.0		
MIXER	9.8		20/1P	21		22	20/1P	10.0		VALVE UNIT OHD HEATER #1	
<b>WATER QUALITY SAMPLING STATION ++</b>		<b>1.0</b>	<b>15/1P</b>	23		24	20/1P		10.0		
<b>SMART CONTROL PNL +</b>	<b>10.0</b>		20/1P	25		26	20/1P	10.0		VALVE UNIT OHD HEATER #2	
<b>MIXER CONTROL PNL ++</b>		<b>20.0</b>	<b>30/1P</b>	27		28	20/1P		10.0		
<b>SAMPLE PUMP +</b>	<b>9.8</b>		20/1P	29		30	20/1P	<b>1.5</b>		<b>REC TOP OF TANK +</b>	
<b>AMMONIA PUMP SKID ++</b>		<b>8.0</b>	<b>15/1P</b>	31		32	20/1P		<b>8.3</b>	<b>WATER SAMPLE PIPE HEAT TRACE +</b>	
<b>HYPOCHLORITE PUMP SKID ++</b>	<b>8.0</b>		<b>15/1P</b>	33		34	20/1P	<b>8.3</b>		<b>AMMONIA PIPE HEAT TRACE +</b>	
CONTROL POWER		5.0	20/1P	35		36	20/1P		<b>8.3</b>	<b>HYPOCHLORITE PIPE HEAT TRACE +</b>	
SPARE			20/1P	37		38	20/1P			SPARE	
SPARE			20/1P	39		40	20/1P			SPARE	
SPARE			20/1P	41		42	20/1P			SPARE	
<b>TOTAL</b>	<b>50.1</b>	<b>45.0</b>						<b>56.8</b>	<b>60.6</b>	<b>TOTAL</b>	
<b>TOTAL CONNECTED AMPS</b>								<b>A: 106.9</b>	<b>B: 105.6</b>		

### NOTES:

PANEL IS MANUFACTURERED BY SIEMENS TYPE S1 SERIES.

ALL LOADS ARE EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

\* + \* CONNECT LOAD TO EXISTING CIRCUIT BREAKER.

\* ++ \* PROVIDE CIRCUIT BREAKER AND CONNECT LOAD.

## ABBREVIATIONS

A AMPERE  
AFG ABOVE FINISHED GRADE  
AIC AMPERE INTERRUPTING CAPACITY  
AWG AMERICAN WIRE GAUGE  
C CONDUIT  
CKT CIRCUIT  
EC EMPTY CONDUIT  
EQUIP EQUIPMENT  
FHP FRACTIONAL AC HORSEPOWER  
FLA FULL LOAD AMPS  
GFI GROUND FAULT INTERRUPTER  
GND GROUND  
HP HORSE POWER  
IBC INTERNATIONAL BUILDING CODE  
KAIC THOUSAND AMPERE INTERRUPTING CAPACITY  
KVA KILO-VOLT-AMPERES  
KW KILO-WATTS  
MCA MINIMUM CIRCUIT AMPS  
MCB MAIN CIRCUIT BREAKER  
MFR MANUFACTURER  
MIN MINIMUM  
MLO MAIN LUGS ONLY  
MOCPP MAXIMUM OVER-CURRENT PROTECTION  
MTD MOUNTED  
NCSB NORTH CAROLINA STATE BUILDING CODE  
NEC NATIONAL ELECTRICAL CODE  
NF NON-FUSED  
NFPA NATIONAL FIRE PROTECTION ASSOCIATION  
NTS NOT TO SCALE  
P POLE  
PNL PANEL  
Ø PHASE  
SEC SECONDARY  
UON UNLESS OTHERWISE NOTED  
V VOLT  
W WATTS/WIRE  
WH WATER HEATER  
WP WEATHERPROOF

CONSTRUCTION PLANS  
**CITY OF ELIZABETH CITY  
KE WHITE WATER TOWER  
DISINFECTION IMPROVEMENTS**



#25008

**RELEASED FOR  
BIDDING ONLY  
5/3/2025. NOT FOR  
CONSTRUCTION.**

WR JOB NUMBER 23-1097-004  
DRN: SLP DGN: JWS CKD: JWS

ELECTRICAL NOTES,  
LEGEND & ABBREVIATIONS



E0.01





# SPECIFICATIONS

## SECTION 260500 - GENERAL PROVISIONS

### PART 1 - GENERAL

1.1 Codes and standards - the latest effective publications of all applicable standards, codes, etc., as they apply, form part of these specifications as if were written fully herein and constitute minimum requirements. The following will be referred to throughout in abbreviated forms.

