

**Bidding**

# Project Manual

for



# Flaherty Water Transmission Main and Booster Pump Station

## Meade County Water District

### July 2017

Prepared by:

HDR Engineering, Inc.  
401 West Main Street  
Louisville, Kentucky 40202





**FLAHERTY TRANSMISSION MAIN AND  
BOOSTER PUMP STATION  
MEADE COUNTY WATER DISTRICT**

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**SECTION 00010  
ADVERTISEMENT FOR BID**

Sealed Bids for the construction of the “**Flaherty Water Transmission Main and Booster Pump Station**” will be received by **Meade County Water District**, at **1003 Armory Place, Brandenburg, Kentucky, 40108** on **July 27<sup>th</sup>, 2017**, until **2:00 P.M.** local time on, at which time the Bids received will be “**publicly**” opened and read aloud. The Project consists of construction/installation of approximately 28,560 lineal feet of 6 – through 12-inch water mains, control valve vault and appurtenances and a 1,000 gpm booster pumping station in Meade County, Kentucky.

The Issuing Office for the Bidding Documents is: **Lynn Imaging located at 11460 Bluegrass Parkway, Louisville, Kentucky 40299, (502) 499-8400 and [www.lynnimaging.com](http://www.lynnimaging.com) upon payment of a non-refundable price of \$200.00 for each set (includes shipping and handling).**

The Instructions to Bidders, Bid Form, Agreement Forms, Performance and Payment Bonds, Plans, Specifications, and other associated documents may be examined at the following locations:

HDR Engineering, Inc.  
2517 Sir Barton Way  
Lexington, KY 40509  
(859) 629-4800

F.W. Dodge/AGC  
1811 Cargo Court  
Louisville, KY 402099  
(502) 671-1296

HDR Engineering, Inc.  
One Riverfront Plaza  
401 West Main Street, Suite 500  
Louisville, KY 40202  
(502) 909-3234

Meade County Water District  
1003 Armory Place  
Brandenburg, KY 40108  
(270) 422-5006

The OWNER reserves the right to waive any informality or to reject any or all bids.

A pre-bid conference will be held at **10:00 A.M.** local time on **July 20<sup>th</sup>** at the **Meade County Water District Office, 1003 Armory Place, Brandenburg, KY 40108**. Attendance at the pre-bid conference is highly encouraged but is not mandatory.

Each BIDDER must deposit with his Bid, security in the amount, form and subject to the conditions provided in the instructions to Bidders.

This project is expected to be funded in part with funds provided by the U.S. Department of Agriculture, Rural Utilities Service (RUS). Refer to Article 18 of the General Conditions for information on the federal requirements.

No BIDDER may withdrawal his Bid within ninety (90) consecutive calendar days after the actual date of the opening thereof.

Joe Bartley, General Manager

**END OF ADVERTISEMENT FOR BIDS**





**SECTION 00200**  
**INSTRUCTIONS TO BIDDERS**  
**FOR CONSTRUCTION CONTRACTS**

Prepared by



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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 [ ] 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. [Evidence of Bidder's authority to do business in the state where the Project is located.]~~

~~B. [Bidder's state or other contractor license number, if applicable.]~~

~~C. [Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."]~~

~~D. [Other required information regarding qualifications]~~

**{or}**

3.01 ~~Prospective Bidders shall submit required information regarding their qualifications by [ ] [insert deadline for prequalification submittals]. Owner will review the submitted information to determine which contractors are qualified to bid on the Work. Owner will issue an Addendum listing those contractors that Owner has determined to be qualified to construct the project. Bids will only be accepted from listed contractors. The information that each prospective Bidder must submit to seek prequalification includes (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:~~

~~A. [Evidence of prospective Bidder's authority to do business in the state where the Project is located.]~~

~~B. [Prospective Bidder's state or other contractor license number, if applicable.]~~

