ISSUED FOR CONSTRUCTION

PROJECT MANUAL

FAIRLEE WTP CLARIFLOCCULATOR REPLACEMENT

CHESTERTOWN, MARYLAND

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FAIRLEE WTP CLARIFLOCCULATOR REPLACEMENT

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DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS

SECTION 00100

ADVERTISEMENT FOR BIDS

County Commissioners of Kent County, Maryland
400 High Street
Chestertown, Maryland 21620

Separate sealed Bids for the construction of the:

Fairlee WTP Clariflocculator Replacement

will be received by the Kent County Department of Public Works, at the Bid Receipt Office, 709 Morgnec Road, Suite 101, Chestertown, Maryland 21620, until **10:00 a.m**., (Local Time) on **August 12**, **2020** and then at said office publicly opened and read aloud.

Work consists of the furnishing and installation of a clariflocculator at the existing Fairlee WTP along with associated mechanical piping, valves, and controls for a fully functional clariflocculator unit. Additional items include concrete slab demolition, excavation and installation of new concrete slab, removal and disposal of the existing clariflocculator unit, relocation of the chemical feed system, and miscellaneous electrical improvements.

A Pre-Bid Conference will be held at **10:00 a.m.** (Local Time) on **July 29, 2020**, at the Bid Receipt Office, 709 Morgnec Road, Suite 101, Chestertown, Maryland 21620, to allow Contractors the opportunity to obtain information on the project from the Engineer and the Owner.

Written questions (email: mmoulds@kentgov.org) will be accepted and answered via Addenda if submitted to The Owner by **12:00 p.m.** local time on **August 5, 2020**. Questions shall include the project name (Re: Fairlee WTP Clariflocculator Replacement) in the subject heading.

Copies of the Contract Documents may be obtained at the office of GEORGE, MILES & BUHR, LLC, 206 West Main Street, Salisbury, Maryland 21801, upon payment of Forty Dollars ($40.00) for each Compact Disc, non-refundable. Checks should be made payable to George, Miles & Buhr, LLC. The Contract Documents may be examined at the following location(s): Bid Receipt Office, 709 Morgnec Road, Suite 101, Chestertown, Maryland 21620.

The right is reserved, as the interest of the County Commissioners of Kent County, Maryland, may appear, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid.

Minority Business Enterprises (MBE) and Women Business Enterprises (WBE) are encouraged to respond.

County Commissioners of Kent
County, Maryland

P. Thomas Mason
President

DIVISION 00 – BIDDING AND CONTRACT REQUREMENTS

SECTION 00200 - INSTRUCTIONS TO BIDDERS

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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, after submitting its Bid and within 5 days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

A. Contractor's Qualifications Statement**, EJCDC C-451**.

3.02 A Bidder's failure to submit required qualification information within the times indicated 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:

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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.

4. Geotechnical Baseline Report: The Bidding Documents contain a Geotechnical Baseline Report (GBR). The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.

   The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

   Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

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

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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 Supplementary 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;

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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.

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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 **at least 10** percent 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 ~~61~~ **91** days after the Bid opening, 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, **[Milestones are to be achieved and]** 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.

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ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute 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 in the case of a proposed substitute and 5 days prior in the case of a proposed "or-equal". 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. Substitutes and "or-equal" materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.04 and 7.05 of the General Conditions after the Effective Date of the Contract.

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.

11.03 If an award is made, Contractor shall be allowed to submit proposed substitutes and "or-equals" in accordance with the General Conditions.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If required by the bid documents, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of 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.

12.02 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.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

12.04 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.06.

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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.

13.03 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.

13.04 A Bid by an individual shall show the Bidder's name and official address.

13.05 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.

13.06 All names shall be printed in ink below the signatures.

13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.09 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.

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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 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.

15.02 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." A mailed Bid shall be addressed to the Owner at address in Article 1.01 of the Bid Form.

15.03 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 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

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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 submitting the lowest responsive Bid for EITHER Bid Option 1 or Bid Option 2.

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.

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

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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 24 – WAGE RATE REQUIREMENTS

24.01 **If the contract price is in excess of $100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.**

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DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS

SECTION 00410 - BID FORM

Fairlee WTP Clariflocculator Replacement

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to: Kent County Department of Public Works, Bid Receipt Office, 709 Morgnec Road. Suite 101, Chestertown, Maryland 21620.

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 **90** 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:

Addendum No.	**Addendum, Date**
_____	_____
_____	_____
_____	_____
_____	_____

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

C. 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.

D. 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.

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E. 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.

F. 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.

G. 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.

H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

I. 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 e execution of the Contract.

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ARTICLE 5 – BASIS OF BID

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

SCHEDULE A – LUMP SUM PRICES BID

Item No.	Description	Lump Sum Price
A1	Mobilization / Demobilization	
A2	Install Clariflocculator and Associated Piping and Valves, and all Appurtenances	
A3	Demolition of the Existing Concrete Slab and Installation of Proposed Concrete Slab	
A4	Demolition of the Existing Clariflocculator Unit and all necessary Appurtenances	
Subtotal Schedule A		$

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5.02 Bidder will complete the Work under Schedule B, when authorized, in accordance with the Contract Documents for the following price(s):

SCHEDULE B – CONTINGENT ITEMS

Item No.	Description	Size	Unit	Estimated Quantity	Bid Unit Price	Estimated Bid Price
B1	Excavation Below Subgrade	--	CY	10		
B2	Furnish and Place Gravel Bedding	--	CY	10		
B3	Furnish and Place Special Backfill	--	CY	10		
B4	Miscellaneous Excavation and Backfill	--	CY	10		
B5	Furnish and Place Miscellaneous 3,000 Concrete	--	CY	5		
B6	Secure Modified Proctor Tests	--	EA	1		
B7	Secure Field Density Tests	--	EA	1		
B8	Additional D.I. Fittings as Directed by the Owner	--	LBS.	400		
Subtotal Schedule B						$

TOTAL – BID OPTION 1 (SCHEDULE "A+B"):

_____Dollars $(_____)

5.03 Bidder will complete the Work under Schedule C, if a Deduct for unnecessary demolition is accepted by the owner.

SCHEDULE C – DEDUCT COST FOR MINIMAL DEMOLITION

Item No.	Description	Lump Sum Price
C1	Deduct for Demolishing Only the Items Necessary to Facilitate the Installation of the Clariflocculator	
Subtotal Schedule C		$

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TOTAL – BID OPTION 2 (SCHEDULE "A+B+C"):

_____Dollars $(_____)

Bidder acknowledges that 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 and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

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;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. List of Project References;

E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

F. State of Maryland Contractor's License No.: _____ Required Bidder Qualification Statement with supporting data;

G. Contractor's Federal ID No.: _____; and

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.

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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)

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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)*:
County Commissioners of Kent County, Maryland
400 High Street
Chestertown, Maryland 21620

BID
Bid Due Date:
Description *(Project Name— Include Location)*: Fairlee WTP Clariflocculator Replacement
Chestertown, Maryland 21620

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.

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE OF AWARD

Date of Issuance:

Owner:	County Commissioners of Kent County, Maryland	Owner's Contract No.:	
Engineer:	George, Miles & Buhr, LLC	Engineer's Project No.:	190065
Project:	Fairlee WTP Clariflocculator Replacement	Contract Name:	Fairlee WTP Clariflocculator Replacement
Bidder:			
Bidder's Address:			

TO BIDDER:

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

_____ .

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

The Contract Price of the awarded Contract is: $_____ *[note if subject to unit prices, or cost-plus]*

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

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner [____]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.
3. Other conditions precedent (if any):

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**:**

Authorized Signature

By:

Title:

Copy: Engineer

EJCDC® C-510, Notice of Award.
Prepared and published 2013 by the Engineers Joint Contract Documents Committee.

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

THIS AGREEMENT is by and between County Commissioners of Kent County, Maryland ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Fairlee WTP Clariflocculator Replacement.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by George, Miles & Buhr, LLC.

3.02 The Owner has retained George, Miles & Buhr, LLC ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Contract Times: Days*

A. The Work under this Contract shall be initiated in a two-part notice to proceed. *Part 1 – Material Acquisition* shall be completed within 240 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions. This material Acquisition shall include all materials to be acquired by both the Contractor, and the Owner. *Part 2 – Construction* shall commence once materials have been acquired and be substantially completed within 330 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions in 360 days after the date when the Contract Times commence to run.

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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 $500.00 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 $250.00 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 additive and will be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

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

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

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

B. **If work is not substantially complete, or is not completed and ready for final payment, within the maximum allowable times, including any extensions allowed in accordance with Article 11.05 of the General Conditions, engineering charges incurred by the Owner after the aforesaid completion time will be charged to the Contractor and deducted from monies owed the Contractor. The amount will be determined by the Owner, based upon Engineer's invoices submitted to Owner for services rendered by Engineer under Article 10 of the General Conditions during the applicable time period. Such engineering charges are separate and apart and not a component of the total amount of liquidated damages to be assessed pursuant to Article 4.03.**

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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 2nd Tuesday 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 50% Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

   a. 90 percent of Work completed (with the balance being retainage); and

   b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. After 50% completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

   a. 95 percent of work completed (with the balance being retainage); and

   b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion of the entire construction to be provided under the Contract Documents, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 250 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of *2.0* percent per annum.

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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.

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ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 7, inclusive).
2. Performance bond (pages 1 to 3, inclusive).
3. Payment bond (pages 1 to 3, inclusive).
4. General Conditions (pages 1 to 72, inclusive).
5. Supplementary Conditions (pages 1 to 19, inclusive).
6. Specifications as listed in the table of contents of the Project Manual.
7. Drawings (not attached but incorporated by reference) consisting of __ sheets with each sheet bearing the following general title: Fairlee WTP Clariflocculator Replacement.
8. Addenda (numbers ___ to ___, inclusive).
9. Exhibits to this Agreement (enumerated as follows):
   a. Contractor's Bid (pages ___ to ___, inclusive).
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

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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.

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:
County Commissioners of Kent County, Maryland	_____
_____	_____
By: _____	By: _____

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Title: _____

Attest: _____

Title: _____

Address for giving notices:

400 High Street,

Chestertown, Maryland 21620

(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.)

Title: _____

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

Attest: _____

Title: _____

Address for giving notices:

License No.: _____
(where applicable)

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

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CERTIFICATE OF OWNER'S ATTORNEY AND AGENCY CONCURRENCE

CERTIFICATE OF OWNER'S ATTORNEY

Project Name: County Commissioners of Kent County, Maryland

Contractor Name:

I, the undersigned, _____, the duly authorized and acting legal representative_____, do hereby certify as follows: I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Name Date

AGENCY CONCURRENCE

As lender or insurer of funds to defray the costs of this Contract, and without liability for any payments thereunder, the Agency hereby concurs in the form, content, and execution of this Agreement.

Agency Representative Date

Name

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NOTICE TO PROCEED

Owner:	County Commissioners of Kent County, Maryland	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Engineer:	George, Miles & Buhr, LLC	Engineer's Project No.:	190065
Project:	Fairlee WTP Clariflocculator Replacement	Contract Name:	Fairlee WTP Clariflocculator Replacement
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

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 date of Substantial Completion is _____, and the date of readiness for final payment is_____] ***or*** [the number of days to achieve Substantial Completion is 330, and the number of days to achieve readiness for final payment is 360.

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

Attend a Pre-Construction conference with the Owner, Engineer and Funding Agencies.

Owner**:**

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:
County Commissioners of Kent County, Maryland
400 High Street
Chestertown, Maryland 21620

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*: Fairlee WTP Clariflocculator Replacement, Chestertown, Maryland

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ 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

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest:_____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By:_____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest:_____
Signature

_____
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.

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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

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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:

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PAYMENT BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:
County Commissioners of Kent County, Maryland
400 High Street
Chestertown, Maryland 21620

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*: Fairlee WTP Clariflocculator Replacement, Chestertown, Maryland

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

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

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
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.

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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.

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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:

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Contractor's Application for Payment No. _____

	Application Period:	Application Date:
To (Owner): County Commissioners of Kent County, Maryland	From (Contractor):	Via (Engineer): George, Miles & Buhr, LLC
Project: Fairlee WTP Clariflocculator Replacement	Contract: Fairlee WTP Clariflocculator Replacement	
Contract No.:	Contractor's Project No.:	Engineer's Project No.: 190065

Application For Payment

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE..... $ _____

2. Net change by Change Orders..... $ _____

3. Current Contract Price (Line 1 ± 2)..... $ _____

4. TOTAL COMPLETED AND STORED TO DATE
(Column F on Progress Estimate)..... $ _____

5. RETAINAGE:

a. X _____ Work Completed..... $ _____

b. X _____ Stored Material..... $ _____

c. Total Retainage (Line 5a + Line 5b)..... $ _____

6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)..... $ _____

7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... $ _____

8. AMOUNT DUE THIS APPLICATION..... $ _____

9. BALANCE TO FINISH, PLUS RETAINAGE
(Column G on Progress Estimate + Line 5 above)..... $ _____

Contractor's Certification

The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:

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

is recommended by: _____ _____
(Engineer) (Date)

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

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding Agency (Date)

Endorsed by the Construction Specifications Institute.

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Progress Estimate

Contractor's Application

For (contract): Fairlee WTP Clariflocculator Replacement	Application Number:
Application Period:	Application Date:

A		B	Work Completed		E	F		G
Item		Scheduled Value	C	D	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (F) B	Balance to Finish (B - F)
Specification Section No.	Description		From Previous Application (C+D)	This Period				
	Totals							

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190065

Progress Estimate

Contractor's Application

For (contract): Fairlee WTP Clariflocculator Replacement							Application Number:			
Application Period:							Application Date:			
A				B	C	D	E	F		
Item		Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F) B	Balance to Finish (B - F)
Bid Item No.	Description									
	Totals									

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Stored Material Summary

Contractor's Application

For (contract): Fairlee WTP Clariflocculator Replacement	Application Number:
Application Period:	Application Date:

A	B	C	D		E		F		G
			Stored Previously		Stored this Month		Incorporated in Work		
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Date (Month/Year)	Amount ($)	Amount ($)	Subtotal	Date (Month/Year)	Amount ($)	Materials Remaining in Storage ($) (D + E - F)
		Totals							

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Certificate of Substantial Completion

Project: Fairlee WTP Clariflocculator Replacement	
Owner: County Commissioners of Kent County, Maryland	Owner's Contract No.:
Contract: Fairlee WTP Clariflocculator Replacement	Engineer's Project No.: 190065

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

☐ All Work under the Contract Documents: ☐ 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 Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

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

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

☐ Amended Responsibilities ☐ Not Amended

Owner's Amended Responsibilities:

_____

_____

_____

Contractor's Amended Responsibilities:

_____

_____

_____

_____

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

_____

_____

_____

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

Executed by Engineer	Date
Accepted by Contractor	Date
Accepted by Owner	Date

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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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

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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.

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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.

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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.

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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.

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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

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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

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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,

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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.

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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.

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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.

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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

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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.

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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,

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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

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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.

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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.

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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.

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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

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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).

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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

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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.

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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).

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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.

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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

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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

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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.

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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

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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.

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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.

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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

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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;

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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

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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

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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.

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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.

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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

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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.

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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.

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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.

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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

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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.

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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

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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

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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

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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.

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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

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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

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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

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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, expediters, 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.

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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.

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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

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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.

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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

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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:

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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

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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

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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.

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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

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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,

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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.

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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,

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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

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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.

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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.

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DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS

Section 00800 - Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

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

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

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

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

Geotechnical Baseline Report (GBR) — The interpretive report prepared by or for Owner regarding subsurface conditions at the Site, and containing specific baseline geotechnical conditions that may be anticipated or relied upon for bidding and contract administration purposes, subject to the controlling provisions of the Contract, including the GBR's own terms. The GBR is a Contract Document.

Geotechnical Data Report (GDR) — The factual report that collects and presents data regarding actual subsurface conditions at or adjacent to the Site, including Technical Data and other geotechnical data, prepared by or for Owner in support of the Geotechnical Baseline Report. The GDR's content may include logs of borings, trenches, and other site investigations, recorded measurements of subsurface water levels, the results of field and laboratory testing, and descriptions of the investigative and testing programs. The GDR does not include an interpretation of the data. If opinions, or interpretive or speculative non-factual comments or statements appear in a document that is labeled a GDR, such opinions, comments, or statements are not operative parts of the GDR and do not have contractual standing. Subject to that exception, the GDR is a Contract Document.

SC-1.01.A.8 Add the following language at the end of last sentence of Paragraph 1.01A.8:

The Change Order form to be used on this project is EJCDC C-941. Agency approval is required before Change Orders are effective.

SC-1.01.A.48 Add the following language at the end of the last sentence of Paragraph 1.01.A.48:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC-1.01.A.49 Add the following new Paragraph after Paragraph 1.01.A.48:

Abnormal Weather Conditions – Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal weather Conditions.

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ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02 Copies of Documents

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

Owner shall furnish to Contractor two (2) copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one (1) copy in electronic portable document format (PDF).

SC-2.06.B Delete Paragraph 2.06B and replace with the term (DELETED).

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC4.01.A Amend the last sentence of Paragraph 4.01.A by striking out the following words:

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.

SC-4.05C.2 Amend Paragraph 4.05.C.2 by striking out the following text:

"abnormal weather conditions;" and inserting the following text:

Abnormal Weather Conditions;

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

SC-5.03 Subsurface and Physical Conditions

SC/GBR-5.03 and 5.04. Delete Paragraphs 5.03 and 5.04 of the General Conditions in their entireties and replace with the following provisions:

SC/GBR-5.03 Subsurface and Physical Conditions

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

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site (other than any Geotechnical Data Report or Geotechnical Baseline Report), and Technical Data contained in such reports. Such reports are as follows: NONE

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), and Technical Data contained in such drawings. Such drawings are as follows: NONE

B. Reliance by Contractor on Technical Data Authorized:

Contractor may rely upon the accuracy of the Technical Data contained in such reports and drawings, but such reports and drawings are not Contract Documents. 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,

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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. Geotechnical Baseline Report:

1. **This Contract contains a Geotechnical Baseline Report ("GBR"), identified as follows: None**

SC/GBR-5.04 Differing Subsurface or Physical Conditions

A. Notice: If Contractor believes that any subsurface condition that is uncovered or revealed at the Site:

1. **differs materially from conditions shown or indicated in the GBR; or**
2. **differs materially from conditions shown or indicated in the GDR, to the extent the GBR is inapplicable; or**
3. **differs materially from conditions shown or indicated in Contract Documents other than the GBR or GDR, to the extent the GBR and GDR are inapplicable; or**
4. **to the extent the GBR and GDR are inapplicable, 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**
5. **to the extent the GBR and GDR are inapplicable, is of such a nature as to require a change in the Drawings or Specifications; or**
6. **to the extent the GBR and GDR are inapplicable, 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 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

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tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph SC/GBR 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption or continuation 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 or continuation 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 SC/GBR 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 of the General Conditions; 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 SC/GBR 5.04.A.

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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.**

SC-5.06 Hazardous Environmental Conditions

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:		**Statutory**
Federal, if applicable (e.g., Longshoreman's):		**Statutory**
Jones Act coverage, if applicable:		
Bodily injury by accident, each accident	**$**	_____
Bodily injury by disease, aggregate	**$**	_____
Employer's Liability:		
Bodily injury, each accident	**$**	**500,000**
Bodily injury by disease, each employee	**$**	**500,000**

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Bodily injury/disease aggregate	**$**	**500,000**
For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	**$**	
Foreign voluntary worker compensation		**Statutory**

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

General Aggregate	**$**	**2,000,000**
Products - Completed Operations Aggregate	**$**	**1,000,000**
Personal and Advertising Injury	**$**	**1,000,000**
Each Occurrence (Bodily Injury and Property Damage)	**$**	**1,000,000**

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

Bodily Injury:		
Each person	**$**	**1,000,000**
Each accident	**$**	**1,000,000**
Property Damage:		
Each accident	**$**	**1,000,000**
[or]		
Combined Single Limit of	**$**	**1,000,000**

4. Excess or Umbrella Liability:

Per Occurrence	**$**	**5,000,000**
General Aggregate	**$**	**5,000,000**

5. Contractor's Pollution Liability:

Each Occurrence	**$**	
General Aggregate	**$**	

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☒ **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: County Commissioners of Kent County, Maryland and George, Miles & Buhr, LLC.**

7. **Contractor's Professional Liability:**

Each Claim	**$** _____
Annual Aggregate	**$** _____

L. The Contractor's insurance policy shall also cover damage to all existing equipment and structures in the facility, including the clariflocculator equipment pre-purchased by the Owner to be installed by the Contractor. The Owner shall not be responsible for damage that occurred at the fault of the Contractor throughout construction.

SC-6.05 Property Insurance

SC-6.05. Add the following to the list of requirements in Paragraph 6.05.A, as a numbered item:

13. be subject to a deductible amount of no more than $10,000.00 for direct physical loss in any one occurrence.

SC-6.05.A.1 Add the following new subparagraph after subparagraph 6.05.A.1:

a. In addition to Owner, Contractor, and all Subcontractors, include as insureds the following: County Commissioners of Kent County, Maryland and George, Miles & Buhr, LLC.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 Labor; Working Hours

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

1. Regular working hours will be 8:00 a.m. until 5:00 p.m.

2. Owner's legal holidays are: New Year's Day, Dr. Martin Luther King, Jr's Birthday, President's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving and Christmas Day or any other legal holiday that is recognized by the County.

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

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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 subparagraph immediately after Paragraph 7.02.C:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as: $85 per hour for RPR; $130 per hour for Construction Representative and $90 per hour for a Department of Public Works Representative.

SC-7.04.A Amend the third sentence of Paragraph 7.04.A by striking out the following works:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or 'or-equal' item is permitted.

SC-7.04.A.1 Amend the last sentence of Paragraph a.3 by striking out "and;" and adding a period at the end of Paragraph a.3.

SC-7.04.A.1 Delete paragraph 7.04.A.1.a.4 in its entirety and insert the following in its place:

(Deleted)

SC-7.06.A Amend Paragraph 7.06.A by adding the following text to the end of the Paragraph:

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

SC-7.06.B Delete Paragraph 7.06.B in its entirely and insert the following in its place:

(Deleted)

SC-7.06.E Amend the second sentence of Paragraph 7.06.E by striking out "Owner may also require Contractor to retain specific replacements; provided, however, that".

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 Coordination

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

A. Owner intends to contract with others for the performance of other work at or adjacent to the Site.

1. Contractor shall have authority and responsibility for coordination of the various contractors and work forces at the Site;

2. The following specific matters are to be covered by such authority and responsibility: pipe connections;

3. The extent of such authority and responsibilities is: limited to scheduling work. However it shall not interfere with the Owners regulatory responsibility for operation of the water treatment facilities.

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ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 Project Representative

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

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

4. Liaison:

a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

6. Shop Drawings and Samples:

a. **Record date of receipt of Samples and Contractor-approved Shop Drawings.**

b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

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7. **Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.**

8. **Review of Work and Rejection of Defective Work:**

    a. **Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.**

    b. **Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.**

9. **Inspections, Tests, and System Start-ups:**

    a. **Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.**

    b. **Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.**

10. **Records:**

    a. **Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.**

    b. **Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.**

    c. **Maintain records for use in preparing Project documentation.**

11. **Reports:**

    a. **Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.**

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b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

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5. **Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.**

6. **Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.**

7. **Accept Shop Drawing or Sample submittals from anyone other than Contractor.**

8. **Authorize Owner to occupy the Project in whole or in part.**

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

SC-11.07.C Add the following new Paragraph after Paragraph 11.07.B;

All Contract Change Orders must be concurred in by Agency before they are effective.

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

SC-13.01 Cost of the Work

SC 13.01.B.5.c Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery:

1) Rentals of all construction equipment and machinery, and the parts thereof, 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.

2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the Rental Rate Blue Book. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than $1,000 will be considered small tools.

SC-13.02.C Delete Paragraph 13.02.C in its entirely and insert the following in its place:

(Deleted)

SC-13.03 Unit Price Work

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

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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 _5__ 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.B Amend the second sentence of Paragraph 15.01.B.1 by striking out the following text: "a bill of sale, invoice, or other."

SC-15.01.B.3 Add the following language at the end of paragraph 15.01.B.3:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.

SC-15.01.B.4 Add the following new Paragraph after Paragraph 15.01.B.3:

The Application for Payment form to be used on this Project is EJCDC C-620. The Agency must approve all Applications for Payment before payment is made.

SC-15.01.D.1 Delete Paragraph 15.01.D.1 in its entirely and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable., the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due thirty (30) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC-15.02.A Amend Paragraph 15.02.A by striking out the following text: "no later than seven days after the time of payment by Owner" and insert "no later than the time of payment by Owner."

SC 15.03 Substantial Completion

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

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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 DUSPUTES

SC 17.01 Methods and Procedures

SC-17.01.B.03 Amend Paragraph 17.01.B.03 by adding ", in the State of Maryland" after the words "… a court of competent jurisdiction." In the last sentence.

ARTICLE 18 – MISCELLANEOUS

SC-18.09 Add the following new paragraph after Paragraph 18.08:

Tribal Sovereignty. No provisions of this Agreement will be construed by any of the signatories as abridging or debilitating any sovereign powers of the (insert name of Tribe) Tribe; affecting the trust-beneficiary relationship between the Secretary of the Interior, Tribe and Indian landowner(s); or interfering with the government-to-government relationship between the United States and the Tribe.

SC-19 Add Article 19 titled "FEDERAL REQUIREMENTS"

SC-19.01 Add the following language as Paragraph 19.01 with the title "Agency Not a Party":

A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees is a party to this Contract.

SC19.02 Add the following sections after 19.01 with the title "Contract Approval":

A. Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Attachment GC-A) before Owner submits the executed Contract Documents to Agencies for approval.

B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

SC-19.03 Add the following language after Article 19.02B with the title "Conflict of Interest":

A. Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

SC-19.04 Add the following language after Article 19.03.A with the title "Gratuities."

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this

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Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

SC-19.05 Add the following language after Article 19.04.B with the title "Audit and Access to Records."

A. Owner, Agency, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Engineer which are pertinent to the Agreement, for the purpose of making audits, examinations, excerpts, and transcriptions. Engineer shall maintain all required records for three years after final payment is made and all other pending matters are closed.

SC-19.06 Add the following language after Article 19.05.A with the title "Small, Minority and Women's Businesses."

A. **If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.**

SC-19.07 Add the following after Article 19.06.A with the title "Anti-Kickback."
A.
A. Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction,

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completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

SC-19.08 Add the following after Article 19.07.A with the title "Clean Air and Pollution Control Acts."

A. If this Contract exceeds $100,000, Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h) and 42 USC 7401et. seq.), section 508 of the Clean Water Act (33 U.S.C. 1368) and Federal Water Pollution Control Act (33 USC 1251 et seq.), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15) is required. Contractor will report violations to the Agency and the Regional Office of the EPA.

SC-19.09 Add the following after Article 19.08 with the title "State Energy Policy."

A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

SC-19.10 Add the following after Article 19.09 with the title "Equal Opportunity Requirements."

A. If this Contract exceeds $10,000, Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

B. Contractor's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting Contractor's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

C. Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

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SC-19.11 Add the following after Article 19.10.C with the title "Restrictions on Lobbying."

A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed $100,000 at any tier under a Federal loan that exceeds $150,000 or a Federal grant that exceeds $100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 USC 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

SC-19.12 Add the following after Article 19.11.A with the title "Environmental Requirements."

When constructing a project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental constraints:

A. Wetlands – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.

B. Floodplains – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, i.e., alluvial soils on NRCS Soil Survey Maps.

C. Historic Preservation – Any excavation by Contractor that uncovers an historical or archaeological artifact shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).

D. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

E. Mitigation Measures – If the project had an Environmental Report, Environmental Assessment, or Environmental Impact Statement to meet the requirements of the National Environmental Policy Act, compliance with the mitigation measures, if any, in that document are hereby included as a condition of this contract.

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DIVISION 00 – BIDDING AND CONTRACT DOCUMENTS

SECTION 00820

SPECIAL PROVISIONS

PART 1 – GENERAL

1.01 GENERAL

A. The following Special Provisions shall take precedence over the plans and other Sections of these specifications.

1.02 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

A. The proposal states the number of consecutive calendar days allowed from date of "Notice to Proceed" to date of completion of the work under this contract. The time shall start on the day of the “Notice to Proceed”.

B. For each and every day that the Contractor is in default in completing the contract, as defined in the Agreement.

1.03 CONSTRUCTION SCHEDULE

A. The Contractor shall prepare a construction schedule in bar chart form. The schedule shall be submitted by the Contractor at the pre-construction conference.

1.04 PROJECT SIGN

A. One (1) sign shall be erected at a location directed by the Owner. Project sign shall be not less than 4 foot by 8 foot. The Engineer will provide the format of the sign.

1.05 PAYMENTS TO CONTRACTOR

A. Fourteen (14) calendar days prior to the monthly progress meeting, the Contractor shall provide a draft copy of the monthly payment request to the resident project representative for initial review.

B. Seven (7) calendar days prior to the monthly progress meeting, Contractor shall submit to the resident project representative three (3) executed copies of the monthly payment request for final review and approval.

C. The Engineer at the progress meeting will submit three (3) executed copies of the monthly payment request.

1.06 TEMPORARY FACILITIES

A. The Contractor shall provide and maintain approved sanitary facilities for the full term of the contract.

B. A field office will not be required for this project.

1.07 UTILITIES

A. The Contractor shall contact "Miss Utility" at 800-441-8355 and the Kent County Department of Public Works (410-778-2600) at least forty-eight (48) hours prior to digging in the vicinity of existing underground utilities to have them located and marked.

1.08 SAFETY

A. The Contractor shall comply, within the prices bid and without extra cost to the Owner, with all safety regulations or determinations issued by an agency of the Federal Government, including OSHA and the State of Maryland.

1.09 ACCESS BY RESIDENTS

A. The Contractor shall so schedule his work as to minimize the time period during which vehicular access to each dwelling along the route is prevented.

B. The Contract shall provide vehicular access at all time to commercial establishments.

C. The Contractor shall provide, at all times, safe pedestrian access to all dwellings, whether residential, commercial or other.

1.10 REPAIR OF DAMAGED AREAS

A. Repair of areas disturbed during construction to their pre-construction condition shall be the responsibility of the Contractor.

1.11 RESIDENT PROJECT REPRESENTATIVE

A. Contractor, if granted permission to work overtime, shall reimburse the Owner for any overtime salary incurred by the RPR. See Special Provisions 1.16.

1.12 SEQUENCE OF CONSTRUCTION

A. The Contractor shall consider scheduling notes on drawings and shall coordinate construction activities with the County Commissioners of Kent County, Maryland. Sequence of Construction to be approved by the Engineer prior to the start of construction.

1.13 COORDINATION WITH DEPARTMENT OF PUBLIC WORKS PERSONNEL

A. The Contractor shall fully cooperate and coordinate his activities with the County Commissioners of Kent County, Department of Public Works personnel at all times.

1.14 DISPOSAL OF EXCESS MATERIALS

A. The Contractor shall be responsible for obtaining an acceptable site for all excess materials and debris not suitable for incorporation in the finished work.

1.15 NO TRENCH LEFT OPEN AT NIGHT

A. All excavations shall be backfilled or suitably covered and fenced secure at the end of each working day.

1.16 CONTRACTOR'S RESPONSIBILITIES

A. Sufficient time for construction has been indicated and it is intended that all work specified under Contract Documents be performed within the normal daily working hours of 8:00 to 5:00 p.m., Monday through Friday. An alternate continuous daily work period may be satisfactory; however, subject to approval of the Engineer.

B. Should the Contractor extend his work beyond these specified hours, independent of inclement weather, any and all cost of weekend, holiday and/or overtime inspection, including but not limited to direct salaries, fringe benefits, overhead profit, administration and supervision, incurred by the Engineer, and/or, the Owner, will be the sole obligation of the Contractor. The overtime rates for the Engineer are:

$85 per hour for RPR
$130 per hour for Construction Representative
$155 per hour for Project Manager

There shall be no recourse by the Contractor to the Owner for reimbursement of these costs.

C. The Contractor will be allowed to work 40 hours per week, Monday through Friday, 52 weeks per year. The Contractor shall not work on Saturday, Sunday, holidays recognized by the Owner, or beyond 40 hours per week, unless prior approval is secured from the Owner.

1.17 EQUAL EMPLOYMENT OPPORTUNITY

A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, sex or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex or national origin.

1.18 PRE-CONSTRUCTION AND PROGRESS MEETINGS

A. A pre-construction conference will be scheduled by the Engineer. Attendance by Contractor and all subcontractors is mandatory. Progress meetings shall be held during construction monthly, unless directed otherwise by the Owner or Engineer. Progress meetings shall include, Owner, Engineer, Contractor and subcontractors.

1.19 GENERAL NOTES

A. After installation, painting and curing, the new clarifying flocculator unit must be disinfected in accordance with the latest version of AWWA standard C653-13, Disinfection of water Treatment Plants. Since this Standard refers to AWWA C652, Disinfection of Water-Storage Facilities, please note chlorination Method 3 is not acceptable. Only Method 1 and Method 2 are approved for tank disinfection, as Method 3 is more likely to contribute to disinfection by-product formation.

B. After disinfection, two (or more) successive total coliform samples (collected at 24-hour intervals) and one sample for Volatile organic compounds (VOCs) are required.

C. All bacteriological and VOC samples shall be taken by a State-certified sampler and analyzed by a state-certified laboratory.

D. All sample results shall be submitted to MDEs Water Supply Program, which will give authorization to place the unit into service. Sample results may be forwarded to the contact person, Dee Settar – dee.settar@maryland.gov, or submitted to water.supply@maryland.gov.

E. In accordance with Code of Maryland Regulations (COMAR) 26.04.01.33, Direct and Indirect Additives, suppliers of water shall only use products (any materials that

come in contact with water intended for use in public water supply) that meet the applicable American National Standards Institute / NSF international (ANSI / NSF) standards for direct or indirect drinking water additives. The products can also be certified by an organization accredited by the ANSI for such testing (i.e., International Association of Plumbing and Mechanical Officials Research and Testing, Ontario CA, Underwriters Laboratory, Northbrook IL, and Water Quality Association, Lisle IL).

F. In Compliance with COMAR 09.20.01.03 and the Safe Drinking Water Act (Section 1417(a)(4)(8), materials that come in contact with water intended for use in public water supply shall comply with the Reduction of Lead in Drinking Water Act, which went into effect in Maryland in January 2012.

*** END OF SECTION ***

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DIVISION 00 – DOCUMENTS

SECTION 00890

PERMITS AND NOTICES

MDE CONSTRUCTION PERMIT

Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

Permit No.: 19-16-1091
Permit Fee: N/A

Date Issued: 10/22/2019
Expiration Date: 10/22/2022

This permit authorizes Kent County Public Works to construct a water treatment plant together with all appurtenances, at the site of Watertower Rd. Chestertown, MD 21620, Kent County, in accordance with an application dated July 25, 2019 and received by the Maryland Department of the Environment on July 31, 2019 titled in part:

FAIRLEE WTP
CLARIFLOCCULATOR REPLACEMENT
FAIRLEE, MARYLAND
SHEET NOS. G1.0, G2.0, Q1.0, Q1.1, Q1.2, Q2.0, Q2.1, S1.1, S1.2, E1.0, E1.1
AND SPECIFICATIONS

THIS PERMIT IS ISSUED SUBJECT TO THE ATTACHED FOLLOWING CONDITIONS:

Note: **This permit may be suspended or revoked upon a final, unreviewable determination that the permittee lacks, or is in violation of federal, state or local approval necessary to conduct the activity authorized by this permit.**

Walid Saffouri, P.E., Program Administrator
Engineering & Capital Projects Program

Terri Wilson, Director
Office of Budget & Infrastructure Financing

GENERAL CONDITIONS FOR WATER OR SEWERAGE CONSTRUCTION PERMIT

- The structural adequacy and expected performance characteristics of the various components are not certified by this permit.

- This permit is not transferable.

- A copy of this permit must be posted at the work site during construction.

- This permit will expire, if not specifically extended, unless the construction authorized under this permit has been initiated. The permit will then remain valid for the remainder of construction for a period of up to five years from the start of construction.

- If any provision of this permit shall be held invalid for any reason, the remaining provisions shall remain in full force and effect, and such invalid provision shall be considered severed and deleted from this permit.

- Persons violating the requirements of this permit are subject to penalties of up to $1000 per day as set forth in Environment Article 9-268 and 9-334 through 9-342, Annotated Code of Maryland.

- A copy of the plans and specifications, authorized for use under this permit, shall be made available at the work site during construction of this project. A revised construction permit in accordance with COMAR 26.03.12 is required prior to making substantive changes or material alteration to the construction authorized under this permit.

- The owner shall secure all Federal, State or local permits, including approval of Sedimentation and Erosion Control Plans that may be required before starting the construction of the project.

- The owner shall insure that this project is inspected during the progress of construction to assure substantial compliance with the approved plans and specifications. A log and construction records shall be maintained by the inspector and may be requested for review at any time by this office.

- The project engineer of the Maryland Department of the Environment (the 'Department') shall be notified prior to the start of construction.

- Inspectors of the Department shall be afforded access to the project site, at reasonable times and upon presentation of credentials:

  a. to inspect construction authorized under this permit and to determine compliance with applicable regulations;
  b. to have access to and copy any records required to be kept by this permit and by applicable regulations; and
  c. to obtain any photographic documentation or evidence.

- Within 60 days after completion of construction, a copy of as-built drawings and the attached construction completion certificate (page 3 of this permit) shall be submitted to the Department. Where construction was completed in accordance with the original plans approved under this permit, the submittal of as-built drawings will not be required.

- The owner shall maintain a permanent record of the as-built drawings, or the original plans if as-built drawings are not required.

GENERAL CONDITIONS (CONTINUED)

Approval must be obtained from the Department before this project may be placed into service. Any exception allowing partial use of this project shall have the prior written approval of the Department. Approval may be obtained pursuant to the following procedure:

a. Where large political subdivisions, commissions, authorities etc. have their own inspection capabilities (satisfactory to the Department), the attached construction completion certificate shall be completed by the director of Public Works or similar responsible person and submitted to the Department.

b. Where an acceptable local construction inspection program does not exist, the attached construction completion certification shall be completed by a Professional Engineer licensed to practice in the State of Maryland (preferably the same engineer whose seal and signature appear on the plans approved under this permit) and submitted to the Department.

c. Upon receipt of the signed certificate, the Department shall, within (30) working days of the receipt, 1) issue an approval, 2) require further review and on-site inspection or 3) reject the construction certification. Approval shall be automatic for projects that have not received some form of written notification from the Department within (30) working days of receipt of the signed certificate.

19-16-1091
Permit Number

Preeti Shrestha
Project Engineer
Engineering & Capital Projects Program

WATER AND SEWER CONSTRUCTION COMPLETION CERTIFICATION

The undersigned certifies that the construction authorized by this permit has been completed and inspected and that it substantially meets the terms of Environment Article 9-204, Annotated Code of Maryland.

Signature _____ Title _____ Date _____

The above project has been accepted by the Department within the terms of Environment Article 9-204, Annotated Code of Maryland.

Authorized Official _____ Date _____

Complete this certificate and return to:
Maryland Department of the Environment
Engineering & Capital Projects Program (ECPP)
Office of Budget and Infrastructure Financing
1800 Washington Boulevard
Baltimore, MD 21230

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Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project: Fairlee WTP Clariflocculator Replacement	Owner: County Commissioners of Kent County, Maryland	Owner's Contract No.:
Contract: Fairlee WTP Clariflocculator Replacement		Date of Contract:
Contractor:		Engineer's Project No.: 190065

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

Description:

Attachments (list documents supporting change):

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

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable):

_____ Date: _____

EJCDC C-941 Change Order
Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Construction Specifications Institute.

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01040

COORDINATION

1.01 INTERFACE WITH EXISTING FACILITIES

A. Connections to existing pipes and structures shall be scheduled and coordinated in advance with the Owner and the Engineer. It may be necessary to make connections during the night hours or weekends. No claim for extra compensation or extension of contract time will be allowed on account of the necessity for connections to be made during normal "off" hours. Permission of the Owner shall be obtained by the Contractor prior to making any connections to the existing system.

B. When the Contractor desires certain existing electrical and/or mechanical functions to be interfaced, he shall inform the Owner and Engineer, in writing, a minimum of five (5) working days prior to the date he desires those interfaces to be made. The Contractor shall not alter the settings of or connect or disconnect any existing electrical or mechanical equipment without the approval of the Owner.

C. The Contract Drawings indicate that certain existing utilities must be relocated and/or rerouted during construction. The Contractor shall be responsible for relocating these lines as necessary to allow for construction at no additional cost.

1.02 MAINTENANCE OF TRAFFIC

A. It shall be the responsibility of the Contractor not to interfere with or create any hazards to traffic. No equipment or material will be stored or permitted to stand where traffic must be maintained. It shall be the responsibility of the Contractor to control dust on all roads, drives and walkways on which traffic is being maintained.

1.03 TEMPORARY PUMPING

A. The Contractor shall be responsible for maintaining the continuous operation of existing facilities and shall be responsible for damages caused by the overflows due to his negligence. The Contractor shall protect the temporary pumps and appurtenances from vandalism.

B. The Owner and Engineer shall consider alternative methods suggested by the Contractor which are believed to accomplish the intended goals of the bypass pumping. In the event the Owner and Engineer do not accept the Contractor's proposed alternative methods, the construction sequence outlined herein must be followed by the Contractor, at no increase in contract cost or time.

C. The Contractor shall submit to the Owner and Engineer, detailed equipment, controls and facility configuration data for approval prior to shut-down scheduling.

D. The Contractor shall provide temporary pumping units, if necessary, with all necessary piping, hoses, valves, controls and power. The type and style of the temporary pumping units shall be of the Contractor's choosing with approval by the Owner. Pumping equipment shall be suitable for intended service. Method of pump drive source shall be of the Contractor's choosing with approval by the Owner, but the Contractor must maintain continuous operation of the facilities. The Contractor shall provide and maintain all necessary appurtenances such as temporary power or fuel at no additional cost to the Contract.

E. The pumps shall be provided with automatic controls to start and stop the pumps and maintain existing maximum pumping rates. As a minimum, pump controls shall include level control floats providing alarm and control features, automatic alternation and auxiliary power. Complete redundancy shall be provided for the Temporary Pumping System. The Contractor shall coordinate with the Owner in **installing and maintaining an alarm indication** that will communicate to Kent County SCADA system. Said alarm shall monitor all necessary points to prevent an overflow condition. All alarms will be transmitted directly to the Contractor's cell phone. The Contractor shall be solely responsible for responding to and making any correcting the alarm condition. The Contractors response time to the site shall not exceed 30 minutes. A list of emergency contacts shall be supplied to the county for 24 hours a day 7 days a week response.

1.04 CONTRACTOR'S SEQUENCE OF CONSTRUCTION

A. The Contractor is responsible for all construction sequencing. The Contractor shall, in accordance with Section 01300 – SUBMITTALS, submit and obtain approval of his construction schedule. Acceptance of this plan by the Engineer or the Owner denotes only lack of objection at the time and in no way implies that the Engineer or the Owner guarantees that particular sequence of construction as proposed by the Contractor will in fact work. Also, any approval given is done so with the stipulation that all work done shall comply with the plans and specifications.

B. As construction proceeds, should the Contractor's sequence of construction cause operational problems that were unforeseen at the time of approval, the Engineer or the Owner reserves the right to withdraw the previous approval and require the Contractor to submit and obtain approval of an amended sequence of construction. The sequence of construction will be updated monthly.

1.05 COORDINATION

A. Contractor, Subcontractors and Owner Personnel

1. The Contractor is responsible for the proper coordination of his work and his subcontractor's work, to prevent interference with the operation of the various facilities and to assure that the owner is made aware in advance of proposed construction activities. All existing facilities shall be operational throughout the construction project, and the contractor shall coordinate any necessary tie ins or connections with the Owner.
2. There will be no basis for claim for extra compensation or contract time extension due to delay caused by the Contractor's failure to give proper notice for requested shutdowns or to advise the Owner of proposed construction activities that in the judgment of the Owner will interfere with operation of the various facilities.
3. Should an emergency condition arise at the various facilities, the Owner has the authority to require the Contractor and his subcontractors to suspend their operations temporarily until conditions return to normal, without claim for extra cost or contract time extension by the Contractor and his subcontractors.

B. Subcontractors

1. Where the work of any subcontractor will be installed in close proximity to work of other subcontractors, or where there is evidence that the work of any subcontractor will interfere with the work of other subcontractors, the Contractor shall work out space allocations to make a satisfactory adjustment. If so ordered by the Engineer, the Contractor shall prepare composite working drawings and sections at a suitable scale, not less than 1/4 inch equals 1 foot, clearly showing how work is to be installed in relation to the work of others. If the Contractor permits any work to be installed before coordinating with the various subcontractors; or so as to cause interference with work of other subcontractors, he shall make necessary changes in the work to correct the condition without extra cost to the Owner.
2. The Contractor shall arrange that each subcontractor determines the location, size and arrangement of all chases and openings and shall establish clearances in concealed spaces required for the proper installation of its work and shall see that such are provided.

C. Manufacturers

1. The Contractor is responsible for coordinating work with the Clariflocculator manufacturer. The Contractor shall coordinate equipment delivery and offloading with the Clariflocculator manufacturer, at no

additional cost to the Owner. The Owner will procure the Clariflocculator unit outlined in section 11338, and as indicated in the RFP that is attached to said specification section.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01100

SUMMARY OF WORK

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work under this Contract generally consists of constructing, complete with all equipment and accessories, the following:

1. Modification of the Existing Water Treatment Plant by the installation and integration of a new Clariflocculator unit. The Clariflocculator will be furnished by the Owner and installed, based on the manufacturer's recommendations and the contract documents, by the Contractor.
2. Partial demolition of the existing concrete slab to the limits of the new Clariflocculator unit, and the construction of a new concrete slab.
3. The demolition of the existing Clariflocculator unit after the new Clariflocculator unit is fully operational.

B. The work under this Contract includes all requirements to provide a fully finished and operable system including miscellaneous items and incidentals as shall be indicated, shown, specified or required to complete the work in strict conformity with the Contract Documents. The Contractor shall provide all labor, equipment, tools, appliances, materials and incidentals, and shall perform all operations required to completely finish all of the work to the satisfaction of the Owner and the Engineer. The Contractor shall be obligated to furnish a complete and functioning facility.