- A. National Electrical Code, (NFPA 70) (NEC).
- B. Institute of Electrical and Electronic Engineers (IEEE).
- C. Rules and regulations of local electric utility company.
- D. National Electrical Manufacturer's Association (NEMA).
- E. American National Standards Institute (ANSI).
- F. Applicable local codes.
- G. Underwriter's Laboratories, Inc. (UL).
- H. National Fire Protection Association (NFPA).
- I. North Carolina State Building Code

1.2 Scope of work - provide all work required for this division including all labor, materials, equipment, appurtenances and services to provide complete electrical systems as shown on the drawings and specified in this division of the specifications. The word "provide" shall mean "furnish and install complete and ready for use".

1.3 The Contractor shall visit the site prior to bid to determine the extent of the work. Lack of knowledge of existing conditions will not be considered a basis for change orders. Prior to ordering equipment, verify that equipment to be provided under this contract is acceptable and can fit into bldg. and room. Expense incurred by the Contractor, which in the Engineer's opinion could have been avoided by this step, shall not be a basis for change orders.

1.4 Drawings and specifications - the drawings are diagrammatic and indicate the general extent, character and arrangement of equipment, fixtures and conduit and wiring systems. It is the intention of these specifications and drawings to fully cover all work and materials for a complete, first-class electrical installation, and any devices such as pull boxes and disconnect switches, usually employed in this class of work, though not specifically mentioned or shown on the drawings or in this specification, but which may be necessary for the satisfactory completion of the work, shall be furnished and installed by the Contractor as a part of his total work under this Division. Consult the specifications and drawings of all other trades and perform all electrical work required therein. Cooperate with all other Contractors or Subcontractors to furnish complete workable systems.

1.5 During construction, keep an accurate record of all deviations between the work as shown on the contract drawings and that which is actually installed on a set of blue line prints of the electrical drawings, and note changes thereon with red marks, in a neat and accurate manner. When all revisions have been shown on these prints to indicate the work as finally installed, the prints shall be delivered to the Engineer, before final payment.

1.6 Permits, inspection and tests - the right is reserved to inspect and test any portion of the installation/equipment during the progress of its installation. This Contractor shall test all wiring for continuity and grounds before connecting any fixtures or devices. This Contractor shall test the entire system when the work is finally completed to ensure that all portions are free from short circuits and grounds.

1.7 Secure and pay for all required permits and inspections. Inspection certificates from local authorities having jurisdiction shall be delivered to the Owner before final payment.

1.8 Submittals - submit shop drawings, product data and samples within thirty (30) days of award of contract and in accordance with the general conditions and supplementary conditions. Submittals are required for all items provided under this specification. Review of submittals by the Engineer and any associated action taken by the Engineer does not relieve the Contractor of any requirements set forth by the contract documents.

### PART 2 - PRODUCTS

2.1 Manufacturing standards - materials shall be new and approved and labeled by UL wherever standards have been established by that agency. Defective equipment or equipment damaged in the course of installation or test shall be replaced or repaired in a manner meeting the approval of the Owner. All items of the same type and rating shall be identical.

2.2 Trade names - unless specifically identified otherwise, manufacturers' names and catalog numbers indicated herein and on the drawings are not intended to be proprietary designations. They are to indicate general type and quality of materials and equipment required. Equipment and materials by other manufacturers which in the opinion of the Engineer are of equal quality and which will produce the same results will be considered acceptable.

2.3 Motors - motors shall have disconnecting means and controllers. Controllers shall have solid state overload protection with phase outage and phase reversal protection.

2.4 Disconnect switches and power wiring up to and including motor connections for all equipment provided under other divisions of this specification shall be included in this division. Where manual motor control switches for single phase motors are indicated, they shall be provided and wired complete under this division. Motor controllers and motor starters furnished under other divisions shall be set in place and connected to source and load under this division. In general, motors will be provided with the equipment they drive and are not part of this work under this division, except that they shall be connected hereunder.

2.5 Obtain approved shop drawings showing wiring diagrams, connection diagrams, roughing-in and hookup details, from other involved Contractors for all equipment and comply therewith.

2.6 Control, interlock, and internal equipment wiring regardless of voltage will be provided under the respective division where the equipment is shown unless specifically shown here.