~~C. [Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."]~~

~~D. [Other required information regarding qualifications]~~

~~{or}~~

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
- A. {Evidence of Bidder's authority to do business in the state where the Project is located.}
  - B. {Bidder's state or other contractor license number, if applicable.}
  - C. {Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."}
  - D. {Other required information regarding qualifications}
- 3.02 A Bidder's failure to submit required qualification information 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:
    - 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 adjacent to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

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

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

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

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

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

- A. Reference is made to Article 8 of the 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;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

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

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

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

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

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

#### **ARTICLE 8 – BID SECURITY**

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of  **five (5) 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 completed and ready for final payment, are set forth in the Agreement.

~~{or}~~

- 9.01 ~~Bidder shall set forth in the Bid the time by which Bidder shall achieve Substantial Completion, subject to the restrictions established in Paragraph 14.04 of these Instructions. The Owner will take Bidder's time commitment regarding Substantial Completion into consideration during the evaluation of Bids, and it will be necessary for the apparent Successful Bidder to satisfy Owner that it will be able to achieve Substantial Completion within the time such Bidder has designated in the Bid. [If applicable include the following: Bidder shall also set forth in the Bid its commitments regarding the achievement of Milestones and readiness for final payment.] The Successful Bidder's time commitments will be entered into the Agreement (or incorporated in the Agreement by reference to the specific terms of the Bid).~~

#### ARTICLE 10 – LIQUIDATED DAMAGES

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

#### ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 ~~The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.~~

~~{or}~~

- 11.01 ~~The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-~~

~~equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.~~

- 11.01 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 Paragraph 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 and 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 ~~A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.~~
- 12.02 ~~Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.~~

12.01 **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~~ and Suppliers proposed for the following portions of the Work: ~~[drafter should here list key categories of the Work; depending on the Project this might include electrical, fire protection, major equipment items, etc.]~~

- Electrical
- All Mechanical Equipment Suppliers
- Pipe Suppliers
- Asphalt Paving
- Boring/Jacking
- Concrete Paving
- Valve/Gate Suppliers

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.

## **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 partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The partnership's address for receiving notices shall be shown.

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

#### ARTICLE 14 – BASIS OF BID

14.01 ~~Lump Sum~~

A. ~~Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.~~

~~{or}~~

14.01 ~~Base Bid with Alternates~~

A. ~~Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.~~

B. ~~In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.~~

~~{or}~~

14.01 ~~Sectional Bids~~

A. ~~Bidders may submit a Bid on any individual section or any combination of sections, as set forth in the Bid Form.~~

B. ~~Submission of a Bid on any section signifies Bidder's willingness to enter into a Contract for that section alone at the price offered.~~

C. ~~If Bidder submits Bids on individual sections and a Bid based on a combination of those sections, such combined Bid need not be the sum of the Bids on the individual sections.~~

D. ~~Bidders offering a Bid on one or more sections shall be capable of completing the Work covered by those sections within the time period stated in the Agreement.~~

~~{or}~~

14.01 ~~Cost-Plus-Fee Bids~~

- ~~A. Bidders shall submit a Bid on the Contractor's fee, which shall be in addition to compensation for Cost of the Work. Such fee shall be either (1) a fixed fee or (2) percentages of categories of costs, as set forth in the Bid Form.~~
- ~~B. If the Contractor's fee, as set forth in the Bid Form, is to be based on percentages of categories of cost, Bidders shall enter a maximum amount limiting the total fee if required by the Bid Form to do so.~~
- ~~C. Bidders shall submit a Bid on the Guaranteed Maximum Price, setting a maximum amount on the compensable Cost of the Work plus Contractor's fee, if required by the Bid Form to do so.~~