C. The contractor shall anticipate completing work associated with the modifications of the floor slab while waiting for the arrival of the Clariflocculator unit. It is anticipated that the floor slab shall be completely modified and cured for direct installation of the unit upon its arrival.

1.02 TIME OF COMPLETION OF CONTRACT AND LIQUIDATED DAMAGES

A. The Agreement states the number of consecutive calendar days allowed from date of "Notice to Proceed" to date of substantial completion and final payment of work under this contract. For each and every day that the Contractor is in default in completing the Contract as defined in the General Conditions and in the Bid, he shall pay to the Owner liquidated damages as outlined in the Agreement.

1.03 PROJECT MANUAL

A. All work shall be completed in accordance with the Project Manual.

B. The Contract Drawings and Specifications are complementary. However, should a dispute arise as to which shall govern, the Project Manual will apply.

C. Any discrepancy between the "General Conditions" and the "Technical Specifications," the Technical Specifications shall govern.

1.04 WORK PERIOD

A. The Contractor will be allowed to work 40 hours per week Monday through Friday, 52 weeks per year.

B. The Contractor shall not work on Saturday, Sunday, or any Holidays unless prior approval is secured from the Owner. If the Contractor desires to work longer than eight (8) hours per day or if he desires to work on weekends, he must first obtain the written permission of the Owner.

C. Contractor shall pay the Owner for cost of full–time inspection beyond 8 hours per day or 40 hours per week.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

A. Contractor shall be solely responsible for the means, manpower, methods, techniques, sequences and procedures of construction.

B. Construction work under this contract shall be performed in a manner that minimizes impact to normal system operations.

C. All operations of existing equipment, valves and gates required to perform the work shall be done by the owner. The Owner or his designated agent shall be informed in writing at least 24 hours, or longer where specified, in advance of the need to operate existing equipment, valves or gates or other actions which could affect facility operations.

D. To achieve reliable, continuous facility operation, all new facilities shall be tested and in operating condition before final tie-ins are made which connect new facilities to existing facilities.

E. The Contractor shall submit to the Engineer drawings showing details of all temporary connections or facilities as required.

F. A minimum of seven (7) calendar days' written notice is required from Contractor to Owner for any work requiring changes in operating procedures or removal of equipment, tanks, facilities, or roadways from service.

G. No extra payment shall be made for any labor, materials, tools, equipment or temporary facilities required during the construction of facilities. All costs therefore shall be considered to have been included in the price bid.

*** END OF SECTION ***

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01150

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Payment for materials furnished and work done under this contract will be made as hereinafter stipulated, for the actual amount of materials supplied and work done under authorization of the Engineer and in accordance with the unit prices bid in the proposal form; and the Contractor shall not be entitled to receive additional compensation for anything furnished or done, except for such extra work as shall be required by written order.

B. It is intended that all work shown on the Contract Drawings and included in the specifications is to be paid for under the items listed in the proposal form. The absence from the proposal form of bid items for any specific category of work shall be interpreted as meaning that the cost of such work, accomplished as defined by the Contract Documents, shall be included in the prices bid for related items listed in the proposal form. Should the Contractor feel that the cost for any item of work has not been defined by a Bid Form payment item, he shall include the cost for that work in some other applicable bid item, so that his proposal for the project reflects his total price for completing the work in its entirety.

C. The prices stated in the proposal(s) include all costs and expenses for taxes, labor, equipment, materials, commissions, transportation charges and expenses, patent fees and royalties, labor for handling materials during inspection, together with any and all other costs and expenses for performing and completing the work as shown on the Drawings and specified herein. The basis of payment for an item at the lump sum or unit price shown in the proposal(s) shall be in accordance with the description of that item in this Section.

D. All items in the Bid which are designated as “Contingent Bid Items” are to be used and will be paid for only at the written direction and authorization of the Engineer, if agreed to by the Owner. Payment under this section will be made for materials furnished and placed in addition to those shown or beyond the limits indicated or reasonably inferred from the Contract Documents. All materials furnished and installed shall be in accordance with these specifications. Measurements and payment will be in accordance with the proposal and will include but not necessarily be limited to the furnishing, hauling, placing, and installing of materials, and the furnishing of such manpower and equipment as required to accomplish the work as directed in writing by the Engineer.

E. All excavation under this Contract is unclassified; that is, the unit prices bid shall be taken to include and cover all materials required to be excavated and backfilled, whether wet or dry, and regardless of the character of the materials. The excavations, removal and replacement of road surfacing materials, curb, sidewalk, gutter and yard restoration, as required, shall be included in the unit prices bid with any exceptions as noted herein or as designated on the plans.

F. The cost of dewatering and associated work will not be separately paid for, but shall be considered as incidental to other bid items and included in the prices bid for them.

G. All removal, relocation and disposal work as indicated in the Contract Documents, and/or as necessary to complete the proposed work shall be performed at no additional cost to the Owner. Cost of all removal, relocation and disposal work shall be included in the price bid.

H. For the unit price Items included in the Bid, the Contractor will be paid for the actual quantity of the authorized work done or material furnished under each item of the proposal, at the unit price bid for such item. The quantities for payment under this Contract shall be determined by actual measurement of the completed items, in place, ready for service and accepted by the Owner, in accordance with the General Conditions.

I. All items of work shall be measured concurrently, upon installation and before covering or backfilling, by the Resident Project Representative and the Contractor's representative. All items so measured will be recorded by both parties in a format which can be kept current until completion of work. All measurements, to the maximum extent possible, shall be referenced to base dimensions and stationing shown on the Drawings.

J. Payments during the course of the work for lump sum items will be made on the basis of percentage completion of the work items listed in the schedule of values for each lump sum item. The Schedule of Values shall be prepared by the Contractor and submitted to the Engineer within 15 days of the execution of the Contract and shall serve as a breakdown of the lump sum bid for the purpose of arriving at a basis for the monthly estimate. The Schedule shall add up to 100% of the Lump Sum bid.

1.02 BASE BID ITEMS

A. Bid Item A1: Mobilization

1. The prices bid shall include the bonding costs, project signs, field offices, staging areas, and mobilizing equipment on site.
2. Payment for mobilization will be made at the lump sum price bid. The lump sum price bid in the proposal shall be limited to five (5) percent of the

Total Bid. Furthermore, the maximum amount of the lump sum prices bid that is requisitioned on Construction Estimate No. 1 shall not exceed fifty (50) percent of the lump sum prices bid and each succeeding requisition shall be limited to a maximum of ten (10) percent of the lump sum prices bid until the entire lump sum prices less retainage has been requisitioned.

B. Bid Item A2: Install Clariflocculator, Associated Piping and Valves, and all appurtenances.

1. The price bid shall include and cover the installation of the new Clariflocculator unit. This shall include all equipment, field fabrication, painting, coordination, piping, and field wiring associated with the installation of the new Clariflocculator unit to ensure its integration into the existing building as outlined in the contract documents. The price shall also include the installation of new sludge trench grating, new feed and sludge piping, the new level transducer and backup floats in the effluent portion of the unit, the stairway as specified on the contract drawings, all electrical modifications or improvements shown on the contract documents, and all necessary appurtenant items to provide a fully functioning and operable Clariflocculator unit.
2. Payment will be made for furnishing the Clariflocculator unit, all electrical work associated with said unit, and all appurtenances under the appropriate lump sum bid price.

C. Bid Item A3: Demolition of the Existing Concrete Slab and Installation of Proposed Concrete Slab

1. The price bid shall include all necessary labor and materials associated with the demolition of the existing concrete slab to the limits stipulated within the contract documents, and the labor and materials associated with the installation of the new concrete slab to the limits stipulated within the contract documents. Work includes the reinforcing and concrete installation as required by the contract documents.
2. Payment for all work under this item will be made at the lump sum price bid.

D. Bid Item A4: Demolition of the Existing Clariflocculator Unit and all Necessary Appurtenances

1. The price bid for demolition of the existing Clariflocculator unit and all necessary appurtenances includes the labor and materials associated with temporarily relocating the existing control systems for unit to ensure the unit remains in operation for the duration of the construction of the new Clariflocculator unit, and the complete demolition of the existing Clariflocculator unit after the new Clariflocculator unit is deemed operable.

2. Payment will be made for the relocation of the existing controls systems and the demolition of the existing Clariflocculator unit.

1.03 CONTINGENT BID ITEMS

A. Bid Item B1: Excavation Below Subgrade

1. The price bid for excavation below subgrade shall include and cover excavation below subgrade and disposal of material so excavated. Also included are additional placement and removal of sheeting, dewatering, and all other incidental work necessitated by excavation below subgrade.
2. Measurement for this item will be made on the actual number of cubic yards of material removed from below subgrade as directed by the Engineer. In the case of a structure, width and depth of the excavation will be measured by the Engineer. In the case of a pipeline, quantities will be based upon the authorized depth of excavation below the underside of the pipe barrel and the authorized trench width.
3. Payment for all work in connection with “Excavation Below Subgrade” will be made at the appropriate unit price bid for the volume actually removed within the limits defined here in before and as authorized in writing by the Engineer prior to the work being performed.

B. Bid Item B2: Furnish and Place Gravel Bedding

1. The price bid for furnishing and placing additional gravel bedding shall include and cover furnishing, placing and compacting and shaping gravel in excavations and all other incidental work not specifically detailed on the Contract Drawings or Specifications. Only additional gravel bedding ordered by the Engineer will be paid for under this item.
2. Measurement for quantities of additional gravel bedding will be based upon the authorized depth and width of placement, as directed by the Engineer.
3. The Contractor shall not be paid for gravel bedding used for dewatering in addition to bedding requirements shown on plans.
4. Gravel bedding specifically called out for on the plans and specifications under pipelines and structures will <u>not</u> be paid for under “Furnish and Place Gravel Bedding”, but will be incidental to other bid items.
5. Payment for all work in connection with additional gravel bedding will be made at the appropriate unit price bid for the volume actually furnished and placed within the limits defined here in before and as authorized by the Engineer in writing prior to the work being performed.

C. Bid Item B3: Furnish and Place Special Backfill

1. The price bid for furnishing and placing special backfill shall include and cover furnishing, placing and compacting special backfill and other

incidental work not specifically detailed on the Contract Drawings or Specifications. Only additional special backfill as ordered by the Engineer will be paid for under this item.

2. Measurement for quantities of special backfill will be placed upon the authorized depth and width of placement.
3. Payment for all work in connection with special backfill will be made at the appropriate unit price bid for the volume actually furnished and placed within the limits defined here in before and as authorized in writing by the Engineer prior to the work being performed.

D. Bid Item B4: Miscellaneous Excavation and Backfill

1. The price bid for miscellaneous excavation and backfill shall include and cover excavation and backfill, dewatering, removal and restoration of pavement, curb and gutter, sidewalk, and all other incidental work. Test pitting not specifically called for on the Contract Documents will be paid for under “Miscellaneous Excavation and Backfill”. Where the Engineer directs the Contractor to relocate a trench because of an unforeseen obstruction in the trench or to test pit a utility, the Contractor will be paid for the excavation and backfill under this bid item.
2. Test pitting specifically called for in the Contract Documents will not be paid for under “Miscellaneous Excavation and Backfill”.
3. Measurement for quantities of miscellaneous excavation and backfill will be based upon the authorized depth, width and length of the excavation and backfill as directed by the engineer. This bid item is not to be used for additional widths as may be associated with any trench wall failure or additional excavations for the Contractor’s convenience.
4. Payment for all work in connection with miscellaneous excavation and backfill will be made at the appropriate unit price bid for the volume actually excavated and refilled within the limits defined here in before and as directed by the Engineer.

E. Bid Item B5: Furni`sh and Place Miscellaneous Concrete

1. The price bid shall include and cover furnishing and placing miscellaneous 3,000 psi concrete, including forming, finishing, and all other incidental work or other construction not included as part of other pay items.
2. Measurement of quantities for miscellaneous concrete will be made based upon authorized depth, width, and length of concrete placement.
3. No Sackrete, or similar product, shall be allowed in miscellaneous concrete.
4. Payment for all work in connection with miscellaneous concrete will be made at the appropriate unit prices bid for the volume of concrete actually furnished and placed within the limits defined here in before and as authorized by the Engineer.

F. Bid Item B6: Secure Modified Proctor Tests, AASHTO T-180, Method A

1. The price bid shall include excavation and backfill to secure the tests in locations as directed by the Engineer, paying a testing laboratory for all tests performed, and furnishing a copy of test results to the Engineer.
2. A minimum of one (1) sand cone test shall be performed per every ten (10) nuclear density tests.
3. Payment will be made for each test at the unit price bid.

G. Bid Item B7: Secure Field Density Tests, AASHTO T-191

1. The price bid shall include excavation and backfill to secure the tests in locations as directed by the Engineer, paying a testing laboratory for all tests performed and furnishing a copy of test results to the Engineer.
2. Contractor shall complete density tests at certain foot intervals during backfill of the wet well as directed by Engineer.
3. Payment will be made, at the unit price bid, for only those tests which confirm compliance with specification requirements for compaction.

H. Bid Item B8: Furnish and Install Ductile Iron Fittings NOT shown on Plans as Authorized by the Engineer

1. The price bid for fittings not shown shall include furnishing and placing ductile iron fittings in excess of what is necessary to construct the utility as shown on the plans. This item shall also constitute credit for fittings shown but not installed by the Contractor should they not be necessary as determined in the field. The price bid includes all excavation, backfill and miscellaneous items of work. This item shall not apply to bends used for Contractors convenience.
2. Measurement and payment or credit will be made on a pound basis from weights published by the Manufacturer.
3. Payment or credit for furnishing and installing fittings will be made at the unit price bid for all fitting sizes.

1.04 DEDUCT BID ITEMS

A. Bid Item C1: Deduct for the Cost above Bid Item A4 for Demolition of the Existing Clariflocculator Unit.

1. The deduct price shall include efforts associated with the demolition of the existing Clariflocculator unit only, with the exception of those portions of the existing treatment unit that require removal to facilitate the installation of the new Clariflocculator unit.
2. A deduction from Bid Item A4 will be made for the cost associated with the demolition of the existing Clariflocculator unit.

1.05 ADDITIONAL PAYMENTS

A. Payment for Material not incorporated in the Work

1. Storage of Material
   a. Payment for equipment and materials stored on the site and not actually incorporated in the work will be made on the basis of 90 percent of the amount of paid invoices submitted to the Engineer for incorporation in the monthly estimate. Payment for stored materials will be limited to the following items:
      (1) Lump Sum Bid Items (A2)
2. Authorization for Payment
   a. Payment will be authorized after delivery to the Construction site or other approved location and after being certified by the Engineer as being stored in conformance with the manufacturers recommendations and satisfactory evidence is provided that the items are as specified.
   b. Title to all items of equipment and materials upon which payment has been made shall rest with the Owner and document transferring title shall be executed by the Contractor. Transfer of ownership shall not relieve the Contractor of continuing insurance coverage and of protecting stored items against damage, deterioration or loss of any kind.
   c. Should material or equipment become damaged or stored improperly and contrary to manufacturers recommendations, being therefore subject to later damage, then the Engineer will reduce the next following monthly payments by an amount sufficient to repair or replace such units.
   d. To initiate a request for partial payment the Contractor shall submit his request in writing to the Engineer with all necessary evidence.

B. Payments Withheld

1. The Owner may decline to pay all or any part thereof or, because of subsequent observations, it may nullify the whole or any part of any payment previously issued, to such extent as may be necessary in its opinion to protect the Owner from loss because of:
   a. Defective work not remedied.
   b. Third party claims filed or reasonable evidence indicating probable filing of such claims.
   c. Failure of the Contractor to make payments properly to subcontractors or for labor, material or equipment.
   d. Reasonable evidence that the work cannot be completed for unpaid balance of the Contract Sum.
   e. Damage to the Owner or another Contractor.
   f. Reasonable evidence that the work will not be or has not been

completed within the Contract time.

g. Failure to carry out the work in accordance with the Project Manual.

h. Cancellation, material change or lapse of required insurance as specified in the Project Manual.

PART 2 - NOT USED

PART 3 - NOT USED

*** END OF SECTION ***

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Engineer will schedule and administer a preconstruction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work.

1. Prepare agenda for meetings
2. Make physical arrangements for meetings
3. Preside at meetings
4. Record minutes, including significant proceedings and decisions.
5. Reproduce and distribute copies of minutes within five working days after each meeting to participants in the meeting and to parties affected by decision made at the meeting.

B. Representatives of Contractor, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

C. The Contractor shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

1.02 PRECONSTRUCTION MEETING

A. A preconstruction meeting will be scheduled before the Contractor starts Work at the site.

1. Meeting shall be scheduled within 20 days after the date of the Notice to Proceed.
2. At the discretion of the Engineer, this meeting can be held following the award of the Contract and prior to the issuance of the notice to Proceed.

B. Location: A site designated by the Engineer.

C. Attendance:

1. Owner's representative
2. Engineer and his professional consultants
3. Contractor's project manager and superintendent
4. Major subcontractors

5. Major suppliers
6. Utilities representative
7. Funding Agency Representatives
8. State Department of Highways representative
9. Others as appropriate

D. Suggested Agenda:

1. Distribution and discussion of:
   a. List of major subcontractors and suppliers
   b. Projected construction schedules
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. Detouring of traffic and street access.
5. Project coordination:
   a. Designation and responsible personnel.
6. Procedures and processing of:
   a. Field decisions
   b. Proposal requests
   c. Submittals
   d. Change Orders
   e. Applications for payment
7. Adequacy of distribution of Contract Documents.
8. Procedures for maintaining Record Documents.
9. Use of premises:
   a. Office, work and storage areas.
   b. Owners’ requirements.
10. Construction facilities, controls and construction aids.
11. Temporary utilities.
12. Housekeeping procedures.
13. Check of required Bond and Insurance certifications.
14. Liquidated damages.
15. Check of required Permits.
16. Laboratory testing of material requirements.
17. Inventory of material stored on site.
18. Wage determination compliance and records, work hours.
19. MBE/WBE fair share objective, affirmative action, nondiscrimination policies.
20. Communication lines and contact persons, including address and telephone number.
21. Manufacturers' operation and maintenance manuals, and operation and maintenance training.
22. Regulatory agency inspections.
23. Progress agency inspections.
24. Jobsite safety.

1.03 PROGRESS MEETINGS

A. Regular meetings will be held every 30 days or less. The first meeting will be scheduled 30 days after the preconstruction meeting or 30 days or less after the date of Notice to Proceed.

B. Meetings will be scheduled as required by progress of the work.

C. Location of the meetings: Contractor or Engineer Field Office.

D. Attendance:

1. Engineer and his professional consultants as needed.
2. Contractor
3. Owner's representative
4. Subcontractors as appropriate to the agenda.
5. Suppliers as appropriate to the agenda.
6. Funding Agency Representatives
7. State Department of Highways representative
8. State Department of Environmental Control representative
9. Others as appropriate.

E. Suggested Agenda:

1. Review and approval of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which impede Construction Schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to Construction Schedule.
8. Progress schedule during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
    a. Effect on Construction Schedule and on completion date.
    b. Effect on other contracts of the Project.

F. The Contractor is to attend progress meetings and is to study previous meeting minutes and current agenda items, in order to be prepared to discuss pertinent topics such as deliveries of materials and equipment, progress of the work, etc.

G. The Contractor is to provide a current shop drawing submittal log at each progress meeting in accordance with Section 01300.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01300

SUBMITTALS

PART 1 – GENERAL

1.01 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings are generally defined as all fabrication and erection drawings, diagrams, brochures, schedules, bills or material and other data prepared by the Contractor, his subcontractors, suppliers or manufacturers which illustrate the manufacturer, fabrication, construction and installation of the work, or a portion thereof.

B. All costs necessary for compliance with the requirements of this Section of the Specifications shall be included under the lump sum price bid.

C. Detailed shop drawings, data, literature for fabricated materials or equipment to be incorporated in the work shall be submitted to the Engineer for review for general compliance with the Contract Documents before fabrication. The Contractor shall obtain and check manufacturer's shop drawings, certified prints and other pertinent data for conformance with all requirements of the Plans and Specification and in ample time to permit satisfactory progress of the work. After the completion of such checking and verification by the Contractor, the Contractor shall sign or stamp such drawing, which stamp shall state as follows:

Specification Section _____

Checked by _____
(Contractor's Name)

Signed by _____
(Checker's Name)

D. All data, drawings and correspondence from subcontractors, manufacturers or suppliers shall be routed through the Contractor. The Engineer shall review only such data and details as are transmitted to him by the Contractor. All correspondence from the Contractor to the Engineer shall refer to the appropriate section of these specifications containing the subject matter of the inquiry.

E. All shop drawings shall be in conformity with all requirements of the plans and specifications. All shop drawings, except diagrams, brochures, schedules and illustrations, shall be to an appropriate scale, no smaller than 1/8 inch = 1 foot 0 inches, and shall give all dimensions necessary for installation and incorporation in the work.

All shop drawings shall be accurate and complete, showing outline and section views, details, materials, accessories, appurtenances and related items. Shop drawings showing piping and conduit systems shall incorporate sufficient views to show all fittings and specialties including locations and spacing of hangers and supports. Piping and/or conduit systems 3–inches in diameter and smaller may be shown as single line. Equipment and specialties installed within and/or connected to piping and conduit systems shall be cross–referenced to equipment and specialty shop drawings by shop drawing identification number, manufacturer name, catalog or model number, and equipment numbers shown on the plans. Electrical shop drawings shall include, but are not necessarily limited to, complete terminal identification diagrams and schedule, complete point–to–point interconnection diagram, complete single line and elementary wiring diagrams for all power, signal, control and lighting systems, together with panel layout drawings. Terminal point and wire identification on all working drawings shall be identical to related terminal point and wire identifications on equipment and panels, and absolutely no deviation from this requirement will be permitted.

F. The Contractor shall submit to the Engineer electronic copies of shop drawings and approval data. The Engineer review the shop drawings electronically, and provide electronic copies with applicable comments or approvals to the Contractor. At the time of each submission, the Contractor shall call to the Engineer's attention, **in writing**, any deviations that the shop drawings may have from the requirements of the Plans and Specifications. Once the Engineer approves a shop drawing, the Contractor shall provide four (4) color copies of the shop drawing for the Owner’s use. The printed copies of shop drawings shall be bound in four separate volumes in appropriately sized binders.

G. Upon review by the Engineer of the above drawings, lists, samples and other data the same shall become a part of the Contract, and the fabrications furnished shall be in conformity with the same, provided that the review of the above drawings, lists, specifications sample or other data shall in no way release the Contractor from his responsibility for the proper fulfillment, by any fabrication, or the requirements of this Contract.

H. Corrections or comments made on the shop drawings during the Engineer's review do not relieve the Contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and in performing his work in a safe manner. If the shop drawings deviate from the Contract Documents, the Contractor shall advise the Engineer of the deviations, in writing accompanying the shop drawing, including the reasons for the deviations, and shall request deviation from the Contract Documents.

I. The Contractor's attention is specifically directed to the fact that no work shall be fabricated, nor equipment or materials ordered, nor any construction performed, prior to

approval by the Engineer of shop drawings applicable thereto. Construction performed in violation of this requirement will be neither approved nor certified for payment until applicable shop drawings have been submitted and approved. If the Engineer so directs, the Contractor shall disassemble and remove any such construction performed prior to approval by the Engineer of shop drawings applicable thereto, and the Contractor will be allowed no additional compensation nor extension of contract time. If any equipment of materials are ordered by the Contractor prior to submission and approval of shop drawings he does so at his own risk.

J. It shall be the responsibility of the Contractor to make all the necessary changes in other items, which result from deviations or changes requested by the Contractor and approved by the Engineer, so that all items perform the requirements and intent of the Contract Documents.

K. The shop drawings are intended to be utilized by the Contractor for additional fabrication, assembly and erection data. The shop drawings do not change or supersede the Plans and Specifications except in specific cases when the Contractor requests in writing and receives approval in writing for a deviation from the Plans and Specifications. The Contractor's request for a change shall give, in detail, the specific change requested and shall state the reason for the change. Changes requested by the Contractor and approved by the Engineer shall not be construed to include approval of any change except the changed details specifically requested and approved.

L. The Contractor will also submit to the Engineer for review, with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers, and the use for which intended.

M. After review by the Engineer, shop drawings shall be returned to the Contractor marked as follows: APPROVED, APPROVED AS NOTED, REVISE AND RESUBMIT, or REJECTED. Unapproved shop drawings (i.e., REVISE AND RESUBMIT or REJECTED) shall be returned to the Contractor for necessary modifications; only two (2) copies of unapproved shop drawings will be returned. Subsequently, the Contractor shall submit a minimum of ten (10) copies of complete, revised shop drawings to the Engineer for approval.

N. The turnaround time by the Engineer on shop drawings will be: 14 days from date of receipt for shop drawings pertaining to Divisions 1 through 14 and 21 days from date of receipt for Divisions 15 and 16.

O. Within fourteen (14) days of the Preconstruction Conference, the Contractor shall submit a list of all shop drawings to be submitted. This list can then be used as a check to ensure that all items are submitted.

1.02 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall furnish the Engineer an electronic copy of a complete instruction manual for installation, operation, maintenance and lubrication of each component of mechanical and electrical equipment. The operation and maintenance manual shall be submitted at least ninety (90) days prior to the anticipated completion of the project. If the engineer deems the electronic O&Ms acceptable, the Contractor shall provide four (4) color, printed copies of the final O&Ms, as well as a thumb drive with the finalized electronic O&M in PDF format for the Owner's use.

B. Manuals shall include operating and maintenance information on all systems and items of equipment. The data shall consist of catalogs, brochures, bulletins, charts, schedules, equipment numbers, wiring diagrams and assembly drawings which shall describe location, operation, maintenance, lubrication, operating weight, lubrication charts showing manufacturer recommended lubricants for each rotating or reciprocating unit and other necessary information for the Owner to establish a complete maintenance program.

1. Manuals shall include a complete and detailed listing describing routine maintenance for each time interval: daily, weekly, monthly, quarterly, semi–annually and yearly. Routine maintenance shall include lubrication, adjustments, inspections, calibrations, etc., and a list of acceptable equivalent lubricants from at lease three (3) different major manufacturers whose products are locally available. A manufacturer and/or vendor responsible such as "see instruction manual" will not be acceptable.

C. The following items shall also be included in the O&Ms:

1. One (1) print of one (1) 8x10 color photograph of each major piece of equipment.
2. Name of manufacturer with address and phone number for service and parts.
3. Name, address and phone number of the nearest service representative for the manufacturer.
4. Complete "nameplate" data including serial number for each piece of equipment.
5. A list of spare parts including part number and other information needed to order parts.
6. Weight of individual components of each piece of equipment weighing over 100 pounds.
7. Complete electrical wiring diagrams.

D. Where an O&M manual includes information on equipment not supplied or installed, the extraneous information shall be marked out to avoid confusion.

E. Where an O&M manual contains a written warranty or guarantee, it shall be

certified to meet the minimum length of time and requirements defined in the Contract Documents.

1.03 CONSTRUCTION SCHEDULE

A. The Contractor shall submit, for approval, a CPM construction schedule plotting work increments against time, indicating anticipated date of beginning and completion of each work increment and indicating completion of all increments by the scheduled date. The Contractor shall assign such work forces as are necessary to accomplish all increments of the work within the time allotted on the construction schedule.

B. The CPM shall be done in Primavera software (or compatible if acceptable by Owner) and shall show the schedule for completion of each major item broken down into tasks – one for each section of the specifications, e.g. excavation, concrete, HVAC, etc.

C. The Construction Schedule shall be submitted within fourteen (14) days after the Notice of Award.

D. The CPM shall be updated monthly to reflect actual progress versus original schedule. This CPM shall be used to document any additional time requested for changes in the scope of work. Time extension requests will only be reviewed if justification is given by the Contractor and shown to affect the critical path.

1.04 BREAKDOWN OF LUMP SUM PRICES

A. Within fourteen (14) days of the Preconstruction Conference, the Contractor shall submit, for approval, a breakdown into construction categories of his lump sum bid price. This breakdown shall add up to the full 100 percent value of his lump sum bid, and all parts of it shall be covered by the Performance Bond. The breakdown shall be used for the purpose of arriving at a basis for monthly estimates.

1.05 RECORD DRAWINGS

A. During the progress of the job, the Contractor shall keep a careful record at the job site of all changes and corrections to the information shown on the Drawings. See Section 01050 Field Services for additional requirements. The Contractor shall enter such changes and corrections on <u>one</u> set of Contract Drawings immediately. The record drawings shall indicate, in addition to all interior changes and corrections, the actual location referenced from two permanently fixed surface structures of all subsurface utilities installed or uncovered by him. At the time of beneficial occupancy of each facility involved under the Contract, the Contractor shall submit to the Engineer one set of record drawings showing the aforementioned data. If the Contractor fails to maintain the record drawings as required herein, final payment, with respect to the Contract as a whole, will be withheld until proper record drawings have been furnished to the Engineer.

B. The Contractor shall keep one copy of all Contract Documents, Change Orders and approved Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These shall be available to the Engineer and shall be delivered to him upon completion of the Project.

1.06 SUBMISSION OF MANUFACTURER'S CERTIFICATES

A. General:

1. The Contractor shall submit Manufacturer's Certificates for the installation of those items of major equipment named in the various sections of specifications.
2. Such Manufacturer's Certificates shall state that the equipment has been installed under either the continuous or periodic supervision of the manufacturer's authorized representative, that it has been adjusted and initially operated in the presence of the manufacturer's authorized representative and that it is operating in accordance with the specified requirements, to the manufacturer's satisfaction.

B. Manufacturer's Representative:

1. The definition of "manufacturer's representative" shall be as follows: a representative from the manufacturer's plant, familiar with the actual problems of manufacturing, installing and operating the particular equipment or product and with enough years of experience in this field to determine the successful operation of the equipment or product. Sales representatives or agents of the manufacturers will not be acceptable.
2. As related to his obtaining the manufacturer's certificates, the Contractor shall include in this contract price the cost of furnishing competent and experienced manufacturer's representatives who shall represent the manufacturer on equipment and products furnished and listed under this Contract, to assist the Contractor to install, adjust, start up and test the equipment and products in conformity with the Contract Documents. After the equipment and products have been operated through the trial period for each phase of construction and before being put into permanent service by the Owner, such manufacturer's representative shall make all adjustments and tests required to provide that such equipment and products are in proper and satisfactory operating condition, and meet the requirement for issuing the manufacturer's certificate.

1.07 OPERATING INSTRUCTIONS

A. Particular sections of these General Requirements require that the Contractor furnish qualified personnel to instruct Operator personnel in the proper operation and maintenance of equipment and systems provided in this Contract. Such instruction periods shall be in accordance with the requirements of the individual sections of the

General Requirements and with the following paragraphs.

B. When specified in individual sections of these specifications, upon completion of all work and testing for a particular section of the General Requirements, the Contractor shall furnish, at no extra cost to the Owner, the necessary manufacturer's engineers, representatives, technicians, skilled labor and helpers and shall operate all systems and equipment for the specified instruction period. During this period, the manufacturer's representatives shall fully instruct the Engineer and/or his representatives and the Plant personnel in the operation, maintenance, lubrication and adjustment of all systems and equipment.

C. If the Operation and Maintenance Manuals specified herein are not available at the time of the instruction period, the Contractor shall provide the Engineer with one copy of the manufacturer's operation literature for each system or item of equipment. Installation and operating sheets or booklets normally shipped with equipment may be used for this purpose.

D. The Contractor shall schedule the instruction period for a time mutually agreeable with the Engineer and the Owner. A minimum of ten (10) days notice shall be provided.

E. All training may be video taped by the Owner.

1.08 PROGRESS PHOTOGRAPHS

A. The Contractor shall furnish the Owner with photographs; the cost such shall be included in the lump sum bid. Photographs shall be taken before the site has been disturbed and on an average of once a month during construction, and at the completion of the work. They shall be clearly marked to orient the photograph as to the portion of the work and state the date the photograph was taken. A minimum of twelve (12) photographs shall be taken each month and the proofs provided to the Owner, along with a CD-Rom containing the images. The Owner shall then select six (6) photographs each month of which the Contractor shall make three (3) sets of 8” x 10” prints. Contractor shall furnish prints in three photo albums sized to hold all progress photographs, as well as a CD-Rom containing all images. .

1.09 LIST OF SUBCONTRACTORS

A. The Contractor shall submit a list of subcontractors for approval with his bid.

*** END OF SECTION ***

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.01 CODES, RULES, PERMITS AND FEES

A. General:

1. The Contractor shall comply with the County Building Codes as well as the requirements of all permits obtained by the Owner or the Contractor.
2. The Contractor shall give all necessary notices, obtain all permits (except as otherwise noted herein) and pay all governmental taxes, fees, and other costs in connection with the work, file all necessary plans, prepare all documents and obtain all necessary approvals of all government departments having jurisdiction, obtain all required Certificates of Inspection and Approval for the work and deliver same to the Engineer, except as otherwise noted herein.

B. Included Items:

1. The Contractor shall include in his work, all labor, materials, services, apparatus, and drawings required to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on the Drawings or specified.

C. Compliance:

1. All materials furnished and all work installed shall comply with the rules and regulations of the National Fire Protection Association, with all requirements of local utility companies, with the recommendations of the fire insurance rating organization having jurisdiction, and with the requirements of all governmental departments having jurisdiction.
2. The Contractor shall arrange for inspection and approval by the Electrical Inspectors appointed by the Commissioners of Kent County and shall pay all costs of these services.

D. Permits to be Obtained by Contractor:

1. Contractor shall determine all required permits for the completion of the work described under this contract and obtain same prior to the start of construction.

1.02 MATERIALS AND WORKMANSHIP

A. All materials and equipment required for the work shall be new, unless otherwise specified, and of the best quality and especially adapted to the services required.

B. The Contractor shall furnish a superintendent who shall be constantly in charge of the installation of the work, together with all skilled workmen and labor required to unload, transfer, erect, connect up, adjust, start, operate, and test each system.

C. The Contractor shall locate and install all equipment which must be serviced, operated or maintained in fully accessible positions. Such equipment shall include, but not be limited to, valves, pumps, unions, cleanouts, pressure gages, and controls. Minor deviations from the Drawings may be made to allow for better accessibility, but changes of significant magnitude or changes involving extra cost shall not be made without approval of the Engineer.

D. In as much as the Drawings are generally diagrammatic, the Drawings do not indicate all supports, hangers, fittings or offsets for piping, conduits, and duct work, or all valves, traps, access panels, or other specialties which the Contractor shall provide. All piping, conduit and duct work exposed to view shall be run parallel with the lines of the building and as close to walls, columns, and ceilings as may be practical and consistent with proper grade and the maintenance of proper clearances for access to all parts requiring servicing. No piping, conduit, or duct work shall cross below the head of any window or door.

1.03 STANDARDS

A. Any reference to standards in the Contract Documents shall always imply the latest issue in effect including all amendments and errata at the time bids are taken, of said standards unless otherwise stated.

B. Abbreviations for various organizations which may be used in these Specifications are as follows:

Abbreviation		Organization
AA	-	Aluminum Association
AASHTO	-	American Association of State Highway and Transportation Officials
ACI	-	American Concrete Institute
ACS	-	American Chemical Society

AFBMA	-	Anti-Friction Bearing Manufacturers Association
AGA	-	American Gas Association
AGMA	-	American Gear Manufacturers Association
DGA	-	American Hot Dip Galvanizers Association
AICHE	-	American Institute of Chemical Engineers
AISC	-	American Institute of Steel Construction
AASHO	-	The American Association of State Highway Officials
ABPA	-	Acoustical and Board Products Association
AI	-	The Asphalt Institute
AIEE	-	American Institute of Electrical Engineers (Now IEEE)
AIMA	-	Acoustical and Insulating Materials Association
AISI	-	American Iron and Steel Institute
AMCA	-	Air Moving and Conditioning Association
ANSI	-	American National Standards Institute
API	-	American Petroleum Institute
APWA	-	American Public Works Association
AREA	-	American Railway Engineering Association
ASA	-	American Standards Association (Now ANSI)
ASCE	-	American Society of Civil Engineering
ASHRAE	-	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	-	American Society of Mechanical Engineers
ASSCBC	-	American Standard Safety Code for Building Construction
ASTM	-	American Society of Testing and Materials
AWPA	-	American Wood Preservers Association
AWPB	-	American Wood Preservers Bureau
AWS	-	American Welding Society
AWWA	-	American Water Works Association
BIA	-	Brick Institute of America
CBRA	-	Copper and Brass Research Association
CRSI	-	Concrete Reinforcing Steel Institute
CS	-	Commercial Standard (U.S. Department of Commerce)
DIPRA	-	Ductile Iron Pipe Research Association
E/A	-	Engineer and/or Architect
EEI	-	Edison Electric Institute
EPA	-	U.S. Environmental Protection Agency
FM	-	Factory Mutual
FTI	-	Facing Tile Institute
FS	-	Federal Specifications
GPM	-	Gallons Per Minute
HP	-	Horsepower
IEEE	-	Institute of Electrical and Electronic Engineers

Abbreviation		Organization
ID	-	Inside Diameter
IPCEA	-	Insulated Power Cable Engineers Association
MBE	-	Minority Business Enterprise
MBMA	-	Metal Building Manufacturers Association
MSS	-	Manufacturers Standardization Society of the Valve and Fittings Industry
NAAMM	-	National Association of Architectural Metal Manufacturers
NBFU	-	National Bureau of Fire Underwriters
NBS	-	National Bureau of Standards
NCPI	-	National Clay Pipe Institute
NCMA	-	National Concrete Masonry Association
NEC	-	National Electrical Code
NECA	-	National Electrical Contractors Association
NEMA	-	National Electrical Manufacturers Association
NFPA	-	National Fire Protection Association
NPT	-	National Pipe Threads
NSF	-	National Science Foundation
OD	-	Outside Diameter
OFCCP	-	Office of Federal Contracts Compliance Programs
OSHA	-	U. S. Department of Labor, Occupational Safety and Health Administration
PCA	-	Portland Cement Association
PCI	-	Prestressed Concrete Institute
PS	-	United States Products Standards
PSIG	-	Pounds Per Square Inch Gauge
RPM	-	Revolutions Per Minutes
SAE	-	Society of Automotive Engineers
SCPI	-	Structural Clay Products Institute
SDI	-	Steel Decks Institute
SJI	-	Steel Joists Institute
SPIB	-	Southern Pine Inspection Board
SMACNA	-	Sheet Metal and Air Conditioning National Association
SMSA	-	Standard Metropolitan Statistical Area
SSPC	-	Steel Structures Painting Council
STA	-	Station (100 feet)
TDH	-	Total Dynamic Head
TEMA	-	Tubular Exchanger Manufacturers Association
UL	-	Underwriter's Laboratories
USASI or	-	United States of America Standards Institute
USAS	-	(Now ANSI)
USGS	-	United States Geological Survey
USC&GS	-	United States Coast and Geodetic Survey

1.04 VERIFICATION OF DIMENSIONS

A. The Contractor shall be responsible for field verification of all dimensions of existing facilities and other items which are shown on the Contract Drawings.

1.05 TESTS OF MATERIALS AND EQUIPMENT

A. All material before being incorporated in the work shall be subject to inspection, testing and approval of the Engineer and any work in which such materials are used without prior test and approval shall be considered defective and unauthorized and will not be paid for. The Contractor shall perform such tests as required by the specifications in a timely fashion taking into account when the items will be incorporated in the work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

*** END OF SECTION ***

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 LABORATORY

A. Contractor shall select, employ and pay for services of an Independent Testing Laboratory to perform specified inspection, sampling and testing where specified in the various sections of the specifications.

1. Contractor shall cooperate with laboratory to facilitate execution of its required services.
2. Employment of laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

1.02 LABORATORY DUTIES

A. Cooperate with Engineer and Contractor; provide qualified personnel after due notice.

B. Perform specified inspections, sampling and testing of materials and methods of construction:

1. Comply with specified standards.
2. Ascertain compliance of materials with requirements of Project Manual.

C. Promptly notify Engineer of observed irregularities or deficiencies of work or products.

D. Promptly submit five (5) copies of written report of each test and inspection to Engineer. Each report shall include:

1. Date issued.
2. Project title and number.
3. Testing laboratory name, address and telephone number.
4. Name and signature of laboratory inspector.
5. Date and time of sampling or inspection.
6. Record of temperature and weather conditions.
7. Date of test.
8. Identification of product and specification section.

9. Location of sample or test in the Project.
10. Type of inspection or test.
11. Results of tests and compliance with Project Manual.
12. Interpretation of test results, when requested by Engineer.

E. Perform additional tests as required by Engineer or the Owner.

1.03 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Project Manual.
2. Approve or accept any portion of the Work.

1.04 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel, provide access to Work.

B. Furnish incidental labor and facilities:

1. To provide access to Work to be tested and to maintain traffic in order to provide laboratory personnel a safe work site.
2. To obtain and handle samples at Project site or at source of product to be tested.
3. To facilitate inspections and tests.
4. For storage and curing of test samples.

C. Inspection and testing exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor, at no additional cost to the Owner.

PART 2 – PRODUCTS

Not Required.

PART 3 – EXECUTION

Not Required.

*** END OF SECTION ***

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1- GENERAL

1.01 ELECTRIC POWER

A. It shall be the obligation and responsibility of the General Contractor to provide and maintain temporary facilities for furnishing light and power necessary for operations under the General Contract and to make all necessary arrangements therefore, including all required connections, ordering the meter, and paying all fees and inspection charges.

B. The General Contractor shall make the temporary power facilities available to any and all approved Subcontractors, for their use in connection with their Contracts, and may charge each Subcontractor for such service an amount not to exceed a fraction of the cost of the project. Removal of temporary facilities shall be by the General Contractor. The installation and meters shall remain until need for same by each Subcontractor has ceased or until completion of the General Contract.

1.02 TEMPORARY HEAT AND VENTILATION

A. It shall be the obligation and responsibility of the General Contractor to provide and maintain temporary heat by means of portable electric, oil or gas-fired units. The General Contractor shall provide and pay for all fuel and electricity used in the temporary facilities and shall provide proper smoke pipes or other means to prevent smoke or smudge from marking up walls, ceilings or other parts of equipment.

B. Should the temporary heating facilities require electric service, the General Contractor shall provide the necessary wiring and power.

C. After their installation and testing, the permanent heating system facilities may be used for temporary heat, it shall be the responsibility of the General Contractor to guarantee the heating system for a period of two years following final acceptance of the General Contract or beneficial occupancy of the General Contract, whichever comes first. It also shall be the responsibility of the General Contractor to replace all filters before the final acceptance of the General Contract.

D. It shall be the responsibility of the General Contractor to repair any damage to heating and ventilating equipment suffered as the result of use by the General Contractor.

1.03 WATER SUPPLY

A. Owner will make available potable water; Contractor will pay the cost of potable water used. The Contractor will be responsible for any temporary piping and connections required to obtain water type.

B. The Contractor shall provide an adequate supply of potable water for use in the field office.

1.04 SANITARY FACILITIES

A. The Contractor shall provide and maintain approved sanitary facilities for the full term of the Contract.

1.05 FIELD CONDITIONS AND MEASUREMENTS

A. The Contractor shall base all measurements, both horizontal and vertical from established benchmarks and monuments. The Contractor shall be responsible for field verification of all dimensions and conditions at the job site.

B. Should the Contractor discover any discrepancy between actual conditions and those indicated, which prevent following good practice or the intent of the Contract Drawings and Specifications, he shall notify the Engineer and shall not proceed with his work until he has received instructions from the Engineer.

C. No claims shall be made for extra payment or extensions of Contract completion time if the Contractor fails to notify the Engineer of any discrepancy before proceeding with the aspect of the work.

1.06 PROTECTION OF PERSONS AND PROPERTY

A. The Contractor shall be responsible for initiating, maintaining and providing supervision of safety precautions and programs in connection with the work including, but not limited to, all legally required precautions and programs.

B. The Contractor shall take all reasonably necessary precautions for safety of, and shall provide all reasonably necessary protection to prevent damage, injury or loss to: (1) employees on the work and other persons who may be affected thereby; (2) the work, materials and equipment to be incorporated therein; and (3) other property at or adjacent to the site.

C. The Contractor shall give all notice and comply with all applicable laws, ordinances, rules, regulations, and orders of public authorities bearing on the safety of persons and property and their protection from damage, injury or loss arising from Contractor's operations hereunder.

D. The Contractor shall be liable for damage or loss (other than damage or loss to property insured under the property insurance provided or required by the Project Manual to be provided by the Owner) to property at the site to the extent caused in whole or in part by the Contractor, a Subcontractor of the Contractor or anyone directly or indirectly employed by either of them, or by anyone for whose acts they may be liable, except damage or loss attributable to the acts or omissions of the Owner, the Owner's separate contractors or anyone directly or indirectly employed by them or by anyone for whose acts they may be liable and not attributable to the fault or negligence of the Contractor.

1.07 CONTRACTOR STORAGE AND WORK AREAS

A. The Contractor will be responsible for providing storage and work areas for use by the Contractor for parking of workmen's vehicles, storage of materials, tools, field offices, equipment and other items necessary for construction. The exact limits of the areas will be designated in the field by the Owner during the Pre-bid Conference. The Contractor shall be fully responsible for the security of these areas, including fencing, watchmen, and other means of security. Under no circumstances will the Owner be responsible for the security of any property belonging to the Contractor, his subcontractors, or any of his work forces.

B. Contractor shall maintain all staging areas including grass cutting.

1.08 DRAINAGE

A. The Contractor shall keep all existing surface and subsurface drainage and water courses unobstructed, or provide equal courses effectively placed, and prevent accumulations of surface water.

1.09 SOIL EROSION AND SEDIMENT CONTROL

A. Adequate control of soil erosion and sedimentation of both a temporary and permanent nature on areas disturbed by this work shall be provided at no extra cost to the Owner, subject to the approval of the Engineer.

B. It shall be the Contractor's responsibility to adhere to the approved Sediment and Erosion Control permit issued by the Kent Soil and Water Conservation District.

1.10 SAFETY

A. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery and equipment shall be guarded and all hazards shall be eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.

B. The Contractor shall comply with the U.S. Department of Labor, Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (Public Law 91-596) and under Section 107 of the Contract Work Hours and Safety Standards (Public Law 91-54).

C. Nothing in the Occupational Safety and Health Act of 1970 shall be construed to supersede or in any manner affect any workmen's compensation law or to enlarge or diminish or affect in any manner the common law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of or in the course of employment.

*** END OF SECTION ***

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01580

PROJECT SIGNS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide temporary on-site information signs:

1. As required by codes, laws, regulatory and funding agencies.
2. To identify trailers of Contractor and Subcontractors, with a minimum required size of 3 feet by 2 feet.