2.7 Grounding - the electrical system, including equipment frames, conduit, switches, controllers, wireways, neutral conductors, and all other such equipment shall be permanently and effectively grounded in accordance with the NEC. Provide a separate ground conductor in all branch circuit conduits sized in accordance with the NEC.

2.8 Schedule of work - the schedule of the electrical work shall be arranged to suit the progress of work by the other trades and shall in no way retard progress of construction of the project.

2.9 Work under this division shall proceed in advance of the work of others whenever possible, eliminating all cutting and patching. When such procedure is impossible, cutting and patching shall be done in an approved manner. Cutting shall not endanger structural integrity in any way. Patching shall exactly match contiguous work. Actual work of cutting and patching of existing surfaces shall be performed by the Subcontractor who originally prepared these surfaces, e.g., cutting and patching of masonry wall will be performed by the masonry Subcontractor. Costs of such cutting and patching shall be borne by the electrical Subcontractor. Cutting shall be carefully done and damage to building, piping, wiring or equipment as a result of cutting shall be repaired by skilled mechanics of trade involved.

2.10 Storage and materials - space will be assigned to the Contractor by the Owner for the storage of materials. This Contractor will be responsible for the protection and safekeeping of materials, tools, and equipment. All materials and equipment shall be kept in its assigned place until the time of its installation. Excess materials, dirt and refuse shall be promptly removed from the work site.

2.11 Labeling of equipment

A. All cabinets, safety switches, motor disconnect switches, and motor controllers shall be identified by machine engraved laminated plastic designation plates permanently attached thereto with self-tapping screws or rivets. All component parts of each item of equipment or device shall bear the manufacturer's nameplate, giving name of manufacturer, description, size, type, serial and model number and electrical characteristics in order to facilitate maintenance or replacement.

B. All industrial control Panels shall be field marked to warn personnel of the potential for Arc Flash. Labels shall state "WARNING - ARC FLASH AND SHOCK HAZARD APPROPRIATE PPE REQUIRED".

2.12 Coordination - cooperate and coordinate efforts with all Contractors on the project. Any cost incurred which in the opinion of the Owner, could have been avoided by this step shall be the responsibility of the electrical Contractor.

2.13 Guarantee of work - Contractor guarantees by his acceptance of the contract that all work installed is free from any and all defects in workmanship and/or materials, and that the apparatus will develop capacities and characteristics specified, and that if, during the period of one year or as otherwise specified, from date of certificate of completion and acceptance of the work any such defects in workmanship, material or performance appear, he will, without cost to the Owner, remedy such defects within a reasonable time to be specified in notice. In default thereof, the Owner may have such work done and charge cost to Contractor. Equipment guarantees from date of "start-up" will not be recognized.

### PART 3 - EXECUTION

3.1 The installation shall be complete including but not limited to the requirements indicated on the drawings and in these specifications.

3.2 Contractor shall thoroughly coordinate and comply with the manufacturer's requirements. Coordination shall be accomplished prior to commencing work.

3.3 All work shall be accomplished in a neat and workmanlike manner consistent with commercial construction practices, code requirements and the local authority having jurisdiction.

### SECTION 260519 - CONDUCTORS

A. Conductors and insulation - wire and cable shall be soft drawn, annealed copper with 600 volt color coded insulation. Minimum wire size shall be #12 awg. Insulation for branch circuits and feeders shall be type THHN-2-THWN-2 or XHHW-2. Conductors No. 8 AWG and larger diameter shall be stranded. Conductors No. 10 AWG and smaller diameter shall be solid, except that conductors for remote-control and signal circuits, classes 1, 2, and 3, may be stranded.

B. Provide a separate ground conductor in all raceways sized in accordance with the NEC.

C. Joints and terminations - for conductors #12 and #10 all fixture and branch circuits joints in junction and outlet boxes shall be made with UL listed pressure type connectors rated at 600 volts and 105 degrees C. Connectors shall be Ideal Industries "Wing-Nut" or Buchanan "B-Cap", 3M "Scotch-Lok" connectors or equal. Wire #8 and larger shall be joined or terminated with solderless pressure connectors properly taped in layers to form a moisture-tight joint.

D. All wiring shall be in conduit unless otherwise noted.

### SECTION 260533 - RACEWAY, FITTINGS AND BOXES

A. Raceways - conduit shall be hot-dipped, zinc coated or sherardized rigid steel (RS), intermediate metal conduit (IMC), electrical metallic tubing (EMT).