#### 14.02 *Unit Price*

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

#### 14.02 *Allowances*

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

#### 14.04 *Price-Plus-Time Bids*

- ~~A. The Owner will consider the time of Substantial Completion commitment made by the Bidder in the comparison of Bids.~~
- ~~B. Bidder shall designate the number of days required to achieve Substantial Completion of the Work and enter that number in the Bid Form as the total number of calendar days to substantially complete the Work.~~
- ~~C. The total number of calendar days for Substantial Completion designated by Bidder shall be less than or equal to a maximum of [\_\_\_\_], but not less than the minimum of [\_\_\_\_]. If Bidder purports to designate a time for Substantial Completion that is less than the allowed minimum, or greater than the allowed maximum, Owner will reject the Bid as nonresponsive.~~
- ~~D. The Agreement as executed will contain the Substantial Completion time designated in Successful Bidder's Bid, and the Contractor will be assessed liquidated damages at the rate stated in the Agreement for failure to attain Substantial Completion within that time.~~
- ~~E. [Bidder shall also designate the time in which it will achieve Milestones, and achieve readiness for final payment. Such time commitments shall be consistent with the "Time of Substantial Completion" to which Bidder commits. The Agreement as executed will contain,~~

~~as binding Contract Times, Successful Bidder's time commitments regarding Milestones, as applicable, and readiness for final payment.]~~

#### **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 [REDACTED]. **Meade County Water District 1003 Armory Place, Brandenburg, KY 40108.**
- 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.

#### **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.

~~{or}~~

- 17.01 ~~Bids will be opened privately.~~

## 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~~ **90 days**, 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.

### 19.03 Evaluation of Bids

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

- ~~B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner shall announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.~~

~~{or}~~

- ~~B. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.~~

~~{or}~~

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

~~{or}~~

- ~~B. For the determination of the apparent low Bidder when cost-plus bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.~~

- ~~C. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders.~~

~~The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.~~

~~1. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder specified time of Substantial Completion (in calendar days) times the rate for liquidated damages **[or other Owner designated daily rate]** (in dollars per day).~~

~~2. This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.~~

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

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

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

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

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

21.02 **This Contract is expected to be funded in part with funds provided by the United States Department of Agriculture, Rural Utilities Service (RUS). Refer to Article 18 of the General Conditions for information on the Federal Requirements.**

21.03 **Concurrence by RUS in the award of the Contract is required before the Contract is effective.**

21.04 **Issuance of a Certificate of Public Convenience and Necessity (CPCN) for Construction and Financing by Kentucky Public Service Commission is required before the Contract is effective.**

## **ARTICLE 22 – SALES AND USE TAXES (NOT USED)**

22.01 ~~Owner is exempt from [ ] state sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption No. [ ]). Said taxes shall not be included in the Bid. Refer to Paragraph SC 7.09 of the Supplementary Conditions for additional information.~~



**ARTICLE 23 – CONTRACTS TO BE ASSIGNED (NOT USED)**

**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 Standard Act of 29 CFR 5.5(b) apply.**
- 24.02 **This contract is subject to the Davis-Bacon Act and federal wage rates do apply.**



**SECTION 00410**

**BID FORM**

Meade County Water District  
Flaherty Water Transmission Main &  
Booster Pump Station

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**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

***Meade County Water District  
1003 Armory Place  
Brandenburg, KY 40108***

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.

2.02 BIDDER will sign and deliver the required number of counterparts of the AGREEMENT with the Bonds and other documents required by the Bidding Requirements within 10 days after the date of OWNER's Notice of Award.