B. Remove signs on completion of construction.

1.02 INFORMATIONAL SIGNS

A. All informational signs shall be painted signs with painted lettering or standard products.

1. The size of signs and lettering shall be as required by regulatory agencies, or as appropriate to the usage.
2. The colors shall be as required by regulatory agencies. Otherwise, use uniform colors throughout the Project.

B. Erect informational signs at appropriate locations approved by the Owner to provide the required information.

1.03 PROJECT SIGN

A. The Contractor shall furnish and erect, at locations on or near the site of the work, not less than two project signs of 4 foot by 8 foot dimensions. The Engineer or Owner will provide the format of the sign or signs.

1.04 QUALITY ASSURANCE

A. The sign painter shall be a professional experienced in the type of work required.

B. The finishes and painting shall be adequate to resist weathering and fading for the scheduled construction period.

PART 2 - PRODUCTS

2.01 SIGN MATERIALS

A. The structure and framing of the sign may be new or used, wood or metal, in sound condition and structurally adequate to the work. The structure and framing must also be suitable for the specified finish.

B. The sign surfaces shall be softwood plywood exterior with medium density overlay.

1. The sign thickness shall be as required by standards to span across framing members, and to provide even, smooth surface without waves or buckles.

C. All rough hardware shall be galvanized.

D. The paint use shall be of exterior quality.

1. Use Bulletin colors for graphics.
2. Use indicated or selected colors for structure, framing, sign surfaces and graphics.

PART 3 - EXECUTION

3.01 INFORMATION SIGNS

A. The paint on exposed surfaces shall be one coat of primer and one coat of exterior paint.

B. Paint graphics in the styles, sizes and colors as selected.

C. Install signs at a height for optimum visibility, either on ground-mounted poles or attached to temporary structural surfaces.

3.02 MAINTENANCE

A. Maintain signs and supports in a neat, clean condition. Repair damages to structure, framing or sign.

B. Relocate informational signs as required by progress of the work.

3.03 REMOVAL

A. Remove signs, framing, supports and foundations at completion of project.

*** END OF SECTION ***

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 – GENERAL

1.01 EQUIPMENT AND PRODUCTS SPECIFIED

A. Where any item of equipment or product or system is specified, it is to be understood that equal quality equipment or products or systems, of either a named manufacturer or of an unnamed manufacturer, which meet the detailed requirements of the specifications, are intended. In each case, the equipment, product or system is subject to the approval of the Engineer as to the equality thereof. It is distinctly understood that: (1) the Engineer and the Owner are to use their own judgment in determining whether or not any item of equipment or product proposed is equal in quality to that specified; (2) the decision of the Engineer and the Owner on all such questions of equality shall be final; and (3) in the event of any adverse decision by the Engineer or Owner, no claim of any sort shall be made or allowed against the Engineer or the Owner.

B. Substituted items or items other than those named shall be equal or better in quality and performance and must be suitable for the available space, required arrangement and application. The Contractor shall submit any and all data necessary to determine the suitability of substituted items.

C. If any submitted equipment necessitates changing architectural or structural items, or electrical, water, gas, air or other utility services from the sizes, capacities and configurations shown on the Drawings, it shall be the Contractor's responsibility to bear the cost of engineering fees to analyze, design, specify and formulate the construction changes necessitated by the proposed deviations from the specified equipment and/or the Contract Drawings. All re-designs shall bear the seal and be the responsibility of a professional Engineer.

D. Substituted items are warranted by the Contractor to perform equal or better than those specified. Substituted items failing to do so will be replaced by the Contractor at no cost to the Owner. No excuses such as improper design, construction, operation, or maintenance shall be accepted.

E. The Contractor's attention is directed to the fact that the Bid Form requires that, on certain pieces of equipment, the Contractor must base his Bid on a named piece of equipment. In the Bid Form, the Contractor is allowed to offer an alternative piece of equipment for review.

1.02 "OR EQUAL" SPECIFICATIONS

A. Refer to EJCDC Section 6.05 for “or equal”.

1.03 SINGULAR NUMBER

A. Where material, a device or part of the equipment is referred to in the singular number, it is intended that such reference shall apply to as many items of material, devices or parts of the equipment as are required to complete the installation.

1.04 EQUIPMENT UNIFORMITY

A. All pumps, blowers, valves and other multiple-unit equipment shall be, to the greatest extent possible within its category, the product of a single manufacturer.

1.05 STORAGE AND PROTECTION OF MATERIALS AND EQUIPMENT

A. All equipment and materials provided and work performed under this Contract shall be protected from damage before and after installation. The Contractor shall be responsible for work, equipment, and materials until inspected, tested and finally accepted.

B. During construction, the open ends of work shall be effectively closed with temporary covers or plugs to prevent the entry of foreign material.

C. Where permanent equipment called for under this Contract is installed before the erection of adequate protective structures, the Contractor without additional compensation therefore, shall provide approved effective and durable covers for fully protecting such equipment against damage from the elements or from any other cause.

D. Electrical equipment shall be carefully and effectively covered with waterproof material and otherwise protected at all times from the elements.

E. All structures, machinery, equipment, piping, electric conduit, wiring and accessories and appurtenances shall be adequately supported and safeguarded against all damage or injury during performance of work under this Contract. The Contractor shall be responsible for all damage or injury resulting from his operations and shall repair such damage immediately and to the satisfaction of the Engineer and the Owner.

F. Store and protect products in accordance with the manufacturer's recommendations.

G. Uncovered Storage:

1. The following types of materials may be stored out-of-doors without cover:
   a. Reinforcing steel

b. Piping
c. Castings
d. Handrailing

2. Store the above materials on wood blocking so there is no contact with the ground.

H. Covered Storage:

1. The following type of material may be stored out-of-doors if covered with material impervious to water:
   a. Rough lumber
   b. Masonry units
2. Tie down covers with rope, and slope to prevent accumulation of water on covers.
3. Store materials on wood blocking.

I. Fully Protected Storage:

1. Store all products not named above in buildings or trailers which have a concrete or wooden floor, a roof and fully closed walls on all sides.
2. Provide heated storage space for materials which would be damaged by freezing.
3. Protect mechanical and electrical equipment from being contaminated by dust, dirt and moisture.
4. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.
5. Temporarily connect equipment with built-in space heaters to a power source and keep heaters in operation.
6. Prior to installation of the units, they shall be stored at locations approved by the Engineer.

*** END OF SECTION ***

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 CLEANUP

A. Upon completion of the work and before Final Acceptance will be made, the work site, storage areas, and other areas occupied by the Contractor during construction shall be cleaned, and all surplus and discarded materials, false work and rubbish placed thereon by the Contractor shall be removed by the Contractor. The Contractor's storage area shall be topsoiled, seeded and mulched in accordance with the appropriate Section of Division 2. No separate payment will be made for the work as all such costs shall be included in the lump sum price bid.

1.02 TOOLS, ACCESSORIES AND SPARE PARTS

A. The Contractor shall, unless otherwise stated, furnish with each type, kind and size of equipment, one complete set of any special tools and appliances which may be needed to adjust, operate, maintain or repair the equipment.

B. Each piece of equipment shall be provided with a substantial name plate, which is securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture and principal rating data.

C. Where the Specifications require spare parts to be furnished by the Contractor, said spare parts for each item of equipment shall be kept separate and tagged to identify the specific item of equipment to which they belong, shall be packaged so as to preclude damage from handling and storage, and shall be bagged or packaged together where items are small in dimension.

1.03 WARRANTY AND GUARANTEE

A. After the project is substantially complete and the start-up period begins, all guarantees and warranties shall commence.

B. The Contractor warrants and guarantees to the Owner for a period of one year the following:

1. That all materials and equipment provided under this Contract are new, unless otherwise specified.

2. That all work is of good quality and free from faults and defects and in accordance with the requirements of the Contract Documents.
3. That all equipment and systems and each and every part thereof, shall operate (with proper care and attention) in a satisfactory and efficient manner, and in accordance with the Contract Documents.
4. That the Contractor shall, upon receipt of written notice from the Owner, promptly replace with workmanship and materials which comply with these Specifications, and re-execute, correct or repair, without cost to the Owner, all work which may be found to be not in accordance with the Contract Documents.
5. That the guarantee obligations assumed by the Contractor under these Contract Documents shall not be held or taken to be in any way impaired because of the Specifications, indication or approval by or on behalf of the Owner of any articles, materials, means, combinations of things used or to be used in the construction, performance and completion of the work, or any part thereof.
6. That no use or acceptance by the Owner of the work or any part thereof, nor any failure to use the same, nor any repairs, adjustments or corrections made by the Owner due to the Contractor's failure to comply with any of his obligations under the Contract Documents, shall impair in any way the guarantee obligations of the Contractor under these Contract Documents.

C. If the Contractor fails to make repairs during the guarantee period, the Owner may cause such damaged or defective work to be repaired and made good at the cost and expense of the Contractor, including, but not limited to, compensation if required for additional professional services. The Contractor shall also bear the expenses of making good all work destroyed or damaged by the correction, removal or replacement of his defective work.

1.04 SUBSTANTIAL COMPLETION

A. Upon completion of all work under this Contract including the Preliminary and Final testing of equipment, the Contractor shall request, in writing, Substantial Completion by the Engineer.

B. Prior to this request, all specified operation and maintenance instructions and training shall have been provided for the City personnel and all certificates, spare parts, test equipment, record drawings, and other items required to be delivered shall have been provided.

C. Inspection Procedures: Upon receipt of Contractor's request, Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assure that work has been

substantially completed. Results of complete inspection will form punch-list for final acceptance.

1.05 COMPLETION OF PUNCHLIST ITEMS

A. At the time of Substantial Completion, the Engineer and Owner shall prepare a punch list of items remaining to be completed or corrected prior to final acceptance. The punch list shall fix the time within which, and a retainage amount equal to 200% of the estimated cost for which, such items shall be completed or corrected, said time to be within the Contract Time.

B. Contractor shall complete all items of work on the punch list, plus any new items that may be added to it, as soon as possible after the date of Substantial Completion but within the Contract Time.

C. No partial payments or monthly progress payments shall be allowed between the Substantial Completion Payment and the Final Payment.

1.06 FINAL ACCEPTANCE

A. General: Prior to requesting Engineer's final inspection for certification of final acceptance and final payment, as required by General Conditions, the Contractor shall complete the following and list known exceptions:

1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certifications where required.
2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.
3. Submit copy of Engineer's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
4. Submit Consent of Surety.

B. Reinspection Procedure: Upon receipt of Contractor's notice that work has been completed, including punch-list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, Engineer will reinspect work. Upon completion of reinspection, Engineer will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

PART 2 - PRODUCTS

Not Required

PART 3 - EXECUTION

Not Required

*** END OF SECTION ***

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Compile specified warranties and bonds.

B. Co-execute submittals when so specified.

C. Review submittals to verify compliance with Contract Documents.

D. Submit to the Engineer for review and transmittal to Owner.

1.02 SUBMITTAL REQUIREMENTS

A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.

B. Number of original signed copies required: Two each.

C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product or work item.
2. Firm, with name of principal, address and telephone number.
3. Scope.
4. Date of beginning of warranty, bond or service and maintenance contract.
5. Duration of warranty, bond or service maintenance contract.
6. Provide information for Owner's personnel:
   a. Proper procedure in case of failure.
   b. Instances which might affect the validity of warranty or bond.
7. Contractor and Subcontractors name, street address and telephone number of responsible principal.

1.03 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size 8-1/2 inch x 11 inches, punch sheets for standard three post binder.
   a. Fold larger sheets to fit into binders.
2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
   a. Title of Project
   b. Name of Contractor

C. Binders: Commercial quality, three post binder, with durable and cleanable plastic covers and maximum post width of two inches.

1.04 WARRANTY SUBMITTALS REQUIREMENTS

A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. The manufacturer's warranty period shall be concurrent with the Contractor's for one (1) year, unless otherwise specified, commencing at the time of the completion of the conditional acceptance period.

B. The Contractor shall be responsible for obtaining certificates for equipment warranty for all major equipment specified under all Divisions and which have at least a 1 hp motor or which lists for more than $1,000. The Engineer reserves the right to request warranties for equipment not classified as major. The Contractor shall still warrant equipment not considered to be "major" in the Contractor's one year warranty period even though certificates of warranty may not be required.

C. In the event that the equipment manufacturer or supplier is unwilling to provide a one year warranty commencing at the time of the completion of the conditional acceptance period, the Contractor shall obtain from the manufacturer, a two (2) year warranty commencing at the time of equipment delivery to the job site. This two year warranty from the manufacturer shall not relieve the Contractor of the one year warranty starting at the time of the completion of the conditional acceptance period.

D. All work shall be guaranteed for a period of one year as described in paragraph 6.19 of specification section 00810.

E. All work within Maryland Department of Transportation (MDOT) rights-of-way covered by existing MDOT Franchise Agreements and Utility Construction Permits shall have a warranty period of three (3) years, commencing at the time the roads are accepted by MDOT. The warranty shall be in the form of a Maintenance Bond which shall represent 15% of the installed pipeline costs for all pipelines installed within roadways covered by the existing MDOT Franchise Agreements and Utility Construction Permits for a three-year period.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

*** END OF SECTION ***

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DIVISION 03 - CONCRETE

SECTION 03100

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work under this section includes job fabricated forms, form liners, coatings, ties, accessories and removal of forms.

B. Related Work Specified Elsewhere:

1. Section 03200: Concrete Reinforcement
2. Section 03300: Cast-In-Place Concrete

1.02 QUALITY ASSURANCE

A. Design Criteria:

1. It is the Contractor's responsibility for design, engineering and construction of formwork.
2. Design formwork in accordance with American Concrete Institute's Recommended Practice for Concrete Formwork ACI 347.
3. Design forms to repeat regularly on regularly repeating structural units or bays. Submit shop drawing covering such forming condition.

B. Allowable Tolerances: Set and maintain concrete forms within tolerance limits stated in American Concrete Institute's Recommended Practice for Concrete Formwork ACI 347.

C. Referenced Standards:

1. American Concrete Institute:
   a. ACI 347, Recommended Practice for Concrete Formwork.
   b. ACI 350, Code Requirements for Environmental Engineering Concrete Structures and Commentary.
2. American Plywood Association: APA Grade-Trademarks.
3. U.S. Department of Commerce Product Standards: PS-1-74 for Construction and Industrial Plywood.

1.03 JOB CONDITIONS

A. Protection:

1. Protect formwork materials before, during and after erection to insure acceptable finished concrete work. Also protect in-place materials and other operations of work in connection with concrete pours.
2. In event of damage to erected forms, make necessary repairs or replacements prior to concrete pours at no expense to the Owner.

PART 2 - PRODUCTS

2.01 FORMS

A. Lumber:

1. Form framing, sheathing and shoring shall conform to ACI 347.
2. Use lumber free of material defects that would deform the finished concrete product.

B. Plywood:

1. Form Sheathing and Panels: Not less than 5/8 inch thick Exterior Type B-B Plywood Class I and II EXT-APA conforming to U.S. Product Standard PS-1-74. Plywood forms with metal edges will be acceptable.
2. Use Type II only on surfaces not exposed to view.
3. Provide moldings for chamfers (if any) both milled and planed smooth.

C. Steel: Metal Forms of pre-engineered design may be used in lieu of wood forms.

2.02 FORM TIES AND ACCESSORIES

A. Form Ties:

1. Provide factory fabricated, adjustable-length, removable or snap-off metal form ties conforming to ACI 347 and ACI 350;
2. Use ties in construction of liquid retaining structures that are designed to prevent seepage or flow of water along the embedded item.
3. Use snap-off metal ties with ends that break at least 1½ inch from the face of the wall. Assembly should provide cone shaped depressions in the forms at the surface at least 1 inch in diameter and 1½ inch deep to allow filling and patching.
4. Removable ties that leave holes larger than 1 inch are not permitted.

5. Form ties fabricated on the project site and wire ties or flat bands are not acceptable.
6. Wood spacers are not permitted within the pour.

B. Metal Accessories:

1. Include spacers, chairs, ties or other devices for properly assembling, placing, spacing, and supporting the reinforcement in place.
2. Provide metal accessories with solid plastic feet for exposed slabs and similarly exposed concrete surfaces, both interior and exterior, where accessories come in contact with forms.
3. Aluminum metal accessories that come in contact or are embedded in concrete shall be prohibited.

PART 3 - EXECUTION

3.01 INSPECTION

A. Prior to placement of concrete, inspect forms for cleanliness and accuracy of alignment.

3.02 PREPARATION

A. Apply form coatings in accordance with manufacturer's specifications.

B. Do not allow excess form coating material to accumulate in the forms.

C. Do not allow form coatings to come in contact with construction joints or reinforcing steel.

D. Caulk and tape butt joints in formwork.

3.03 ERECTION

A. Construct forms in accordance with ACI 347 to required dimensions, plumb, straight and mortar tight, and paste tight where appearance is important. Securely brace and shore forms to prevent displacement and to safely support imposed concrete load.

B. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent the loss of concrete mortar. Locate temporary openings on forms in as inconspicuous a location as possible.

C. Provide openings in concrete formwork of the correct size and in the proper location to accommodate other operations of construction work in the project. Accurately place and securely support items to be built into forms.

D. Wet forms sufficiently to prevent joints in wood forms from opening prior to concrete pour.

3.04 FORM REMOVAL (ACI 347)

A. After concrete has been placed, forms, bracing and supports shall remain undisturbed long enough to allow the concrete to reach the strength necessary to support with safety its own weight plus any live load and earth pressure that might be placed upon it without causing excessive settlement or deflection or any temporary or permanent damage to the structure.

B. Where in his opinion, the leaving in place of forms contributes to the permanent benefit of the structure, the Engineer may order the forms to remain for a longer period than that considered to be sufficient time in the judgment of the Contractor.

C. However, should the Engineer acquiesce in the removal of forms by the Contractor, the Engineer assumes no responsibility as a result of their removal.

D. The Contractor is fully and personally responsible and is in no manner relieved of this responsibility for such removal.

E. Take special care to prevent the breaking of edges and corners of concrete in the stripping of forms.

F. Hammer-pack holes left by tie rods with stiff mortar of the same materials as, but somewhat leaner than, that in the concrete. Render the patch inconspicuous.

*** END OF SECTION ***

DIVISION 03 – CONCRETE

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

A. The work included in this section shall include all steel reinforcement used within this project.

B. Related Work Specified Elsewhere:

1. Section 03100: Concrete Formwork
2. Section 03300: Cast–In–Place Concrete

1.02 QUALITY ASSURANCE

A. Referenced Standards:

1. American Concrete Institute:
   a. ACI 350, Code Requirements for Environmental Engineering Concrete Structures and Commentary.
   b. ACI 318 Building Code Requirements for Reinforced Concrete.
2. American Society for Testing and Materials.
   a. ASTM A 82, Cold–Drawn Steel Wire for Concrete Reinforcement.
   b. ASTM A 185, Welded Steel Wire Fabric for Concrete Reinforcement.
   c. ASTM A 615, (S1), Deformed and Plain Billet–Steel Bars for Concrete Reinforcement, including Supplementary Requirement (S1).
3. Concrete Reinforcing Steel Institute: CRSI, Manual of Standard Practice for Reinforcing Concrete Construction.

1.03 SUBMITTALS

A. Shop Drawings and Product Data:

1. Prepare shop drawings of concrete reinforcement in accordance with American Concrete Institute's Manual of Standard Practice for Detailing Reinforced Concrete Structure ACI 315.

2. Indicate bending diagrams, splicing and lap of rods, and shapes, dimensions and details of bar reinforcing and accessories.
3. Use figured dimensions only, scaling drawings not permitted.
4. Review of shop drawings is limited to design intent only. No responsibility for a detailed check of member length, size, spacing or similar detail information is assumed by virtue of such review.

B. Affidavit: Furnish an affidavit, in duplicate, from the steel manufacturer that steel manufactured for this project meets the requirements of these Specifications.

1.04 DELIVERY, HANDLING AND STORAGE

A. Deliver materials bundled, tagged and marked.

B. Store at the site to prevent damage and accumulation of dirt or excessive rust.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Deformed Reinforcing Bars: New billet steel, ASTM A 615, Grade 60. Stirrups and ties Grade 60.

B. Welded Wire Fabric Reinforcing: ASTM A 185.

C. Metal Accessories: Include spacers, chairs, ties, or other devices for properly assembling, placing, spacing and supporting reinforcement in place. Provide metal accessories for exposed slabs and similarly exposed concrete surfaces, both interior and exterior, with solid plastic feet where accessories come in contact with forms. Provide chairs for reinforcing for slabs and beams on earth with metal pads attached to the feet to prevent penetration of the earth form.

D. Steel Wire: ASTM A 82.

2.02 FABRICATION

A. Fabricate to conform to required shapes and dimensions. Comply with CRSI "Manual of Standard Practice".

PART 3 – EXECUTION

3.01 INSPECTION

A. Notify Engineer and/or the Inspector 48 hours before placing concrete so he can inspect placement of metal reinforcement.

3.02 INSTALLATION

A. Placing:

1. Place metal reinforcement accurately and securely brace against displacement through the use of reinforcing accessories in accordance with ACI 318.
2. Terminate reinforcement 2 inches from face of expansion joints.
3. Continue reinforcement across or through construction joints.
4. When obstructions interfere with the placement of reinforcing, pass such obstructions by placing reinforcing around and not bending the reinforcing to clear the obstructions.
5. Install wire mesh as indicated, lapping joints one full mesh size plus 2 inches and wiring securely. Extend mesh to within 2 inches of sides and ends of slabs.
6. Do not lay metal reinforcement on formwork. Raise reinforcement as concrete is placed.
7. Provide minimum concrete cover of reinforcing steel as follows:
   a. Concrete cast against and permanently exposed to earth – 3".
   b. Concrete exposed to corrosive environments – 2".
   c. Walls and top of slabs on grade – 2".

B. Splicing:

1. Splice metal reinforcement as indicated and in accordance with ACI 318.
2. Welding of crossing bars (tack welding) is not permitted without written approval of Engineer.
3. Secure metal reinforcement at intersections with not less than 16 gauge annealed wire or appropriate size clips.

C. Anchor Bolts Setting: Set at locations indicated on drawings and secure in place to prevent movement during concrete pours.

D. Cleaning: Metal reinforcement, at the time concrete is placed, shall be free from rust, scale or other coatings that will destroy or reduce bond.

E. Concrete Protection:

1. Provide concrete protection for reinforcement in accordance with ACI 318, unless indicated otherwise on the drawings.
2. On exterior exposed work, no ties or spacers will be permitted to remain within 1–1/2 inches of the finished surfaces.

*** END OF SECTION ***

DIVISION 03 - CONCRETE

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work under this section shall include cast-in-place concrete.

B. Related Work Specified Elsewhere:

1. Section 01300: Submittals
2. Section 01700: Contract Closeout
3. Section 03100: Concrete Formwork
4. Section 03200: Concrete Reinforcement
5. Section 03600: Grout

1.02 QUALITY ASSURANCE

A. Standards: Conform to the requirements of the American Concrete Institute (ACI) and the American Society for Testing and Material (ASTM) or as hereinafter specified, whichever is the more stringent. Comply with applicable provisions of the latest editions of referenced specifications.

B. Testing Agency: Employed and paid by the Owner.

C. Concrete Testing: The Contractor shall provide the Testing Agency with access to the concrete used. The Testing Agency shall be responsible for all testing of concrete.

1.03 SUBMITTALS

A. List of materials and manufacturers for review.

B. Design Mixes: Submit design mixes for classes of concrete to be used on the project for review prior to placing concrete. Each design mix shall indicate the proposed use within the structure (i.e., floor slabs, footings, tanks, etc.). Approval of the design mix and/or acceptance of the test report does not in any way relieve the Contractor of his responsibility to ensure that the strength, slump and quality of the in-place concrete meets the requirements of the Project Manual.

1. Proportioning (ACI 211.1, ACI 304, ACI 350, ACI 318): Determination of strength and quality of the concrete proposed for use is the responsibility of the Contractor, established by tests made in advance of the beginning of operations, using the consistencies most suitable for the work. Unless otherwise specified, provide concrete composed of cement, fine and coarse aggregate admixture(s) and water. The exact division of the total aggregate shall be such as to produce a concrete of the greatest workability and density.
2. Strength: Minimum ultimate compressive strength at the end of 28 days shall be as outlined below, and seven day tests not less than 70 percent of 28-day tests.

Environmental Structures	4,500 PSI
Structural	3,500 PSI
Structural Slabs	4,000 PSI
Sidewalk	3,000 PSI
Fence Post	2,500 PSI

1.04 JOB CONDITIONS

A. Environmental:

1. Depositing Concrete in Cold Weather (ACI 306):
   a. Place concrete only when temperature is at least 35ºF. and rising. Stop concrete placement in time to allow slab to be completely finished and covered before temperature drops below 35ºF.
   b. Do not add salt, chemicals or other non-freezing materials to concrete. Do not use frozen materials or materials containing ice.
   c. When depositing concrete at a temperature of less than 40ºF., the concrete shall have a temperature of at least 60ºF., but not more than 70ºF. for not less than 5 days after placing. When necessary, heat concrete materials before mixing. Method of heating materials and protecting concrete is subject to outside temperature at a rate not faster than one degree per hour for first day and two degrees per hour thereafter, until outside temperature is reached.

B. Concrete Encasement of Pipes: Encase pipes under structures or buildings (indicated by the drawings to be encased in concrete) for the full length of the pipe run under the structure.

C. Concrete Encasement of Conduits: Encase conduit runs as indicated and detailed on the Drawings as work of Division 16 - ELECTRICAL. Concrete Class as specified in Division 16 - ELECTRICAL.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement:

1. Portland Cement: ASTM C 150 Type II for Environmental Structures, Type 1 for others or ASTM C595.
   a. Total Alkalis < .6%
   b. C_3A < 7% (ASTM C 150)
2. Use of fly ash or GGBFS is recommended for durability when in direct contact with sewage or sewage influent.
3. Only one brand and manufacturer of approved cement shall be used for exposed concrete.

B. Aggregates: ASTM C 33, ACI 304, 211.1.:

1. Fine Aggregate: Natural sand. Free of loam, clay, or foreign matter.
2. Coarse Aggregate: Free of loam, clay, or foreign matter. Crushed stone or gravel, hard, durable pieces, free from adherent coatings. Maximum size ASTM C33, size #57. Aggregate shall be tested by ASTM C227 or ASTM C289 for alkali-reactivity.
3. Coarse Aggregate for Toppings, Slabs and Fills 3 Inches and Less in Thickness: Pea gravel 1/2 inch maximum size.

C. Water: Clean Potable Water free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete or reinforcement.

D. Admixtures:

1. Water Reducing Admixture: ASTM C 494, Type A (Chloride free) or ASTM C1017. One of the following or equal.
   a. "Plastocrete 161" by Sika Chemical; Corporation, Rockville, Maryland.
   b. "WR 77" by Chem-Masters Corp., Chagrin Falls, Ohio.
   c. PSI by Gifford-Hill & Co., Inc., Charlotte, N.C.
2. Air-Entraining Admixture: ASTM C 260. One of the following or equal.
   a. "Sika-AER" by Sika Chemical Corporation, Lyndhurst, NJ 07071.
   b. "Adz-Air" by Chem-Masters Corp., Chagrin Falls, Ohio 44022.
   c. "Air-Tite" by Gifford-Hilkl & Co., Inc., Charlotte, NC 28210.
3. Accelerator/Retarder may be used only if design mixes utilizing the accelerator/retarder are submitted and accepted.
4. Do not use calcium chloride.

5. Corrosion Inhibitor Admixture for tanks in contact with wastewater – ASTM C-494, Type C.
   a. Sika CNI by Sika Chemical Corporation, Lyndhurst, NJ 07071, or equal.
   b. Corrosion inhibitor admixture shall be added in accordance with manufacturer's dosage rate recommendations.
   c. The following structures shall receive corrosion inhibitor admixture:
      (1) Mix Chamber
      (2) Filter Structure (entire building)
      (3) Aerobic Digester (all new tankage)
6. Ground Granulated Blast Furnace Slag (GGBFS) shall conform to ASTM C989. GGBFS shall only be used with ASTM C150 cement.
7. Fly ash shall be class F conforming to ASTM C618.

E. Preformed Expansion Joint Fillers:

1. Bituminous Type: ASTM D 994.
2. Nonextruding and Resilient Bituminous Types: ASTM D 1751.

F. Waterstops:

1. 6" x 3/8" flat dumbbell waterstop as manufactured by Paul Murphy Plastics Company, Roseville, MI, or equal. Other sizes as indicated. Provide with "T", "L", "Cross", and "Transition" Junction sections, and other fittings as required by conditions.

G. Epoxy Adhesive for Embedding Reinforcing Steel: HILTI HY150.

H. Curing Materials: Use curing materials that will not stain or affect concrete finish or lessen the concrete strength and comply with the following requirements:

1. Burlap: Use materials conforming to AASHTO M 182.
2. Sheet Materials: Use material conforming to ASTM C 171.
3. Liquid Membrane-Forming Compounds: ASTM C 309, Type 1, free of wax or other adhesive bond breaking ingredients, such as Master Builders MASTERSEAL 66, or equal.
4. Cure & Seal Type: ASTM C309 and ASTM C1315 L&M Dress & Seal or equal

2.02 PROPORTIONING CONCRETE (ACI 211.1; ACI 304; ACI 318; ACI 301)

A. Determination of strength quality of the concrete proposed for use is the responsibility of the Contractor, established by tests made in advance of the beginning of the operations, using the consistencies most suitable for the work.

B. Unless otherwise specified, provide concrete composed of cement, fine and coarse aggregate and water.

C. The exact division of the total aggregate shall be such as to produce a concrete of the greatest workability and density.

D. Contents:

1. Cement:
   a. Concrete for environmental structures shall have a minimum of 535 pounds of cementitious material per cubic yard. Fly ash or other pozzolans conforming to ASTM C618 shall not exceed 25% of total cementitious materials by weight.
   b. GGBFS conforming to ASTM C989 shall not exceed 50% of total cementitious materials by weight.
   c. Total of fly ash or other pozzolans and GGBFS shall not exceed 50% of total cementitious materials by weight.
2. Aggregates:
   a. Use amounts of aggregates necessary to produce a dense workable mixture.
   b. Coarse aggregate size as specified for intended use.
3. Water:
   a. Quantity of water to be the minimum required to attain required slumps.
   b. Water/cementitious material ratio not to exceed 0.42 for environmental structures. 0.5 for others.
   c. Concrete exposed to weather shall be made with not more than five (5) gallons of water per bag of cement, including the free moisture in the aggregates.

2.03 MIXING CONCRETE

A. "Ready-Mixed" Concrete:

1. (ASTM C 94 and ACI 304) Certified by the supplier as to mix and strength.
2. Delivery tickets shall state strength, slump, yards, quantities of cement, aggregate and admix, if the latter is used.
3. Maintain a readily available file of tickets covering all concrete used at the site.

B. Mix concrete only as required and do not use concrete that has been mixed so long that the initial set of the concrete, as determined by tests, occurs sooner than 15 minutes after placement.

C. Discharge concrete, transported in a truck mixer, into forms within 1-1/2 hours after the cement has been added to water and aggregate.

D. Admixtures:

1. Provide plasticizer admixture for concrete except footings in accordance with manufacturer's recommendations, based on the temperature at the site at the time of placement.
2. Vary quantities of plasticizer in order that slump and water and cement content of the mix remain constant for all temperatures.
3. Provide 4 ounces of plasticizer per bag of cement for concrete used to fill masonry walls.

E. Air Entrainment: All concrete shall have air entrainment of not less than 5 percent nor more than 7 percent, certified by the supplier.

F. Strength:

1. Provide the minimum ultimate compressive strength at the end of 28 days as noted hereinbefore.
2. Seven day tests shall be not less than 70 percent of 28 day tests.

G. Slump: ACI 211.1 3-1/2 inch maximum slump.

PART 3 - EXECUTION

3.01 INSPECTION

A. Work to receive cast-in-place concrete shall be inspected for deficiencies which would prevent proper execution of the finished work. Do not proceed with placing until such deficiencies are corrected.

B. The preparation of forms; placing of reinforcing steel, conduits and sleeves; batching; mixing; placing; and curing of concrete will be subject at all times to the inspection by the Engineer.

3.02 JOINTS AND EMBEDDED ITEMS

A. Construction Joints:

1. Place construction joints where indicated on the Drawings or as required. Where not shown, the Contractor is responsible for determining the location of construction joints.

2. Secure Engineer's written approval prior to making additional or revised locations of construction joints.

B. Bond new concrete with hardened concrete as follows:

1. Roughen and clean hardened concrete of foreign matter and laitance and saturate with water.
2. Cover the hardened concrete with a three-inch layer of grout. Use grout of same material composition and proportions of concrete being poured except coarse aggregate omitted.
3. Place new concrete on grout before it has attained its initial set.
4. Other bonding methods must be approved by Engineer.

C. When concreting is to be discontinued for more than forty-five (45) minutes and if the construction is to be horizontal, install keyways and embed dowel bars in the concrete before initial hardening. Use keyways and dowels in vertical concrete construction only when indicated or directed by the Engineer.

D. Expansion Joints and Contraction Joints:

1. Install where indicated on the drawings.
2. Do not extend reinforcing or other embedded metal items through expansion and contraction joints; except where indicated otherwise on drawings.

E. Waterstops:

1. Install in all construction joints, expansion joints and where required for watertightness.
2. 6” x 3/16” ribbed centerbulb waterstop as manufactured by Paul Murphy Plastics Company, Roseville, MI or equal is required at all expansion joints.
3. Hold end joints to a minimum.
4. Make watertightness of joints the same as continuous waterstop material and to permanently develop not less than 50 percent of the mechanical strength of the parent section and to permanently retain their flexibility.
5. In substructures and other structures required to be watertight, install waterstops if concreting is discontinued for a sufficient length of time, which in the opinion of the Engineer, may result in seepage cracks in concrete.

F. Other Embedded Items: Place sleeves, inserts, anchors and embedded items required for adjoining work prior to concreting. Place accurately, and support against displacement.

3.03 PRODUCT OF CONCRETE

A. Ready-Mixed Concrete:

1. Batched, mixed and transported in accordance with ASTM C94.
2. Plant equipment and facilities shall conform to the Check List for Certification of Ready Mixed Concrete Production Facilities of the National Ready Mixed Concrete Association.

3.04 PLACING

A. General: Conduct placement work in accordance with ACI 304.

B. Preparation:

1. Prepare formwork in advance and remove snow, ice, water and debris from within forms.
2. Pre-position expansion joint material, anchors and embedded items.
3. Sprinkle subgrades sufficiently to eliminate water loss from concrete.

C. Conveying:

1. Handle concrete from mixer to final deposit rapidly by methods which will prevent segregation or loss of ingredients to maintain required quality of concrete.
2. Do not convey concrete through aluminum or aluminum alloy.
3. Do not place concrete by pumps or other similar devices without prior written approval of Engineer.

D. Depositing:

1. Do not allow concrete to drop vertically more than 4 feet. Use elephant trunks for depths of more than 4 feet.
2. Deposit in approximately horizontal layers of 12 to 18 inches.
3. Do not allow concrete to flow laterally more than 3 feet.
4. Make placement within sections continuously to produce monolithic unit.
5. Carry on placing at such a rate that concrete which is being integrated with fresh concrete is still plastic.
6. Do not deposit concrete on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within sections.
7. Do not use concrete which has partially hardened or has been contaminated by foreign materials.
8. Do not begin placing of concrete in beams or slabs until concrete previously placed in walls or columns has attained initial set.
9. Do not subject concrete to procedures which will cause segregation.

10. Do not bend reinforcement out of position when placing concrete.
11. Do not place concrete in forms containing standing water.

E. Consolidation:

1. Consolidate concrete by vibration, spading, rodding or other manual methods. Work concrete around reinforcement, embedded items and into corners: eliminate all air or stone pockets and other causes of honeycombing, pitting on planes of weakness.
2. Use vibration equipment of internal type and not the type attached to forms and reinforcement.
3. Use vibrators capable of transmitting vibration to concrete in frequencies sufficient to provide satisfactory consolidation.
4. Do not leave vibrators in one spot long enough to cause segregation. Remove concrete segregated by vibrator operation.
5. Do not use vibrators to spread concrete.
6. Have sufficient reserve vibration equipment to guard against shutdown of work occasioned by failure of equipment in operation.

F. Cold Weather Concreting:

1. Temperature of concrete delivered at the job site shall conform to the following temperature limitations:

	Minimum Concrete Temperature, Deg. F	
Air temperature deg. F.	For sections with least dimension less than 12 in.	For sections with least dimension 12 in. or greater
30 to 45	60	50
0 to 30	65	55

2. If water or aggregate is heated above 100ºF., combine water with aggregate in the mixer before cement is added. Do not mix cement with water or with mixtures of water and aggregate having a temperature greater than 100ºF.
3. Provide equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather. Do not use foreign materials or materials continuing snow or ice.
4. Surfaces which the concrete is to come in contact with must be free of frost, snow and ice.

5. Concrete placed in forms shall have a temperature of 50ºF. or higher after placement. Maintain this temperature a minimum of 5 days. Provide additional time if necessary for proper curing.
6. Housing, covering or other protection used in curing shall remain intact at least 24 hours after artificial heating is discontinued. Do not place dependence on salt or other chemicals for the prevention of freezing.
7. Perform cold weather concreting work in accordance with ACI 306.

G. Hot Weather Concreting:

1. Temperature of concrete delivered at the job site shall not exceed 90ºF.
2. Cool ingredients before mixing to prevent temperature in excess of 90ºF.
3. Make provisions for windbreaks, shading, fog spraying, sprinkling or wet cover when necessary.
4. Perform hot weather concreting work in accordance with ACI 305.

3.05 FINISHING

A. Finishes: Finish exposed concrete surfaces true and even, free from open or rough areas, depressions or projections. Bring concrete up in vertical pours to the required elevation, strike-off with a straight edge and float-finish.

1. Floated Finish: After concrete has been placed, consolidated, struck off and leveled, do not work further until ready for floating. Begin floating when water sheen has disappeared and when the surface has stiffened sufficiently to permit the operation.
2. Smooth Rubbed Finish: Obtained by rubbing a vertical surface not later than one day after form removal. Wet surface and rub with carborundum brick or other abrasive until uniform color and texture are produced. Do not use cement grout other than the cement paste drawn from the concrete itself by the rubbing process.
3. Steel Trowel Finish: Obtained troweling after power floating shall produce a smooth surface which is relatively free of defects but which may still show some trowel marks. Perform additional trowelings by hand after the surface has hardened sufficiently. Perform final troweling when a ringing sound is produced as the trowel is moved over the surface. Thoroughly consolidate surface by hand trowel operations. Produce finished surface essentially free of trowel marks, uniform in texture and appearance, with true planes within 1/8 inch in 10 ft., as determined by a 10 ft. straightedge placed anywhere on the slab in any direction.
4. Broom or Belt Finish: Immediately after concrete has received a Floated Finish, give surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface.

B. Finish Schedule:

1. Exterior of concrete structures shall receive a smooth rubbed finish. Includes exterior of all tanks and building walls to at least one foot below finished grade.
2. Interior of concrete structures shall receive a smooth rubbed finish. Includes interior of all tanks and building walls.
3. Floors intended as walking surfaces or for equipment support and tank floors shall receive a steel trowel finish, and Cure & Seal Coating, unless noted otherwise.
4. Exterior concrete walks, steps and platforms shall receive a broom or belt finish.

C. Chamfer all exposed (horizontal and vertical) concrete edges 3/4 inch. Exposed vertical concrete edges shall also be chamfered to at least one foot below finished grade.

3.06 CLEANING AND PATCHING

A. After forms have been removed and concrete surfaces observed, patch bad joints, voids, stone pockets or other defective areas.

1. Chip away defective areas to a depth of not less than one inch with the edges perpendicular to the surface.
2. Wet area to be patched and a space at least 6 inches wide entirely surrounding it to prevent absorption of water from patching mortar.
3. Brush into surface a grout of equal parts of Portland cement and sand with sufficient water to produce a brushing consistency, follow immediately with patching mortar.
4. Make patch of same material and of same proportions as used for the concrete, except omit coarse aggregate.
5. Amount of mixing water as little as consistent with requirement of handling and placing.
6. Retemper mortar without addition of water by allowing it to stand for a period of one hour during which time, mix with trowel to prevent settling.
7. Thoroughly compact the mortar into place and screen off as to leave the patch slightly higher than the surrounding surface. Leave undisturbed for a period of one to two hours to permit initial shrinkage before final finishing.
8. Finish patch in such manner as to match adjoining surfaces.

B. In addition to patching defective areas and filling the holes, carefully remove all fins and other projections and level offsets.

3.07 CURING AND PROTECTION

A. General: Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures and mechanical injury. Curing shall be by either water curing or sealing methods in accordance with ACI 308. Cure concrete continuously for a minimum of 7 days at ambient temperatures above 40°F.

B. Hot Weather Curing: Set Hot Weather Concreting this Section.

C. Cold Weather Curing: See Cold Weather Concreting this Section.

D. Application Rate of Liquid Membrane-Forming Compounds: Compound shall restrict the loss of water to not more than 0.055 g/cm-2 of surface in 72 hours when tested in accordance with ASTM C 156.

E. Do not use liquid curing compounds over floor surfaces that are to receive a liquid hardener applied to dry concrete.

3.08 FIELD QUALITY CONTROL

A. General: The Owner will engage the services of a testing laboratory to test the basic mixtures of concrete.

B. Cylinder Tests: During concrete placement, tests will be made by a laboratory employed by the Owner to verify the concrete properties, and to ascertain the proportions of water, cement, and fine and coarse aggregates.

1. Sets of four field control cylinder specimens will be taken at random during progress of the work, in conformity with ASTM C 31.
2. Total number of specimens taken on the project may average one set per 50 cubic yards, and in general not less than one set of specimens taken on any one day.
3. Four cylinders shall be laboratory cured. If any such tests fail to meet the requirements, or if there is any unreasonable variation in the quality of the materials, concreting shall be stopped. Faulty concrete shall be removed and necessary adjustments in the mix shall be made as required, at the Contractor's expense, to produce a concrete meeting the following requirements:
    a. When average ultimate 28-day strengths of control cylinders in any set falls below the required ultimate strength or below proportional minimum 7-day strengths where proper relation between 7 and 28-day strengths have been established by tests, the proportions, water content, or temperature conditions shall be changed as required, at the Contractor's expense, to secure the required strength.

4. The Contractor shall cooperate in the making of such tests to the extent of allowing free access to the work for the selection of samples, providing the following:
   a. Heated moist storage facilities for specimens.
   b. Providing protection for specimens against injury or loss.
   c. Providing material, equipment and labor required for the purpose of taking concrete cylinder samples.

C. Slump Tests: Made in the field by the testing laboratory.

1. Slump tests made for each strength test and whenever consistency of concrete appears to vary in accordance with ASTM C 143.

D. Core Tests: When tests on control specimens of concrete fall below the required 28-day compressive strength, the Engineer may permit check tests for strengths to be made by means of typical cores drilled from the structure in accordance with ASTM C 42 and C 39.

1. Work involved obtaining core samples and the cost of shipping and delivering them to a laboratory approved by the Engineer shall be at the Contractor's expense.
2. The Engineer may have cores taken from any questionable area in the concrete work such as at construction joints and at other locations as required for determination of concrete quality.
3. Should the strength of the test cores fall below the required minimum 28-day compressive strength, the concrete shall be rejected and shall be removed, disposed of off the plant site, and replaced. No payment will be made for installing, testing and removal of defective concrete.

*** END OF SECTION ***

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DIVISION 03 - CONCRETE

SECTION 03600

GROUT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide grout where indicated on the Drawings.

B. Related Work Specified Elsewhere:

1. Section 03300: Cast-in-Place Concrete

C. Individual grouting requirements as specified in various other sections of these Specifications.

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. American Concrete Institute: ACI 308, Recommended Practice for Curing Concrete.
2. American Society for Testing and Materials:
   a. ASTM C 33, Concrete Aggregates.
   b. ASTM C 150, Portland Cement.
   c. ASTM C 109, Compressive Strength of Hydraulic Cement Mortars, Test.

1.03 SUBMITTALS

A. Submit design mixes or product data in accordance with Section 01300 - SUBMITTALS.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Prevent moisture damage and contamination of materials.

B. Store materials in undamaged condition with seals and labels intact as packaged by the manufacturer.

1.05 JOB CONDITIONS

A. Protect against high and low temperatures and bad weather in accordance with American Concrete Institute standards for placement of concrete.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Grout (Sand/Cement):

1. Portland Cement: ASTM C 150 Type II. (I Norm., II Sulfate R., III High Early.)
2. Sand: ASTM C 33, fine aggregate.

B. Water: Potable quality, free from deleterious amounts of acids, alkalis, and organic substances.

C. Non-Shrink, Non-Metallic Grout: Factory premixed material containing no corrosive irons, aluminums, chemicals or gypsums.

1. Acceptable Manufacturers: Sika, Sika Grout 212; or approved substitution.

D. Masonry Grout:

1. Comply with ASTM C 476 "Specifications for Mortar and Grout for Reinforced Masonry".
2. Materials:
   a. Cement: ASTM C 150, Type I.
   b. Quicklime: ASTM C 5.
   c. Hydrated Lime: ASTM C 207, Type S.
   d. Aggregates: ASTM C 404.
      (1) Fine aggregate: Size No. 1.
      (2) Coarse aggregate: Size No. 8 or 89.
   e. Water: Potable.
   f. All mortar to be type "S".
3. Compressive Strength: 3000psi at 28 days

2.02 GROUT QUALITY

A. Grout (Sand/Cement): Mixture of Portland Cement, fine aggregate and water in the same proportions used in cast-in-place concrete with coarse aggregate omitted.

B. Non-Shrink Grout: Use ready-mix type requiring only the addition of water. Do not add other materials. Water requirement proportions shall conform to manufacturer's specifications for the desired mix consistency.

C. Dry-Packed Grout (For Foundation Underpinnings): Mixture of Portland cement, fine aggregate, and water with a low water/cement ratio. The grout is to be hand tamped into place to ensure all voids are filled.

PART 3 - EXECUTION

3.01 PREPARATION

A. Forming:

1. Use forming procedures that allow proper and complete placement of grout.
2. Anchor support elements so no movement is possible.
3. Remove supports only after grout has hardened.
4. Pre-treat with forming oils wood forms that may absorb moisture.