B. Flexible conduit shall be galvanized, continuous spiral, single strip type. Flexible conduit shall be covered with PVC jacket in wet or damp locations. Provide suitable fittings with ground connector.

C. Fittings - all conduit entering or leaving outlet, junction or pull boxes, and cabinets and all conduit stubs shall have bushings. Provide insulating bushings where required by NEC. Provide expansion fittings with bonding jumper where conduits cross expansion joints.

1. Fittings for RS and IMC shall be threaded type.

2. Fittings for EMT shall be threadless, approved for the conditions encountered and may be cast setscrew type or compression type.

D. Outlet boxes and junction boxes - outlet boxes shall be pressed steel, electro-galvanized or cadmium plated with clean cut, easily removable knockouts. Except as noted hereinafter minimum size outlet box shall be 4" square, 1 1/2" deep, and shall be increased in dimensions to accommodate conductors, conduits, and devices as required by the NEC. Shallower boxes may be used where required by structural conditions. Provide suitable plaster-rings to match wall construction and device. Ceiling and bracket outlet boxes shall be not less than 4" octagonal, 1 1/2" deep except that smaller boxes may be used where required by particular fixture to be installed.

E. Outlet boxes in wet or damp locations shall be cast-metal, threaded hub-type with gaskets.

F. Junction or pull boxes not over 100 cubic inches in volume shall be standard outlet boxes. Junction boxes over 100 cubic inches in volume shall be constructed of code gage, galvanized sheet steel. Junction boxes shall have removable covers and shall be accessible after completion of work.

G. Raceway and fitting installation - Conduits may be run exposed in mechanical rooms and spaces with exposed construction. Conduit shall be supported at intervals of not more than 8'. Run exposed conduit parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceiling.

H. Support conduits by pipe straps, wall brackets, strap hangers, or ceiling trapeze.

I. Do not install EMT outdoors, or underground, or encased in concrete, or in hazardous areas, or in areas subject to severe physical damage.

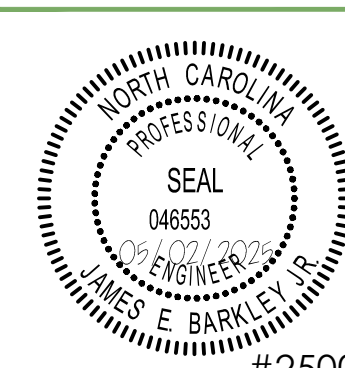
J. Sleeves - All electrical system conduit shall have sleeves where conduit passes through concrete slabs except concrete slabs in contact with grade. All conduit 1 1/4 inch and larger running concealed above ceiling shall have sleeves where the conduit passes through masonry, tile and gypsum wall construction. Sleeves shall be constructed of galvanized steel pipe, Schedule 40. Provide escutcheon plates for all exposed conduit passing through walls, floors and ceilings. Where plates are provided for conduits passing through sleeves, which extend above the floor surface, provide deep recessed plates to conceal the sleeves. Terminate sleeves flush with wall, partitions and ceilings. In areas where conduits are concealed, as in chases, terminate sleeves flush with floor. In finished areas, where conduits are exposed, extend sleeves 1/2 inch above finished floor, except in rooms having floor drains extend sleeves 1 inch above floor. Fasten sleeves securely in floors, walls, so that they will not become displaced when concrete is poured or when other construction is built around them. Where sleeves pass through floors or fire rated walls provide proper sealant around conduit to maintain fire rating.

### SECTION 262810 - SAFETY SWITCHES

A. Safety switches - safety switches shall be rated at 600 or 240 volts with number of poles and current rating as indicated. Switches shall be fused or non-fused type as indicated, NEMA type GD or HD as required, with full cover interlocks and quick-make, quick-break mechanism.



CONSTRUCTION PLANS  
**CITY OF ELIZABETH CITY  
KE WHITE WATER TOWER  
DISINFECTION IMPROVEMENTS**  
ELIZABETH CITY, NC 27909 | PASQUOTANK COUNTY



**RELEASED FOR  
BIDDING ONLY  
5/3/2025. NOT FOR  
CONSTRUCTION.**

WR JOB NUMBER 23-1097-004  
DRN:SLP DGN:JWS CKD:JWS  
ELECTRICAL SPECIFICATIONS



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