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

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

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

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

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

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if

any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

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

4.01 Bidder certifies that:

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

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

**ARTICLE 5 – BASIS OF BID**

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

**UNIT BID PRICE**

Item No.	DESCRIPTION	Unit	Approx. Quantity	Unit Price	Total Item Amount
1	Mobilization	LS	1		
2	Bonds and Insurance	LS	1		
3	General Requirements	LS	1		
4	Clearing and Grubbing	LS	1		
5	12" PVC Waterline (SDR 17)	LF	26,578		
6	8" PVC Waterline (SDR 17)	LF	270		
7	6" PVC Waterline (SDR 17)	LF	478		
8	12" Gate Valve	EA	18		
9	10" Gate Valve	EA	1		
10	Air Release Valve Assembly	EA	14		
11	20" Steel Encasement (Bored)	LF	585		
12	20" Steel Encasement (Open Cut)	LF	55		
13	12" Steel Encasement (Bored)	LF	140		
14	12" R.J. D.I. – Directional Drill	LF	460		
15	8" R.J. D.I. – Directional Drill	LF	40		
16	Concrete Encasement (Minor Ditch Crossing)	LF	200		
17	Flush Hydrant Assembly	EA	5		
18	Fire Hydrant Assembly	EA	3		
19	Cap Main	EA	1		
20	8" x 8" Tapping Valve & Sleeve	EA	1		
21	6" x 6" Tapping Valve & Sleeve	EA	4		
22	Water Booster Pump Station	LS	1		
23	Control Valve & Vault	LS	1		
24	Erosion Prevention & Sediment Control	LS	1		
25	Traffic Control	LS	1		
26	Demobilization	LS	1		
27	12" R.J. D.I. Waterline	LF	800		

TOTAL AMOUNT OF BID (Items 1 through 27): \_\_\_\_\_ 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 liquidate 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. Contractor’s License No.: \_\_\_\_\_ [or] Evidence of Bidder’s ability to obtain a State Contractor’s License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
  - G. Required Bidder Qualification Statement with supporting data; and
  - H. If Bid amount exceeds \$10,000 signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplemental General Conditions;
  - I. If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions (AD-1048);
  - J. If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1 Certification for Contracts, Grants, and Loans.

**ARTICLE 8 – DEFINED TERMS**

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



**ARTICLE 9 – BID SUBMITTAL**

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

\_\_\_\_\_  
By:  
*[Signature]* \_\_\_\_\_

*[Printed name]* \_\_\_\_\_  
*(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest:  
*[Signature]* \_\_\_\_\_

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

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

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

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

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

Bidder's License No.: \_\_\_\_\_  
*(where applicable)*

**END OF SECTION**





assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

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

## **END OF SECTION**

# SECTION 00440

## QUALIFICATIONS STATEMENT

Prepared by



Issued and Published Jointly by



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[www.nspe.org](http://www.nspe.org)

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1015 15th Street N.W., Washington, DC 20005  
(202) 347-7474  
[www.acec.org](http://www.acec.org)

American Society of Civil Engineers  
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# QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT  
PERMITTED BY LAWS AND REGULATIONS

**1. SUBMITTED BY:**

Official Name of Firm: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**2. SUBMITTED TO:** \_\_\_\_\_

**3. SUBMITTED FOR:** \_\_\_\_\_

Owner: \_\_\_\_\_

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

**TYPE OF WORK:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**4. CONTRACTOR'S CONTACT INFORMATION**

Contact Person: \_\_\_\_\_

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

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**5. AFFILIATED COMPANIES:**

Name:

---

Address:

---

---

---

**6. TYPE OF ORGANIZATION:**

SOLE PROPRIETORSHIP

Name of Owner:

---

Doing Business As:

---

Date of Organization:

---

PARTNERSHIP

Date of Organization:

---

Type of Partnership:

---

Name of General Partner(s):

---

---

---

CORPORATION

State of Organization:

---

Date of Organization:

---

Executive Officers:

- President:

---

- Vice President(s):

---

---



- Treasurer: \_\_\_\_\_

- Secretary: \_\_\_\_\_

LIMITED LIABILITY COMPANY

State of Organization: \_\_\_\_\_

Date of Organization: \_\_\_\_\_

Members: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

JOINT VENTURE

State of Organization: \_\_\_\_\_

Date of Organization: \_\_\_\_\_

Form of Organization: \_\_\_\_\_

Joint Venture Managing Partner

- Name: \_\_\_\_\_

- Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Joint Venture Managing Partner