B. Preparation of Surface:

1. Grout (Sand/Cement): Clean areas to be grouted free of oil, grease, laitance, dirt and other contaminants. Remove loose material. Remove rust, paint and oil from metal components in contact with grout.
2. Non-Shrink Grout: Prepare in accordance with manufacturer's printed instructions.

3.02 MIXING

A. Equipment: Use power operated mechanical mortar mixer.

B. Time:

1. Grout (Sand/Cement): In accordance with requirements for cast-in-place concrete.
2. Non-Shrink Grout: In accordance with manufacturer's printed instructions.

3.03 PLACING

A. Grout (Sand/Cement): Place and cure grout as follows:

1. Following surface preparation, saturate the concrete with water; then remove excess water and brush on a coat of neat cement. Place grout while neat cement is wet.
2. Place in a single pour. Straight-edge exposed grout surface for trueness; consolidate and finish with a steel trowel.
3. Cure and seal in accordance with ACI 308.
4. After curing, fill scored joints with joint sealer.

B. Non–Shrink, Non–Metallic Grout: Perform grout placement in accordance with the recommendations of ACI and the manufacturer's published specifications for mixing and placing. Place non-shrink, non-metallic grout only where indicated on the Drawings.

C. Masonry Grout:

1. Mixing:
   a. One part Portland cement, 0 to 1/10 part hydrated lime or lime putty, fine aggregate 2-1/4 to 3 times and coarse aggregate 1 to 2 times the sum of the volumes of the cementitious materials, with sufficient water for a pourable mixture without segregation of the materials. Maximum size of coarse aggregate 1/2".
   b. Do not add air-entraining agents or other admixtures.

*** END OF SECTION ***

DIVISION 09 – FINISHES

SECTION 09900

PAINTING – EQUIPMENT AND PIPING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Includes all work to be painted including, but not limited to, interior of tanks, equipment, piping, valves, and other related items.

B. Related Work Specified Elsewhere:

1. Shop Drawings, Product Data and Samples
2. Equipment: Division 11
3. Electrical: Division 16
4. Pre–finishing or shop priming requirements as specified in various other Sections of these Specifications.

1.02 QUALITY ASSURANCE

A. Applicator Qualifications: Painting applicator shall show evidence of acceptability as a qualified applicator by the manufacturer of products specified herein. Submit such evidence with Submittals as specified herein.

B. Referenced Standards:

1. Steel Structures Painting Council Surface Preparation Specifications:
   a. SSPC–SP1, Solvent Cleaning.
   b. SSPC–SP2, Hand Tool Cleaning.
   c. SSPC–SP6, Commercial Blast Cleaning.
   d. SSPC–SP7, Brush Blast Cleaning.
   e. SSPC–SP8, Pickling.
   f. SSPC–SP10, Near–White Blast Cleaning.

1.03 SUBMITTALS:

A. Samples: Submit sample color chips of standard colors and samples of any intermixes required to match colors indicated.

B. Schedule and Product Data: Submit paint schedule in same format as the paint schedule herein, and indicate which of the selected manufacturer's products are

intended for use. Do not perform painting or coating work without Engineer's approval of submitted paint schedule.

C. Certificates: Paint manufacturer's direct factory representative shall certify in writing to the Engineer painting and coating compliance with the following:

1. Factory representative's initial site inspection of conditions pertinent to painting and coating work with Contractor or his authorized painting representative.
2. Factory representative's second site inspection at completion of painting and coating work to check proper application and actual mil thickness compliance with these Specifications.
3. Certification issued to Engineer only following unacceptable painting and coating work being rectified to Engineer's satisfaction.
4. Factory representative shall make his services available to the Engineer for immediate consultation in regard to the painting and coating work, and shall make above stated inspections in the Engineer's presence.

D. Operation and Maintenance Data: Upon approval of painting schedule, submit six copies of a detailed maintenance manual including the following information:

1. Name, address and telephone number of manufacturer and local distributor.
2. Product name, number, and technical data sheet for each type of paint.
3. Detailed procedures for routine maintenance and cleaning.
4. Detailed procedure for light repairs such as dents, scratches and staining.

E. Maintenance Materials: Turn over to the Owner upon completion of the project a full set of pipeline identification stencils.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver paint materials to job site in their original unopened containers with labels intact and legible at time of use.

B. Store approved materials at the job site in a suitable and designated area restricted to storage of paint and coating materials and related equipment.

C. Use all means necessary to ensure safe storage and use of paint and coating materials and the prompt and safe disposal of waste. Store paint and coating products protected from weather when such products may be affected by freezing.

1.05 JOB CONDITIONS

A. Field and Shop Coat Compatibility: To ensure satisfactory paint and coating performance, it is a Contract requirement that products applied in the shop and field be mutually compatible.

1. Contractor shall require fabricators and equipment manufacturers to apply shop coats that are compatible with field coats specified herein.
2. Above requirement does not apply to full factory–finished items, that is, items having both primer and final finish coatings, except as specified in the following paragraphs.

B. Painting Factory–Finished Equipment: Equipment, such as motors, pumps and other such items, which when installed become an integral part of a system and which may be delivered fully factory–finished (that is, having finish coatings in addition to the prime coating) shall not require repainting in the field unless specifically noted otherwise, or:

1. Factory finish is unacceptable to the Engineer, that is, not having generic type of paint or proper mil thickness to withstand corrosive atmosphere of wastewater treatment plants or is not compatible with color schedule.
2. Factory finish is damaged.
3. On factory–finished items requiring repainting, first sand existing paint to a dull finish and then repaint in scheduled finish system for the installed location of such factory–finished items.

C. Painting Caulking Compound: Do not apply paint over caulking compound until integral solvents have been released from the compound; usually two weeks for butyl–rubber based caulking and one day for acrylic latex caulking.

D. Color:

1. As selected by the Engineer or noted herein.
2. Paint equipment not furnished with a factory finish, or not finished with an acceptable factory finish, and piping and conduits the same color as adjacent surface.
3. Final work shall match Engineer approved samples. Engineer shall select colors where not indicated or specified with no extra compensation allowed the Contractor for such.

E. Placing Into Service: Do not place painted items into service until paints and coatings are fully cured (dry–hard).

F. Environmental Requirements:

1. Adhere to manufacturer's data on air and surface temperature limits and relative humidity during application and curing of coatings.
2. Do not spray apply paint when wind velocity is above 15 mph.
3. Schedule coating work to avoid dust and airborne contaminants.
4. Apply exterior finishes during daylight hours only.
5. When painting must be done in confined spaces, or because of unfavorable ambient conditions, longer drying times will be necessary.
6. Provide supplementary ventilation such as fans and blowers in confined or enclosed areas to carry off solvents during the evaporation stage.

G. Protection:

1. Protect paint materials before, during and after application, and protect other work and materials with drop cloths or other impervious material.
2. Clean up or otherwise remedy without additional cost, damage by paint and coatings to public or private property.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Paint materials listed in the Paint Schedule herein are to be by the following manufacturer:

1. Equipment and Piping – Tnemec Company Inc., Sherwin-Williams, or equal.

2.02 MATERIALS

A. Paints and Coatings – General

1. Acceptable products: Indicated in Schedules at the end of this section.
2. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer’s instructions before application. Do not dilute or thin coatings, except as instructed.
3. Do not add additives except as instructed or recommended by coating manufacturer.
4. Supply each coating material in quantity required for this section from a single production run.
5. Colors: To be selected from manufacturer’s full range of available coatings.

B. Coating Application Accessories: Specified in this section or in coating manufacturer's application instructions, including but not limited to thinners, sealers, primers, cleaning agents, etching agents, cleaning cloths, sanding materials, and clean-up materials.

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

A. Ferrous Metal:

1. Shop Primed:
   a. Immediately before paint application, clean sand, dust, mud, dirt, and other foreign matter from shop coat.
   b. Touch up damaged or destroyed shop paint.
   c. Surface preparation of surfaces to be touched up must be as effective as those specified for shop painting.
2. Not Shop Primed and Submerged or Intermittently Submerged in Liquid:
   a. Grind smooth to a rounded contour sharp edges and welds, and remove weld splatter.
   b. Except for insides of pipes, sandblast in accordance with SSPC SP–10 or pickle in accordance with SSPC SP–8.
   c. After sandblasting, remove dust and spent sand from surface by brushing or vacuum cleaning.
   d. Apply prime coat before surface starts to rust.
   e. Do not allow sandblasted surface to stand overnight before coating.
3. Not Shop Primed and Non–Submerged:
   a. Grind smooth to a rounded contour sharp edges and welds, and remove weld splatter.
   b. Sandblast in accordance with SSPC SP–6.
   c. After sandblasting, remove dust and spent sand from surface by brushing or vacuum cleaning.
   d. Apply prime coat before surface starts to rust.
   e. Do not allow sandblasted surface to stand overnight before coating.

B. Galvanized Metal Including Pipes and Conduits:

1. Solvent clean in accordance with SSPC SP–1.
2. Sand clean and spot prime abraded areas
3. Etch metal following manufacturer's written procedures.
4. Allow to dry before application of paint.

C. Copper Pipe:

1. Clean surface by pressurized steam, pressurized water, or solvent washing.
2. Allow to dry before application of paint.

D. Shop Bituminous Coated Pipe: Hand tool clean in accordance with SSPC SP–2.

E. Polyvinyl Chloride Pipe:

1. Solvent clean using bio-degradable cleaner and thoroughly rinse clean.
2. Sand manually or mechanically with 60-80 grit aluminum oxide sandpaper and wipe off dust residue.

F. Existing Concrete:

1. Surface preparation in accordance with SSPC-SP13/NACE6, ICRI CSP1-3.

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G. Pipe Insulation: Clean free of dirt, dust, or other foreign matter.

H. Mechanical & Electrical Systems:

1. Clean free of dust, mud, dirt, sand and other foreign matter.
2. Solvent clean or otherwise degrease surfaces; exercise care not to damage surfaces.
3. Do not paint factory painted surfaces of mechanical and electrical components in such systems; does not include galvanized surfaces.
4. Do not paint light fixtures.
5. All conduits shall be finish painted to match color of adjacent surfaces.

3.02 APPLICATION

A. General:

1. Strictly follow paint manufacturer's label instructions for mixing, thinning, proper spreading rate and drying time. In no case shall film thickness be less than manufacturer's recommendations nor shall area coverage per gallon exceed manufacturer's recommendations.
2. If material has thickened or must be diluted for application, the coating shall be built up to the same film thickness achieved with undiluted material. Do not use thinner to extend coverage of the paint.
3. Regardless of the surface, it shall be the painter's responsibility to achieve a protective and decorative finish either by decreasing the coverage rate or by applying additional coats of paint.

B. Method of Application:

1. Workmanship: In general, finished surface regardless of method of paint application shall show no evidence of improper application according to accepted trade practice. Do not use paint rollers having nap exceeding 3/8 inch.
2. Multi–coat Application:
   a. Succeeding coats of paint shall show visual difference from preceding coats. Each coat shall have a uniform appearance and be tinted to the final coat. The final coat shall present solid hiding with edges of paint adjoining other paint or materials made clean with and sharp without overlap. Wipe or otherwise render undercoats dust free just prior to application of succeeding coatings.
   b. Do not apply additional coats of paint until the film to be recoated is sufficiently cured to receive the next coat.
   c. If the time limit is exceeded for coatings that have a maximum recoat time, consult paint manufacturer before proceeding with next coat.

C. Painting Exposed/Concealed Surfaces:

1. It is a requirement of this specification that all interior surfaces be painted except as specified herein and elsewhere in the Specifications.
2. Paint exterior surfaces only as scheduled.
3. In interior exposed areas of structures, paint mechanical and electrical systems, including pipe, duct and conduit systems, except for full factory finished items as defined previously.
4. In interior concealed areas no painting is required including mechanical and electrical systems therein, except that pipe identification is required on piping in concealed but accessible areas.
5. Paint above stated exposed mechanical and electrical systems the same color as adjacent wall and/or ceiling color. Paint materials as scheduled herein.
6. Do not paint exposed aluminum surfaces.

D. Pipe Line Identification:

1. Pipe Color: Paint exposed piping and valves in accordance with the following schedule:

Schedule of Colors and Legends for Process Piping

Piping System	Pipe Color	Band Color	Legend/Flow Arrow Color
Raw or Recycle	Olive Green	-	White
Finished or Potable Water	Dark Blue	-	White
Backwash Waste	Light Brown	-	White
Sanitary Vents/Drains	Dark Gray	-	White
Caustic	Yellow	Green	Black
Chlorine	Yellow	-	Black
Phosphate Compounds (Corrosion Inhibitor)	Light Green	Red	Black
Fluoride	Light Blue	Red	Black
Wastewater	Light Gray	-	Black

2. After finish painting, mark exposed, non–submerged piping with stenciled name of contents and flow direction arrow at valves and fittings, on piping at both sides of walls and floors where pipes pass through, and on long runs approximately every 30 feet or closer when directed. Specifically mark lines according to their size (diameter) and specific contents as directed by the Engineer or noted in the legend herein. Place legends and flow arrows where they can be easily read from the floor. Where pipes are adjacent to each other, arrange legends neatly in line. Use gothic style lettering with letter size as follows:

Pipe or Covering Outside Diameter	Letter Size
Under 3/4 inch	Do not paint
3/4 inch to 1–1/4 inch	1/2 inch
1–1/2 inch to 2 inch	3/4 inch
2–1/2 inch to 6 inch	1–1/4 inch
8 inch to 10 inch	2–1/2 inch
Over 10 inch	3–1/2 inch

3. Identify pipes less than 3/4 inches outside diameter with brass or phenolic tags.
4. Paint valves and operators same color as connected piping.

3.03 CLEANING

A. Upon completion of work, remove paint and coating spots, oil and grease stains from floors, walls, fixtures, hardware and equipment, leaving their finishes in a satisfactory condition. Remove materials and debris from the site of work, and leave in a clean condition so far as this work is concerned.

B. Keep site free from accumulation of paint containers, solvents, thinner, and used cleaning cloths, and legally dispose of same off premises daily.

3.04 PAINT SCHEDULE – EQUIPMENT, PIPING & EXISTING STRUCTURES

A. General: The following paint systems are specified by their application type. The acceptable Tnemec coating systems are listed. The following paint systems are intended to include all items to be painted at the job site which do not fall under the scope of architectural/structural building materials and components. Any item not specifically named herein but obviously required to be painted, shall be painted in accordance with the system selected by the Engineer, or otherwise painted as directed by the Engineer.

B. Schedule:

1. Ferrous Metal Surfaces – Non–Submerged:
   a. Interior exposed, iron or steel (includes pumps, piping and valves).
      (1) Priming – Shop: One coat of Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 3.0 – 5.0 mils dry film thickness.
      (2) Priming – Field: Touch–up with Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal, or if not shop primed, sandblast and prime with N69 at 3.0 – 5.0 mils dry thickness.
      (3) Finishing: One coat of Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 4.0 – 6.0 mils dry film thickness.
      (4) Total Dry Mil Thickness: 7.0 – 11.0 mils dry film thickness.
   b. Exterior exposed iron or steel (includes pumps, piping and valves)
      (1) Priming – Shop: Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 3.0 – 5.0 mils dry film thickness.
      (2) Priming – Field: Touch–up with Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin

Williams, or equal or if not shop primed, sandblast and prime with above.

(3) Intermediate: Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 4.0 – 6.0 mils dry film thickness.

(4) Finish: Tnemec Series 73 Endura-Shield Acrolon 218 H5 Acrylic Polyurethane by Sherwin Williams, or equal at 2.0 – 3.0 mils dry thickness.

(5) Total Dry Mil Thickness: 9.0 – 14.0 mils dry film thickness.

2. Ferrous Metal Surfaces – Submerged:

a. Interior and exterior submerged or intermittently submerged iron or steel moving parts where drying coatings cannot obtain effective film thickness because of sharp edges (i.e., chains, sprockets, gears, etc.).

(1) Priming – Shop: One coat of Tnemec Series N69 Hi-Build Epoxoline II at 4.0 – 6.0 mils dry thickness.

(2) Priming – Field: Touch up with above or, if not shop primed, sandblast and prime with N69 Hi-Build Epoxoline II at 4.0 – 6.0 mils dry thickness.

(3) Finishing: Two coats of Series N69 Hi-Build Epoxoline II at 7.0 – 9.0 mils dry thickness.

(4) Dry Mil Thickness: Priming – 14.0 – 18.0 excluding shop prime.

b. Interior and exterior submerged or intermittently submerged iron or steel (includes pumps, piping and valves).

(1) Shop Prime: One coat Tnemec Series N69 Hi-Build Epoxoline II at 3.0 – 5.0 mils dry thickness.

(2) Field Prime: Touch up with Tnemec Series N69 Hi-Build Epoxoline II at 3.0 – 5.0 mils dry thickness. If not shop primed, sandblast near white and apply N69 at 7.0 – 9.0 mils dry thickness.

(3) Finishing: Two coats of Tnemec Series N69 Hi-Build Epoxoline II at 7.0 – 9.0 mils dry film thickness per coat over sandblasted surface. (To achieve recommended dry film thickness, spraying is required.)

(4) Total Dry Mil Thickness excluding shop prime: 14.0 – 18.0 mils dry film thickness.

3. Galvanized and Non-Ferrous Metal Surfaces:

a. Interior Exposed (Includes piping and miscellaneous fabrications).

(1) Priming – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.

(2) Finish – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.

(3) Total Dry Mil Thickness: 4.0 – 6.0 mils dry film thickness.

b. Exterior Exposed (Includes piping and miscellaneous fabrications).
   (1) Priming – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.
   (2) Finish – Tnemec Series 73 Endura-Shield, Acrolon 218HS acrylic polyurethane by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.
   (3) Total Dry Mil Thickness: 4.0 – 6.0 mils dry film thickness.

c. Submerged or intermittently submerged (Includes piping and miscellaneous fabrications).
   (1) Priming – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 3.0 - 5.0 mils dry film thickness.
   (2) Finish – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 4.0 - 6.0 mils dry film thickness.
   (3) Total Dry Mil Thickness: 7.0 – 11.0 mils dry film thickness.

4. Polyvinyl Chloride Piping and All Piping Insulation:
   a. Interior Exposed
      (1) Priming – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.
      (2) Finish – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.
      (3) Total Dry Mil Thickness: 4.0 – 6.0 mils dry film thickness.
   b. Exterior Exposed
      (1) Priming – Tnemec Series N69 Hi-Build Epoxoline II, or Epolon II multi-mil epoxy by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.
      (2) Finish – Tnemec Series 74/75 Endura-Shield, Acrolon 218HS acrylic polyurethane by Sherwin Williams, or equal at 2.0 - 3.0 mils dry film thickness.
      (3) Total Dry Mil Thickness: 4.0 – 6.0 mils dry film thickness.

5. Stainless Steel Tanks and Piping:
   a. No coating shall be applied Stainless Steel piping or tanks.

*** END OF SECTION ***

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DIVISION 11 - EQUIPMENT

SECTION 11040

EQUIPMENT GENERAL PROVISIONS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Work Specified Elsewhere.

1. Section 09900: Painting.
2. Division 11: Equipment.
4. Division 16: Electrical.

1.02 PERFORMANCE AFFIDAVITS

A. Provide performance affidavits for products listed in the Schedule of Equipment Testing and Manufacturer's Services, included at the end of this Section, and as required in the individual technical sections.

B. Submit performance affidavits in conformance with Section 01300.

C. By these affidavits, each manufacturer must certify to the Contractor and the Owner, jointly, that he has examined the Contract Documents and that the equipment, apparatus, process or system he offers to furnish will meet in every way the performance requirements set forth in the Contract Documents. Equipment design, manufacturing and assembly specifications are an integral part of the performance requirements.

D. Shop drawings will not be reviewed prior to receipt by the Engineer of an acceptable performance affidavit.

E. The performance affidavit must be signed by an officer (vice president or higher) of the basic corporation, partnership or company manufacturing the equipment, and witnessed by a notary public.

F. The performance affidavits shall be in the following format:

Addressed to:	Contractor and Owner)
Reference:	Contract No. (Project)
Text:	"(manufacturer's name) has examined the Contract documents and verified that the product) meets in every way the performance requirements and design specifications set forth in Section (s) _____ of the Contract Documents."
Signature:	Corporate officers shall be vice president or higher (unless statement authorizing signature is attached).
Notary:	Signature(s) must be notarized.

1.03 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies: The construction requirements of State, County, or other political subdivision specifications exceeding the requirements of the codes, standards, and approving bodies referenced herein shall be met and complied with.

1. Both the Underwriters' Laboratories (UL) Listings and Approvals and the National Electrical Manufacturers' Associations (NEMA) stamps or seals shall be evidenced where applicable to electrical apparatus forming parts of the "mechanical" equipment.

B. Certificates and Permits: Upon completion of work, and prior to final payment, furnish to the Engineer formal certification of final inspections from authorities having jurisdiction and secure required permits, if any, from same. Additionally, prepare detailed diagrams and drawings which may be required by those authorities having jurisdiction.

C. Reference Standards: Steel Structures Painting Council.

1. Surface Preparation Specifications.
   a. SSPC-SP 6, Commercial Blast Cleaning.
   b. SSPC-SP 8, Pickling.
   c. SSPC-SP 10, Near-White Blast Cleaning.
2. Paint Application Specifications: SSPC-PA 1, Shop, Field and Maintenance Painting.

1.04 SUBMITTALS

A. Shop Drawings: Shop Drawings, Operation and Maintenance Manual, and as-built drawings shall be submitted as specified in Section 01300 - SUBMITTALS and as further stipulated hereinafter.

B. Submit shop drawings for the following items within fourteen (14) days after Notice to Proceed:

1. Pre-Engineered Pressure Filter System

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. General: In addition to requirements for materials handling and storage as stated in the General Conditions of the Contract, the following applies:

1. When unloading materials, equipment and machinery provide special lifting harness or apparatus as may be required by manufacturers. Handle materials, equipment and machinery in accordance with manufacturer's written instructions.
2. Store materials, equipment and machinery, both on and off site, in accordance with manufacturer's written instructions. Additionally, provide manufacturer's certificates of proper materials, equipment or machinery storage. Prior to issuance of such certificates, a manufacturer's representative shall visit the site of storage and examine materials, equipment or machinery in actual storage conditions.

1.06 JOB CONDITIONS

A. Electrical Interface.

1. Install or mount, as work of Division 11 - EQUIPMENT, such electrical components or apparatus as provided by product manufacturer's specified under the various sections of Division 11.
2. Power wiring, including final connections of such to electrical components or apparatus of Products specified shall NOT be performed as work of Division 11 - EQUIPMENT but as work of Division 16 - ELECTRICAL.
3. Motor starters required under this Division of the Specifications will be provided under Division 16 of the Specifications except the motor starters specified with equipment in this Division of the Specifications.

B. Field and Shop Coat Compatibility: To ensure satisfactory paint and coating performance, it is a Contract requirement that products applied in the shop and field be mutually compatible.

1. Contractor shall require fabricators and equipment manufacturers to apply shop coats that are compatible with field coats specified in Section 09900 - PAINTING.

1.07 GENERAL DESIGN OF EQUIPMENT AND MACHINERY

A. All equipment and machinery furnished under this contract shall be of the latest and most improved design suitable for the service of which it is to be used. All equipment and machinery shall be designed and constructed to operate efficiently, continuously and quietly under the specified requirements with a minimum of labor, power, maintenance, renewals and repairs. The design and construction of all equipment and machinery shall be such as to permit operation with minimum noise, wear and vibration (maximum amplitude of 3.0 mils unless otherwise specified) when properly installed.

B. Ample room for erecting, repairs, inspecting and adjusting all equipment and machinery shall be provided. The design, construction and installation of all equipment and machinery shall conform to and comply with the latest safety codes and regulations.

C. The design and construction of the several units shall be such that they shall present a uniform appearance and the arrangement shall be such that their operation shall be in harmony in every respect. Whenever possible, fittings and fixtures of the same make and model shall be used for the several units and their connections. All equipment of identical type and service shall be the product of the same manufacturer.

D. All equipment selected shall be of such size and general arrangement to suit the space in which it is to be installed.

E. The various parts of the equipment and machinery shall be of plain shape and good lines, especially designed and constructed for strength and durability. Casting shall be designed and constructed to cool uniformly without shrinking strains and shall have good sized fillets at all re-entrant corners. Sudden change of section shall be avoided.

F. Whenever possible, parts of each unit shall be made to gauge and be a duplicate of and interchangeable with the same parts of other machines of the same size and kind.

G. The workmanship shall be of the highest class throughout.

H. All assemblies shall be completely shop fabricated and structural steel parts shall be shop erected. Assemblies and structural steel parts shall be matchmarked before being disassembled for shipment. Parts shall be shipped assembled in as large unit as possible to minimize field reassembly. All parts shall be amply proportioned for all stresses which may occur during operation, and for any additional stresses which may occur during fabrication and erection.

I. Unless otherwise specified, welding shall be in accordance with the latest standard specifications for "Gas Tight Welding" of the American Welding Society.

J. Unless otherwise specified, galvanizing shall be hot-dipped, in accordance with the latest standard specifications for "Zinc Coating" of the ASTM, Serial Designation A-123.

PART 2 - PRODUCTS

2.01 MATERIAL IN CONTACT WITH POTABLE WATER

A. All materials, mechanical devices and coatings in contact with potable water shall comply with National Sanitation Foundation/American National Standards Institute Standards (NSF/ANSI) 60 and 61 and shall be inert, nontoxic, and shall not import any taste, odor or color to the water.

2.02 MATERIALS

A. Unless otherwise specified, materials shall be in accordance with the following latest Standard Specifications of the ASTM:

1.	Structural Steel:	A-36
2.	Welding Steel Pipe:	A-53
3.	Iron Castings:	A-48
4.	Babbitt:	B-23
5.	Bronze Castings:	B-30
6.	Bronze (Manganese):	B-138
7.	Bronze (Silicone):	B-98
8.	Steel Bolts:	A-307
9.	Hot Dip Zinc Coating:	A-123

B. All materials shall, if required, be tested and shall fulfill all requirements. Physical tests may be made by the Owner. The Contractor at his own expense shall furnish test pieces and samples in the number, shape, size and finish required by the Engineer. All broken material shall become the property of the Owner. The failure of test specimens to fully conform to the requirements of the specifications shall be sufficient cause for rejection of the whole melt or stock from which samples were obtained.

C. Iron castings shall be smooth, clean and free from scale, lumps, blisters and other defects. No plugging, welding or filling will be allowed.

D. The alloy grade number of all babbitt shall be that bearing alloy of a composition recommended by the manufacturer of the equipment or machinery for the service required, subject to the approval of the Engineer.

E. All bronze shall be made of new material and shall be free from objectionable imperfections. If the materials show signs of improper mixing when being machined, the castings will be rejected.

2.03 JOURNALS, BEARINGS AND KEYS

A. Journals and bearing surfaces shall be of sufficient size and properly proportioned for the least wear and to avoid heating under all conditions, and where necessary, provisions shall be made for easy removal and for proper adjustments. Journals shall be suitable boxes which, where necessary, shall be lined with babbitt metal hammered into grooves and bored in place. If bearings are of the ball bearing type, both inner and outer races as well as the balls shall be heat treated steel to resist wear. The balls shall be of ample size to carry the maximum loads with a large factor of safety to prevent flaking, spalling, or crushing. The balls shall be properly spaced and held in position by rugged continuous spacing or retainer rings.

2.04 LUBRICATION

A. The Contractor shall furnish lubrication charts or schedules for each piece of equipment or machinery. The charts or schedules shall designate each point of lubrication, the type of lubricant to be applied and the frequency of lubrication. Charts and schedules shall be submitted to the Engineer in quadruplicate, bound in folios, with each chart or schedule protected by a transparent plastic envelope.

B. The Contractor shall furnish one (1) year's supply of each type of lubricant. A typewritten list shall be furnished with the lubricants, designating the specific lubricant to be used for each piece of equipment. This is in addition to the required operating and maintenance manuals which will also contain lubrication requirements.

2.05 MOTORS AND CONTROLS - GENERAL

A. Motors and controls shall conform to the latest requirements of IEEE and NEMA, and where applicable, shall be UL listed. Minimum sizes are specified with the driven equipment. Motor starting and control equipment is specified either with the motor which is controlled or in an electrical specification section. The Contractor is advised to consult all specification sections to determine responsibility for motors and controls.

B. Motors shall be designed, built and tested in accordance with the latest revision of NEMA Standard MG 1.

C. Motors shall be suitable for use under the conditions and with the equipment to which applied, and designed for operation on the electrical systems specified or indicated.

1. Motor capacities shall be such that the horsepower rating and the rated full-load current will not be exceeded while operating under the specified operating conditions. Under no condition shall the motor current exceed that indicated on the nameplate.
2. Motor sizes noted in the individual equipment specifications are minimum requirements only. It is the responsibility of the equipment manufacturers and of the Contractor to furnish motors, electrical circuits and equipment of ample capacity to operate the equipment without overload, without exceeding the rated full-load current, or overhearing at full-load capacity under the most severe operating service of this equipment. Motors shall have sufficient torque to accelerate the total WR^2 of the driven equipment to operating speed.
3. Motors shall be continuous duty type and shall operate quietly at all speeds and loads.
4. Motors shall be designed for operation on 60 hertz power service. Unless otherwise specified or shown, motors less than 1/2 horsepower shall be single phase, and motors 1/2 horsepower and larger shall be 3 phase.
5. Motors shall be mounted so that the motor can be removed without removing the entire driven unit.

D. Single phase motors smaller than 1/20 horsepower shall be ball or sleeve bearing, drip-proof, totally enclosed or explosion proof, as specified, 115 volts, permanent split capacitor or shaded pole type. These motors shall not be used for general power purposes and shall only be provided as built-in components of such mechanical equipment as fans, unit heaters, humidifiers and damper controllers.

E. Single phase motors 1/20 horsepower and larger shall be ball bearing, drip-proof, totally enclosed or explosion proof, as specified, with Class A or B insulation, as standard with the motor manufacturer; 115, 115/230, 200 or 230 volts as required; capacitor start-induction run, permanent split capacitor, or repulsion start-induction run type.

F. Except as otherwise specified in the various specification sections, 3 phase motors shall meet the requirements of this paragraph. Motors shall be NEMA design B squirrel cage induction type. Insulation shall be Class F and motor shall be rated at no greater than 50°C rise for open motors and 65°C rise for closed motors both above an ambient temperature of 45°C. At 40°C ambient temperature explosion proof and totally enclosed motors shall have a 1.00 service factor and drip-proof motors shall have a service factor of 1.15 or higher. Motors specified for operation at 480 volts shall be nameplated 460 volts.

G. Three phase motors shall be E-plus Energy Efficient Standard Duty Motor of the Electric Motor Division of Goulds, Inc., the MAC II High Efficiency motor of Westinghouse Electric Corporation, the equivalent product of Baldor Company, or equal.

2.06 FLANGES AND BOLTS

A. Flanges, except as otherwise specified, shall be cast solid, and bolt holes shall be drilled and spot-faced on the back. Stud holes shall not be drilled through. Flanges shall be uniform in thickness and shall come fair and, if required, shall be turned or chipped in a net and workmanlike manner.

B. Jacking screws shall be provided for covers, etc. were required, and also suitable eye bolts for lifting. Bolts and nuts shall be of the best quality of open hearth, free machining steel. Bolts shall have good, sound well-fitting threats; nuts shall be cold pressed. All heads, nuts and threads shall be of the American Standard regular sizes. All ferrous bolts and nuts shall be galvanized by the hot dipped process.

2.07 COUPLINGS

A. Except where otherwise specified for a particular item of equipment, all equipment where flexible couplings are specified or are required for the purpose, a standard self-aligning forged steel coupling with sealed lubrication, as manufactured by Thomas, Koppers, Falk, Sier-Bath, or equal shall be provided between each motor and its driven equipment. One hub of the coupling shall be firmly fixed and keyed to the equipment shaft with the other hub similarly secured to the abutting drive shaft. Couplings shall be placed as close as possible to the driven equipment and the motor bearings to make compactly arranged units. Couplings shall be of all metal construction and shall be moistureproof and dustproof. Arrangements of couplings shall be such that there is sufficient room to place a dial indicator for alignment checking of shafts of the motor driven equipment. Each coupling shall be provided with an easily removable guard meeting all OSHA requirements.

B. All equipment and motors/drives shall be field aligned using a dial indicator in accordance with the procedures established by the latest revision of the Hydraulic Institute Standards. Parallel and angular misalignment shall not exceed the limits recommended by both the equipment and the coupling manufacturer.

2.08 EQUIPMENT BEDPLATES

A. The various items of motor driven equipment, such as pumps, shall be mounted on structural steel bedplates. The bedplates shall be adequate size to accommodate the equipment and its motor, to form an integral rigid mounting platform. Steel or brass shims shall be used to level equipment bedplates mounted in contact with concrete pads or floors. Jacking bolts or jacking (leveling) nuts on mounting studs shall not be used in lieu of shims. Bedplates shall be grouted to the concrete base and shall be filled with grout in all instances where the manufacturer has made provision for introducing grouting mixture into bedplate cavities. It shall be the Contractor's complete responsibility to determine the proper method, to provide all materials and components

required, and to coordinate the work, to set, couple, align and install all equipment in a satisfactory manner.

B. All centrifugal fans shall be mounted on steel springs or rubber-in-shear vibration isolation units. These may be either shop provided with the equipment or separately field mounted.

2.09 ANCHORS

A. Stainless Steel Anchor Bolts: ASTM A 320 Grade B8, AISC Type 304.

B. Expansion Anchors: Conforming to Federal Specification FF-S-325, Group II, Type 4, Class 1 Stainless Steel Type 304; such as Hilti Kwik-Bolt, Phillips Red Head Wedge-Anchor and Molly Parabolt, or equal.

2.10 SHOP PAINTING

A. Prior to painting remove all rust, dust and scale as well as other foreign substances on ferrous metal surfaces to be prime painted in the shop, by sand-blasting or pickling.

1. Sand-blasting shall conform to requirements of the latest edition of SSPC-SP6, Commercial Blast Cleaning.
2. Pickling shall conform to requirements of the latest edition of SSPC-SP8, Pickling, or SSPC-SP10.

B. The ferrous metal surfaces thus cleaned shall be prime painted as soon as possible after cleaning to prevent new rusting.

C. All ferrous metal surfaces of equipment, apparatus, and devices shall receive a shop coat of primer (except acceptable factory finished surfaces) unless otherwise specified.

D. Apply shop paint in accordance with SSPC-PA-1. Minimum dry mil thickness at 1.5 to 2 mils.

2.11 SPECIAL TOOLS

A. Special tools shall include any type of tool that has been specially made for use on an item of equipment for assembly, disassembly, repair or maintenance. Any special tools that are required to assemble, disassemble, repair or maintain any mechanical equipment shall be furnished with the equipment.

2.12 NAMEPLATES FOR EQUIPMENT AND INSTRUMENTATION

A. Nameplates shall be included for all equipment provided under this Contract. Nameplates shall be attached to the machinery casing and to the panel where required for panel boards. Nameplates shall be white-laminated phenolic plastic having engraved black letters and beveled white trim, except where specified otherwise. Nameplates shall be engraved with minimum 1/4-inch letters showing the equipment name and number as given on the Contract Drawings or as specified during the shop drawing submittal. All equipment and instrumentation nameplates shall be screwed into the equipment frames or where directed by the Engineer. Nameplates shall be furnished by the Contractor.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The general arrangement of pipe and equipment shall be as shown on the Drawings. Detailed drawings of proposed departures due to actual field conditions or other causes shall be submitted to the Engineer for approval. The Contractor shall carefully examine the drawings and shall be responsible for the proper fitting of materials and equipment as indicated, without substantial alteration. Because of the small scale of the drawings, it is not possible to indicate the exact location of piping, all offsets, fittings and accessories which may be required. The Contractor shall carefully investigate the space requirements for proper clearances and the structural and finish conditions affecting his work and shall arrange such work accordingly, furnishing such offsets, fittings, valves and accessories as may be required to meet such conditions.

B. Each trade shall determine the location, size, etc. of all chases and openings required for the proper installation of its work, and shall see that such are provided. Where it is necessary to run pipes or ductwork through walls or fittings, the trade performing the work shall notify the Contractor so that proper provisions can be made for same. Each trade shall furnish and set all inserts, sleeves, hanger supports, etc. required for its work and shall be responsible for their proper and permanent location.

C. All piping and ductwork exposed to view shall be run generally parallel with the lines of the building and as close to walls and column as may be practical and consistent with proper grade and the maintenance of proper clearances for access to all parts requiring servicing.

D. The Contractor, in the prosecution of the work, shall do no cutting of woodwork, masonry, concrete or other materials after same have been installed, without the written permission of the Engineer. No waterproofing shall be cut for any purpose except on written approval of the Engineer.

3.02 FIELD QUALITY CONTROL

A. Upon completion of structural work as well as installation and adjustment of equipment in a manner satisfactory to the Engineer, the Contractor with his own forces, including such equipment and other experts as may be necessary (hereinafter collectively referred to as "Contractor's Personnel") shall place equipment in operation.

B. Give the Owner at least seven (7) days' written notice prior to placing equipment in operation.

C. Operating procedures during said period are subject to Engineer's approval.

D. Operation of equipment prior to satisfactory completion of Performance Tests is the Contractor's complete responsibility.

3.03 MANUFACTURERS REPRESENTATIVE SERVICES

A. The attached schedule outlines the various items of equipment specified in other sections and lists the responsibilities of the equipment manufacturer for each Section of the specifications.

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SCHEDULE OF EQUIPMENT TESTING AND MANUFACTURER'S SERVICES

						SERVICES OF MFG. REP.			
EQUIPMENT ITEMS	SPEC. SECTION	PERF. AFFIDAVIT	SHOP TESTS	FIELD TESTS	INST. CERT.	INSTAL-LATION DAYS	FINAL ACCEPTANCE DAYS	INSTRUCT. DAYS/FOLLOW UP VISITS	WRITTEN INSTRUC-TIONS
Clariflocculator Unit	11338	Yes	No	Yes	Yes	2	2	2	Yes

*** END OF SECTION ***

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DIVISION 11 - EQUIPMENT

SECTION 11338

FLOCCULATING TUBE CLARIFIER

PART 1 - GENERAL

A. SCOPE

There shall be equipment installed for one (1) Flocculating Tube Clarifier. The equipment shall include two flocculation chambers, shallow depth tube settlers, collection troughs, conical sludge hoppers, anchor bolts, motors, control panels, motor-operated sludge valves, and all other appurtenances required or shown on the drawings. The sedimentation equipment specified shall be installed in a stainless steel tank. The equipment shall be modeled after the existing Microfloc Flocculating Tube Clarifier.

B. SUPPLIER

The equipment specified in this section shall be as designed and supplied by WesTech Engineering, Inc. for their Model CLX2F flocculating tube clarifier.

Additional details of the exact unit provided are outlined in the supplemental RFP that follows this specification, beginning on page 19.

C. DESIGN CRITERIA

Flow rate (GPM): 140
Number of Clarifiers: One (1)
Number of Flocculator Mechanisms: Two (2)
Flocculator Section Basin Size (ft x ft x ft): 5.5 L x 11 W x 12 D (inside)
Tube Settler & Clearwell Section Basin Size (ft x ft x ft): 16.5 L x 7 W x 12 D (inside)
Surface Loading Rate (gpm/ft^2): 2.0
Flocculation Cell Size (ft x ft): 5.5 W x 5.5 L
Detention time per Cell at Design Flow (min.): 17.8
Flocculator Motor Characteristics: 0.5 HP, 230/460V, 3ph 60 Hz, TEFC, VFD rated

D. WARRANTY

A written supplier's warranty shall be provided for the equipment specified in this section. The warranty shall be for a minimum period of one year from start-up or 18 months from time of equipment shipment, whichever comes first. Such warranty shall cover all defects or failures of materials or workmanship which occur as the result of normal operation and service.

E. SUBMITTALS

Copies of all materials required to establish compliance with these specifications shall be submitted for review. Submittals shall include at least the following:

1. Certified general arrangement drawings showing all important details and materials of construction, dimensions, nozzle sizes, loads on supporting structures, and anchor bolt locations.
2. Descriptive literature, bulletins, and/or catalogs of the equipment.
3. Complete data on motors and speed reducers.
4. Electrical schematics for all control equipment to be furnished.
5. Complete calculations signed by a registered professional engineer verifying the mixer and flocculator velocity gradients, power consumption, detention times, and hydraulic loading rates.
6. Manufacturers Operation and Maintenance Manual

F. EXPERIENCE

1. The equipment supplier shall have at least 15 years experience in the design, application, and supply of water or wastewater treatment equipment. To show evidence of being able to provide the quality of equipment and services described in this specification, the equipment supplier shall submit their quality system ISO 9001 certification. The quality procedures shall provide for a means of qualifying all sub-vendors and shall specify that the fabrication facility is a critical vendor and shall require inspection. The quality system shall be audited by a third party independent inspector. Certification shall remain in effect throughout the project startup.

PART 2 – PRODUCTS

A. GENERAL DESIGN

1. **Description:** The flocculating tube clarifier shall be of a stand-alone unit type with integral flocculation and sludge hoppers. Influent flow discharges into a two-stage flocculation chamber to aid in the formation of settleable flocculated particles. The flow shall then move forward for clarification through the tube settler chamber.

   The separator shall be designed so that settled solids shall flow downward along the tube settlers, and be collected in conical sludge hoppers. These settled solids shall be removed from the hoppers through a blow down pipe at the bottom of the sludge hopper.

2. **Materials:**

Tank: All steel and structural members shall be constructed of Type 304 stainless steel. Stainless Steel members in contact with liquids, either continuously or intermittently, shall have a minimum thickness of 3/16 inch.

Tubes: Tube settlers are comprised multiple PVC tubular channels.
Effluent collection: Effluent troughs shall be made of 304 Stainless Steel.

All Connection Hardware shall be 304 Stainless Steel.

3. **Fabrication:** Shop fabrication of structural members shall be in accordance with the latest edition of the "Structural Welding Code", AWS D1.1, “Structural Welding Stainless Steel”, AWS D.1.6, and “Structural Welding Strengthening and Repair”, AWS D.1.7 of the American Welding Society. All welded connections shall develop the full strength of the connected elements and all joined or lapped surfaces shall be completely seal welded with a minimum 3/16 inch fillet weld. Intermittent welding on structural joints and Stainless steel components shall not be allowed. All welding shall be done in accordance with the latest edition of the AWS code.

4. **Edge Grinding:** Sharp projections of cut or sheared edges of ferrous metals shall be ground to a radius by multiple passes of a power grinder.

5. **Shop Surface Preparation/Coating:** The drive units shall be coated with the supplier's standard enamel paint system.

6. **Structural Design:** All stainless steel design shall be in accordance with the AISC Manual of Steel Construction, latest edition, and the Uniform Building Code (UBC), latest edition.

B. FLOCCULATOR MECHANISM

1. **Description:** An integral flocculation chamber with vertical paddle wheel flocculators shall be provided. The flocculation chambers include two stages for tapered flocculation. The paddle wheel flocculators shall be made of 304 Stainless Steel with FRP paddles designed to achieve an appropriate velocity gradient, or G-value, as recommended by the equipment manufacturer. Each chamber is complete with one paddle wheel flocculator.

2. **Drive Unit:**

   a. Design Parameters: The drive unit shall be capable of continuously turning the mechanism at the design maximum tip speed. Speed adjustment shall be obtained by means a variable frequency speed

controller. The drive shall be supported by a rigid steel plate bolted to the bridge.

b. Speed Reducers: The speed reducing unit shall consist of cycloidal or helical gear reducers directly connected to a motor without the use of chains or v-belts. The pinion gear shall be integral with the shaft.

Speed reduction gearing shall be fully enclosed in an oil-tight, cast-iron, or welded steel housing of splash and drip-proof construction suitable for outdoor use.

The main ring gear of cycloidal drives shall be made of high carbon chromium bearing steel and be fixed to the drive casing. An eccentric bearing on the high speed shaft shall roll cycloidal discs of the same material around the internal circumference of this main ring gear. The lobes of the cycloid disc shall engage successively with pins in the fixed ring gear. The movement of the cycloid discs shall then be transmitted by pins to the low speed shaft.

Helical speed reducer gearing shall be manufactured to AGMA standards. Gears shall be of the helical type made from properly heat-treated alloy steel. They shall be formed with accurate tooth contours and finished in a manner ensuring accurate meshing and quiet running.

The reducers shall be fitted with anti-friction bearings of proper size for all mechanism loads. Reducers shall be built for continuous service 24 hours per day and shall be of ample capacity for transmitting the required power and torque output. Bearings and gearing shall run in a totally submerged oil bath or be grease lubricated. The speed reducers shall have a minimum service factor of 1.25.

c. Variable Frequency Speed Controller: Variable frequency drive (VFD) equipment shall be furnished by the flocculator manufacturer, complete with specified sensors, and shall vary the speed of a 230 volt, 3 phase squirrel cage induction motor.

The equipment shall incorporate circuit protective devices, filters, selector switches, meters, speed setting potentiometers, indicating lights, control transformer, fuses, relays, wiring, terminals, nameplates, and any other required components to provide a satisfactory operating variable frequency speed system. All components shall be enclosed in ventilated 304SS cabinets with hinged doors and equipped with the required hardware. The ambient temperature range shall be from 0/C to 40/C. The line voltage will be

constant at 230 VAC within plus or minus 10 percent. A circuit breaker shall be provided as a protective device or the equipment power supply.

The VFD equipment shall include an operator's control station. The operator's control station shall be included in the control and indication section as specified hereinafter.

Motor: The motor shall be an 1800 RPM, squirrel cage, induction type, TEFC, ball bearing heavy duty unit of ample power for starting and operating the mechanism without overload, with a service factor of 1.15. A motor canopy shall be provided.

Power supply to the equipment shall be 230 volt, 60 hertz, 3 phase.

2. **Torque Shaft:** The rotating torque shaft shall be rigidly connected to the output shaft of the drive unit. The lower end of the shaft shall be unsupported. The shaft shall be hollow or solid steel and shall be designed to not exceed 6,000 psi unit stress under combined loading.

3. **Electrical:** The equipment supplier shall furnish all electrical items specifically called for in this specification section. The contractor shall supply all other electrical items required to place the equipment into service.

   The installing contractor shall supply and install all field wiring required including but not limited to proper size wire, conduit, fittings, and supports.

C. TUBE SETTLER MODULES

1. **Description:** Tube settlers are comprised multiple PVC tubular channels. sloped at an angle of about 60 degrees, which allow enhanced settling characteristics and accumulation of solids within a settling basin. Tube modules will be 2 ft. height, 1 ft. or 2 ft. widths, up to 12 ft. lengths as required by the tank geometry and support structure. Tube settler modules shall have a minimum tube length of 27.5 inches. Stainless Steel support structures shall be designed and supplied by the equipment manufacturer.

D. EFFLUENT REMOVAL

1. **Collection Troughs:** Stainless Steel rectangular effluent collection troughs shall be provided over the tube settler section of the tank as shown on the drawings.

E. SLUDGE COLLECTION AND REMOVAL

1. **Sludge Collection Hopper:** Two (2) Conical sludge hoppers shall be constructed as part of the overall tank design. Hopper sides shall be sloped to enhance concentration of the sludge and to transport the concentrated sludge to the sludge draw-off points located at the bottom of the hoppers.
2. **Sludge Blow Down Valves:** Two (2) motorized 4- inch eccentric plug valves shall be provided for blow down of the sludge hoppers. Valves shall be controlled from a valve control panel. Valves shall be manufactured by Dezurik with a cast iron body and chloroprene plug facing. Actuator shall be electric with manual wheel override.
3. **Control Panel:** Provide a NEMA 4x stainless steel post mounted control cabinet to enclose the controls for the operation of the four motorized sludge valves for sequential timed opening on an adjustable 24-hour schedule. Power to the panel shall be 120 volts. Controls shall include a programmable daily mechanical Torx style or electronic programmable timer to initiate the sludge blow-down cycle. A mechanical or electronic automatic resettable cycle timer shall be provided to allow the operator to set the time sequence for each individual valve to open and close between 1 and 6 minutes per cycle in 15 second intervals.

   The control panel shall also include a surface mounted manual start push button and sludge wasting indicator light for the blow down cycle and valve open indicator lights for each control valve.

   The panel shall include all necessary wiring, relays, starters, breakers, control transformer, fuses, wiring terminals, nameplates, and any other required components to provide a complete working system.

F. TANK

The tank shall include flanged nozzle connections for inlet, clarifier outlet, and sludge removal. Sample taps shall be 1-inch npt female connections.

G. ELECTRICAL

The contractor shall supply and install all required electrical items not specifically called for as furnished by the equipment supplier.
The contractor shall supply and install all field wiring required including but not limited to proper size wire, conduit, fittings, and supports.

H. ANCHORAGE AND FASTENERS

1. **Anchor Bolts:** All anchor bolts shall be a minimum of 3/4 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all anchor bolts, nuts, and washers required for the equipment.
2. **Fasteners:** All structural fasteners shall be a minimum of 1/2 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all fasteners required for the assembly of the equipment.

PART 3 – INSTALLATION

A. GENERAL

1. The equipment shall be installed properly to provide a complete working system. Installation shall follow the supplier's recommendations.

2. The installation of the Flocculating Tube Clarifier will include the fabrication of the tanks as indicated by the manufacturer. Due to the nature of the installation, the unit will be shipped in pieces and will need to be field welded by the contractor and hydrostatically tested to ensure proper fabrication.

3. The Contractor is responsible to coordinate material storage after delivery. All materials shall be stored as indicated by the Manufacturer, and in a manner to ensure no damage occurs to items during storage. The Contractor shall be responsible to replace any and all materials damaged during storage. Final location of stored materials shall be coordinated with the Owner or the Engineer.

4. The Contractor shall be responsible for moving all materials provided for the clariflocculator, and shall do so in a manner that does not cause damage to, or obstruct access by the Owner, to existing facilities.

B. MANUALS

The equipment supplier shall furnish four (4) copies of operation and maintenance manuals which will be retained at the installation site to assist plant operators. The manual shall include the supplier's erection and assembly recommendations and a complete list of recommended spare parts.

C. FIELD SERVICE

The equipment supplier shall provide the service of a qualified representative for 3 trips and 2 days to inspect the mechanism installation, assist in start-up, and instruct plant personnel in the proper operation and maintenance of the mechanism.

D. FIELD TESTING

1. **Hydrostatic Testing:** The tanks shall be filled to their high water level and monitored for a period of 24 – hours to ensure no measurable leakage occurs from the seams of the welded tank construction. If any leaks are found, the Contractor shall repair those leaks at no additional cost to the Owner, and as directed by the manufacturer. Hydrostatic testing must be completed before placing the unit into service.

2. **Operation Tests:** The mechanism shall be operated in a dry tank for a minimum of 4 continuous hours before flow is allowed to enter the system. There shall be no binding, jerky, or unusual motion exhibited during this run in period. Motor amperage shall be checked at least hourly for any unusual or higher than normal figures. After the unit has successfully passed this initial test, flow shall be introduced into the tank and the same 4 hour observation test run. If the unit should fail under any of these conditions, the test shall be halted and the problem corrected. If after several attempts the unit does not successfully pass the field test, the faulty portion of the equipment shall be replaced and the test re-run.

D. DISINFECTION

The Contractor shall be responsible for ensuring the clariflocculator is disinfected after installation.

The unit shall be disinfected per AWWA C653-13, “Disinfection of Water Treatment Plants”. As this section refers to AWWA C652, “Disinfection of Water-Storage Facilities, only Method 1 and Method 2 may be used, which are approved for tank disinfection.

Disinfection shall also meet the requirements of 10 State Standards – Recommended Standards of Water Works, 2018 Edition – Disinfection (Section 7.0.18)

*** END OF SECTION ***

COUNTY COMMISSIONERS OF KENT COUNTY MARYLAND

REQUEST FOR PROPOSAL

#WW 20-01

FOR

PROCUREMENT OF A CLARIFLOCCULATOR TREATMENT SYSTEM

Michael Moulds, PE
Director of Public Works
709 Morgnec Road
Chestertown, Maryland 21620

SCHEDULE

BID NUMBER WW 20-01

Date	Step
February 6, 2020	Begin Newspaper Advertising; Mail/Email Notices to Bidders on Bid List; Post on eMaryland Marketplace
February 24, 2020; 5:00 p.m.	Final Day for Questions
March 5, 2020; 10:00 a.m.	Bid Opening
March 17, 2020	Scheduled Award by Commissioners
August 14, 2020	Delivery of System to Site Contractor

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SECTION A. GENERAL MATTERS

1. Summary

The County Commissioners of Kent County, Maryland, a body corporate and politic and a political subdivision of the State of Maryland (the "County") is requesting proposals from qualified manufacturer representatives for furnishing and delivering a water treatment clariflocculator system to replace an existing system at the County Fairlee water treatment plant located at 1 Watertower Road, Chestertown, MD 21620, in accordance with Chapter 49 of the Code of Public Local Laws of Kent County (CPLL).

2. Issuing Office

Name: Michael Moulds, PE
Title: Director of Public Works
709 Morgnec Road
Chestertown, Maryland 21620

Telephone #: (410) 778-2600
mmoulds@kentgov.org

The individual listed above shall serve as the "Procurement Officer" and as the sole point of contact for purposes of this procurement.

3. Silence of Specification

The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specifications compliance will be the responsibility of the vendor.

4. Preparation of Proposal

a. The bidder's proposal shall be written in ink or typewritten on the form provided.

b. If items are listed with a zero quantity, bidder shall state unit price **ONLY** (intended for open end purchases where estimated requirements are not known). The proposal shall show a total bid price for each item bid and the total bid price of the proposal, excluding zero quantity items.

5. Prices Quoted

The prices quoted are those for which the material will be furnished F.O.B. Destination and include all charges that may be imposed during the period of the contract.

6. Samples or Brochures

Samples or brochures may be required by the County for evaluation purposes. They shall be such as to permit the County to compare and determine if the item offered complies with the intent of the specifications.

7. Questions and Inquiries

All questions and inquiries should be directed to the Director of Purchasing identified above.

Questions must be submitted in writing by letter or email.

Questions must be received by **February 24, 2020.** A summary of questions and answers will be distributed to all offerors that were sent this RFP or otherwise are known by the Director of Purchasing to have obtained this RFP.

Written responses shall be considered the official answers and shall supersede any verbal discussions. Verbal answers are not binding, and reliance should not be placed on the same.

8. Submission Deadline and Instructions

All proposals must arrive at the Director of Purchasing ("Bid Receipt Office") by March 5, 2020, at 10:00 A.M. in order to be considered. Requests for extension of this date or time will not be granted. Offerors mailing proposals should allow sufficient mail and internal delivery time to ensure timely receipt at the Bid Receipt Office. Proposals or unsolicited amendments to proposals arriving after the closing date and time will **NOT** be considered.

Bidders are cautioned that bids mailed, shipped express, by courier, or hand delivered to arrive the day of the bid opening must be in the hands of the Bid Receipt Office no later than 10:00 a.m. on the date specified. Bids received later than that time will be returned unopened. Please check your method of delivery to see if it conforms to this requirement. Proposals must be mailed, shipped, or hand delivered to the address below:

Director of Purchasing
Bid Receipt Office
County Commissioners of Kent County, Maryland
400 High Street
Chestertown, Maryland 21620-1312

BIDDERS ARE ADVISED THAT MAIL IS DELIVERED ONCE A DAY, AND USUALLY ARRIVES AFTER THE TIME SPECIFIED FOR BID DELIVERY ON THE APPLICABLE DATE.

BIDS WILL NOT BE ACCEPTED AT ANY OTHER LOCATION.

THE COUNTY WILL NOT BE RESPONSIBLE FOR ANY BIDS DELIVERED TO ANY OTHER LOCATION THAN THE OFFICE OF DIRECTOR OF PURCHASING WHETHER SUCH OTHER LOCATION IS A COUNTY OFFICE OR OTHERWISE.

All proposals must be in a sealed envelope with the following information clearly printed on the outside:

THIS IS A SEALED BID PROPOSAL FOR

KENT COUNTY – _WW 20-01 _____.

Please note that if a bid is mailed, sent by messenger service, or delivered by commercial carrier (e.g. FEDEX, UPS, etc.). **THE OUTSIDE ENVELOPE, AS WELL AS THE INSIDE ENVELOPE, IF ANY, MUST CONTAIN THE LEGEND SHOWN ABOVE**. County staff receives many items by such services and if the legend does not appear a response may be misrouted or delayed in opening. The bidder takes full responsibility for the legend and THE COUNTY WILL NOT DEEM A BID AS TIMELY RECEIVED, EVEN IF RECEIVED ON TIME, IF OPENED LATER THAN THE DEADLINE DUE TO LACK OF THE APPROPRIATE LEGEND ON THE MAILER/OUTSIDE ENVELOPE.

9. Duration of Offer

Unless otherwise specified by the County, proposals submitted in response to this solicitation are irrevocable for 120 days following the closing date. This period may be extended only with the offeror's written agreement.

10. Withdrawal of Proposals

A bidder may withdraw its proposal unopened after it has been deposited, if such a request is made prior to the time set for the opening of the proposal.

11. Public Inspection of Proposals

If the bidder designates a portion of its bid as confidential, it shall isolate and identify in writing the confidential portions. The bidder shall include with this designation a statement that explains and supports for firm's claim that the bid items identified as confidential contain trade secrets or other proprietary data.

12. Changes in Contract Documents

Changes to contract documents shall be made only in writing, and copies will be emailed, faxed, or mailed to all known prospective bidders. The County assumes no responsibility for verbal instructions or interpretations. The contract documents contain the provisions required for the contract. Information obtained from an officer, agent, or employee of the County or any other person shall not affect the risks or obligations assumed by the bidder or relieve him of fulfilling any of the conditions of the contract.

13. Revisions to the RFP

If it becomes necessary to revise this RFP, amendments will be provided to all prospective offerors that were sent this RFP or otherwise are known by the Director of Purchasing to have obtained this RFP. Acknowledgment of the receipt of all amendments will be required.

14. Cancellation of the RFP; Rejection of All Proposals

The County may cancel this RFP, in whole or in part, or may reject any/all proposals submitted in response whenever this action is determined to be in the best interest of the County. Kent County shall have no liability or obligation to any of the proposers preparing or submitting proposals under this RFP.

15. Proposal Acceptance; Discussions

The County reserves the right to accept or reject any and all proposals, in whole or in part, received in response to this RFP, to waive or permit cure of minor irregularities; and to conduct discussions with all qualified offerors in any manner necessary to serve the best interests of the County. The County also reserves the right, at its sole discretion; to award a contract based upon the written proposals received without prior discussions or negotiations.

16. Disqualification of Bidders

Any one or more of the following causes may be considered as sufficient for the disqualification of a bidder and the rejection of its proposal or proposals:

A. More than one proposal for the same contract from an individual, firm, or corporation under the same or different names.
B. Evidence of collusion among bidders.
C. Unsatisfactory performance record as evidenced by past experience.
D. If the unit prices are obviously unbalanced either in excess or below reasonable cost analysis values.
E. If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
F. Non-attendance of mandatory pre-bid meetings may be cause of disqualification.

17. <u>Bid Opening</u>

All bids will be opened and publicly read by designated County staff at 10:00 a.m., March 5, 2020, 400 High Street, Chestertown, Maryland. Bidders and other interested parties are invited to attend these public forums.

18. <u>Omission of Specifications</u>

The omission of a bidder of any specifications, or details of any specifications which would normally apply to the products of service herein stated, shall not relieve the bidder from fulfilling those required specifications needed to provide an end product best suited to the intended purpose. The best commercial practices are to prevail, and only materials of first quality, correct type, size, and design are to be used.

Workmanship shall be of first quality. All parts and materials, whether specified herein or not, shall be rated to meet or exceed the maximum rating required by the product or service and its maximum intended purpose.

19. <u>Incurred Expenses</u>

The County will not be responsible for any costs incurred by an offeror in preparing and submitting a proposal in response to this RFP.

20. <u>Compliance with Law</u>

By submitting an offer in response to this RFP, the offeror, if awarded the contract, agrees that it will comply with all federal, state, and local laws applicable to its activities and obligations under the contract.

21. <u>Acceptance of Terms and Conditions</u>

By submitting a response to this RFP, an offeror shall be deemed to have accepted all the terms, conditions, and requirements set forth in this RFP unless otherwise clearly noted and explained in its proposal. All proposals submitted in response to this request for Proposal become the property of the County. ***All County agreements are subject to the County's General Terms and Conditions unless otherwise specifically changed or waived hereunder or in the Contract.***

22. <u>Term</u>

Any contract(s) resulting from this procurement will be for the stated period; provided, however, that all contracts are subject to non-appropriations and termination for convenience clauses.

23. Failure To Deliver or Perform

In the event the offeror fails to deliver the goods or services covered by the contract and in accordance with the delivery dates stipulated in the contract, the County reserves the right to purchase on the open market those goods and services which the offeror has failed to deliver and shall deduct any additional costs incurred by the County as a result of such failure to deliver, from any money due the offeror under the contract or other contracts with the County.

24. Termination of Contract

The County reserves the right to cancel the contract entered into as a result of this bid if, in its opinion, there shall be a failure on the part of the offeror at any time to perform faithfully any of the contract requirements. Should the offeror fail to comply with contract requirements, except for circumstances beyond its control, such as, but not limited to an Act of God, war, flood, and governmental restrictions, the County reserves the right to purchase the required goods or services in the open market and charge the offeror with any excess costs, or to complete the required work or obtain the required goods at the expense of the offeror and to withhold any monies that may be due or become due and apply same to any expenses or excess costs incurred to the County.

The County may terminate this agreement at any time, for any reason, and shall be liable only for time and costs incurred as of the date of termination.

25. Changes to the Contract

The County may at any time make changes within the general scope of the contract in the design or specifications of the services to be delivered. The contract shall be modified in writing to reflect any equitable adjustment caused by any increase or decrease in the offeror's cost or time required for performance or change in scope of service. The County reserves the right to increase or decrease quantities and/or projects at their discretion.

26. Agreement/Contract

Any agreement or contract resulting from the acceptance of a Proposal shall be on forms either supplied by or approved by the County and shall contain, as a minimum, applicable provisions of the Request for Proposal. The County reserves the right to reject any agreement that does not conform to the Request for Proposal and any County requirements for agreements and contracts.

27. Contract and Related Data

No reports, information or data given to or prepared by the County under the contract shall be made available to any person by the firm without the prior written approval of the County.

28. Contract Award

It is the intent of the County to award a contract to the lowest qualified responsible and responsive bidder within 30 calendar days following bid opening; however, the County requires bidders, by signing the "Standard Bid Acceptance" form to guarantee their bid for a period of 120 days following the bid opening date. The County reserves the right to reject any and/or all bids.

The County also reserves the right to negotiate further the terms of the contract, including the award amount, with the selected bidder prior to entering into a contract. If contract negotiations cannot be concluded successfully with the selected bidder, the County may negotiate a contract with the next selected bidder, and so on. The County reserves the right to negotiate with the bidder whose proposal is the closest to being acceptable or to seek additional proposals after the proposal date. The County reserves the right to waive any irregularities and technicalities and may, at its discretion, request a follow-up or amended proposal.

29. Contract Extension

The County reserves the right to extend the contract on a month-to-month basis for a period of up to three months.

30. Contract Documents

The Contract Documents shall include this RFP, Schedule, Information to Bidders, Bid Forms, Specifications, Attachments, Drawings, Addenda, the County General Terms and Conditions, the resulting contract, and any other documents which are clearly intended to be a part of the terms, conditions, requirements, and specifications for the subject products or services.

31. Kent County Purchasing Code

All County purchases are subject to and to be accomplished in accordance with Chapter 49 of the CPLL. Bidders should familiarize themselves with Chapter 49, as it will be in effect on and after that date. A copy of Chapter 49 may be obtained from the Clerk to the County Commissioners, 410-778-4600 and available online through the County's web site at http://www.kentcounty.com/

32. Termination for Convenience

Contracts shall remain in effect for the time period and quantity specified unless the contract is terminated by the County. The County may terminate the contract at any time by giving written notice of such termination and specifying the effective date thereof, at least thirty (30) days before the effective date of termination.

33. Termination for Cause

If, for any reasons, or through any cause, the Contractor fails to fulfill in a timely and proper manner its obligations under this Contract, or if the Contractor violates any of the covenants, agreements, or stipulations of this Contract, the County shall thereupon have the right to terminate this contract by giving written notice to the Contractor of such termination and specifying the effective date thereof, at least five (5) days before the effective date of such termination. In the event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, and reports or other material prepared by the Contract under this Contract shall, at the option of the County, become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents and other materials which is usable to the County.

34. Non-discrimination

The County is an equal opportunity employer. The County complies with Title VI of the Civil Rights Act of 1964, which provides that no person shall be denied on the grounds of race, color, or national origin, be excluded from, be denied the benefits of, or discriminated against under any program or activity receiving Federal financial assistance. **Each bidder shall verify through execution of the bid form that it does not discriminate on the basis of race, color, creed, religion, gender, age, lawful sexual orientation, marital status, national origin, or on any other basis generally prohibited by any federal, State, or local law, rule, or regulation.**

35. Kent County Ethics Ordinance

By submitting a bid in response hereto, the bidder acknowledges that it is familiar with the County's Code of Ethics, CPLL, Chapter 29, and certifies that it has no knowledge of any violation of that Chapter, that it has no knowledge of any conflict of interest which may exist or arise under Chapter 29 if the bidder is awarded a contract, and that it has not given any gift (as that term is defined in Chapter 29) to anyone who has or may participate in the awarding of this contract or the management or supervision thereof. Contact the County's Attorney Office at 410-810-0428 if any additional information is required. A copy of Chapter 29 may be obtained from the Clerk to the County Commissioners, 410-778-4600 and available online through the County's web site at http://www.kentcounty.com/

SECTION B. BID PROPOSALS AND RELATED MATTERS

1. Pre-Proposal Conference

A pre-proposal conference will not be scheduled. If your firm plans to send representatives to visit the site, please notify the Director of Procurement to make arrangements.

2. Presentation

Offerors may be required to make individual written or oral presentations to the County representatives in order to clarify their proposals.

3. Proposal Form

Proposals should be prepared simply and economically, providing a straightforward, concise description of the offeror's proposal for meeting the requirements of this procurement.

4. Bid Forms

All Bids must be made on the required bid forms. All blank spaces for bid prices must be completed in ink or typewritten, and the bid form must be fully completed and executed when submitted. Unless otherwise specifically required, only one copy of the bid form is required. A conditional or qualified bid will not be accepted. The base price on the bid form shall be the total cost of the item being bid in accordance with the specifications in the RFP. Alternates shall only be used to reflect increases or decreases in the base bid price. Only those alternates, which are specifically requested by the County will be considered.

5. Bid Notice Disclaimer

The mailing of bid solicitations (notices) to incumbent and/or potential vendors of goods and services is a courtesy extended by the County, as well as a method for generating interest among vendors. For purposes of bidding opportunities, generally, interested vendors should rely on the public notices published in the newspapers of general circulation in Kent County and the eMaryland Marketplace.

6. Bid Surety

All bids shall be accompanied by a Bid Surety in the form of a certified check, or bid bond, made payable to the County Commissioners of Kent County, Maryland for the penal sum of 5% of the bid price. Bid Surety will be returned to all bidders upon completion of the contract award process, with the exception of the successful bidder. Non-Performance or failure to sign the contract within ten (10) working days after the award, or later within the bid guarantee period at the discretion of the County, or withdrawal of a bid subsequent to opening but prior to award, shall result in forfeiture of the Bid Surety. Any Bid Surety and related forms and instruments required must be executed and attached to the bid submittal.

7. Waiver of Technicalities

The County reserves the right to waive formalities or technicalities in bids as the interest of the County may require in accordance with the terms of the County's Purchasing Ordinance, Chapter 49, Code of Public Local Laws of Kent County, Maryland ("CPLL").

8. Basis of Award

All responsive proposals from responsible bidders will be eligible for contract award, based on the following:

A. Lowest price from a responsive and responsible bidder as indicated by the total price on the bid form.

B. Compliance with specifications.

C. Compliance with terms of bid package.

D. Ability to perform or deliver on time.

The County may undertake such investigations or inquiries as it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish County with all requested information and data for this purpose.

9. Modification or Withdrawal of Bids

A. Pre-Opening Modification or Withdrawal of Bids
Bids may be modified or withdrawn by written notice received by the Clerk to the County Commissioners before the time and date set for bid opening.

B. Disposition of Bid Bond
If a bid is withdrawn in accordance with this regulation, the Bid Bond, if any, shall be returned to the Bidder.

C. Late Bids, Late Withdrawals, and Late Modifications
Any bid and any request for Withdrawal or Modification received after the time and date set for receipt and opening of bids is late and will be disregarded.

10. Performance and Payment Bonds

In accordance with the specifications, the selected bidder is required to furnish a Performance Bond and a Payment Bond in an amount not to exceed one hundred percent (100%) of the contract price. In such cases, the successful bidder shall be required to furnish the bond(s) at the time of the execution of the contract. Where attorneys-in-fact sign bid, payment, and/or performance bonds bidders must provide with each bond a certified and effective dated copy of their Power of Attorney. The bidder to whom the contract is awarded will be required to execute the contract and obtain the requisite bonds within ten (10) calendar days from the date when Notice to Award is delivered by the County to the bidder.

11. Substitutions

The material, products, and equipment described in the bidding documents establish a standard of required function, dimension, appearance, and equality to be met by any proposed substitution, unless specifically stated otherwise. No substitutions will be considered prior to receipt of the bids unless a written request for approval has been received at least ten (10) days prior to the receipt of bids. Each such request shall include the name of material or equipment for which a substitution is proposed and a complete description of the proposed substitute including drawings, cuts, performance, test data, and any other information necessary for evaluation.

12. Alternates

An alternate is a dollar amount to be added to or subtracted from the base bid price. The County may request alternate prices to compare various options that may be in their best interest. The County shall have the right to accept alternates in any order or combination, and to determine the low bidder on the basis of the base bid and alternates accepted.

13. Addenda

Addenda, if any, will be emailed, mailed or delivered to all that are known to have received a complete set of bidding documents and will be posted on the eMaryland Marketplace. Copies of Addenda will be made available for inspection wherever bidding documents are on file for that purpose. No addenda will be issued later than three (3) days prior to the date for receipt of bid, except an Addendum withdrawing the request for bids or one which includes postponement of the date for receipt of bids.

14. Trade and Brand Names

Unless specifically provided otherwise in an RFP, the use of or references to any trade or brand names in this bid package shall be solely for the purpose of establishing a standard, and shall in no way infer that other trade and brand names will not be acceptable.

15. Product Literature

Bidders shall include with their bid submittal literature detailing make, model, and specifications of the product which they are bidding, if applicable.

16. Exceptions to Bid Specifications

Any bidder taking an exception to the stated specifications or requirements must make such exceptions clear and in writing, and shall attached such exceptions to, or include them in, the sealed bid proposal. This section is not to be construed to mean that the County is obligated to accept any such exception.

THE COUNTY IS NOT OBLIGATED TO ACCEPT ANY BID NOT IN CONFORMANCE WITH BID SPECIFICATIONS AND MAY REJECT SUCH BIDS WITHOUT COMMENT OR REVIEW. BIDDERS TAKING SUCH EXCEPTIONS DO SO AT THEIR OWN RISK.

17. Time of Delivery

The Contractor, after receipt of written notice of the award of the contract and receipt of the purchase order, shall diligently prosecute same so that it will be fully completed within the number of consecutive calendar days stated in the proposal. Calendar days for completing delivery of the bid items shall start from the date of notice of said award and purchase order.

18. Default in Contracting

Should the bidder to whom the contract is awarded fail, or be unable, to execute the contract for any reason, within ten (10) calendar days after notification of award, then an amount equal to the difference between the accepted bid price and that of the next highest bidder shall be forfeited to the owner as liquidated damages.

19. Payment Terms

Payment will be made only for properly approved invoices supported by adequate information and details enabling the County to make a determination that the appropriate level of performance has been reached, including invoices for materials actually delivered and services actually performed. Otherwise, payment will not be made. Invoices must include the period covered and a detailed listing of the items included in the invoice, which shall be subject to the review of the County. Invoices shall be submitted monthly (for ongoing projects or orders) or within 30 days of delivery or completion (for single service or delivery contracts) by paper or by electronic invoice (via fax or email). Approved payment shall be made to the contractor within forty five (45) calendar days of receipt of an acceptable invoice. Payment will be made upon successful submission and approval of services. Invoices shall be mailed directly to the designated Contract Administrator.

20. Kent County Substance Abuse Policy

The County adopted the "Kent County Government Substance Abuse Policy," to which policy the successful bidder must strictly adhere. Prospective bidders are cautioned to make themselves familiar with the policy. **Bidders must state on the "Standard Bid Form" whether or not you have a drug abuse program in effect.**

21. Insurance

Prior to execution of this contract, the successful bidder shall submit a "**Certificate of Insurance"** indicating it carries the specified insurances in the amount specified in this RFP. Coverages shall be maintained throughout the term of the contract. Unless otherwise

specified, coverage levels shall be required as follows:

A. Professional malpractice, negligence, and errors and omissions coverage in minimum amounts of $2,000,000.00 per event and $1,000,000.00 per person.

B. General Liability - Minimum - $2,000,000.00

C. Workers' Compensation Insurance as required as law.

D. Comprehensive Liability Insurance with minimum limits of $1,000,000.00 per person, $2,000,000.00 per occurrence. Policy shall include the broad form of Comprehensive General Liability Endorsement or its equivalent.

E. All required coverages shall include and specifically name the County as an additional insured and loss payee with respect to all operations under the contract.

F. The successful bidder will furnish the County any up-to-date certificates of insurance stating the requirements listed above at contract implementation.

22. Immigration Law Compliance

By submitting and signing a proposal, each bidder hereby certifies that it does not, and if awarded the contract, will not during the performance of the contract, employ illegal workers or otherwise violate any provisions of any applicable federal, State, or local law concerning the employment of illegal aliens, the certification of nationality of workers, or otherwise.

23. Federal Taxpayer Identification Certificate (W-9)

All first time successful bidders doing business with the County must submit a completed standard "Federal Taxpayer Identification Certificate - W-9."

SECTION C. SCOPE OF WORK, SPECIFICATIONS AND RELATED MATTERS

GENERAL

The selected vendor shall be responsible for providing a flocculating tube clarifier (clariflocculator) to replace an existing unit at the Fairlee Water treatment Facility located at 1 Watertower Road, Chestertown, MD 21620. The replacement clariflocculator shall be manufactured, delivered and inspected for installation under this contract. The County will be contracting with a general contractor to remove the existing unit and installing the replacement clariflocculator to a working condition.

The existing clariflocculator is a Wheelabrator Microfloc Products FTC-150H Field Assembly Unit installed in 1994. Refer to Attachment 1 for the field assembly drawings of the existing clariflocculator.

The design has been completed for the installation contract. The design is based on a WesTech Model CLX2F flocculating tube clarifier. Note that access to the inside of the building is a 10' wide by 12 ' high overhead door. Equipment design shall allow placement of the unit modules without modification of the building access. Refer to Attachment 2 - Fairlee Clariflocculator Replacement plans for information on the installation.

FLOCCULATING TUBE CLARIFIER SPECIFICATIONS

PART 1 - GENERAL

A. SCOPE

Contractor shall furnish and deliver for installation equipment for one (1) Flocculating Tube Clarifier with all necessary equipment. The equipment shall include two flocculation chambers, shallow depth tube settlers, collection troughs, conical sludge hoppers, anchor bolts, motors, control panels, valves and all other appurtenances required for the installation of a fully functioning unit. The unit shall be sized to fit in the area designated in the installation drawings with connection pipes oriented to match existing piping. The clariflocculator equipment specified shall be installed in a stainless steel tank. The equipment shall be modeled after the existing Flocculating Tube Clarifier.

B. SUPPLIER

The equipment specified in this section shall be as designed and supplied by WesTech Engineering, Inc. for their Model CLX2F flocculating tube clarifier. Substitute equipment will be considered by the County if it meets the requirements herein.

C. DESIGN CRITERIA

Design Flow Rate	140 GPM
Number of Clarifiers	1
Number of Flocculators	2
Flocculation Cell Size	5.5'L x 5.5'W

Flocculator Section Basin Size	5.5'L x 11'Wx 12'D (inside dimensions)
Tube Settler and Clearwell Section Basin Size	16.5'L x7'Wx 12' D (inside dimensions)
Tube Settler Design Surface Loading Rate	2 gpm/ft^2
Detention Time per Cell at Design Flow	17.9 minutes
Total Flocculation Detention Time	35.8 minutes

Flocculators	4' Diameter paddle wheel with four (4) 304 stainless steel arms and four (4) FRP paddles per arm.
Flocculator Drive	Direct drive with helical reduction, 0.5hp, 230/460 v, 3 phase, 60 hertz, TEFC VFD rated Motor
Control Panels	NEMA 4X 304 SS
Tube Settlers	Minimum 100 square feet 24 inch deep 60 degree incline PVC tube settler modules with supports. 304 Stainless Steel supports.
Effluent Launder System	140 gpm V-notch weir finger launders, 3/16" 304 Stainless Steel frame and gutter with Fiberglass reinforced plastic V-notch weirs.

D. WARRANTY

A written supplier's warranty shall be provided for the equipment specified in this section. The warranty shall be for a minimum period of one year from start-up or 18 months from time of equipment shipment, whichever comes first. Such warranty shall cover all defects or failures of materials or workmanship which occur as the result of normal operation and service.

E. SUBMITTALS

Copies of all materials required to establish compliance with these specifications shall be submitted for review. Submittals shall include at least the following:

1. Certified general arrangement drawings showing all important details and materials of construction, dimensions, nozzle sizes, loads on supporting structures, and anchor bolt locations.
2. Descriptive literature, bulletins, and/or catalogs of the equipment.
3. Complete data on motors and speed reducers.
4. Electrical schematics for all control equipment to be furnished.
5. Complete calculations signed by a registered professional engineer verifying the mixer and flocculator velocity gradients, power consumption, detention times, and hydraulic loading rates.
6. Manufacturers Operation and Maintenance Manual

F. EXPERIENCE

1. The equipment supplier shall have at least 15 years experience in the design, application, and supply of water or wastewater treatment equipment. To show evidence of being able to provide the quality of equipment and services described in

this specification, the equipment supplier shall submit their quality system ISO 9001 certification. The quality procedures shall provide for a means of qualifying all sub-vendors and shall specify that the fabrication facility is a critical vendor and shall require inspection. The quality system shall be audited by a third party independent inspector. Certification shall remain in effect throughout the project startup.

PART 2 – PRODUCTS

A. GENERAL DESIGN

1. **Description:** The flocculating tube clarifier shall be of a stand-alone unit type with integral flocculation and sludge hoppers. Influent flow discharges into a two-stage flocculation chamber to aid in the formation of settleable flocculated particles. The flow shall then move forward for clarification through the tube settler chamber.

   The separator shall be designed so that settled solids shall flow downward along the tube settlers, and be collected in conical sludge hoppers. These settled solids shall be removed from the hoppers through a blow down pipe at the bottom of the sludge hopper.

2. **Materials:**
   Tank: All steel and structural members shall be constructed of 304 stainless steel. Steel members in contact with liquids, either continuously or intermittently, shall have a minimum thickness of 3/16 inch.
   Tubes: Tube settlers are comprised of multiple PVC tubular channels.
   Effluent collection: Effluent troughs shall be made of 304 stainless steel.
   All Connection Hardware shall be 304 Stainless Steel.

   Note the Bid includes Option 2 to provide a price deduct to provide A36 carbon steel fabrication with an Epoxy painted coating in lieu of stainless steel for the tank. Option 2 would apply to the tank structural components, effluent troughs, tube settler and flocculator drive supports.

3. **Fabrication:** Shop fabrication of structural members shall be in accordance with the latest edition of the "Structural Welding Code", AWS D1.1, of the American Welding Society. All welded connections shall develop the full strength of the connected elements and all joined or lapped surfaces shall be completely seal welded with a minimum 3/16 inch fillet weld. Intermittent welding on structural joints and steel components shall not be allowed. All welding shall be done in accordance with the latest edition of the AWS code.

4. **Edge Grinding:** Sharp projections of cut or sheared edges of ferrous metals shall be ground to a radius by multiple passes of a power grinder.

5. **Shop Surface Preparation/Coating:** The drive units shall be coated with the supplier's standard epoxy enamel paint system.

Bid Option 2 Preparation/Coating: All fabricated steel shall be blasted and primed with Tnemec N69 Hi-Build Epoxoline II at 4.0-6.0 mils dry thickness. Finish paint to be applied in the field by the installation contractor under a separate contract.

6. **Structural Design:** All steel design shall be in accordance with the AISC Manual of Steel Construction, latest edition, and the Uniform Building Code (UBC), latest edition.

B. FLOCCULATOR MECHANISM

1. **Description:** An integral flocculation chamber with vertical paddle wheel flocculators shall be provided. The flocculation chambers include two stages for tapered flocculation. The paddle wheel flocculators shall be made of 304 stainless steel with FRP paddles designed to achieve an appropriate velocity gradient, or G-value, as recommended by the equipment manufacturer. Each chamber is complete with one paddle wheel flocculator.

2. **Drive Unit:**

   a. Design Parameters: The drive unit shall be capable of continuously turning the mechanism at the design maximum tip speed. Speed adjustment shall be obtained by means a variable frequency speed controller. The drive shall be supported by a rigid stainless steel plate bolted to the bridge.

   b. Speed Reducers: The speed reducing unit shall consist of cycloidal or helical gear reducers directly connected to a motor without the use of chains or v-belts. The pinion gear shall be integral with the shaft.

      Speed reduction gearing shall be fully enclosed in an oil-tight, cast-iron, or welded steel housing of splash and drip-proof construction suitable for outdoor use.

      The main ring gear of cycloidal drives shall be made of high carbon chromium bearing steel and be fixed to the drive casing. An eccentric bearing on the high speed shaft shall roll cycloidal discs of the same material around the internal circumference of this main ring gear. The lobes of the cycloid disc shall engage successively with pins in the fixed ring gear. The movement of the cycloid discs shall then be transmitted by pins to the low speed shaft.

      Helical speed reducer gearing shall be manufactured to AGMA standards. Gears shall be of the helical type made from properly heat-treated alloy steel. They shall be formed with accurate tooth contours and finished in a manner ensuring accurate meshing and quiet running.

The reducers shall be fitted with anti-friction bearings of proper size for all mechanism loads. Reducers shall be built for continuous service 24 hours per day and shall be of ample capacity for transmitting the required power and torque output. Bearings and gearing shall run in a totally submerged oil bath or be grease lubricated. The speed reducers shall have a minimum service factor of 1.25.

c. Variable Frequency Speed Controller: Variable frequency drive (VFD) equipment shall be furnished by the flocculator manufacturer, complete with specified sensors, and shall vary the speed of a 230 volt, 3 phase squirrel cage induction motor.

The equipment shall incorporate circuit protective devices, filters, selector switches, meters, speed setting potentiometers, indicating lights, control transformer, fuses, relays, wiring, terminals, nameplates, and any other required components to provide a satisfactory operating variable frequency speed system. All components shall be enclosed in ventilated 304SS cabinets with hinged doors and equipped with the required hardware. The ambient temperature range shall be from 0/C to 40/C. The line voltage will be constant at 230 VAC within plus or minus 10 percent. A circuit breaker shall be provided as a protective device or the equipment power supply.

The VFD equipment shall be installed in prewired, post mounted NEMA 4X stainless steel operator's control panel.

Motor: The motor shall be an 1800 RPM, squirrel cage, induction type, TEFC, ball bearing heavy duty unit of ample power for starting and operating the mechanism without overload, with a service factor of 1.15. A motor canopy shall be provided.

Power supply to the equipment shall be 230 volt, 60 hertz, 3 phase.

3. **Torque Shaft:** The rotating torque shaft shall be rigidly connected to the output shaft of the drive unit. The lower end of the shaft shall be unsupported. The shaft shall be hollow or solid steel and shall be designed to not exceed 6,000 psi unit stress under combined loading.

4. **Electrical:** The equipment supplier shall furnish all electrical items specifically called for in this specification section. The installation contractor shall supply all other electrical items required to place the equipment into service.

The installing contractor shall supply and install all field wiring required including but not limited to proper size wire, conduit, fittings, and supports.

C. TUBE SETTLER MODULES

1. **Description:** Tube settlers are comprised of multiple PVC tubular channels. sloped at an angle of about 60 degrees, which allow enhanced settling characteristics and accumulation of solids within a settling basin. Tube modules will be 2 ft. height, 1 ft. or 2 ft. widths, up to 12 ft. lengths as required by the tank geometry and support structure. Tube settler modules shall have a minimum tube length of 27.5 inches. Stainless steel support structures shall be designed and supplied by the equipment manufacturer.

D. EFFLUENT REMOVAL

1. **Collection Troughs:** Stainless steel rectangular effluent collection troughs shall be provided over the tube settler section of the tank as shown on the drawings.

E. SLUDGE COLLECTION AND REMOVAL

1. **Sludge Collection Hopper:** Four (4) conical sludge hoppers shall be constructed as part of the overall tank design. Hopper sides shall be sloped to enhance concentration of the sludge and to transport the concentrated sludge to the sludge draw-off points located at the bottom of the hoppers.
2. **Sludge Blow Down Valves:** Four (4) motorized 4 inch eccentric plug valves shall be provided for blow down of the sludge hoppers. Valves shall be controlled from a valve control panel. Valves shall be manufactured by Dezurik with a cast iron body and chloroprene plug facing. Actuator shall be electric with manual wheel override.
3. **Control Panel:** Provide a NEMA 4X stainless steel post mounted control cabinet to enclose the controls for the operation of the four motorized sludge valves for sequential timed opening on an adjustable 24 hour schedule. Power to the panel shall be 120 volts. Controls shall include a programmable daily mechanical Torx style or electronic programmable timer to initiate the sludge blow-down cycle. A mechanical or electronic automatic resettable cycle timer shall be provided to allow the operator to set the time sequence for each individual valve to open and close between 1 and 6 minutes per cycle in 15 second intervals.

   The control panel shall also include a surface mounted manual start push button and sludge wasting indicator light for the blow down cycle and valve open indicator lights for each control valve.

   The panel shall include all necessary wiring, relays, starters, breakers, control transformer, fuses, wiring terminals, nameplates, and any other required components to provide a complete working system.

F. TANK

The tank shall include flanged nozzle connections for inlet, clarifier outlet, and sludge removal. Sample taps shall be 1-inch NPT female connections.

G. ANCHORAGE AND FASTENERS

1. **Anchor Bolts:** All anchor bolts shall be a minimum of 3/4 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all anchor bolts, nuts, and washers required for the equipment.
2. **Fasteners:** All structural fasteners shall be a minimum of 1/2 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all fasteners required for the assembly of the equipment.

PART 3 – INSTALLATION

A. GENERAL

The equipment shall be fabricated and supplied to properly provide a complete working system. Detailed assembly and installation instructions shall be provided to meet the site specific conditions.

B. MANUALS

The equipment supplier shall furnish two (2) hard copies and one scanned copy of operation and maintenance manuals which will be retained at the installation site to assist plant operators. The manual shall include the equipment supplier's erection and assembly recommendations and a complete list of recommended spare parts.

C. FIELD SERVICE

The equipment supplier shall provide the service of a qualified representative for 3 trips and 6 days to inspect the mechanism installation, assist in start-up, and instruct plant personnel in the proper operation and maintenance of the mechanism. A certificate of completion shall be provided by a manufacturer’s representative to confirm the installation and testing of the system has been approved for use and under warranty.

D. FIELD TESTING

1. **Operation Tests:** The mechanism shall be operated in a dry tank for a minimum of 4 continuous hours before flow is allowed to enter the system. There shall be no binding, jerky, or unusual motion exhibited during this run in period. Motor amperage shall be checked at least hourly for any unusual or higher than normal figures. After the unit has successfully passed this initial test, flow shall be introduced into the tank and the same 4 hour observation test run. If the unit should fail under any of these conditions, the test shall be halted, and the problem corrected. If after several attempts the unit does not successfully pass the field test, the faulty portion of the equipment shall be replaced and the test re-run.

E. COMPLETION TIME

Proposals shall include a schedule for shop drawing submittal, fabrication and delivery.

F. PAYMENT SCHEDULE

Proposal shall include a payment schedule including:

Shop Drawing submittal
Approval to begin fabrication
Ready for Shipment
Delivery
Completion of inspection installation, start up, training and testing

The County will retain 5% retainage until completion of installation.

SECTION D. BID FORMS

BID NUMBER WW 20-01

1. Standard Sealed Bid Price Sheet
2. Standard Sealed Bid Form
3. Bid Bond
4. Signature Form
5. Affidavit of Qualifications to Bid
6. Non-Collusion Certificate

STANDARD SEALED BID PRICE SHEET

BID NUMBER WW 20-01

County Commissioners of Kent County, Maryland:

We hereby submit, for your review, our proposal requested by the RFP. This proposal includes and incorporates all information and specifications, which are contained in the Contract Documents, as described in the RFP, the same as if specifically written herein. A completed, signed, and accepted copy of this Standard Sealed Bid Form shall serve as a valid and binding contract.

Water Treatment Clariflocculator System Fabrication and Delivery

Basis of Bid

Bidder shall complete the work under Schedule A in accordance with the Contract Documents for the following price(s):

Schedule A

Item No.	Payment Schedule Description	Lump Sum Price
A1	Bonds, Insurances, Submittal of Shop Drawings	$
A2	Approval to Manufacture	$
A3	Ready to Deliver	$
A4	Delivery	$
A5	Completion of Start-up Testing and Training	$
	Total Bid Option 1	$

Total Bid Option 1 $_____Dollars and_____cents
(written)

Bidder shall complete the work under Schedule B in accordance with the Contract Documents for the following price(s):

Schedule B Alternate

Item No.	Description	Lump Sum Price
B1	Deduct price under Bid Item A3 for providing Epoxy Painted Carbon Steel Tank in lieu of Stainless Steel	$
	Total Bid Option 2 (Schedule A minus B)	$

Total Bid Option 2 $_____Dollars and_____cents
(written)

Drug Abuse Policy In Effect (Circle One)	**YES**	**NO**
Insurance certificate attached (Circle One)	**YES**	**NO**
Bid Surety Attached? (Circle One)	**YES**	**NO**
Signature form executed? (Circle One)	**YES**	**NO**
Affidavit of qualification to bid? (Circle One)	**YES**	**NO**
Non-collusion certificate (Circle One)	**YES**	**NO**

STANDARD SEALED BID FORM

BID NUMBER WW 20-01

BIDDER:

AGENT (TYPED): _____

FIRM Name: _____

ADDRESS: _____

_____

TELEPHONE: _____

EMAIL: _____

FAX #: _____

Submitted by: _____
(Signature of authorized agent above)

_____, this _____ day of _____ 2020.

Accepted by:

_____
Shelley L. Heller, by authority of the County Commissioners

ATTEST:

_____ DATE _____
Clerk or Deputy Clerk

BID SURETY

KNOWN ALL MEN BY THESE PRESENTS, that we the undersigned, _____ , as principal, and _____ as surety, are hereby held and firmly bound unto the County Commissioners of Kent County AS OWNER in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the County Commissioners of Kent County a certain BID, attached hereto and hereby made a part of hereof to enter into a contract in writing, for the _____ _____ _____

NOW, THEREFORE,

a) If said BID shall be rejected, or

b) If said BID shall be accepted and the principal shall execute and deliver a contract in the form of Contract attachment hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor, furnishings, materials, in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of the obligation as herein stated.

The Surety, for value received, hereby stipulated and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID, and said Surety does hereby waive notice of any such extension. IN WITNESS WHEREOF, the Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____	_____
Principal	Surety
By: _____	By: _____

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

SIGNATURE FORM

NAME OF BIDDER: _____

SIGNATURE OF AUTHORIZED PERSON: _____

PRINT AUTHORIZED PERSON: _____

TITLE OF AUTHORIZED PERSON: _____

STREET NAME AND NUMBER:
_____

CITY, STATE, ZIP CODE: _____

TELEPHONE NUMBER: _____

FAX _____

E-MAIL _____

DATE: _____

BIDDERS FEDERAL EMPLOYERS IDENTIFICATION NO. _____

BIDDERS CONTRACTORS LICENSE AND PERMIT NUMBERS:

_____

_____

_____

_____

_____

AFFIDAVIT OF QUALIFICATION TO BID

I HEREBY AFFIRM THAT

1. I am the (Title) _____ and the duly authorized representative of the firm of (Name of Corporation) _____ whose address is _____ and that I possess the legal authority to make this affidavit on behalf of myself and the firm for which I am acting.