- Name: \_\_\_\_\_

- Address: \_\_\_\_\_

\_\_\_\_\_

Joint Venture Managing Partner

- Name: \_\_\_\_\_

- Address: \_\_\_\_\_

\_\_\_\_\_

**7. LICENSING**

Jurisdiction: \_\_\_\_\_

Type of License: \_\_\_\_\_

License Number: \_\_\_\_\_

Jurisdiction: \_\_\_\_\_

Type of License: \_\_\_\_\_

License Number: \_\_\_\_\_

**8. CERTIFICATIONS**

CERTIFIED BY:

Disadvantage Business Enterprise: \_\_\_\_\_

Minority Business Enterprise: \_\_\_\_\_

Woman Owned Enterprise: \_\_\_\_\_

Small Business Enterprise: \_\_\_\_\_

Other ( \_\_\_\_\_ ): \_\_\_\_\_

**9. BONDING INFORMATION**

Bonding Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Bonding Agent: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Aggregate Bonding Capacity: \_\_\_\_\_  
Available Bonding Capacity as of date of this submittal: \_\_\_\_\_

**10. FINANCIAL INFORMATION**

Financial Institution: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Account Manager: \_\_\_\_\_  
Phone: \_\_\_\_\_

INCLUDE AS AN ATTACHMENT AN AUDITED BALANCE SHEET FOR EACH OF THE  
LAST 3 YEARS

**11. CONSTRUCTION EXPERIENCE:**

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

YES  NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

YES  NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

YES  NO

If YES, attach as an Attachment details including Project Owner's contact information.

**12. SAFETY PROGRAM:**

Name of Contractor's Safety Officer: \_\_\_\_\_

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 500- Log & Summary of Occupational Injuries & Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section V (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____

Total number of man-hours worked for the last 5 Years:

YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____

**13. EQUIPMENT:**

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HEREWITH, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATED: \_\_\_\_\_

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_

NOTARY PUBLIC - STATE OF \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C (Major Equipment).
4. Audited balance sheet for each of the last 3 years for firm named in Section 1.
5. Evidence of authority for individuals listed in Section 7 to bind organization to an agreement.
6. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
7. Required safety program submittals listed in Section 13.
8. Additional items as pertinent.





## SCHEDULE A

### CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

## SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

## SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				



## PROPOSED SUBCONTRACTORS

The BIDDER'S proposed subcontractors shall be listed below for the various branches of work included in the proposed contract. All subcontractors are subject to the approval of the OWNER. **Unless rejected by the OWNER, no substitutions or changes to the listing of the entities proposed to perform that branch of the work will be allowed following opening of the Bids.**

Where the BIDDER proposes to perform the work with its own forces, the phrase "Prime Contractor" shall be entered in the box provided.

**Failure to submit a completed list shall be cause for rejection of the Bid.**

Branch of Work	Name and Address of Subcontractor
1. Electrical	
2. Pipe Installation	
3. Mechanical	
4. Concrete Placement	
5. Asphalt Pavement Installation	
6. Boring and Jacking	
7. Site Restoration	

(Add supplemental pages if necessary)

## LIST OF PROPOSED MANUFACTURERS

The BIDDER'S proposed manufacturers shall be listed for various items shown below. The OWNER reserves the right to reject any proposed manufacturer that is not listed in the Bid Documents. **Unless rejected by the OWNER, no substitutions or changes to the listing of the manufacturers proposed will be allowed following opening of the Bids.**

**Failure to submit a completed list shall be cause for rejection of the Bid.**

Material (Equipment)	Name and Address of Material Manufacturer
1. Ductile Iron Pipe	
2. PVC Pipe	
3. Pumps	
4. Valves/Gates	
5. VFD's	
6. Controls	

**END OF SECTION**

00510  
NOTICE OF AWARD

TO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PROJECT Description: **Meade County Water District – Flaherty Transmission Main and Booster Pump Station**

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated July 12, 2017, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$ \_\_\_\_\_.

You are required by the Information for Bidders to execute the enclosed Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and certificates of insurance within fifteen (15) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within fifteen (15) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

Within ten (10) days of your compliance of 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.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Owner: Meade County Water District

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

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

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By \_\_\_\_\_ . this the \_\_\_\_\_ day

of \_\_\_\_\_, 20\_\_\_\_\_.

Title \_\_\_\_\_





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

**00521 - AGREEMENT  
BETWEEN OWNER AND CONTRACTOR FOR  
CONSTRUCTION CONTRACT (STIPULATED PRICE)**

Prepared by



Issued and Published Jointly by



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

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

Owner and Contractor hereby agree as follows:

**ARTICLE 1 – WORK**

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

**ARTICLE 2 – THE PROJECT**

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Installation/Construction of 6-inch – 12-inch watermains and appurtenances, control valve and vault and a 1,000 gpm booster pump station for the Meade County Water District.

**ARTICLE 3 – ENGINEER**

3.01 The part of the Project that pertains to the Work has been designed by HDR Engineering, Inc.  
3.02 The Owner has retained Michael Hansen (“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: Dates*

~~A. The Work will be substantially completed on or before {\_\_\_\_}, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before {\_\_\_\_\_}.~~

~~{or}~~

4.02 *Contract Times: Days*

A. The Work will be substantially completed within 180 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 210 days after the date when the Contract Times commence to run.

- ~~B. Parts of the Work shall be substantially completed on or before the following Milestone(s):~~
- ~~1. Milestone 1 [event & date/days]~~
  - ~~2. Milestone 2 [event & date/days]~~
  - ~~3. Milestone 3 [event & date/days]~~

#### 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 \$400 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 Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$400 for each day that expires after such time until the Work is completed and ready for final payment.
  3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.
  - ~~4. Milestones: Contractor shall pay Owner \$[ ] for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved.~~
- ~~B. Bonus: Contractor and Owner further recognize the Owner will realize financial and other benefits if the Work is completed prior to the time specified for Substantial Completion. Accordingly, Owner and Contractor agree that as a bonus for early completion, Owner shall pay Contractor \$[ ] for each day prior to the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract) that the Work is substantially complete. The maximum value of the bonus shall be limited to \$[ ].~~

---

#### ~~4.04 *Special Damages*~~

- ~~A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.~~
- ~~B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction~~

~~observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.~~

**ARTICLE 5 – CONTRACT PRICE**

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

~~A. For all Work other than Unit Price Work, a lump sum of: \$ { }.~~

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

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

**WILL BE COMPLETED WHEN AWARD IS GIVEN**

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

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

~~C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$ { }.~~

~~D. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.~~

**ARTICLE 6 – PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such

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

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as 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); ~~If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage;~~ and
  - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion 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 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

#### 6.03 *Final Payment*

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

### **ARTICLE 7 – INTEREST**

- 7.01 All amounts not paid when due shall bear interest at the short term lending rate or state law, where applicable.

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

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
  - A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
  - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the

Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### ***WILL BE COMPLETED WHEN AWARD IS GIVEN***

#### 9.01 *Contents*

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to 10, 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 30, inclusive).
  - 6. Specifications as listed in the table of contents of the Project Manual.
  - 7. Drawings (not attached but incorporated by reference) consisting of 28 sheets with each sheet bearing the following general title: Flaherty Water Transmission Main and Booster Pump Station ~~for the Drawings listed on the attached sheet index.~~
  - 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 without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### **10.03 Successors and Assigns**

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

### **10.04 Severability**

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



#### 10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### 10.06 *Other Provisions*

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

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

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

OWNER:

CONTRACTOR:

\_\_\_\_\_

\_\_\_\_\_

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

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

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

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

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

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

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

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

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

Address for giving notices:

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

License No.: \_\_\_\_\_  
*(where applicable)*

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

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

00550  
NOTICE TO PROCEED

TO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT NAME: Meade County Water District  
Flaherty Transmission Main and Booster  
Pump Station

You are hereby notified to commence WORK in accordance with the Agreement dated \_\_\_\_\_, 20\_\_, on or before \_\_\_\_\_, 20\_\_. In accordance with the Agreement, the date of substantial completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_, 20\_\_.