Except as described in paragraph 3 below, neither I nor the above firm, nor to the best of my knowledge, any of its officers, directors, or partners, or any of its employees directly involved in obtaining contracts with the State of any county, bi-county, or multi-county agency, or subdivision of the State, have been convicted of, or have pleaded no contender to a charge of, or having during the course of an official investigation or other proceeding, admitted in writing or under oath, acts or omissions which constitute bribery, attempted bribery, or conspiracy to bribe under the provisions of Criminal Law Article of the Annotated Code of Maryland, or under the laws of any state or the Federal government.

2. (State "none", or as appropriate, list any conviction, plea, or admission described in paragraph 2 above, with the data: court, position with the firm, and the sentence or disposition, if any) _____
_____
_____

I acknowledge that this affidavit is to be furnished to the County Attorney for the County Commissioners of Kent County, and where appropriate, to others. I acknowledge that, if the representations set forth in this affidavit are not true and correct, the County Commissioners of Kent County may terminate any contract awarded and take any other appropriate action. I further acknowledge that I am executing this affidavit in compliance with Section 16D of Article 78A of the Annotated Code of Maryland, which provides that certain persons who have been convicted of, or have admitted to bribery, attempted bribery, or conspiracy to bribe may be disqualified, either by operation of law or after hearing, from entering into contracts with the State or any of its agencies or subdivisions.

I do solemnly declare and affirm under the penalties of perjury that the contents of this affidavit are true and correct.

Signature _____ Date _____

NON-COLLUSION CERTIFICATE

I HEREBY CERTIFY I am the _____
(Title)

and the duly authorized representative of the firm of _____

_____

whose address is _____

_____

AND THAT NEITHER I, nor to the best of my knowledge, information, and belief, the above firm, nor any of its other representatives I here represent, have:

a. Agreed, conspired, connived, or colluded to produce a deceptive show of competition in the compilation of the bid, or offer being submitted herewith.

b. Not in any manner, directly or indirectly, entered into any agreement, participated in any collusion to fix the bid price or price proposal of the bidder, or offer of herein or any competitor, or otherwise taken into action in restraint of free competition bidding in connection with the Contract for which the within bid or offer is submitted.

In making this affidavit, I represent that I have personal knowledge of the matters and facts herein stated.

_____	_____
Date	Signature
_____	_____
Date	Print Name or Type

GENERAL TERMS AND CONDITIONS OF CONTRACT
BETWEEN COUNTY AND CONTRACTOR

("**General Conditions**")

1. ACCOUNTING SYSTEM AND AUDIT, ACCURATE INFORMATION

The Contractor certifies that all information the Contractor has provided or will provide to the County is true and correct and can be relied upon by the County in awarding, modifying, making payments, or taking any other action with respect to this contract including resolving claims and disputes. False or misleading information constitutes grounds for the County to terminate this contract for cause and to pursue any other appropriate remedy. The Contractor certifies that the Contractor's accounting system conforms to generally accepted accounting principles, is sufficient to comply with the contract's budgetary and financial obligations, and is sufficient to produce reliable financial information.

The County may examine the Contractor's and any first tier subcontractor's records to determine and verify compliance with the contract and to resolve or decide any claim or dispute arising under this contract. The Contractor and any first tier subcontractor must grant the County access to these records at all reasonable times during the contract term and for three (3) years after final payment (or for such longer period as may be required pursuant to any federal, state, or other loan or grant condition). If the contract is supported to any extent with federal or state funds, the appropriate federal or state authorities may also examine these records. The Contractor must include the preceding language of this paragraph in all first tier subcontracts.

2. AMERICANS WITH DISABILITIES ACT

The Contractor agrees to comply with the nondiscrimination requirements of Titles II and III, and other provisions, of the Americans with Disabilities Act of 1990, Pub. Law 101-336, as amended, currently found at 42 U.S.C., § 12101, et seq.

3. APPLICABLE LAWS

This contract must be construed in accordance with the applicable laws, rules, and regulations of the State of Maryland (without regard to its conflicts of laws principles) and of Kent County. All Kent County laws, rules, and regulations are incorporated by reference into, and made a part of, this contract. In the case of any inconsistency between this contract and such laws, rules, and regulations, the laws, rules and regulations shall govern. The Contractor must, without additional cost to the County, pay any necessary fees and charges, obtain any necessary licenses and permits, and comply with applicable federal, state and local laws, codes and regulations. For purposes of litigation involving this contract, except for contract Disputes discussed in paragraph 8 below, exclusive venue and jurisdiction must be in the Maryland State courts located in Kent County, Maryland.

4. ASSIGNMENTS AND SUBCONTRACTS

The Contractor may not assign or transfer this contract, any interest herein or any claim hereunder, except as expressly authorized in writing by County's DIRECTOR OF

PURCHASING, or as otherwise specifically provided for in the contract. Unless performance is separately and expressly waived in writing by the DIRECTOR OF PURCHASING, an assignment does not release the Contractor from responsibility for performance of this contract. Unless otherwise provided in the contract, the Contractor may not contract with any other party for furnishing any of the materials or services herein contracted for without the written approval of the DIRECTOR OF PURCHASING.

5. CHANGES

The DIRECTOR OF PURCHASING may unilaterally change the work, materials and services to be performed, in accordance with County law, rule, or regulation. The change must be in writing and within the general scope of the contract. The contract will be modified to reflect any time or money adjustment the Contractor is entitled to receive. Any claim concerning an adjustment in time or money due to a change must be given in writing to the DIRECTOR OF PURCHASING or the designated contract administrator, within thirty (30) days from the date that the change was ordered, or the claim is waived. Any failure to agree upon a time or money adjustment must be resolved under the "Disputes" clause of this contract. The Contractor must proceed with the prosecution of the work as changed, even if there is an unresolved claim. No charge for any extra work, time or material will be allowed, except as provided in this section.

6. CONTRACT ADMINISTRATION

A. The contract administrator, subject to paragraph B below, is the Department representative designated by the DIRECTOR OF PURCHASING. The contract administrator is authorized to:

(1) serve as liaison between the County and Contractor;

(2) give direction to the Contractor to ensure satisfactory and complete performance;

(3) monitor and inspect the Contractor's performance to ensure acceptable timeliness and quality;

(4) serve as records custodian for this contract;

(5) accept or reject the Contractor's performance;

(6) furnish timely written notice of the Contractor's performance failures to the DIRECTOR OF PURCHASING;

(7) prepare required reports;

(8) approve or reject invoices for payment;

(9) recommend contract modifications or terminations to the DIRECTOR OF PURCHASING; and

(10) issue notices to proceed.

B. The contract administrator is NOT authorized to make determinations (as opposed to recommendations) that alter, modify, terminate or cancel the contract, effect a procurement, interpret ambiguities in contract language, or waive the County's contractual rights.

7. COST AND PRICING DATA

The Contractor guarantees that any cost and/or pricing data provided to the County will be accurate and complete. The Contractor grants the County access to all books, records, documents, and other supporting data in order to permit adequate evaluation of the Contractor's proposed price(s). The Contractor also agrees that the price to the County, including profit or fee, may, at the option of the County, be reduced to the extent that the price was based on inaccurate, incomplete, or non-current data supplied by the Contractor.

8. DISPUTES DURING CONTRACT PERFORMANCE

Any dispute by Contractor arising during the performance of the contract, which dispute is not disposed of by mutual agreement, must be decided as provided hereunder. Pending final resolution of a dispute, the Contractor must proceed diligently with contract performance. Subject to the discretion of the DIRECTOR OF PURCHASING, the head of the County department, office, or agency ("Department Head") of the contract administrator is the designee of the DIRECTOR OF PURCHASING, for the purpose of dispute resolution. If the contract administrator is the Department Head, then the dispute shall be managed by the DIRECTOR OF PURCHASING. The Department Head may, with the Contractor's consent, delegate this responsibility to another person (other than the contract administrator). The Contractor waives any dispute or claim not made in writing and received by the Department Head within thirty (30) days of the occurrence giving rise to the dispute or claim. A dispute must be in writing, for specific relief, and any requested relief must be fully supported by affidavit and all relevant calculations, including cost and pricing information, records, and other information. The Contractor may, at the County's option, be made a party to any related dispute involving another Contractor.

9. DOCUMENTS, MATERIALS AND DATA

All documents, materials or data developed as a result of this contract are the County's property, unless specifically provided for in the contract. The County has the right to use and reproduce any documents, materials, and data, including confidential information, used in the performance of, or developed as a result of, this contract. The County may use this information for its own purposes, including reporting to state and federal agencies. The Contractor warrants that it has title to or right of use of all documents, materials or data used or developed in connection with this contract. The Contractor must keep confidential all documents, materials, and data prepared or developed by the Contractor or supplied by the County.

10. DURATION OF OBLIGATION

The Contractor agrees that all of Contractor's obligations and warranties which, directly or indirectly, are intended by their nature or by implication to survive performance of the contract

shall so survive the completion of performance, termination for cause, or the termination for convenience of the contract.

11. ENTIRE AGREEMENT

There are no promises, terms, conditions, or obligations other than those contained in the contract, including any terms, conditions, documents or exhibits thereto, and these General Conditions. This contract supersedes all communications, representations, or agreements, either verbal or written, between the parties hereto, with the exception of express warranties given to induce the County to enter into the contract.

12. ETHICS REQUIREMENTS/ POLITICAL CONTRIBUTIONS

The Contractor must comply with the ethics provisions contained in Chapter 29 – Ethics of the Code of Public local Laws of Kent County.

13. GUARANTEE

A. Contractor guarantees for one year from acceptance, or for such other period of time as may have been expressly stated in the contract or the County's written solicitation, all goods, services, and construction offered, including those used in the course of providing the goods, services, and/or construction. This includes a guarantee that all products offered (or used in the installation of those products) carry a guarantee against any and all defects for such period. The Contractor must correct any and all defects in material and/or workmanship which may appear during the guarantee period, or any defects that occur within one (1) year of acceptance even if discovered more than one (1) year after acceptance, by repairing (or replacing with new items or new materials, if necessary) any such defect at no cost to the County and to the County's satisfaction.

B. Should a manufacturer's or service provider's warranty or guarantee exceed the requirements stated above, that guarantee or warranty will be the primary one used in the case of defect. Copies of manufacturer's or service provider's warranties must be provided upon request.

C. All warranties and guarantees must be in effect from the date of acceptance by the County of the goods or services.

D. The Contractor guarantees that all work shall be accomplished in a workmanlike manner, and the Contractor must observe and comply with all federal, State, County and local laws, ordinances and regulations in providing the goods and performing the services listed.

E. Goods and materials provided under this contract must be of first quality, latest model, and of current manufacture, and must not be of such age or so deteriorated as to impair their usefulness or safety. Items that are used, rebuilt, or demonstrator models are unacceptable, unless specifically requested by the County in the in the contract documents.

F. ***All goods shall be merchantable and fit for the particular purpose ordered or purchased, and the Contractor so represents and warrants.***

14. HAZARDOUS AND TOXIC SUBSTANCES

Manufacturers and distributors are required by federal "Hazard Communication" provisions of 29 CFR 1910.1200, and the Maryland "Access to Information About Hazardous and Toxic Substances" Law, to label each hazardous material or chemical container, and to provide Material Safety Data Sheets to the purchaser. The Contractor must comply with these laws and must provide the County with copies of all relevant documents, including Material Safety Data Sheets, prior to performance of services or contemporaneous with delivery of goods.

15. IMMIGRATION REFORM AND CONTROL ACT

The Contractor warrants that both the Contractor and any subcontractor do not and shall not hire, recruit or refer for a fee, for employment under this contract or any subcontract, an alien while knowing the alien is an unauthorized alien, or any individual without complying with the requirements of the federal Immigration and Nationality laws, including but not limited to any verification and record keeping requirements. The Contractor further assures the County that, in accordance with those laws, it does not and will not discriminate against an individual with respect to hiring, or recruitment or referral for a fee, of the individual for employment or the discharging of the individual from employment because of such individual's national origin or, in the case of a citizen or intending citizen, because of such individual's citizenship status.

16. INCONSISTENT PROVISIONS

Notwithstanding any provisions to the contrary in any contract terms or conditions supplied by the Contractor, the County's General Conditions supersede the Contractor's terms and conditions in the event of any inconsistency, unless specifically waived or amended by the County.

In the case of any conflicts or ambiguities among the contract documents, such matters shall be resolved in favor of the following priorities:

a. ***Any term or condition specifically provided for in a contract or exhibit to a contract, other than terms and conditions provided by the Contractor.***

b. ***Terms and conditions specified by the County in any request for proposal, request for interest of qualifications, invitation to bid, or other document specifying with particularity the County's terms and conditions.***

c. ***These General Conditions.***

The lack of a specific provision in any of the documents referred to in items 16.a and 16.b above shall not operate to create an ambiguity with these General Conditions.

17. INDEMNIFICATION

The Contractor is responsible for any loss, personal injury, death and any other damage (including incidental and consequential) that may be done or suffered by reason of the Contractor's negligence or failure to perform any contractual obligations. The Contractor must

indemnify and save the County harmless from any loss, cost, damage and other expenses, including attorney's fees and litigation expenses, suffered or incurred due to the Contractor's negligence or failure to perform any of its contractual obligations. If requested by the County, the Contractor must defend the County in any action or suit brought against the County arising out of the Contractor's negligence, errors, acts or omissions under this contract. The negligence of any agent, subcontractor or employee of the Contractor is deemed to be the negligence of the Contractor. For the purposes of this paragraph, County includes its elected officials, officials, employees, agents, boards, and agencies.

18. INDEPENDENT CONTRACTOR

The Contractor is an independent contractor. The Contractor and the Contractor's employees or agents are not agents or employees of the County. Neither these General Conditions nor the contract are intended to create, nor do they create any partnership, joint venture, agency or other relationship between the County and the Contractor.

19. INFRINGEMENT

Contractor represents and warrants that there is no copyright or patent infringement with respect to any goods or materials furnished pursuant to the contract. The Contractor shall indemnify and hold harmless the County with respect to costs, expense, damages, and liability arising from or on account of any claim for infringement.

20. INSPECTIONS

The County has the right to monitor, inspect and evaluate or test all supplies, goods, or services called for by the contract at all reasonable places (including the Contractor's place of business) and times (including the period of preparation or manufacture).

21. INSURANCE

Prior to execution of the contract, the Contractor must obtain at its own cost and expense, and keep in force and effect during the term of this contract, including all extensions, the insurance specified in the contract, including any applicable table or attachment, with an insurance company licensed or qualified to do business in the State of Maryland and with an A. M. Best rating of not less than A-. The Contractor must submit a certificate of insurance prior to award of this contract and prior to any contract modification extending the term of the contract, as evidence of compliance with this provision. The County must be named as an additional insured on all liability policies. Forty-five (45) days written notice to the County of cancellation or material change in any of the policies is required. In no event may the insurance coverage be less than that shown on the applicable table, attachment, or contract provision for required insurance. Subject to applicable law, the DIRECTOR OF PURCHASING may waive or modify the requirements of this section 21 in whole or in part.

22. NON-CONVICTION OF BRIBERY

The Contractor hereby declares and affirms that, to its best knowledge, none of its officers, directors, members, partners, or employees directly involved in obtaining contracts has been convicted of bribery, attempted bribery, or conspiracy to bribe under the laws of any state or

the federal government.

23. NONDISCRIMINATION IN EMPLOYMENT

The Contractor shall not discriminate in employment, or in the treatment of employees, or discriminate in any manner on the basis of race, color, gender, age, religion, creed, national origin, ancestry, marital status, disability, political affiliation, or lawful sexual orientation and shall follow and obey all applicable State, federal, and County laws and regulations regarding employment discrimination. The Contractor must bind its subcontractors to the provisions of this section.

24. PAYMENTS

This contract is subject to a non-appropriations clause as provided herein. No payment may be made or is due under this contract unless funds for the payment have been appropriated and encumbered by the County. Under no circumstances will the County pay the Contractor for legal fees. The Contractor must not proceed to perform any work (provide goods, services, or construction) prior to receiving written confirmation that the County has appropriated and encumbered funds for the work. If the Contractor fails to obtain this verification from the County prior to performing work, the County has no obligation to pay the Contractor for the work.

If this contract provides for an additional contract term, or for work in any period beyond the end of the County's fiscal year in which the contract is executed, continuation of this contract beyond the end of that fiscal year is contingent upon the subsequent appropriation of funds and encumbrance of those appropriated funds for payments under this contract. If funds are not appropriated and encumbered to support continued performance in a subsequent fiscal period, this contract terminates without further notice from, or cost to, the County. The Contractor acknowledges that the County Commissioners have no obligation to appropriate funds for this contract in subsequent fiscal years. Furthermore, the County has no obligation to encumber funds to this contract in subsequent fiscal years. Accordingly, for each subsequent contract term, the Contractor must take appropriate action to verify that such funds have been appropriated and encumbered. See Annotated Code of Maryland, Article 31, section 3.

25. PERSONAL PROPERTY

All furniture, office equipment, equipment, vehicles and other similar types of personal property specified in the contract and purchased with funds provided under the contract become the property of the County upon the termination or expiration of this contract, unless expressly stated otherwise.

26. TERMINATION FOR CAUSE

The County may terminate the contract in whole or in part, and from time to time, whenever the County determines that the Contractor is:

a. defaulting in performance or is not complying with any provision of this contract;

b. failing to make satisfactory progress in the prosecution of the contract; or

c. endangering the performance of this contract.

Prior to a termination for cause, the County will send the Contractor written notice specifying the cause. The notice will give the Contractor ten (10) days from the date the notice is issued to cure the default or make progress satisfactory to the County in curing the default, unless a different time is given in the notice. If the County determines that default contributes to the curtailment of an essential service or poses an immediate threat to life, health, or property, the County may terminate the contract immediately upon issuing oral or written notice to the Contractor without any prior notice or opportunity to cure. In addition to any other remedies provided by law or the contract, the Contractor must compensate the County for additional costs that would be incurred by the County, whether the costs are actually incurred or not, to obtain substitute performance. A termination for cause shall be considered a termination for convenience as of the date the Contractor was advised of the termination for cause, if there was, in fact, no cause.

27. TERMINATION FOR CONVENIENCE

This contract may be terminated by the County, in whole or in part, upon written notice to the Contractor, when the County determines termination to be in the County's best interest. The termination is effective ten (10) days after the notice is issued, unless a different time is given in the notice. The County is liable only for payment for acceptable performance prior to the effective date of the termination, and for costs reasonably incurred as of the date of termination, which costs or items acquired by such costs cannot be economically retained by the Contractor for other or future use of the Contractor.

28. TIME

Time is of the essence in the performance by Contractor of the contract and of all ancillary matters arising therefrom.

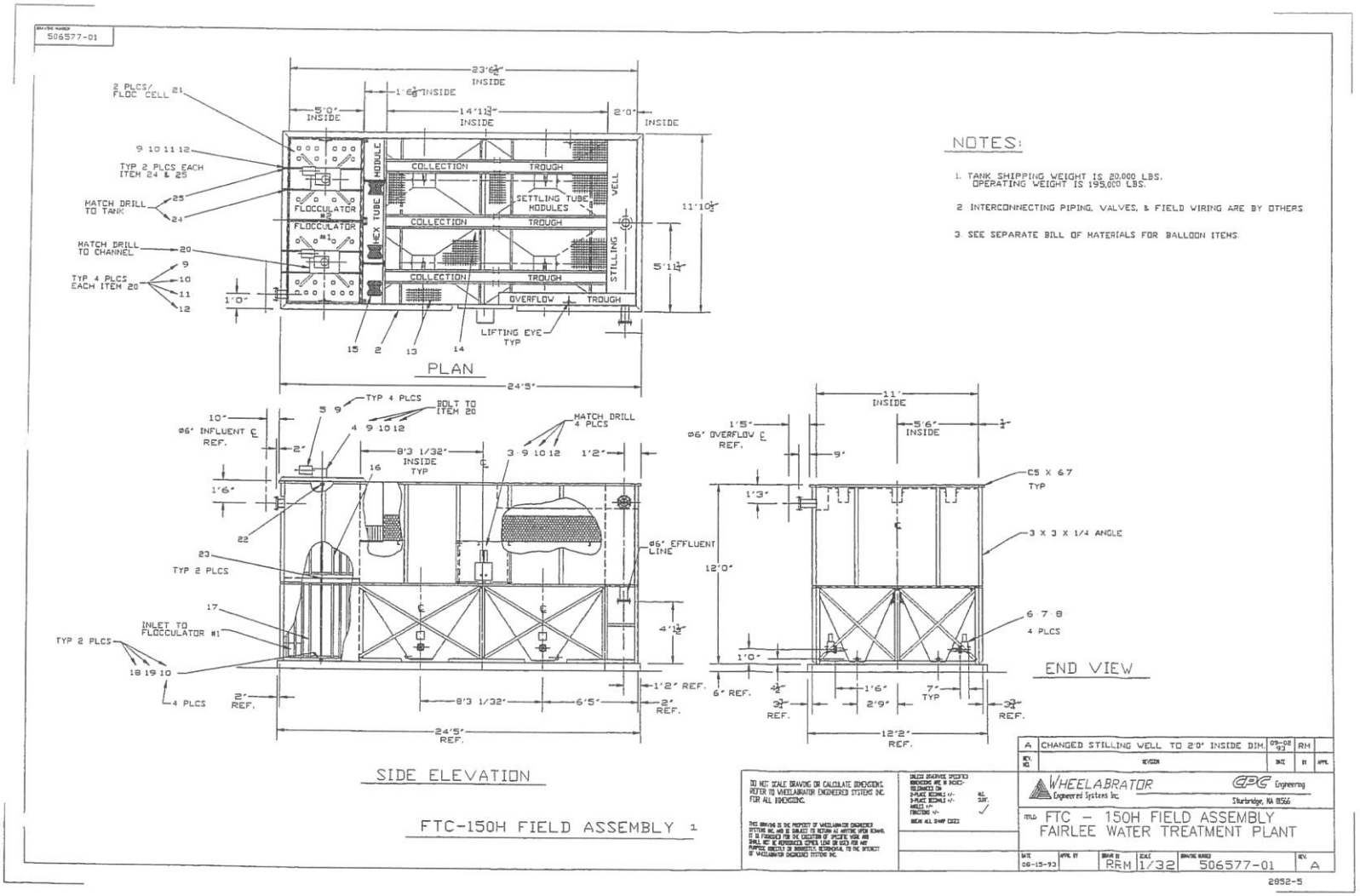
29. TITLE

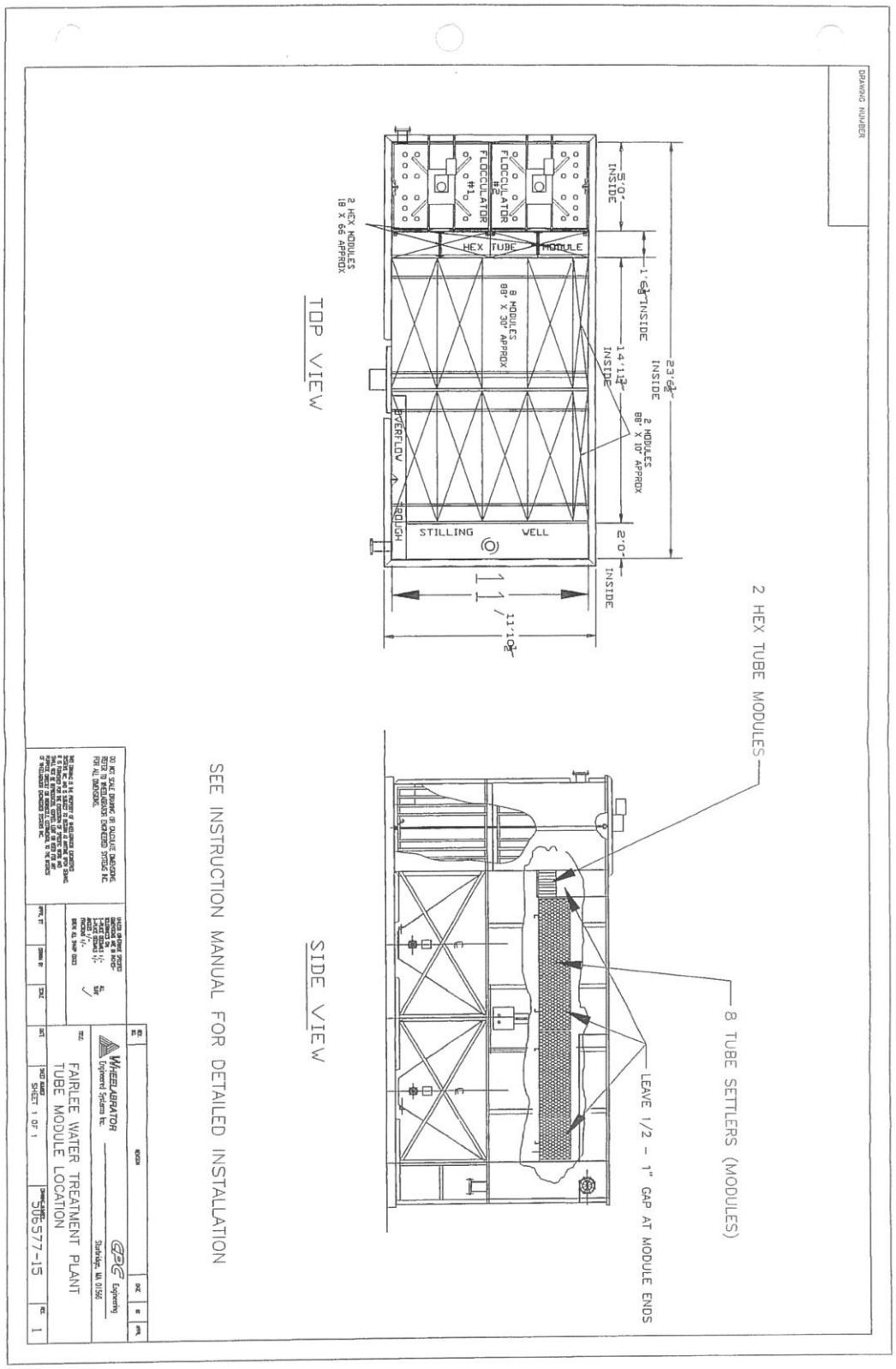
All goods delivered or provided to the County or otherwise pursuant to the contract, and the title thereto, shall be free any security interest, lien, contract restriction, or other form of encumbrance. Title shall pass to the County at the place of delivery to the County, subject to the County's right to inspect and accept or reject the goods.

30. WORK UNDER THE CONTRACT

Work may not commence under this contract until all conditions for commencement are met, including execution of the contract by both parties, compliance with insurance requirements, and issuance of any required notice to proceed.

ATTACHMENT 1


506577-01
PLAN
SIDE ELEVATION
END VIEW
NOTES:
1. TANK SHIPPING WEIGHT IS 20,000 LBS. OPERATING WEIGHT IS 195,000 LBS.
2. INTERCONNECTING PIPING, VALVES, & FIELD WIRING ARE BY OTHERS
3. SEE SEPARATE BILL OF MATERIALS FOR BALLOON ITEMS.
FTC-150H FIELD ASSEMBLY 1
A CHANGED STILLING WELL TO 2'0" INSIDE DIM. 09-08-93 RM
WHEELABRATOR Engineered Systems Inc.
CPC Engineering
Sturbridge, MA 01566
FTC - 150H FIELD ASSEMBLY
FAIRLEE WATER TREATMENT PLANT
DATE 08-15-93
DRAWN BY RRM
SCALE 1/32
DRAWING NUMBER 506577-01
REV. A
2852-5


DRAWING NUMBER
TOP VIEW
SIDE VIEW
2 HEX TUBE MODULES
8 TUBE SETTLERS (MODULES)
LEAVE 1/2 - 1" GAP AT MODULE ENDS
SEE INSTRUCTION MANUAL FOR DETAILED INSTALLATION
FLOCCULATOR #1
FLOCCULATOR #2
HEX TUBE MODULE
8 MODULES 88" X 30" APPROX
2 HEX MODULES 18 X 66 APPROX
2 MODULES 88" X 10" APPROX
OVERFLOW
ROUGH
STILLING WELL
5'0" INSIDE
1'6 1/8" INSIDE
14'11 1/4" INSIDE
23'6 1/2" INSIDE
2'0" INSIDE
11'10 1/2"
11'
WHEELABRATOR Engineered Systems Inc.
GPC Engineering
Sturbridge, MA 01566
FAIRLEE WATER TREATMENT PLANT
TUBE MODULE LOCATION
SHEET 1 OF 1
506577-15
1

ATTACHMENT 2

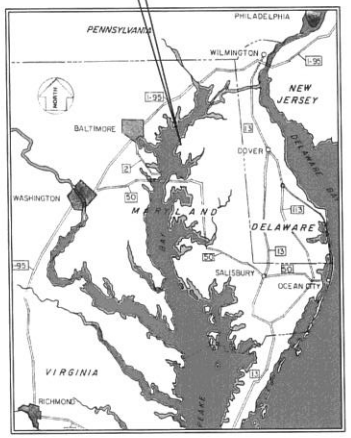
FAIRLEE WTP CLARIFLOCCULATOR REPLACEMENT

FAIRLEE, MARYLAND

GMB FILE NO. 190065

"PERMITS"

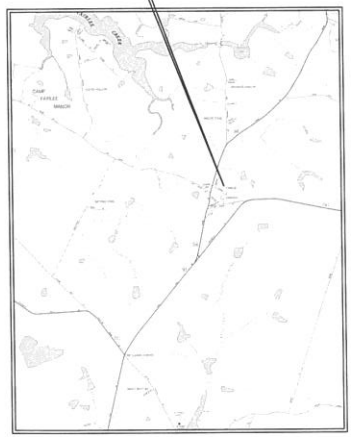
FAIRLEE, MD



VICINITY MAP

SCALE: 1" = 20 MILES

FAIRLEE WTP



LOCATION MAP

SCALE: 1" = 2000'±

LIST OF DRAWINGS

SHEET NO.	TITLE
GENERAL	
G1.0	COVER SHEET
G2.0	SITE PLAN
EQUIPMENT	
Q1.0	DEMOLITION PLAN
Q1.1	PROPOSED FLOOR PLAN
Q1.2	DETAILS
Q2.0	SECTION
Q2.1	PROPOSED CLARIFLOCCULATOR PLAN SECTION
STRUCTURAL	
S1.1	PROPOSED FLOOR IMPROVEMENTS
S1.2	STRUCTURAL NOTES & DETAILS
ELECTRICAL	
E1.0	ELECTRICAL DEMO PLAN
E1.1	ELECTRICAL DRAWINGS

GMB

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206 WEST MAIN STREET
SALISBURY, MARYLAND 21801
410-742-3115, FAX 410-548-5790
www.gmbnet.com

OCTOBER 2019

PLANS APPROVED BY THE KENT COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED BY

TITLE

NO.	REVISIONS	DATE

PRINTS ISSUED FOR: PERMITS

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FAIRLEE WTP CLARIFLOCCULATOR REPLACEMENT

FAIRLEE, MARYLAND

STATE OF MARYLAND PROFESSIONAL ENGINEER

COVER SHEET

SCALE	AS NOTED
DESIGN BY	MWH
DRAWN BY	YPV
CHECKED BY	JDI
JOB NO.	190065
DATE	OCT. 2019

SHEET NO. G1.0

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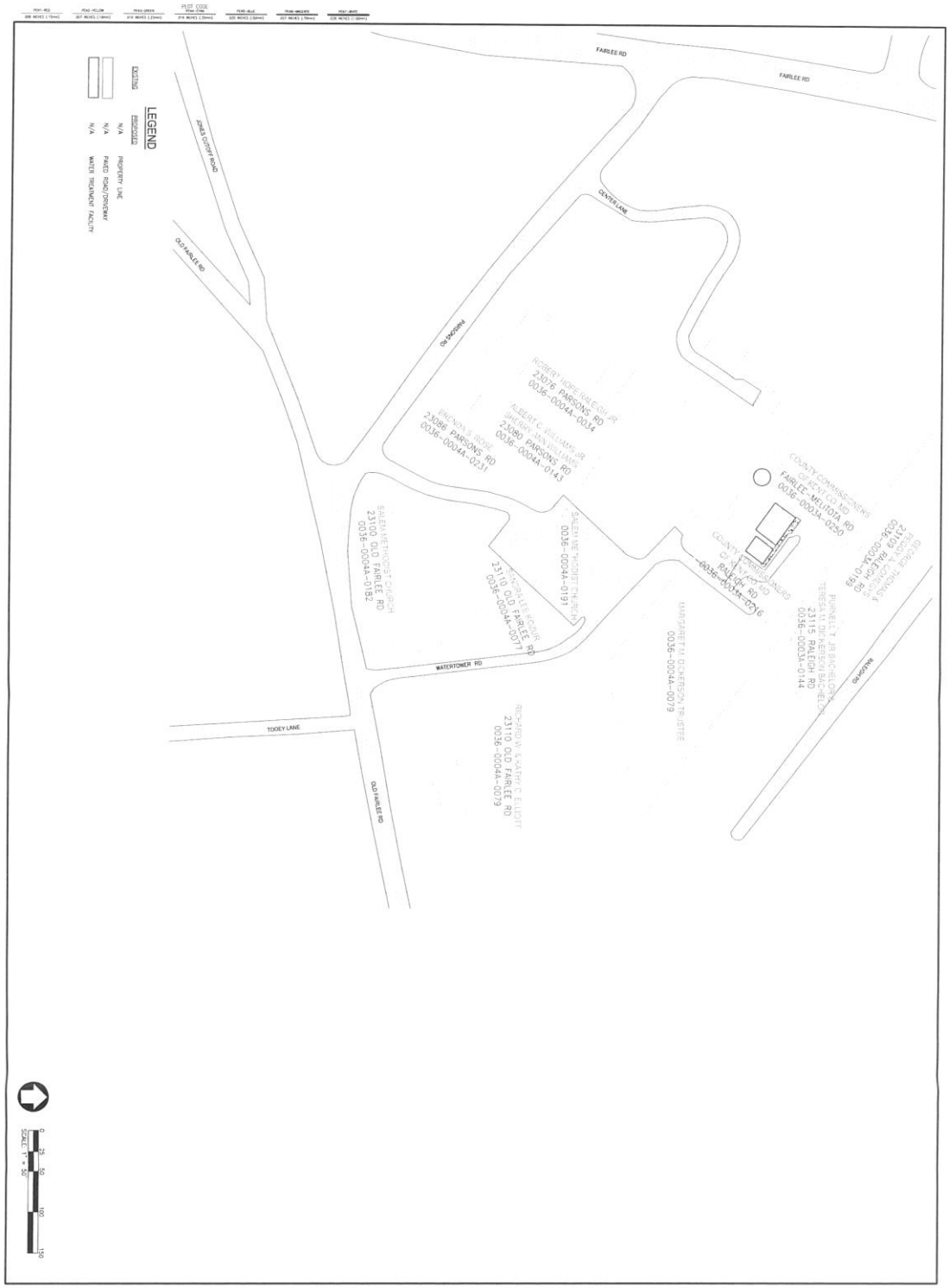

SITE PLAN

SHEET NO. G2.0

FAIRLEE WTP
CLARIFLOCCULATOR
REPLACEMENT

FAIRLEE, MARYLAND

GMB
GEORGE, MILES & BUHR, LLC
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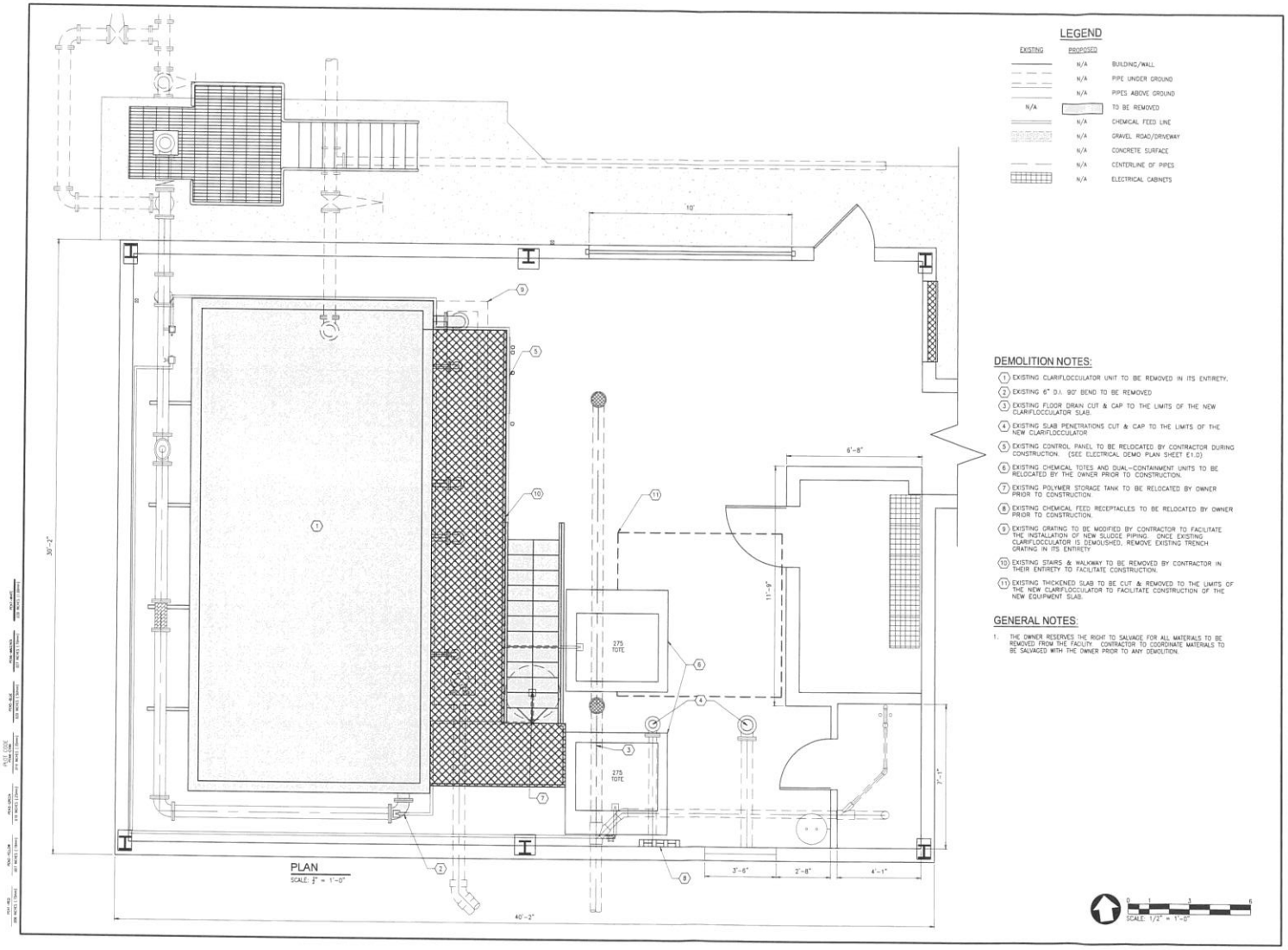
NO.	REVISIONS	DATE

PRINTS ISSUED FOR FAIRLEE



LEGEND

EXISTING	PROPOSED	
	N/A	BUILDING/WALL
	N/A	PIPE UNDER GROUND
	N/A	PIPES ABOVE GROUND
N/A		TO BE REMOVED
	N/A	CHEMICAL FEED LINE
	N/A	GRAVEL ROAD/DRIVEWAY
	N/A	CONCRETE SURFACE
	N/A	CENTERLINE OF PIPES
	N/A	ELECTRICAL CABINETS

DEMOLITION NOTES:

1. EXISTING CLARIFLOCCULATOR UNIT TO BE REMOVED IN ITS ENTIRETY.
2. EXISTING 6" D.I. 90° BEND TO BE REMOVED
3. EXISTING FLOOR DRAIN CUT & CAP TO THE LIMITS OF THE NEW CLARIFLOCCULATOR SLAB.
4. EXISTING SLAB PENETRATIONS CUT & CAP TO THE LIMITS OF THE NEW CLARIFLOCCULATOR
5. EXISTING CONTROL PANEL TO BE RELOCATED BY CONTRACTOR DURING CONSTRUCTION. (SEE ELECTRICAL DEMO PLAN SHEET E1.0)
6. EXISTING CHEMICAL TOTES AND DUAL-CONTAINMENT UNITS TO BE RELOCATED BY THE OWNER PRIOR TO CONSTRUCTION.
7. EXISTING POLYMER STORAGE TANK TO BE RELOCATED BY OWNER PRIOR TO CONSTRUCTION.
8. EXISTING CHEMICAL FEED RECEPTACLES TO BE RELOCATED BY OWNER PRIOR TO CONSTRUCTION.
9. EXISTING GRATING TO BE MODIFIED BY CONTRACTOR TO FACILITATE THE INSTALLATION OF NEW SLUDGE PIPING. ONCE EXISTING CLARIFLOCCULATOR IS DEMOLISHED, REMOVE EXISTING TRENCH GRATING IN ITS ENTIRETY.
10. EXISTING STAIRS & WALKWAY TO BE REMOVED BY CONTRACTOR IN THEIR ENTIRETY TO FACILITATE CONSTRUCTION.
11. EXISTING THICKENED SLAB TO BE CUT & REMOVED TO THE LIMITS OF THE NEW CLARIFLOCCULATOR TO FACILITATE CONSTRUCTION OF THE NEW EQUIPMENT SLAB.

GENERAL NOTES:

1. THE OWNER RESERVES THE RIGHT TO SALVAGE FOR ALL MATERIALS TO BE REMOVED FROM THE FACILITY. CONTRACTOR TO COORDINATE MATERIALS TO BE SALVAGED WITH THE OWNER PRIOR TO ANY DEMOLITION.

PRINTS ISSUED FOR PERMITS

NO.	REVISIONS	DATE

GEORGE, MILES & BUHR, LLC
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SALISBURY, MARYLAND 21801
410-742-3115 FAX 410-742-7592
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FAIRLEE WTP CLARIFLOCCULATOR REPLACEMENT

FAIRLEE, MARYLAND

STATE OF MARYLAND
JOHN H. HARRIS
No. 15551
PROFESSIONAL ENGINEER

DEMOLITION PLAN

SCALE	AS NOTED
DESIGN BY	MAH
DRAWN BY	YPV
CHECKED BY	JCH
JOB NO.	180085
DATE	OCT. 2019

SHEET NO. Q1.0

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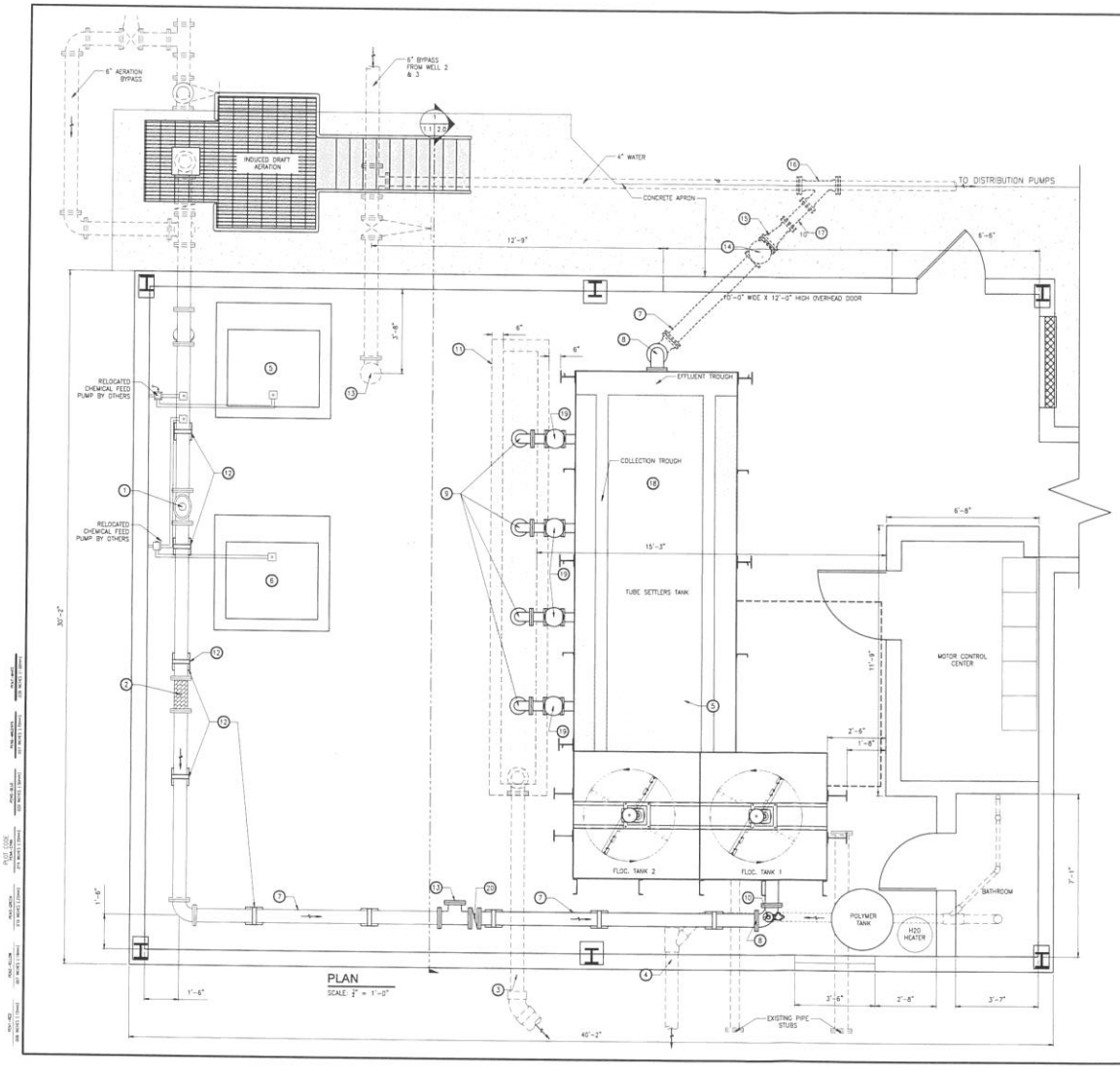

PLAN
SCALE: 1/2" = 1'-0"

PROPOSED PIPING AND EQUIPMENT

1. EXISTING 6" FLOW METER
2. EXISTING 6" STATIC MIXER
3. EXISTING 6" SLUDGE LINE
4. EXISTING 6" SEWER
5. SODIUM HYDROXIDE TOTE W/ SPILL CONTAINMENT
6. SODIUM HYPOCHLORITE TOTE W/ SPILL CONTAINMENT
7. FURNISH AND INSTALL 6" DUCTILE IRON FLANGED PIPE
8. FURNISH AND INSTALL 6" DUCTILE IRON FLANGED 90° BEND
9. FURNISH AND INSTALL 4" SLUDGE DRAIN
10. FURNISH AND INSTALL NEW POLYMER INJECTION QUILL
11. FURNISH AND INSTALL NEW FRP GRATING
12. FURNISH AND INSTALL ADJUSTABLE PIPE STAND (TYP.)
13. FURNISH AND INSTALL 6" DUCTILE IRON TEE W/ BLIND FLANGE
14. FURNISH AND INSTALL 6" GATE VALVE
15. FURNISH AND INSTALL 4"X6" M.J. REDUCER
16. FURNISH AND INSTALL 4" M.J. WYE
17. FURNISH AND INSTALL 4" DUCTILE IRON FLANGED PIPE
18. PROPOSED PRETREATMENT UNIT
19. 4" SLUDGE BLOWDOWN VALVE
20. 6" BUTTERFLY VALVE

GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR ALL INTERCONNECTING PIPING WITH THE PRETREATMENT SYSTEM.
2. ALL DIMENSIONS SHOWN ON PLANS ARE APPROXIMATE. CONTRACTOR TO VERIFY DIMENSIONS AND EXISTING PIPE LOCATIONS IN THE FIELD.
3. CONTRACTOR TO VERIFY ALL EQUIPMENT LOCATIONS IN THE FIELD.
4. ALL DUCTILE PIPING SHALL BE PAINTED IN THE FIELD PER THE CONTRACT DOCUMENTS BEFORE PLACING THE FACILITY INTO SERVICE.
5. THROUGH SLAB PIPING SHALL BE INSTALLED PER THE DETAIL ON SHEET Q1.2 WITH SLEEVES AS APPROPRIATE.
6. NOT ALL EXISTING SMALL DIAMETER PIPING HAS BEEN SHOWN IN THE CONTRACT DRAWINGS TO PRESERVE CLARITY. CONTRACTOR TO COORDINATE NEW WORK WITH EXISTING UTILITIES AS APPROPRIATE.
7. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS TO ADEQUATELY SUPPORT ALL PIPING. NOT ALL PIPE SUPPORTS HAVE BEEN SHOWN.
8. CONTRACTOR TO PROVIDE MOBILE ROLLING-LADDER FOR OWNER'S USE. UNIT SHALL BE FSI INDUSTRIES GATEWAY REAR-EXIT STEEL ROLLING LADDER PART NO. RWSR11424-XR OR APPROVED EQUAL.
9. CONTRACTOR TO TEST PIT FOR EXISTING UTILITIES & PIPING PRIOR TO ALL EXECUTIONS.
10. OWNER TO RELOCATE THE SODIUM HYDROXIDE TOTE AND THE SODIUM HYPOCHLORITE TOTE AS APPROPRIATE.
11. KENT COUNTY TO INSTALL A 2-INCH VENT PIPE ON THE SODIUM HYPOCHLORITE TANK AND VENT TO THE OUTSIDE ONCE THE TANK IS PERMANENTLY RELOCATED.
12. SLUDGE BLOW DOWN VALVES SHALL BE PROVIDED AS AN INTEGRAL PART OF THE CLARIFLOCCULATOR MANUFACTURER SYSTEM. VALVE CONTROLS SHALL HAVE THE ABILITY TO VARY THE DURATION THEY ARE OPEN FROM 0 TO 20 MINUTES.
13. POLYMER TANK TO BE RELOCATED BY OWNER AS APPROPRIATE.
14. AFTER INSTALLATION, PAINTING AND CURING, THE NEW CLARIFYING FLOCCULATOR UNIT MUST BE DISINFECTED IN ACCORDANCE WITH THE LATEST VERSION OF AWWA STANDARD C653-13, DISINFECTION OF WATER TREATMENT PLANTS. SINCE THIS STANDARD REFERS TO AWWA C652, DISINFECTION OF WATER-STORAGE FACILITIES, PLEASE NOTE CHLORINATION METHOD 3 IS NOT ACCEPTABLE. ONLY METHOD 1 AND METHOD 2 ARE APPROVED FOR TANK DISINFECTION, AS METHOD 3 IS MORE LIKELY TO CONTRIBUTE TO DISINFECTION BY-PRODUCT FORMATION.
15. AFTER DISINFECTION, TWO (OR MORE) SUCCESSIVE TOTAL COLIFORM SAMPLES (COLLECTED AT 24-HOUR INTERVALS) AND ONE SAMPLE FOR VOLATILE ORGANIC COMPOUNDS (VOCs) ARE REQUIRED.
16. ALL BACTERIOLOGICAL AND VOC SAMPLES SHALL BE TAKEN BY A STATE-CERTIFIED SAMPLER AND ANALYZED BY A STATE-CERTIFIED LABORATORY.
17. ALL SAMPLE RESULTS SHALL BE SUBMITTED TO MDE's WATER SUPPLY PROGRAM, WHICH WILL GIVE AUTHORIZATION TO PLACE THE UNIT INTO SERVICE. SAMPLE RESULTS MAY BE FORWARDED TO THE CONTACT PERSON, DEE SETTAR -- DEE.SETTAR@MARYLAND.GOV, OR SUBMITTED TO WATER.SUPPLY@MARYLAND.GOV.
18. IN ACCORDANCE WITH CODE OF MARYLAND REGULATIONS (COMAR) 26.04.01.33, DIRECT AND INDIRECT ADDITIVES, SUPPLIERS OF WATER SHALL ONLY USE PRODUCTS (ANY MATERIALS THAT COME IN CONTACT WITH WATER INTENDED FOR USE IN PUBLIC WATER SUPPLY) THAT MEET THE APPLICABLE AMERICAN NATIONAL STANDARDS INSTITUTE / NSF INTERNATIONAL (ANSI/NSF) STANDARDS FOR DIRECT OR INDIRECT DRINKING WATER ADDITIVES. THE PRODUCTS CAN ALSO BE CERTIFIED BY ANY ORGANIZATION ACCREDITED BY THE ANSI FOR SUCH TESTING (I.E., INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS RESEARCH AND TESTING, ONTARIO CA, UNDERWRITERS LABORATORY, NORTHBROOK IL, AND WATER QUALITY ASSOCIATION, LISLE IL).
19. IN COMPLIANCE WITH COMAR 09.20.01.03 AND THE SAFE DRINKING WATER ACT (SECTION 1417(a)(4)(B)), MATERIALS THAT COME IN CONTACT WITH WATER INTENDED FOR USE IN PUBLIC WATER SUPPLY SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT, WHICH WENT INTO EFFECT IN MARYLAND IN JANUARY 2012.

SCALE: 1/2" = 1'-0"

PRINTS ISSUED FOR PERMITS

NO.	REVISIONS	DATE

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FAIRLEE WTP
CLARIFLOCCULATOR
REPLACEMENT

FAIRLEE, MARYLAND

STATE OF MARYLAND
ANDREW C. WILLIAMS
No. 22511
PROFESSIONAL ENGINEER

PROPOSED FLOOR PLAN

SCALE	AS NOTED
DESIGN BY	MWH
DRAWN BY	YPV
CHECKED BY	JDH
CMB FILE	190065
DATE	OCT. 2019

SHEET NO.
Q1.1

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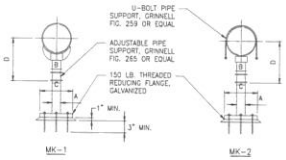
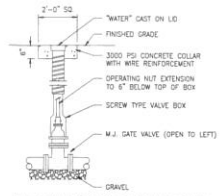


ADJUSTABLE PIPE SUPPORT					
PIPE SIZE	A	B	C	D MINIMUM	E MINIMUM
2 1/2	2 1/2	1 1/2	9	8	11 1/2
3	2 1/2	1 1/2	9	8 1/4	11 3/4
3 1/2	2 1/2	1 1/2	9	8 1/2	12
4	3	2 1/2	9	10 1/2	14
6	3	2 1/2	9	11 5/8	15 1/4
8	3	2 1/2	9	13 5/8	16 1/2
10	3	2 1/2	9	14 5/8	18 1/4
12	3	2 1/2	9	15 5/8	19 3/4
14	4	3	11	18 7/8	20 3/4
16	4	3	11	19 7/8	22 1/4
18	6	3 1/2	13 1/2	21 1/4	24
20	6	3 1/2	13 1/2	23 1/4	25 1/2
24	6	4	13 1/2	26 1/2	28 1/4
30	6	4	13 1/2	29 5/8	31 1/2
32	6	4	13 1/2	30 5/8	32 3/4
36	6	4	13 1/2	32 5/8	34 3/4

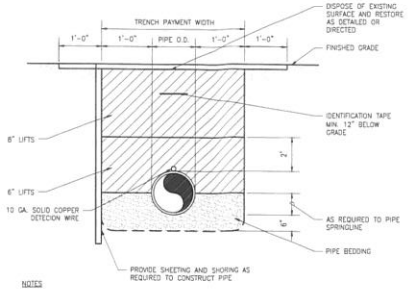
* SEE MANUFACTURER'S RECOMMENDATIONS

ADJUSTABLE PIPE SUPPORT DETAIL
NO SCALE



NOTE: IF VALVE IS LOCATED WITHIN PAVEMENT, CONCRETE COLLAR IS NOT REQUIRED.

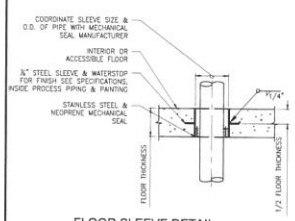
GATE VALVE DETAIL
NO SCALE



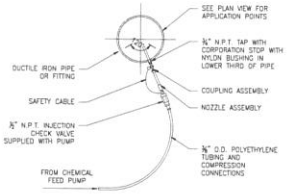
NOTES

1. INSTALL 10 GA. SOLID COPPER DETECTION WIRE INSTALLED ON TOP OF WATER MAINS AND FORCE MAIN WIRE TO BE LOOPED IN VALVE BOXES.

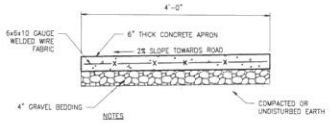
PIPE BEDDING AND BACKFILL DETAIL
NO SCALE



FLOOR SLEEVE DETAIL
NO SCALE



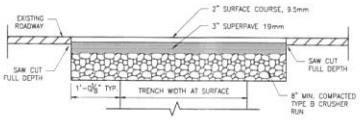
CHEMICAL INJECTION DETAIL
NO SCALE



NOTES

1. PROVIDE EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 10 FEET

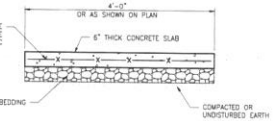
CONCRETE APRON RESTORATION DETAIL
NO SCALE



NOTES:

1. FINAL PAVEMENT SECTION OVER TRENCH SHALL BE 3" SUPERPAVE 9.5mm, 2" SUPERPAVE 19mm AND 8" GRADED AGGREGATE BASE COURSE.

PERMANENT PAVEMENT RESTORATION
NO SCALE



NOTES

1. PROVIDE EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 20 FEET.
2. WHEN JOINING NEW SLAB WITH EXISTING SLAB, MATCH EXISTING SLAB ELEVATION. SAWCUT EXISTING SLAB AND PROVIDE EXPANSION JOINT BETWEEN NEW AND EXISTING SLAB.

CONCRETE SLAB RESTORATION DETAIL
NO SCALE

NO.	REVISIONS	DATE

PRINTS ISSUED FOR PERMITS

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FAIRLEE WTP
CLARIFLOCCULATOR
REPLACEMENT

FAIRLEE, MARYLAND

DETAILS

SCALE	AS NOTED
DESIGN BY	MWH
DRAWN BY	YPV
CHECKED BY	JCH
JOB NO.	190065
DATE	OCT. 2019

SHEET NO. Q1.2

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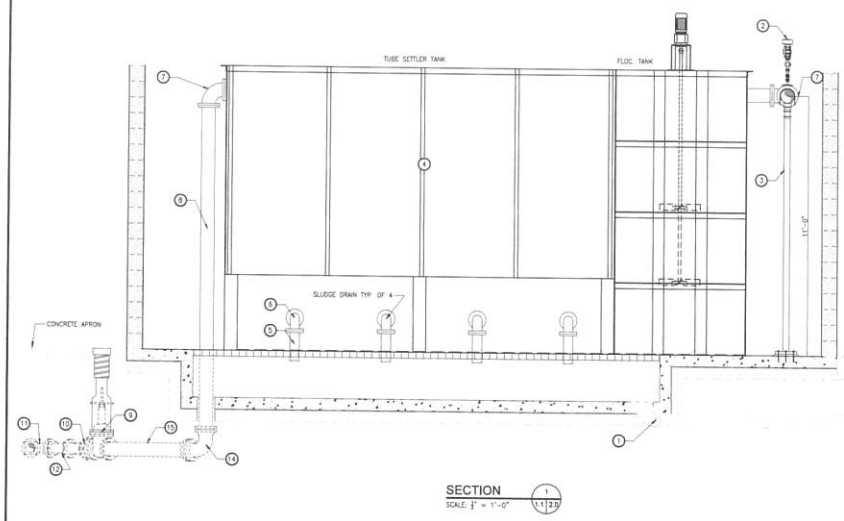

SECTION
SCALE: 1/2" = 1'-0"

PROPOSED PIPING AND EQUIPMENT

1. EXISTING 6" SLUDGE LINE
2. FURNISH AND INSTALL NEW POLYMER INJECTION QUILL
3. FURNISH AND INSTALL ADJUSTABLE PIPE SUPPORT
4. PROPOSED PRETREATMENT UNIT
5. 4" DUCTILE IRON FLANGED PIPE
6. 4" DUCTILE IRON FLANGED 90° BEND
7. 6" DUCTILE IRON 90° BEND
8. 6" DUCTILE IRON PIPE
9. 6" GATE VALVE AND VALVE BOX
10. 6"X4" M.J. REDUCER
11. 4"X4"X4" M.J. WYE
12. 4" M.J. PIPE
13. 4" M.J. 90° BEND
14. 6" M.J. 90° BEND
15. 6" M.J. PIPE

CONSTRUCTION NOTES:

1. NEW INJECTION QUILL SHALL BE DIRECT TAPPED INTO NEW PIPING AND INSTALLED PER THE INJECTION QUILL SYSTEM'S MANUFACTURER'S RECOMMENDATIONS.

0 1 3 6
SCALE: 1/2" = 1'-0"

PRINTS ISSUED FOR PERMITS

NO.	REVISIONS	DATE

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FAIRLEE WTP
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FAIRLEE, MARYLAND

SECTION

SCALE	AS NOTED
DESIGN BY	MMH
DRAWN BY	YPV
CHECKED BY	JCH
CAD FILE	190065
DATE	OCT. 2019

SHEET NO.
Q2.0

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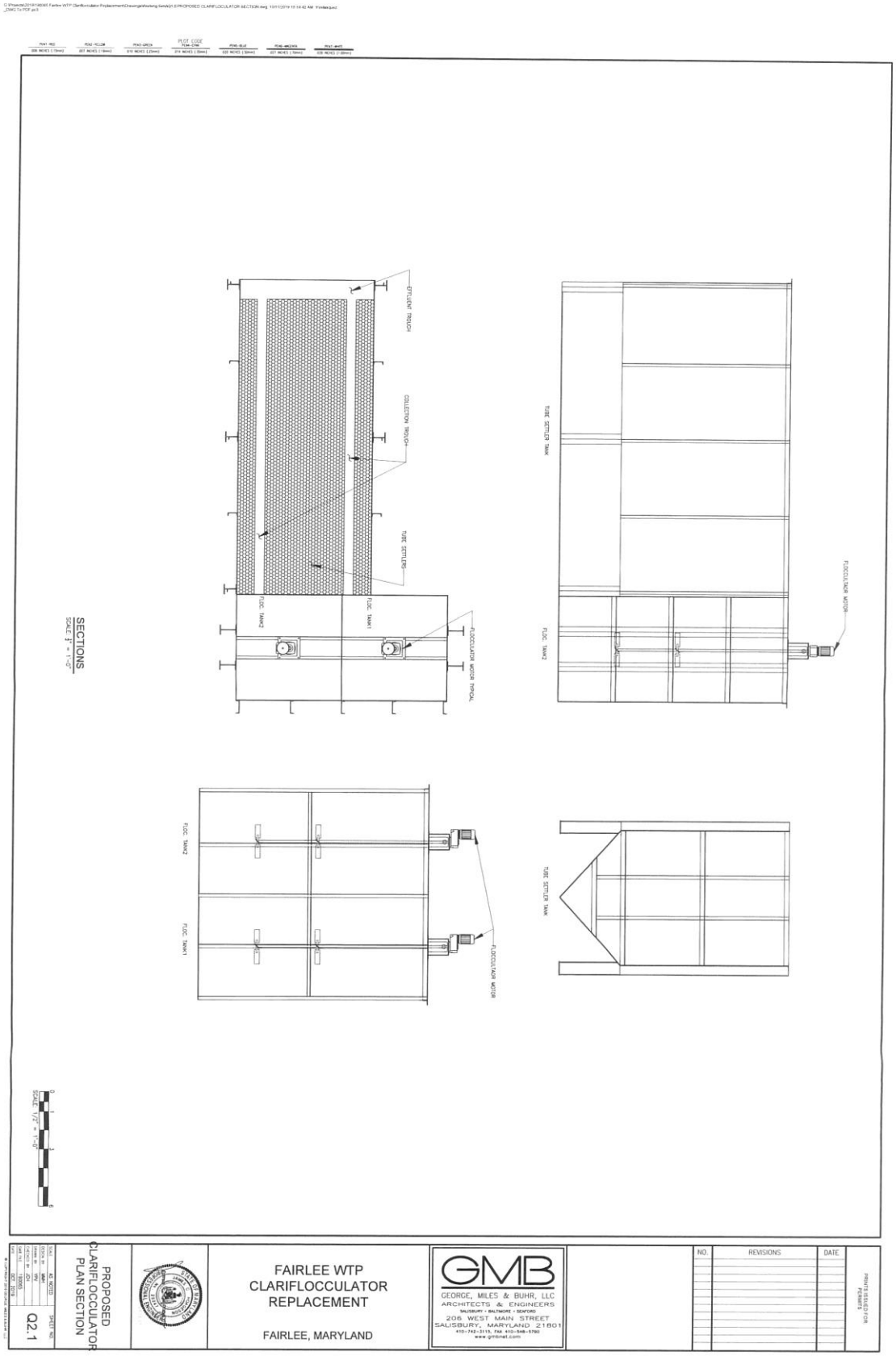
SECTIONS
SCALE: 1/2" = 1'-0"
EFFLUENT TROUGH
COLLECTION TROUGH
TUBE SETTLERS
FLOC. TANK2
FLOC. TANK1
FLOCCULATOR MOTOR TYPICAL
FLOCCULATOR MOTOR
TUBE SETTLER TANK
SCALE: 1/2" = 1'-0"
PROPOSED
CLARIFLOCCULATOR
PLAN SECTION
Q2.1
FAIRLEE WTP
CLARIFLOCCULATOR
REPLACEMENT
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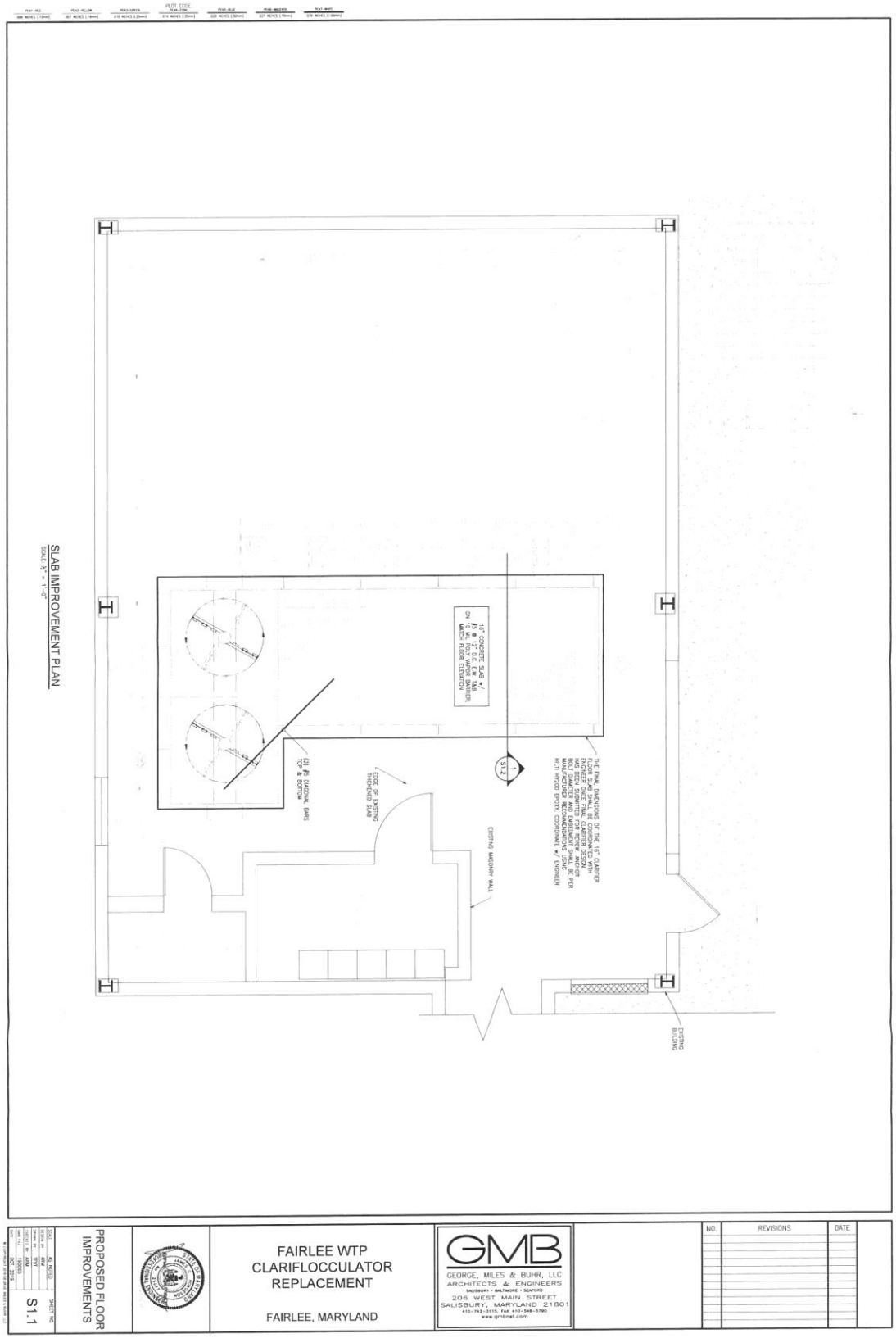
SLAB IMPROVEMENT PLAN
SCALE: 1/2" = 1'-0"
16" CONCRETE SLAB w/ #5 @ 12" O.C. E.W. T&B ON 10 MIL POLY VAPOR BARRIER; MATCH FLOOR ELEVATION
(2) #5 DIAGONAL BARS TOP & BOTTOM
EDGE OF EXISTING THICKENED SLAB
EXISTING MASONRY WALL
THE FINAL DIMENSIONS OF THE 16" CLARIFIER FLOOR SLAB SHALL BE COORDINATED WITH ENGINEER ONCE FINAL CLARIFIER DESIGN HAS BEEN SUBMITTED FOR REVIEW. ANCHOR BOLT DIAMETER AND EMBEDMENT SHALL BE PER MANUFACTURER RECOMMENDATIONS USING HILTI HY200 EPOXY, COORDINATE w/ ENGINEER
EXISTING BUILDING
S1.2
PROPOSED FLOOR IMPROVEMENTS
S1.1
FAIRLEE WTP
CLARIFLOCCULATOR
REPLACEMENT
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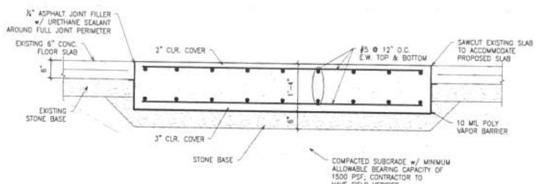

SECTION (1 / S1.2)
SCALE: ¾" = 1'-0"

GOVERNING CODES

THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT. USE THE LATEST EDITIONS UNLESS NOTED OTHERWISE.

A. "INTERNATIONAL BUILDING CODE", INTERNATIONAL CODE COUNCIL, INC., 2015
B. "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" (ANSI/ASCE 7-10), AMERICAN SOCIETY OF CIVIL ENGINEERS.
C. "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-14", AMERICAN CONCRETE INSTITUTE.
D. "ACI MANUAL OF CONCRETE PRACTICE – PARTS 1 THROUGH 5 – 2011"
E. "MANUAL OF STANDARD PRACTICE", CONCRETE REINFORCING STEEL INSTITUTE.
F. "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-11/ASCE 5-11/TMS 402-11) & SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-11/ASCE 6-11/TMS 602-11)."
J. "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION 2012, AMERICAN FOREST & PAPER ASSOCIATION

DESIGN LOADS

CLARIFIER SLAB 200,000 LBS

THE STRUCTURAL INTEGRITY OF THE BUILDING IS DEPENDANT UPON COMPLETION ACCORDING TO PLANS AND SPECIFICATIONS. THE STRUCTURAL ENGINEER ASSUMES NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION. THE METHOD OF CONSTRUCTION AND SEQUENCE OF OPERATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL SUPPLY ANY NECESSARY SHORING, BRACING, GUYS, ETC., TO PROPERLY BRACE THE STRUCTURE AGAINST WIND, DEAD AND LIVE LOADS UNTIL THE BUILDING IS COMPLETED ACCORDING TO THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL NOT PLACE BACK FILL AGAINST BASEMENT WALLS UNTIL THE FLOOR SYSTEM IS COMPLETELY INSTALLED OR CONTRACTOR HAS PROVIDED ADEQUATE SHORING AND BRACING. ANY QUESTIONS REGARDING TEMPORARY SHORING REQUIREMENTS SHOULD BE FORWARDED TO THE STRUCTURAL ENGINEER FOR REVIEW. MECHANICAL UNITS AND ANY OTHER EQUIPMENT SUPPORTED BY THE STRUCTURE WITH WEIGHTS IN EXCESS OF 200 LBS. SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

CAST-IN-PLACE CONCRETE

ALL CONCRETE SHALL BE MADE IN ACCORDANCE WITH DESIGN MIXES WHICH ARE TO BE APPROVED BY THE ARCHITECT OR ENGINEER PRIOR TO CASTING ANY CONCRETE. MIXES SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTION ACI 318. ALL PLAIN CONCRETE TO CONFORM TO ACI 318.1

MINIMUM SPECIFIED COMPRESSIVE STRENGTH f'c @ 28 DAYS.

LOCATION	MIN. COMP. (F'C)	SLUMP (IN.)
CLARIFIER SLAB	4000 PSI	4" +/- 1"

CONCRETE MATERIALS SHALL CONFORM TO ASTM C150, TYPE I FOR PORTLAND CEMENT AND ASTM C33 FOR AGGREGATES. WATER-REDUCING ADMIXTURES SHALL CONFORM TO ASTM C494, TYPE A (FREE OF CALCIUM CHLORIDES), AIR-ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C260, AND HIGH-RANGE WATER REDUCERS (SUPER-PLASTICIZERS) SHALL CONFORM TO ASTM C494, TYPE F. FLY ASH SHALL COMPLY WITH ASTM C618 FOR CLASS F AND SHALL NOT BE PROPORTIONED IN MIXES WITH MORE THAN 20% CEMENT BY WEIGHT. LIQUID-MEMBRANE CURING COMPOUNDS SHALL BE HIGH-SOLIDS, WATER AND ACRYLIC-BASED, COMPLYING WITH ASTM C309 AS TESTED UNDER ASTM C156. SLUMP OF THE CONCRETE SHALL BE A MINIMUM OF 4-INCHES AND A MAXIMUM OF 8-INCHES. SEE THE PROJECT SPECIFICATIONS.

ADDITION OF WATER TO THE CONCRETE AT THE JOB SITE FOR THE PURPOSE OF INCREASING THE SLUMP OR FOR RETEMPERING THE CONCRETE WHICH HAS BEGUN TO SET IS STRICTLY PROHIBITED. SEE THE PROJECT SPECIFICATIONS FOR REQUIREMENTS OF WATER ADDITION TO CONCRETE AT THE JOBSITE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ANCHOR BOLTS, CLIPS, INSERTS, CONNECTION PLATES, SLEEVES, SLOTS AND OTHER REQUIRED ITEMS IN ACCORDANCE WITH THE CONTRACT DRAWINGS, AND IN COOPERATION WITH OTHER TRADES PRIOR TO PLACING CONCRETE.

REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 60 (60,000 PSI). WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A-185. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH ACI'S MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES, (ACI-315). DETAILS OF REINFORCEMENT SHALL CONFORM TO ACI 318, ACI 315, AND CRSI STANDARDS.

ALL REINFORCING STEEL (INCLUDING WELDED WIRE FABRIC) SHALL BE SECURELY TIED AND ANCHORED IN PLACE TO PREVENT DISLOCATION DURING THE PLACING OPERATION.

REINFORCING STEEL SHALL BE CLEAN OF MUD, DEBRIS, LOOSE RUST, CEMENT, GROUT, OR ANY OTHER MATERIAL WHICH MAY INHIBIT THE BOND BETWEEN THE STEEL AND CONCRETE.

DRY PACK SHALL CONSIST OF SIKA GROUT 212 OR APPROVED SUBSTITUTE. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

CONDITION CASES

BAR SIZE	TOP BARS		OTHER BARS	
	CASE 1	CASE 2	CASE 1	CASE 2
#3	24"	36"	19"	28"
#4	32"	48"	25"	37"
#5	40"	60"	31"	46"
#6	48"	72"	37"	56"
#7	70"	105"	54"	81"
#8	80"	120"	62"	93"
#9	90"	135"	69"	104"
#10	100"	150"	77"	116"

CLASS "B" LAP SPLICES (f'c=4000 psi)

NON EPOXY COATED

TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE SPLICE.

CASE 1 – OTHER CASES
CASE 2 – COLUMNS & BEAMS:
COVER < BAR DIA. OR
CENTER TO CENTER SPACING < 2 BAR DIA.
ALL OTHER ELEMENTS:
COVER < BAR DIA. OR
CENTER TO CENTER SPACING < 3 BAR DIA.

FOUNDATION

THE TOP OF ALL EXTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 2'-0" BELOW FINISH GRADE, UNLESS NOTED OTHERWISE.

THE CONTRACTOR SHALL VERIFY THE BEARING CAPACITY OF THE BEARING SOILS IN THE FOOTING EXCAVATION PRIOR TO CASTING ANY FOOTINGS. WRITTEN VERIFICATION SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER.

PLACE FOOTINGS ON FIRM, DRY, NON-FROZEN SUBGRADE. REMOVE SOFT SOILS ENCOUNTERED DURING EXCAVATION. BACKFILL EXCAVATIONS AND AREAS REQUIRING STRUCTURAL FILL WITH CLEAN, MOIST, GRANULAR SELECT BORROW (TYPE "G", GRADE V OR BETTER IN ACCORDANCE WITH DELDOT STD. SPECS). ALL BACKFILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8-INCHES IN LOOSE THICKNESS. PROPER EQUIPMENT SHALL BE SELECTED AND USED FOR COMPACTION ACCORDING TO THE TYPE A BACKFILL MATERIAL USED. COMPACTION RATIO SHALL BE 95% MINIMUM.

FOOTING EXCAVATION SHALL BE INSPECTED BY THE BUILDING OFFICIAL PRIOR TO POURING CONCRETE.

MISCELLANEOUS ITEMS

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT AND FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS.

THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME.

THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR IS TO VERIFY ALL OPENING SIZES AND LOCATIONS WITH THE REQUIREMENTS OF OTHER TRADES PRIOR TO FABRICATION AND ERECTION.

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THE WORK OF ALL TRADES IS COORDINATED WITH ADJACENT WORK.

EARTH RETAINING WALLS, OTHER THAN CANTILEVERED TYPE WALLS, SHALL BE ADEQUATELY BRACED UNTIL CONCRETE FOR SUPPORTING SLABS HAS BEEN PLACED AND ALL CONCRETE HAS CURED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, FURNISHING, ERECTING AND REMOVING ANY TEMPORARY SHORING AND BRACING DURING CONSTRUCTION

THE ARCHITECT AND ENGINEER SHALL BE NOTIFIED AT THE PROPER TIME WHEN ALL ITEMS ARE READY FOR OBSERVATION. SUFFICIENT NOTICE SHALL BE GIVEN BY THE CONTRACTOR TO ALLOW FOR SCHEDULING OF OBSERVATIONS.

SAFETY REGULATIONS SHALL BE STRICTLY FOLLOWED BY THE CONTRACTOR OR SUBCONTRACTOR DURING ALL TIMES OF WORK ON THIS PROJECT. THE ARCHITECT OR ENGINEER SHALL NOT HAVE CONTROL OR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR ACTS OF OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

ALL SPECIALTY BOLTS, INCLUDING EXPANSION TYPE AND EPOXY TYPE ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

THE CONTRACTOR SHALL PROTECT FROM DAMAGES EXISTING BUILDING(S), OWNER EQUIPMENT, ROADS, WALKS AND UTILITIES. THE CONTRACTOR SHALL MAINTAIN THESE DURING THE COURSE OF THE WORK, AND SHALL REPAIR ALL DAMAGES AT NO ADDITIONAL EXPENSE TO THE OWNER.

IN AREAS WHERE THE DRAWINGS DO NOT ADDRESS METHODOLOGY, THE CONTRACTOR SHALL BE BOUND TO PERFORM IN STRICT COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND/OR RECOMMENDATIONS.

ON-SITE VERIFICATION OF ALL DIMENSIONS AND CONDITIONS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS. NOTED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE.

THE GENERAL NOTES AND TYPICAL DETAILS APPLY THROUGHOUT THE JOB UNLESS OTHERWISE NOTED OR SHOWN.

THE CONTRACTOR SHALL COMPARE AND COORDINATE ALL DRAWINGS. IF A DISCREPANCY EXISTS, HE SHALL PROMPTLY REPORT IT FOR PROPER ADJUSTMENT BEFORE PROCEEDING WITH THE WORK.

IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SIMILAR CONDITIONS THAT ARE SHOWN OR NOTED.

SHOP DRAWINGS

THE GENERAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS FOR APPROVAL. THE STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT IF THE GENERAL CONTRACTOR FAILS TO OBTAIN APPROVAL OF THE SHOP DRAWINGS. THE GENERAL CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER IN WRITING CONCERNING DEVIATIONS AND/OR OMISSIONS FROM THE CONTRACT DOCUMENTS AT THE TIME OF SHOP DRAWING SUBMISSION. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS AND SHALL MAKE ALL CORRECTIONS HE DEEMS NECESSARY BEFORE SUBMISSION. THE GENERAL CONTRACTOR SHALL STATE ON THE SHOP DRAWINGS THAT CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN MET AND THAT ALL DIMENSIONS, CONDITIONS AND QUANTITIES HAVE BEEN REVIEWED AND VERIFIED AS SHOWN AND/OR CORRECTED ON THE SHOP DRAWINGS.

NO.	REVISIONS	DATE

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FAIRLEE WTP
CLARIFLOCCULATOR
REPLACEMENT

FAIRLEE, MARYLAND

STRUCTURAL
NOTES & DETAILS

SCALE	AS NOTED	SHEET NO.
DESIGN BY	ARM	S1.2
DRAWN BY	TFVT	
CHECKED BY	ARM	
GMB FILE	190065	
DATE	OCT. 2019	

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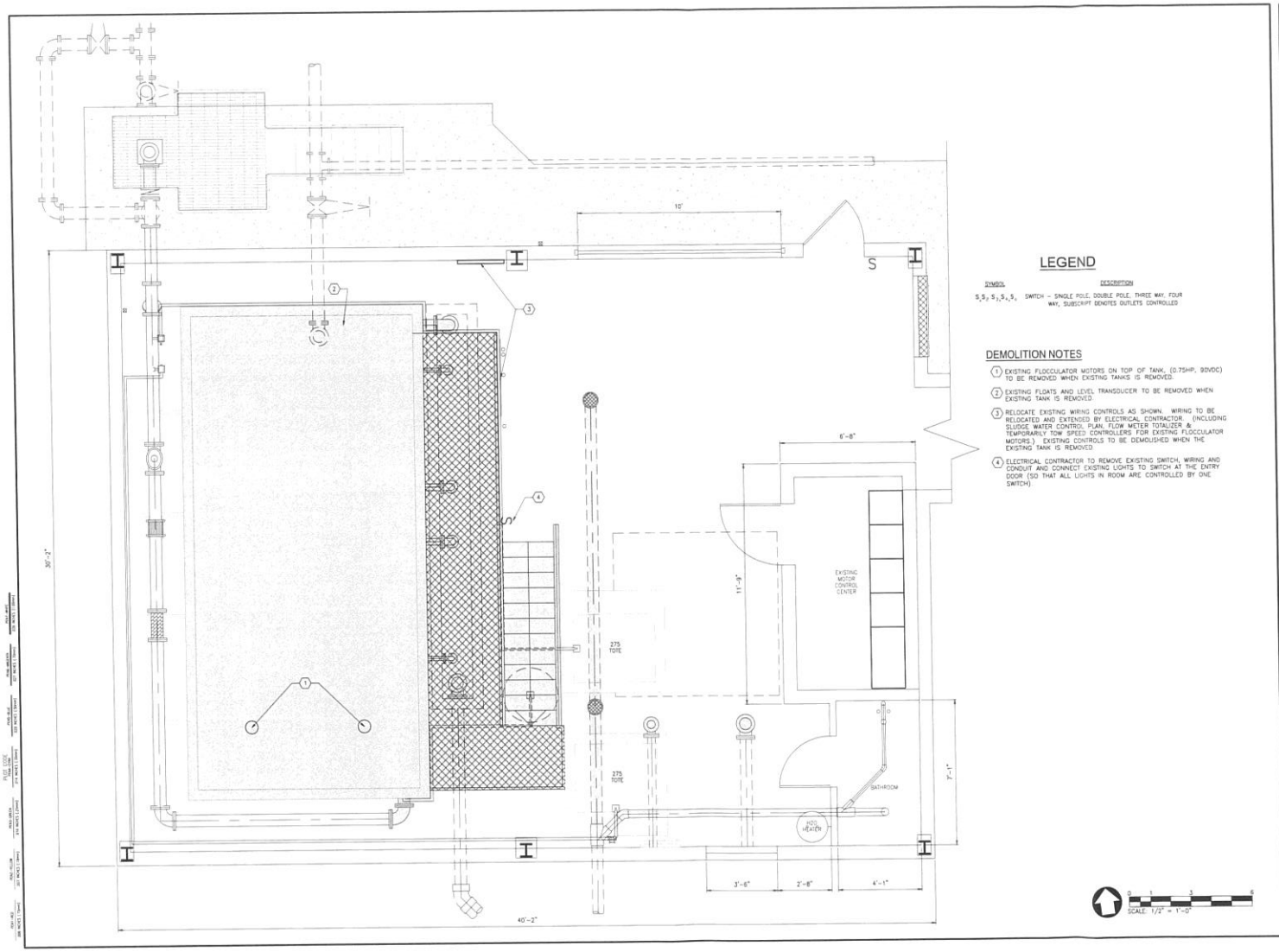

LEGEND

SYMBOL	DESCRIPTION
S_1S_2, $S_1S_2S_3$	SWITCH – SINGLE POLE, DOUBLE POLE, THREE WAY, FOUR WAY, SUBSCRIPT DENOTES OUTLETS CONTROLLED

DEMOLITION NOTES

1. EXISTING FLOCCULATOR MOTORS ON TOP OF TANK, (0.75HP, 90VDC) TO BE REMOVED WHEN EXISTING TANKS IS REMOVED.
2. EXISTING FLOATS AND LEVEL TRANSDUCER TO BE REMOVED WHEN EXISTING TANK IS REMOVED.
3. RELOCATE EXISTING WIRING CONTROLS AS SHOWN. WIRING TO BE RELOCATED AND EXTENSED BY ELECTRICAL CONTRACTOR. (INCLUDING SLUDGE WATER CONTROL PLAN, FLOW METER TOTALIZER & TEMPORARILY TOW SPEED CONTROLLERS FOR EXISTING FLOCCULATOR MOTORS.) EXISTING CONTROLS TO BE DEMOLISHED WHEN THE EXISTING TANK IS REMOVED.
4. ELECTRICAL CONTRACTOR TO REMOVE EXISTING SWITCH, WIRING AND CONDUIT AND CONNECT EXISTING LIGHTS TO SWITCH AT THE ENTRY DOOR (SO THAT ALL LIGHTS IN ROOM ARE CONTROLLED BY ONE SWITCH).

PRINTS ISSUED FOR PERMITS

NO.	REVISIONS	DATE

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FAIRLEE WTP CLARIFLOCCULATOR REPLACEMENT

FAIRLEE, MARYLAND

STATE OF MARYLAND
JOSHUA C. HOFFMAN
No. 34175
PROFESSIONAL ENGINEER
10/11/2019

ELECTRICAL DEMO PLAN

SCALE	AS NOTED	SHEET NO.
DESIGN BY	MWH	E1.0
DRAWN BY	YYV	
CHECKED BY	JCH	
JOB NO.	190085	
DATE	OCT. 2019	

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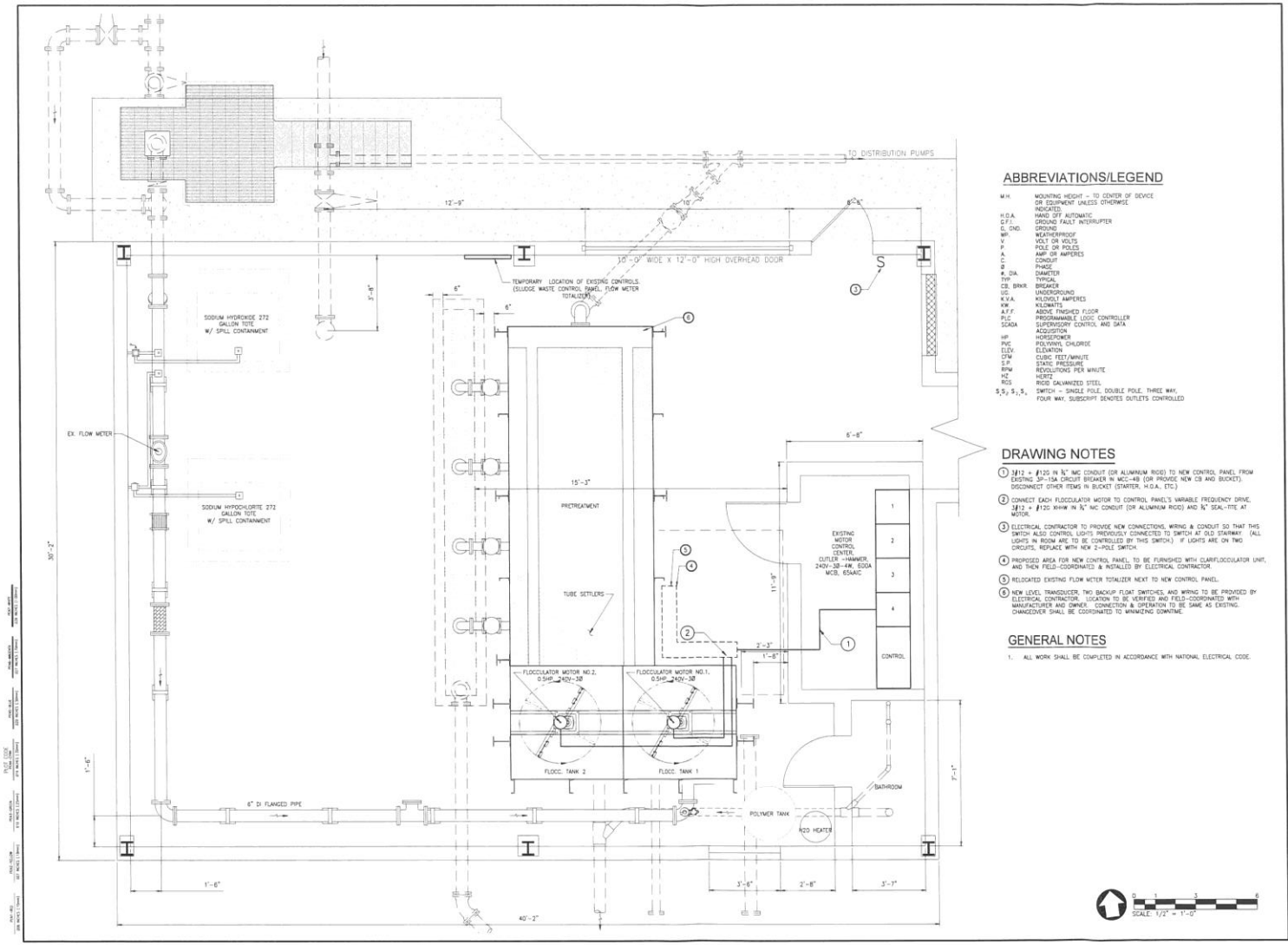

ABBREVIATIONS/LEGEND

M.H.	MOUNTING HEIGHT – TO CENTER OF DEVICE OR EQUIPMENT UNLESS OTHERWISE INDICATED.
H.O.A.	HAND OFF AUTOMATIC
G.F.I.	GROUND FAULT INTERRUPTER
G. GND.	GROUND
WP.	WEATHERPROOF
V.	VOLT OR VOLTS
P	POLE OR POLES
A.	AMP OR AMPERES
C	CONDUIT
Ø	PHASE
#. DIA.	DIAMETER
TYP.	TYPICAL
CB. BRKR.	BREAKER
UG.	UNDERGROUND
K.V.A.	KILOVOLT AMPERES
KW.	KILOWATTS
A.F.F.	ABOVE FINISHED FLOOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
HP.	HORSEPOWER
PVC	POLYVINYL CHLORIDE
ELEV.	ELEVATION
CFM	CUBIC FEET/MINUTE
S.P.	STATIC PRESSURE
RPM	REVOLUTIONS PER MINUTE
HZ	HERTZ
RGS	RIGID GALVANIZED STEEL
S_1S_2, S_1, S_x	SWITCH – SINGLE POLE, DOUBLE POLE, THREE WAY, FOUR WAY. SUBSCRIPT DENOTES OUTLETS CONTROLLED

DRAWING NOTES

1. 3Ø12 + #12G IN ¾" IMC CONDUIT (OR ALUMINUM RIGID) TO NEW CONTROL PANEL FROM EXISTING 3P-15A CIRCUIT BREAKER IN MCC-4B (OR PROVIDE NEW CB AND BUCKET). DISCONNECT OTHER ITEMS IN BUCKET (STARTER, H.O.A. ETC.)
2. CONNECT EACH FLOCCULATOR MOTOR TO CONTROL PANEL'S VARIABLE FREQUENCY DRIVE, 3Ø12 + #12G XHHW IN ¾" NIC CONDUIT (OR ALUMINUM RIGID) AND ¾" SEAL-TITE AT MOTOR.
3. ELECTRICAL CONTRACTOR TO PROVIDE NEW CONNECTIONS, WIRING & CONDUIT SO THAT THIS SWITCH ALSO CONTROL LIGHTS PREVIOUSLY CONNECTED TO SWITCH AT OLD STAIRWAY. (ALL LIGHTS IN ROOM ARE TO BE CONTROLLED BY THIS SWITCH.) IF LIGHTS ARE ON TWO CIRCUITS, REPLACE WITH NEW 2-POLE SWITCH.
4. PROPOSED AREA FOR NEW CONTROL PANEL, TO BE FURNISHED WITH CLARIFLOCCULATOR UNIT, AND THEN FIELD-COORDINATED & INSTALLED BY ELECTRICAL CONTRACTOR.
5. RELOCATED EXISTING FLOW METER TOTALIZER NEXT TO NEW CONTROL PANEL.
6. NEW LEVEL TRANSDUCER, TWO BACKUP FLOAT SWITCHES, AND WIRING TO BE PROVIDED BY ELECTRICAL CONTRACTOR. LOCATION TO BE VERIFIED AND FIELD-COORDINATED WITH MANUFACTURER AND OWNER. CONNECTION & OPERATION TO BE SAME AS EXISTING. CHANGEOVER SHALL BE COORDINATED TO MINIMIZING DOWNTIME.