Before starting work at the site, Contractor must comply with the following:  
{Note any access limitations, security procedures, or other restrictions}

Owner: Meade County Water District \_\_\_\_\_

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

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

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PRO-

CEED is hereby acknowledged on behalf of

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

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

By \_\_\_\_\_

Title \_\_\_\_\_



**SECTION 00610**

**PERFORMANCE BOND**

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:

Meade County Water District  
1003 Armory Place  
Brandenburg, KY 40108

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location)*: Meade County Water District – Flaherty Water Transmission Main and Booster Pump Station

**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**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal *(seal)*

\_\_\_\_\_  
Surety's Name and Corporate Seal *(seal)*

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

**By:** \_\_\_\_\_  
Signature *(attach power of attorney)*

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

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

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

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

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

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

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

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

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

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

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

16. Modifications to this Bond are as follows:

**END OF SECTION**





**SECTION 00615  
PAYMENT BOND**

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:

Meade County Water District  
1003 Armory Place  
Brandenburg, KY 40108

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

**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**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal *(seal)*

\_\_\_\_\_  
Surety's Name and Corporate Seal *(seal)*

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

By: \_\_\_\_\_  
Signature *(attach power of attorney)*

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
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. 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;

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:

**END OF SECTION**



Date of Issuance:

Effective Date:

Owner:

Owner's Contract No.:

Contractor:

Contractor's Project No.:

Engineer:

Engineer's Project No.:

Project:

Contract Name:

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

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:

ACCEPTED:

ACCEPTED:

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

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

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

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

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

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

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

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

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

Approved by Funding Agency (if applicable)

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

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



## **00710 - General Conditions**





**SECTION 00710**  
**STANDARD GENERAL CONDITIONS**  
**OF THE CONSTRUCTION CONTRACT**

Prepared by



Issued and Published Jointly by



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

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

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**STANDARD GENERAL CONDITIONS OF THE  
CONSTRUCTION CONTRACT**

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.1 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer



has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.2 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
  1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
  1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
  1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
    - a. does not conform to the Contract Documents; or
    - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
    - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
  1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.1 *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.

### **2.2 *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.

### **2.3 *Before Starting Construction***

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

#### 2.4 *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.

#### 2.5 *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.

#### 2.6 *Electronic Transmittals*

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

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

### **ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

#### **3.1 *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.

#### **3.2 *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.

#### **3.3 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*
  - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

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

3.4 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.



### 3.5 *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**

### 4.1 *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.

### 4.2 *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.

### 4.3 *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.

### 4.4 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

#### 4.5 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  2. abnormal weather conditions;
  3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
  4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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

### *5.1 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.

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

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

### 5.3 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
  - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
  - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
  - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

#### 5.4 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
  2. is of such a nature as to require a change in the Drawings or Specifications; or
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
    - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
    - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
    - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
  3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
  4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

#### 5.5 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
  1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
  2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
    - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
    - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
    - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
  - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
    - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
    - d. Contractor gave the notice required in Paragraph 5.05.B.
  - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
  - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

## 5.6 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
  2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.



- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 6 – BONDS AND INSURANCE

### 6.1 *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.

### 6.2 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

### 6.3 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
  - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
  - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
  2. claims for damages insured by reasonably available personal injury liability coverage.
  3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
    - a. Such insurance shall be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Broad form property damage coverage.
  4. Severability of interest.
  5. Underground, explosion, and collapse coverage.
  6. Personal injury coverage.
  7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
  8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
  - 1. include at least the specific coverages provided in this Article.
  - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
  - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
  - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
  - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