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

PRINTS ISSUED FOR PERMITS

NO.	REVISIONS	DATE

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STATE OF MARYLAND
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PROFESSIONAL ENGINEER
10.31.2019

ELECTRICAL DRAWINGS

SCALE	AS NOTED
DESIGN BY	MMH
DRAWN BY	YPV
CHECKED BY	JDV
CAD FILE	190065
DATE	OCT. 2019

SHEET NO.
E1.1

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General Precautions

The erection instructions enclosed are provided to assist in the assembly and adjustment of this mechanism. These procedures are not intended as a substitute for the experience of the persons assigned to erecting and assembling this equipment. WesTech strongly suggests that these instructions be studied prior to erecting, assembling, and adjusting.

During assembly of this equipment, it will be necessary to install, adjust, and maintain certain accessory items, which are not manufactured by WesTech. This accessory equipment must be stored, handled, adjusted, and maintained in accordance with instructions provided by the manufacturer of that equipment. This is absolutely necessary in order to be assured of prompt and full participation in the warranty protection on the equipment. WesTech will not accept responsibility for damage to equipment that has not been handled in accordance with the manufacturer's instructions.

Packing List

The Contractor's packing list consists of a sheet containing an itemized listing of parts.

The packing list contains:

- A description of the item.
- Sizes and lengths of nuts and bolts. These fasteners will ship tagged with the item numbers.
- The quantity of parts per assembled unit.
- Total quantity of parts shipped.
- An indication of direct shipment from the supplier or the fabricator.
- The date and job number of the shipment.

The packing list will be found in one of the crates shipped directly from Salt Lake City, Utah. The list should be kept in a readily accessible and safe place. Many contractors prefer to keep this list in some type of binder for protection and quick reference.

This list is particularly useful during erection for locating small parts and fasteners. When coordinated with the erection drawings,

equipment tagging, and piece marking, the contractor's packing list can become an invaluable erection tool.

Equipment Tags

Each shipping piece has been tagged or piece marked for convenience. Typically, the part number and item number will be marked on all items. Piece marked items received will have a mark such as "Part No. D120A" or “Item 203" which may be cross-referenced with the packing list and general erection drawings.

Receiving Material

The equipment pieces and components received may have been shipped from:

- WesTech Engineering, Inc. in Salt Lake City, UT
- A fabricator acting under WesTech Engineering, Inc. instructions.
- A “buy-out” distributor such as a motor or pump manufacturer.

Since there will often be more than one shipment to the job site, it is important to coordinate the receiving and storage of all items accordingly. All material has been thoroughly checked and inspected before shipment. However, there may be times when equipment is missing, damaged in transit or received with broken packaging. When receiving equipment, it is necessary to properly acknowledge receipt and any shortage or damage on the shipping documents. This must be done in a manner that helps assign responsibility to the proper party for the various parts of shipping and receiving equipment.

When receiving a shipment, the following procedures must be followed. These procedures are also listed on the Bill of Lading the shipping company provides and must be signed to prove delivery of the goods. If the following procedures are not followed, WesTech will not be liable for any shortages or damage on your shipments.

Receiving Procedure

1. Before signing the Bill of Lading (BOL) in receipt of the goods shown thereon, and before the driver leaves, do the following:

    a. After inspecting the shipment, note any damage or shortages (according to what is listed on the BOL). Be as detailed as necessary.

    b. Have the driver sign the notation in acknowledgment.

    c. Retain a copy (of the notated BOL) for use in filing a freight claim.

    d. If there is damage, notify WesTech (801) 265-1000 immediately so that arrangements can be made with the carrier, if necessary, to have the damaged goods inspected by their agent.

2. After signing the BOL and receiving the shipment, do the following:

    a. Use the attached/enclosed packing list to further inspect the entire shipment for shortages and/or damage and retain this list for future reference.

    b. Notify WesTech within three working days from date of receipt, of any further shortages or concealed damage. If certain items are missing or damaged, make notes of this on the shipping papers to protect all interests and notify WesTech (801) 265-1000 immediately.

Handling and Storage

Please handle the equipment properly when unloading and erecting. All cartons, electrical equipment, and gear drives should be stored under cover and protected from moisture, grit, and mud. All rolled steel sections must be stored on edge or blocked up to prevent distortion. If allowed to lie flat, these items may lose their shape, which could hinder erection and proper alignment of the equipment.

Long structural shapes should be checked for the proper camber. This would include beams, trusses, walkways, etc. The equipment

has been designed with a positive camber, so items do not appear to be sagging after erection.

Painting

The material supplied for this job has received surface preparation and paint in accordance with the specific contract plans and specifications.

Any indentations, marks, and/or scratches caused by loading and unloading the equipment must be immediately touched up in the field prior to storage.

Shop primer paint durability

In the event the equipment supplied has been painted with only a primer coat, this notification should be adhered to. Shop primer paints are intended to serve only as a bonding coat between the metallic surface and the protective finish and serve only as a minimal protective finish. Unless otherwise noted in the contract documents, WesTech will not be responsible for condition of primed or finish painted surfaces after the equipment leaves our shops. Customers are invited to inspect coatings in our shops for proper surface preparation and application prior to shipment. WesTech assumes no responsibility for field surface preparation or touch up of shipping damage to paint. Painting of surfaces requiring touch up or painting of fasteners will be by the customer's painting contractor after the mechanism is erected.

Shop primed surfaces should be finish coated within the time specified by the paint manufacturer. WesTech cannot be held responsible for shop-primed surfaces that have deteriorated due to time and exposure.

Fasteners

All stainless steel erection fasteners shall incorporate anti-seize during assembly. Failure to utilize this will cause significant extra time by the erection and maintenance crews.

Foundation Anchor Bolts

If required, WesTech Engineering ships anchor bolts direct to the job site upon receipt of the approved prints. Notify WesTech immediately if anchor bolts are not received as promised.

Anchor bolts must be placed accurately to avoid future erection difficulties. Where applicable and upon request, WesTech can furnish a template for positioning the anchor bolts. If a template has not been furnished, remember that the location and projection of all anchorage is critical. The specified amount of projection and location are shown on the general arrangement drawings. Prior to equipment installation, clean the threads of all anchorage bolts and oil them.

If using epoxy anchors, confirm the expiration date of the epoxy, typically posted on the packing, prior to mixing and application. WesTech will guarantee the effectiveness of the epoxy up to the aforementioned date. Installer to adhere to epoxy installation procedures noted on packaging.

Operation and Maintenance Manual

Keep an O&M Manual in the area where the operators can familiarize themselves with it and have it for reference. The manual is useless if the operator and foreman do not have access to it.

Further Assistance

If a problem is encountered while installing or operating the equipment that cannot be solved by referring to this manual, feel free to contact:

WesTech Engineering, Inc.

3665 South West Temple
Salt Lake City, Utah 84115
Phone: (801) 265.1000
Fax: (801) 265.1080

Shortages, Discrepancies, and Field Charges

Please notify WesTech Engineering, Inc. immediately if any apparent manufacturing discrepancies or shortages are encountered with machinery, since no field charges for alterations or shortages will be accepted unless authorized in writing by our authorized representative.

Fabricated steel parts and assemblies furnished by WesTech Engineering, Inc. are manufactured following best shop practices and standards. However, some misfits and imperfect work may arise. In such cases, the American Institute of Steel Construction Manual, Fifteenth Edition, "Code of Standard Practice", will apply to erection of this equipment. It reads as follows:

> “7.14. Corrections and Errors
>
> The correction of minor misfits by moderate amounts of reaming, grinding, welding or cutting, and the drawing of elements into line with drift pins, shall be considered normal erection operations. Errors that cannot be corrected using the foregoing means, or that require major changes in member or Connection configuration, shall be promptly reported to the Owner’s Designated Representatives for Design and Construction and the Fabricator by the Erector, to enable the responsible entity to either correct the error or approve the most efficient and economical method of correction to be used by others."
>
> Commentary:
>
> “As used in this Section, the term “moderate” refers to the amount of reaming, grinding, welding or cutting that must be done on the project as a whole, not the amount that is required at an individual location. It is not intended to address limitations on the amount of material that is removed by reaming at an individual bolt hole, for example, which is limited by the bolt-hole size and tolerance requirements in the ANSI/AISC 360 and RCSC Specification.”

Company policy dictates that no field charges will be allowed without prior approval. Written authority must be given in the form of a WesTech Inspection and Change Work form with an attached warranty tracking number. The Warranty tracking number will be issued when the extent of such modifications and the price for performing these modifications have been agreed upon.

In general, when parts require replacement, and WesTech agrees that replacement is necessary, WesTech will furnish the parts. The

contractor will remove the defective parts and install the replacement parts at a cost agreed upon by both parties.

Structural Lifting Precautions

Do not pull, drag, push or dump the structural components off the delivery trucks.

All structural components should be lifted and handled as instructed below. Proper handling is necessary to protect special coverings and to ensure ease of assembly during equipment installation.

WesTech will not accept charges for repair or replacement of equipment or materials damaged due to improper handling. Report any damage to WesTech and make a notation on shipping papers to this effect.

Lifting Recommendations

Observe these precautions when lifting or handling structural components.

Stand clear as the equipment is lifted.

1. Make sure the equipment being lifted or the lifting equipment cannot come into contact with overhead electrical cables, etc.
2. Make sure the rigging and hoist equipment have adequate capacity. Weights for major components are listed on the Parts Lists.
3. All rigging and lifting should be done by experienced personnel.
4. Before the equipment is removed from the delivery trucks, check to be sure the blocking, bracing and banding securing it to the carrier have been removed and is ready for moving.
5. Use multiple point lifting whenever possible.
6. When lifting structural members of this equipment, such as rake arms, cages, walkways, etc. avoid twisting or bending the members. Use spreader beams, as necessary, to fully support the pieces as they are lifted.
7. Make sure shop provided camber is maintained when lifting rake arms and walkways.

8. Lift the equipment an inch or two off the trailer to be sure it is free to be moved and balanced correctly. Adjust as necessary.

Never move the equipment suddenly or in jerks and never allow it to strike the ground, tank or other equipment.

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1.0 – INTRODUCTION

1.01 **IFR-6000 Series Tube Settlers** utilize individual, isolated tubular channels, each sloped at 60° to expand the settling capacity of water and wastewater clarifiers. The IFR-6000 Series modules are engineered with the individual tubes rising in the same direction to eliminate mixing currents and unstable flow patterns. Enhanced settling provided by the IFR-6000 Series modules reduce the chemical coagulant use and downstream filter backwash requirements. In plant design and upgrading, less settling area is required as a result. Structural ribs provide considerable vertical loading structural strength. Our unique design insures a solid interface during installation. Our sheet forming and bonding processes provide tremendous strength and long-term durability. IFR-6000 Series PVC is resistant to flame, self-extinguishing and inert to naturally occurring constituents in water and wastewater. Potable blue IFR-6000 Series modules are Tested and Certified by NSF to ANSI/NSF Standard 61. Brentwood supplies complete systems for circular or rectangular tanks, including supports, baffles, protective surface grating, troughs and weirs as required, for both municipal and industrial projects.

1.02 Tube Settlers are designed to expand the settling capacity of existing and new clarifiers, or sedimentation basins, of any size or shape. The primary advantage of the use of tube settlers is their ability to settle solids more efficiently. The tube settler advantage can be used in one of three ways:

A. New sedimentation basins using tube settlers can be designed smaller because of increased flow capability.
B. Flow through existing sedimentation basins can be increased through the addition of tube settlers.
C. The quality of effluent can be significantly improved with the use of tube settlers.

1.03 Upon installation of a tube settler system, the performance of a settling basin will not automatically improve. Settling basin performance is a function of the following parameters, none of which tube settling modules are designed to improve:

A. Basin Inlet Hydraulics
B. Basin Effluent Collection Hydraulics
C. Water Temperature
D. Chemical Feed Rates and Coagulation
E. Flocculation
F. Influent Water Quality Characteristics and Range of Variations
G. Floc Settling Rate
H. Sludge Removal Capability and Effectiveness
I. Flow Rate Change Frequency and Duration
J. Filter Design
K. Plant Operation and Maintenance Schedules
L. Operator(s) Ability and Dedication

2.0 – RECEIVING & STORAGE OF MATERIALS

2.01 IFR-6000 MODULES – HANDLING

A. Any abusive handling of the modules is not permitted. Workmen shall be careful in placing the tube modules to avoid any damage especially to the corners and tube edges.
B. Personnel shall not stand or walk directly on top of the modules and shall do so only on a plank, plywood or similar material placed over the modules.

2.02 IFR-6000 MODULES – STORAGE

A. All material and equipment shall be shipped, stored, handled, and installed in such a manner as to not degrade quality or serviceability.
B. Tube settling modules shall not be stacked more than 8 feet high (one over the other).
C. All modules shall be stacked such that the PVC sheet planes are in a vertical position (similar to the manner of their placement inside the tank/basin).
D. All modules required to be stored in the open beyond two weeks shall be covered by a light colored cover. Ideally these covers should be double sided such as a white on black. The white side, facing out, is used to reflect light away. Clear covers are prohibited. Black is not recommended. Black will absorb heat and if the cover comes in direct contact with the media, this heat can be quickly transferred to the media.
E. Covers cannot be wrapped tightly around the media. There should be at least a 6” air gap between the cover and top of media. The ends of the cover should be securely anchored on all sides with at least a 12” air gap at the bottom. These covers should provide shading while allowing air to pass through to prevent heat from building up. Modules should be checked at least once a week. It is possible that the covers can become loose over time due to wind or rain. A check of the stored area should be done to make any minor repairs to the cover or to restack any modules that could have fallen.
F. As media modules become brittle at low temperatures and soft at high temperatures, handling of modules should be minimized at temperatures other than ambient.
G. Tube modules shall remain on shipping pallets until ready to install.

2.03 ACCU-GRID – HANDLING (IF APPLICABLE)

A. Any abusive handling of the Accu-Grid grating is not permitted.
B. Workmen shall be careful handling the grating to avoid any damage to the corners, locking tabs and edges; caution is required in cold weather (<40°F).

2.04 ACCU-GRID – STORAGE (IF APPLICABLE)

A. The grating panel pallets shall not be vertically stacked.
B. All grating panels required to be stored in the open for an extended period (up to 8 weeks) shall be adequately covered and securely anchored on all sides to prevent any weather related damage.
C. Storage inside a building or at minimum under roof is recommended for any periods exceeded (8) weeks.

3.0 – TUBE SETTLER SYSTEM INSTALLATION

3.01 During tube settler system installation and prior to filling the settling basin, some time will elapse during which certain precautionary measures should be taken by the contractor, owner, or their agent(s) to prevent injury to personnel, damage to the modules, or damage to other parts of the system.

3.02 Tube settler system installation should be consistent with instructions outlined in project specifications and/or product submittals for representative portions of the tube settler system (supports, baffles, troughs, tubes, access grating). Installation sequencing should generally be as follows:

A. Install module supports.
B. Install baffle(s), weir(s), and trough(s) as necessary.
C. Install tube modules as recommended by manufacturer.
D. Install protective surface grating.

3.03 Prior to filling the settling basin, all materials that might float up and block off the bottom of the tube modules should be removed from the basin. The top surface of the tube modules should also be examined to assure that there are no objects on them that will block tubes. If damage or questions are noted and technical support is required, one of the following procedures should be followed:

A. If the Brentwood site installation supervisor is present on the jobsite, bring the matter to their attention. They will be able to answer any questions, and/or provide determination of what repairs and or replacements will be necessary. If a problem or situation arises that cannot be handled by Brentwood's onsite supervisor, he/she will immediately contact the Brentwood Project Manager at the corporate office.

B. Tube settler system installation should normally be performed under Brentwood's technical direction. If onsite installation supervision is not part of the contract or the installation supervisor has left the jobsite and additional supervision is required, please call Brentwood's corporate offices in Reading, Pa where a purchase order will be requested and a service representative can be scheduled. Please allow up to 3 weeks for arrival of an installation supervisor.

3.04 Tube settler modules should be installed with the idea that they are permanent and will not be removed. Frequent handling of the modules will significantly reduce their life. Tube settlers that are installed with care, maintained properly, and are either submerged continuously or carefully covered when basins must be emptied for extended periods, can last 15-20 years or more. Abusive handling or inappropriate maintenance procedures will substantially shorten the expected service life of the tube settler module, and should be avoided.

4.0 – TUBE SETTLER SYSTEM OPERATION

4.01 During the initial filling of the settling basin, or after any dewatered period, the water level should be raised past the modules very slowly (approximately one-third the normal rate) to permit any air bubbles adhering to the modules to be removed. The specific gravity of the modules is approximately 1.4; however, heavy accumulations of air and/or grease (particularly in wastewater applications) could allow them to lift or shift during rapid filling of the basin. Top of tube settler modules are expected to be between 18 and 30 inches below the water level, depending on basin processes. Brentwood Installation & Layout drawings included earlier in this package shall provide specific dimensions.

4.02 When the settling basin is completely filled, it should be operated initially at the original basin flow through rate (for retrofits), or 60%-70% less design flow (for new basins), while any chemical feed systems and/or flocculators are adjusted to produce a good settleable floc, under the influent water characteristics and temperature prevailing at the time of initial startup. The following items must be reviewed during initial startup/operation:

A. Observe the flow through the tubes to assure that there are no areas where flow irregularities exist.
B. Observe the flow into the effluent collection launders to assure even flow into the launders, and relatively uniform flow over the entire tube area.
C. Any hydraulic irregularities noted at this initial startup rate must be corrected to assure optimum tube settler system performance. Increasing the flow rate without correcting any deficiencies will usually promulgate any such hydraulic irregularities. Consultation with the owner, consulting engineer, and Brentwood's technical representative will be necessary to determine corrective recommendations.

4.03 If the basin flow through rate is to be increased over the original basin rate, make the increase gradually in approximately 4-5 equal steps and check the chemical feed and flocculators at each step.

A. Observe the floc settling rate frequently during this period. A good, settleable floc is one that will settle at a rate of at least 1 inch per minute. It may be necessary to feed a polymer or other coagulant to achieve a good settleable floc.
B. Any hydraulic irregularities noted must be corrected to assure optimum tube settler system performance. Consultation with the owner, consulting engineer, and Brentwood's technical representative will be necessary to determine corrective recommendations

4.04 Upflow settling basins, which depend in part on formation and maintenance of a sludge blanket, should be operated in such a manner that the sludge blanket is held at least 2 to 3 feet below the bottom of the tube modules for optimum tube settler performance.

A. It may be necessary to increase the rate and/or frequency of sludge blow off to maintain the blanket at the desired level.
B. Polymer feed may aid in keeping the sludge blanket down as the flow through rate is increased.
C. In some cases, it may be necessary to provide an additional quiescent sludge accumulation area (sludge concentrators) to minimize the blow off of very dilute sludge caused by expansion of the sludge blanket at increased upflow rates.

4.0 – TUBE SETTLER SYSTEM OPERATION *(continued)*

4.05 Horizontal flow settling basins, which do not normally develop a sludge blanket, must have a sludge accumulation and removal system capable of handling the increased sludge production from the increased basin flow through.

4.06 Over time, buildup of settled or precipitated material on the surface of the tube modules, or protective grating is normal. In water treatment processes, this occurrence generally does not cause adverse effects on the water quality. However, this is evidence that the tube settler modules are removing material from the water at a rate in excess of that at which sludge is discharged from the lower ends of the tubes.

A. In softening processes, when the softening reaction is not complete in the water as it reaches the tube modules, material will precipitate out on the tube module surfaces. This generally does not adversely affect the functionality of the tube settler modules.

B. In wastewater treatment processes, without adequate tube cleaning equipment or procedures, the buildup of material on top of the tube modules can cause individual tubes to become plugged with sludge. When this happens, denitrification of the organic material may generate sufficient gas to force any plugged material out of the tube and rise to the surface of the settling basin. If the basin is equipped with scum removal equipment, the material can be easily removed without significantly degrading the effluent quality.

C. Periodic cleaning of the tube settler modules, as described in Section 5.0, will help maintain the tube module performance at the optimum level.

5.0 – TUBE SETTLER SYSTEM MAINTENANCE

5.01 Tube settler modules and grating (if applicable) must be cleaned periodically to maintain optimum performance. The frequency of this cleaning depends primarily on the overall plant performance, the nature of the process fluid and the desired effluent quality. The following methods of cleaning the tube settler modules/grating may be used:

A. Removal of heavy floc deposits may be successfully accomplished in some applications by simply draining the settling basin level down to just below the tube module bottom, holding at this level for a brief period of time and then begin refilling the basin as indicated in Section 3. Usually all accumulated material will drain from the modules as the water level drops.

B. Cleaning can also be accomplished by draining the basin water level down to about 6-12 inches above the top of the tube modules and using a hose with a GENTLE spray (approximately 20-25 psi) to wash the accumulated material from the tube settler modules. To ensure a long service life of the tube settler modules, high-pressure hoses should not be used to wash down the tube settler modules. If Accu-Grid walking surface is installed on top of the tube settler area, it is possible to increase the pressure used to clean the modules.

C. Depending on the application of the tube settler modules, there may be a thin film of material that may be more difficult to remove during the aforementioned cleaning procedures. This film should not impact the tube settler performance. While not recommended, should one desire to remove this film (for aesthetic reasons, etc.) it should be done carefully by using a 2-inch square plastic bristle type brush, on a long handle for cleaning the entire tube length.

D. <u>In a wastewater treatment application without an automated cleaning system, the tubes will require more frequent operator cleaning and maintenance, to prevent any blockage of the module tubes.</u>

5.02 If it is necessary to walk on the tube settlers (and no Accu-Grid walking surface is installed), plywood planks (minimum 3/8”-1/2” thick) should be used in avoiding damage from foot traffic, etc. It is imperative that there are no other loads placed on top of tube settlers, excluding the weight of an operator during cleaning. IFR-6000 tube settlers are designed to hold a maximum load of 250 lbs. on a one square foot area. If Accu-Grid walking surface is installed, it provides an ideal surface for use during wash-down of tubes and for accessing troughs and weirs. The interlocking panels of AccuGrid provide a protective layer from foot traffic and hydraulic impact from high pressure hose wash down of the tubes. The Accu-Grid surface is strong, economical, and easy to install. The one-piece construction joins the Accu-Grid panels together easily, while providing easy removal to access the tube settlers.

5.0 – TUBE SETTLER SYSTEM MAINTENANCE *(continued)*

5.03 Periodic draining and cleaning of settling basins should be a routine maintenance procedure for all water and wastewater treatment plants. Brentwood recommends that settling basins with tube settlers recently installed, be drained after the first three months of operation for examination, and at least semi-annually thereafter, with the following items being included as part of the yearly maintenance program:

A. Observe all precautions as outlined in Section 3.

B. Inspect the tube modules, remove any objects wedged at the bottom of them and remove any debris, etc. accumulated on top of the tubes.

C. Inspect the tube module support structure for corrosion, damage, and/or the need for painting. Replace, repair and/or paint as required.

D. Clean any accumulated scum from supports, baffles, troughs, tubes, et

5.04 Should there be any further questions about the maintenance procedures for Brentwood Industries tube settler system be sure to contact the Brentwood local sales representative or Brentwood's corporate office.

6.0 – TUBE SETTLER SYSTEM TROUBLESHOOTING AND REPAIR

A. **Floc build-up on top of tube settlers and grating.**
Lower the water level in the basin and clean the tube settlers as per Section 5.01.

B. **Reduced flow in the basin.**
Determine if tube settler modules or grating is plugged. If so, proceed as above and direct water streams within the individual tubes to eliminate the plugged conditions.

C. **Tube settler modules or grating damaged.**
Replace the damaged modules or grating with new components.

7.0 – SPARE PARTS AND SPECIAL TOOLS

None recommended or required.

8.0 – SAFETY CONSIDERATIONS

As with any industrial application, a site-specific safety program should be established for the Tube Settler System. The safety program should be designed to inform employees of potential hazards and to develop safe operating practices during the operation and maintenance of the Tube Settler System. As a minimum, the safety program should address walking atop the tube settlers and associated safety practices. Periodically, it will be necessary to clean the tube settlers and perform maintenance on related system components (troughs, weirs, etc.). Walking on top of the tube settlers is typically required to accomplish these tasks and several items must be considered and implemented to accomplish these tasks safely.

A. Minimize the external loading on top of the tube settler modules. It is advantageous for lighter workers to walk atop the tube settlers as well as to minimize the weight of auxiliary items being used during cleaning and maintenance procedures (i.e. spray hoses, tools, materials). The Brentwood tube settler modules are typically designed for a live load of 250 pounds and should not be exceeded under any circumstances. Exceeding the design load may lead to the failure of the underlying module.

B. The tube settler modules should never be walked on directly. Foot traffic is only permitted atop the tube settlers with the use of the Brentwood AccuGrid protective surface grating or the placement of 3/8”-1/2” thick plywood sheets on top of the modules. These items distribute the live load over two or more of the modules so that the 250 pound maximum load is carried by more than one module; thereby, increasing the associated safety factor.

C. Any employee walking atop the tube settlers must be tied-off according to OSHA standards. A falling hazard would be present if a module failure occurred. Typically, the tube settlers are a significant distance above the basin floor and tying-off with approved fall prevention devices is required.

D. Employees should be aware that a slipping hazard may exist when a build-up of floc is present atop the tube settlers. The floc build-up should be removed (by cleaning) ahead of foot travel, if at all possible.

Following the above requirements will assist with the safe operation and maintenance of the Tube Settler System. Other site-specific requirements may be necessary and should be identified during a safety audit of the Tube Settler System and associated areas.

DIVISION 16 - ELECTRICAL

SECTION 16010

GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, equipment and services necessary for and incidental to the complete installation and operation of all electrical work.

B. All work under this Division is subject to the General Conditions and Special Requirements for the entire contract.

C. Unless otherwise specified, all submissions shall be made to, and acceptances and approvals made by, the Engineer.

D. Conform to the requirements of all rules, regulations, and codes of local, state, and federal authorities having jurisdiction. Conform to the National Electrical Code, and NECA - Standards of Installation.

E. Perform the work in a first-class, substantial and workmanlike manner. Any materials installed which do not present an orderly and neat workmanlike appearance shall be removed and replaced when so directed by the Engineer, at the Contractors expense.

F. Coordinate the work of all equipment manufacturers and suppliers.

G. Arrange conduit, wiring, equipment, and other work generally as shown, providing proper clearances and access. Carefully examine all contract drawings and fit the work in each location without substantial alteration. Where departures are proposed because of field conditions or other causes, prepare and submit detailed drawings for acceptance. The right is reserved to make reasonable changes in location of equipment, conduit and wiring up to the time of rough-in or fabrication.

H. The contract drawings are generally diagrammatic, and all offsets, bends, fittings and accessories are not necessarily shown. Provide all such items as may be required to fit the work to the conditions.

1.02 PERMITS AND FEES

A. Obtain, pay for and deliver all permits, certificates of inspection, etc., required by the authorities having jurisdiction. Deliver certificates to the Owner prior to final acceptance of the work.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Material and equipment installed as a part of the permanent installation shall be new, unless otherwise indicated or specified, and shall be approved by the Underwriters' Laboratories, Inc., for installation in each particular case where standards have been established.

B. Where material or equipment is identified by proprietary name, model number, and/or manufacturer, furnish the named item or equivalent thereof, subject to acceptance.

C. Substituted items or items other than those named shall be equal or better in quality and performance and must be suitable for the available space, required arrangement and application. Submit any and all data necessary to determine the suitability of substituted items.

D. Substitutions will not be permitted for specific items of material or equipment where specifically indicated.

E. Material submissions shall conform to requirements outlined in "Submittals, Review and Acceptance".

2.02 SUBMITTALS, REVIEW AND ACCEPTANCE

A. General

1. The equipment, material, installation, workmanship, arrangement of work, final instruction and final documentation is subject to review and acceptance. Submit for review in clear and legible form the following documents as hereinafter specified.

    a. Descriptive Data
    b. Shop Drawings
    c. Contractor Record Drawings

2. Prepare all submittals specifically for this project and stamp each submittal in a form indicating that the documents have been contractor reviewed, are complete and are in compliance with the requirements of the plans and specifications.

3. Coordinate the installation requirements and any mechanical requirements for the equipment submitted. Submittals will be reviewed for general compliance with design concept in accordance with the contract documents. The Contractor is responsible for the correctness of all submittals. Reviews will not verify dimensions, quantities, or other details.

4. Identify all submittals, indicating the intended application, location, or service of the submitted item. Refer to specification sections or paragraphs where applicable. Clearly indicate the exact type, model number, size and special features of the proposed item. Submittals of a general nature will not be acceptable.

5. Submit actual operating conditions or characteristics for all equipment where required capacities are indicated. Factory order forms showing only required capacities will not be acceptable.

6. Acceptance will not constitute waiver of contract requirements unless deviations are specifically indicated and clearly noted.

7. Documents of general form indicating options shall be clearly marked to show what is specifically proposed for this project.

8. Submittals NOT IN COMPLIANCE with the requirements of this section will be RETURNED WITHOUT REVIEW.

B. Descriptive Data

1. Submit DESCRIPTIVE DATA for all items. Data shall consist of specifications, data sheets, samples, capacity ratings, performance curves, operating characteristics, catalog cuts, dimensional drawings, installation instructions and any other information necessary to indicate complete compliance with the contract documents.

C. Shop Drawings

1. Prepare and submit SHOP DRAWINGS AND/OR DIAGRAMS for all specially fabricated items, modifications to standard items, specially designed systems where detailed design is not shown on the contract drawings or where the proposed installation differs from that shown on the contract drawings.

2. Shop drawings shall include plans, elevations, sections, mounting details of component parts, point to point interconnection diagrams, elementary diagrams, single line diagrams, and any other drawings necessary to show the fabrication and connection of the complete item or system.

D. Contractor Record Drawings

1. As the work progresses, record on a set of white prints, the installed locations, sizes of electric feeders, equipment, etc. Upon completion of the work, submit one (1) complete set of white prints with "Record" information neatly recorded thereon in red ink.

PART 3 - EXECUTION

3.01 EXAMINATION OF SITE

A. Examine the site, determine all conditions and circumstances under which the work must be done, and make all necessary allowances.

3.02 SUPERVISION AND COORDINATION

A. Provide complete supervision, direction, scheduling and coordination of all work under the contract, including that of subcontractors, manufacturers and suppliers, using full attention and the best skill. Be responsible for all work and make all sub-contractors, suppliers and manufacturers fully aware of all requirements of the contract.

B. Coordinate the rough-in of all electrical work performed under the various Divisions.

C. Coordinate the installation of all necessary sleeves, anchors and supports for conduit, wiring and other work performed under the various Divisions.

3.03 GUARANTEE

A. Guarantee obligations shall be as hereinbefore specified in the GENERAL CONDITIONS of these specifications, and as follows:

1. Guarantee the complete electrical system free from all mechanical and electrical defects for the period of two (2) years beginning from the day of final acceptance of the work by the Owner.

2. Also, during the guarantee period, be responsible for the proper adjustments of all systems, equipment and apparatus installed by him and

do all work necessary to ensure efficient and proper functioning of the systems and equipment.

3. Upon receipt of notice from the Owner of failure of any part of the electrical installation during the guarantee period, new replacement parts shall be furnished and installed promptly at no cost.

*** END OF SECTION ***

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DIVISION 16 - ELECTRICAL

SECTION 16100

BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.01 STORAGE AND PROTECTION OF EQUIPMENT

A. All electrical equipment to be used in the construction shall be properly stored and protected against the elements. All equipment shall be stored under cover, and shall not be stored at the construction site on the ground, in mud, water, snow, rain, sleet or dust.

B. Any equipment subject to damage or corrosion from excessive moisture shall be stored in dry, heated areas. Any equipment containing plastic or material subject to damage caused by excessive heat or sunlight shall be stored to prevent such damage. This includes plastic ducts and lenses.

C. Equipment damaged as a result of improper storage or handling shall be properly repaired at the Contractor's expense or shall be replaced at the Contractor's expense, if, in the opinion of the Engineer the equipment has been damaged to such an extent it cannot operate properly after repairs are made.

D. All electrical enclosures exposed to construction damages such as paint spots, spackling or plaster spatter, grout splashes, waterproofing compound, tar spots or runs and pipe covering compound splashes, shall be completely covered and protected against damage.

E. After connections to electrical equipment are complete and the equipment is ready for operation, all construction debris shall be removed from all enclosures. Such debris includes dust, dirt, wire clippings, tape and insulation removed in order to make the connection.

1.02 PENETRATION OF WATERPROOF CONSTRUCTION

A. Coordinate the work to minimize penetration of waterproof construction, including roofs, exterior walls and interior waterproof construction. Where such penetrations are necessary, provide all necessary curbs, sleeves, shields, flashings, fittings and caulking to make the penetrations absolutely watertight.

1.03 TESTING AND ADJUSTMENT

A. Perform all tests which are specified or required to demonstrate that the work is installed and operating properly. Where formal tests are required, give proper notices and perform all necessary preliminary tests to assure that the work is complete and ready for final test.

B. Adjust all systems, equipment and controls to operate in a safe, efficient and stable manner.

C. Provide circuits that are free from ground faults, short circuits and open circuits.

D. Other tests of a specific nature for special equipment shall be as specified under the respective equipment.

1.04 IDENTIFICATION

A. Mark and permanently identify all motor starters, disconnect switches controls, panelboards, terminal boards, control panels, starters and other equipment in accordance with the project nomenclature. Identification plates shall be laminated plastic, white with black engraved 1/4 inch high lettering. Attach identification plates with 316 grade stainless steel screws approved for the purpose.

B. Identification by means of marking pens, embossed plastic tape markers or other temporary methods will not be acceptable.

PART 2 - PRODUCTS

2.01 CONDUIT AND FITTINGS

A. General

1. Install all wiring in conduit.
2. Minimum conduit size shall be 3/4 inch.
3. Install all conduit concealed where possible.
4. Support all conduit not embedded in concrete or masonry so that strain is not transmitted to outlet boxes and pull boxes, etc. Supports to be sufficiently rigid to prevent distortion of conduits during wire pulling.

B. Conduit

1. All conduit shall be hot-dip galvanized, rigid steel except as hereinafter specified.
2. Provide flexible metal conduit (Greenfield) in short lengths for the connection of lighting fixtures, dry type transformers and any vibrating equipment.
3. Provide liquid tight flexible metal conduit with PVC jacket in short lengths for the connection of equipment and motors.

C. Fittings

1. All fittings to match conduit material and be suitable for the purpose intended.
2. Provide compound filled sealing fittings for all conduits entering or leaving hazardous locations.
3. Provide expansion fittings with bonding jumpers where conduits cross expansion joints or where otherwise required to compensate for thermal expansion and contraction.
4. Fasten rigid steel conduit with threaded galvanized steel fittings, double locknuts, and insulated bushings. Insulated bushings shall be "OZ" Type "B", or equal.
5. Fasten liquid-tight conduit with fittings incorporating a threaded ferrule, nylon sealing ring, and steel or malleable iron compression nut and body. Furnish Crouse Hinds metallic liquid-tight fittings, or equal.
6. Fasten flexible metallic conduit with T&B "Tite-Bite" insulated connectors, or equal.
7. All fittings used in PVC coated conduit installations shall likewise have PVC bonded on coating.
8. Conduit seal fittings shall be as manufactured by Crouse-Hinds, Appleton, or equal.

D. Installation

1. Install exposed conduits parallel and perpendicular to walls and structural members; install plumb.
2. Provide a nylon pull line in each conduit to be left empty.
3. Make angle bends in exposed runs of conduits with manufactured elbows, screw jointed conduit fittings or conduit bent to radius of manufactured elbows.
4. Use capped bushings or "push penny" plugs to prevent foreign matter from entering the conduit system during construction.
5. Clean and plug or cap all conduits left empty for future use.
6. Where exposed conduit is installed on water bearing walls and walls below grade, provide stand-off brackets to maintain a minimum 1/4 inch air space between the conduit and the mounting surface.

7. Lubricants for pulling wires shall be approved for use with the wires and conduits installed.
8. All nicks, scrapes or gouges made in PVC coated conduit or fittings shall be properly repaired as per the manufacturer's recommendations.

E. Supports

1. All parts and hardware used for support of equipment, conduits, and fittings shall be galvanized for dry locations and galvanized with PVC bonded (Plasti-Bond) jacket for exterior, damp, or wet locations. Provide galvanized fasteners for dry locations and stainless steel (316 grade, or better) for exterior, damp, or wet locations.
2. Support surface runs of conduit using one hole pipe straps or two hole pipe straps. Strap spacing shall be maximum 6 feet on centers.
3. Fasten pipe straps and hangers to concrete using inserts or expansion bolts and to hollow masonry using toggle bolts. Wooden plugs and shields will not be permitted.
4. Supports for PVC coated conduits to have PVC bonded coating, matching the color of the conduit.

2.02 GROUNDING

A. Grounding shall be in accordance with the requirements of the National Electrical Code and as hereinafter specified and/or indicated on the Drawings.

B. Provide ground for all raceways, devices and utilization equipment permanently and effectively in accordance with the National Electrical Code. Continuity of rigid steel raceways shall be ensured by double locknuts. All grounded neutral conductors shall be continuously identified. All grounding and bonding connections shall be solderless.

C. Provide insulated grounding conductors for feeder and branch circuit wiring as called for on the plans. Provide grounding blocks, terminals, etc., for connection for grounding wires in all distribution equipment, outlets, junction boxes, and utilization equipment.

2.03 OUTLET BOXES

A. Outlet boxes and conduit fittings shall be NEMA 4 cast-metal type with threaded hubs for conduit entrance. Boxes and conduit fittings for outdoor work shall have gasketed cover plates. Plastic boxes and cast "white metal" boxes classified as NEMA 4 will not be acceptable.

B. All boxes, whether outlet, junction, pull, or equipment, shall be furnished with appropriate covers.

D. No sectionalized boxes shall be used.

2.04 JUNCTION AND PULL BOXES

A. Junction and pull boxes shall be furnished and installed as shown or where required to facilitate pulling of wires or cables. Such boxes shall be installed in accessible locations. All boxes for interior work shall be constructed of 12 gauge USS galvanized sheet steel minimum, unless otherwise specified or indicated and provided with mounting brackets and flat screw covers secured in position by round head brass or stainless steel 300 grade, or better, machine screws. Boxes for exterior recessed work (in grade or concrete) shall be cast aluminum or galvanized cast iron type with threaded hubs unless otherwise directed. Boxes for exterior surface work shall be type 304, or better, grade stainless steel. Gasketed cover plates shall be furnished for outdoor installation.

B. All boxes for hazardous areas shall be suitable for use in Class 1, Division 1 areas.

2.05 WIRES AND CABLES

A. All wire, unless otherwise indicated shall be 600 volt, Type THWN-2 for number 8 wire and smaller, and Type THW for No. 6 wire and larger. Conductors shall be sized and run as indicated. Conductors shall be soft drawn copper of not less than 98% conductivity.

B. No branch circuit wires smaller than number twelve (12) AWG shall be used unless otherwise indicated. Conductors shall be continuous from outlet to outlet and from terminal board to point of final connection, and no splice shall be made except within outlet or junction boxes. All conductors shall be of the size indicated. All wires number eight (8) AWG and larger shall be stranded. Wires and cables shall be as manufactured by Plastic Wire and Cable Corporation, Okonite Company, or equal.

C. Control wiring shall not be less than number fourteen (14) AWG and shall be color-coded using colors impregnated into the insulation. All wiring, contacts, and terminal blocks shall be suitably tagged for ease in identification and tracing of circuits. Identification tags shall be engraved fiber or plastic type, subject to acceptance. Wires shall be numbered and coded, using Brady "Quicklabels", or equal.

D. Instrumentation wiring shall be two conductor number 16 AWG shielded cable with 600 volt polyethylene insulation, aluminum-polyester shield (100% shield coverage), No. 18 AWG copper drain wire and PVC jacket. Furnish Belden No. 8719, or equal. Three conductor cable shall be similar to above, Belden No. 8618, or equal.

E. Joints of 10 AWG and smaller shall be made with properly insulated solderless type pressure connectors. Where stranded conductors or multiple solid conductors are connected to terminals, solderless lugs manufactured by Thomas and Betts Company, or equal, shall be used.

F. Joints of No. 8 AWG and larger in power and lighting circuits shall be of the type indented into the conductor by means of a hand or hydraulic pressure tool. Connectors shall be Burndy "Hy-dent", T&B "Sta-Kon", or equal. Connectors for control wiring shall be Burndy "Hy-Lug", or equal.

2.06 WIRING DEVICES

A. The following wiring devices shall be furnished and installed where called for on the drawings. Miscellaneous items not included below shall be Underwriter's Laboratories Standard conforming to the NEC. All devices shall be of the same manufacture. Devices shall be Arrow-Hart, Leviton, Hubbell, or equal, to the following Arrow-Hart Catalog Numbers:

B. Wall Switches

1. Toggle switches shall be of the silent mechanical type rated 20 ampere, 120/277 volt A.C. Single Pole switches shall be Arrow-Hart #1991-1 for 20 amp. Use Arrow-Hart #1991 Series, or equal.

C. Receptacles

1. 20 Ampere, 120 volt, Duplex Receptacles, NEMA 5-20R: Arrow-Hart, or equal.

D. Cover Plates

1. Exposed: Where devices are installed exposed in "FS" or "FD" cast metal boxes, they shall be furnished with cast aluminum "DS" type cover plates.
2. Wiring devices designated to be weatherproof shall be provided with gasketed, spring-hinged lid-type, cast metal covers having corrosion resistant finish and weatherproof mat, unless otherwise specified or indicated.

E. Special wiring devices shall be provided as called for on the drawings.

2.07 LEVEL FLOATS

A. The level floats shall be non-mercury switches enclosed in a solid polypropylene float for corrosion and shock resistance. The support wire shall have a heavy neoprene jacket. A weight shall be attached to cord above the float to hold the float in the position such that it will actuate the switch at the proper level. At a minimum, switches shall have an operating temperature range of 32ºF to 122ºF and a current rating of 10 amps at 120 volts.

2.08 SUBMERSIBLE PRESSURE TRANSDUCER

A. The submersible pressure transducer shall be constructed of silicon pressure cell fitted into a stainless steel package with integral, compliant stainless steel barrier diaphragm with 316 stainless steel housing. The standard outputs shall be 4-20 mA, 0-100 mV and 0-5 VDC. The transducer shall be manufactured by KPSI in Hampton, Virginia, or equal.

B. The sensor shall include open-face cap, vent and filter, and stainless steel cable hanger.

C. The transducer psi rating shall be not less than 5 psi. The transducer cable shall be continuous without splices from the transducer to the controller. A separate conduit shall be supplied for the transducer cable only.

PART 3 - EXECUTION

3.01 SUPPORTS, HANGERS AND FOUNDATIONS

A. Provide all supports, hangers, braces, attachments and foundations required for the work.

B. Supports, hangers, braces and attachments shall be stainless steel.

C. Concrete equipment pads and foundations shall be not less than 4 inches high, unless otherwise noted, and in general shall extend at least 4 inches beyond the equipment base. Provide wire-mesh reinforcement, chamfer exposed edges and corners and finish all exposed surfaces smooth. Concrete shall be minimum 3,000 psi test at 28 days.

3.02 CUTTING AND PATCHING

A. Provide all cutting and patching necessary for the installation of the electrical work. Any damage done to the work already in place by reason of this work shall be repaired at the Contractor's expense by a qualified mechanic experienced in such work. Patching shall be uniform in appearance and shall match with the surrounding surface.

B. Do not cut structural members without approval by Structural Engineer.

3.03 CLEANING, PAINTING AND FINISHES

A. Provide protective finishes on all materials and equipment. Use coated or corrosion-resistant materials, hardware and fittings throughout the work. Paint all bare untreated ferrous surfaces prior to installation, using rust-inhibiting paint.

B. Clean all surfaces prior to application of adhesives, coatings, paint, or other finishes.

C. Provide factory-applied finishes where specified. Unless otherwise indicated, factory-applied paints shall be baked enamel with proper pre-treatment.

D. Protect all finishes and restore any damaged finishes to their original condition.

E. The above requirements apply to all work, whether exposed or concealed.

F. Remove all construction markings and writing from exposed equipment, conduit and building surfaces.

*** END OF SECTION ***