#### 6.4 *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.

#### 6.5 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
  - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
  - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
  - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
  6. extend to cover damage or loss to insured property while in transit.
  7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
  8. allow for the waiver of the insurer's subrogation rights, as set forth below.
  9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
  10. not include a co-insurance clause.
  11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
  12. include performance/hot testing and start-up.
  13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

## 6.6 *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.

## 6.7 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the



policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

## **ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES**

### **7.1 *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.

### **7.2 *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.

### **7.3 *Services, Materials, and Equipment***

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 7.4 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
      - 3) it has a proven record of performance and availability of responsive service; and
      - 4) it is not objectionable to Owner.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

## 7.5 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
  - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
  - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
  - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
    - a. shall certify that the proposed substitute item will:
      - 1) perform adequately the functions and achieve the results called for by the general design,
      - 2) be similar in substance to that specified, and
      - 3) be suited to the same use as that specified.
    - b. will state:
      - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
      - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
      - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
    - c. will identify:
      - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
  - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
  - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
  - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
  - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
  - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

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

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.7 *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.

7.8 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

## 7.9 *Taxes*

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

## 7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

## 7.11 *Record Documents*

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

## 7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
  - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
  - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
  - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
  - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
  - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

#### 7.13 *Safety Representative*

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

#### 7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or



exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 7.15 *Emergencies*

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

#### 7.16 *Shop Drawings, Samples, and Other Submittals*

##### A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*
    - a. Contractor shall submit the number of Samples required in the Specifications.
    - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
  3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
  5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
  6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
  7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;
  3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal;
  6. the issuance of a notice of acceptability by Engineer;
  7. any inspection, test, or approval by others; or
  8. any correction of defective Work by Owner.

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

#### 7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

## **ARTICLE 8 – OTHER WORK AT THE SITE**

### **8.1 *Other Work***

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

## 8.2 *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.

## 8.3 *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 for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## **ARTICLE 9 – OWNER'S RESPONSIBILITIES**

### **9.1 *Communications to Contractor***

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

### **9.2 *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.

### **9.3 *Furnish Data***

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

### **9.4 *Pay When Due***

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

### **9.5 *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.

### **9.6 *Insurance***

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

### **9.7 *Change Orders***

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.8 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.9 *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**

10.1 *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.

10.2 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during



or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### 10.3 *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.

### 10.4 *Rejecting Defective Work*

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

### 10.5 *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.

### 10.6 *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.

### 10.7 *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.

### 10.8 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

#### 10.9 *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**

#### 11.1 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
  - 1. *Change Orders:*
    - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
    - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
  - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

#### 11.2 *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.

#### 11.3 *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.

#### 11.4 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
  1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.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.

#### 11.5 *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.

#### 11.6 *Change Proposals*

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

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

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
  2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
  3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

#### 11.7 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
  4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

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

#### 11.8 *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**

#### 12.1 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
  - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
  - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
  - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
  - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

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

### 13.1 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
  1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
  2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
  1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

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

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



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

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

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

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

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

### 13.2 Allowances

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

- B. *Cash Allowances*: Contractor agrees that:
  - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
  - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

### 13.3 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
  - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

## **ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### **14.1 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.

### **14.2 Tests, Inspections, and Approvals**

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
  - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  - 3. by manufacturers of equipment furnished under the Contract Documents;
  - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.3 *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.

#### 14.4 *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.

#### 14.5 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, 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.

#### 14.6 *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.

#### 14.7 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

### **15.1 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
  2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
  3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
  2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
    - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
    - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
  4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
    - a. to supervise, direct, or control the Work, or
    - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
    - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
    - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
    - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
  5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
  6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
    - a. the Work is defective, requiring correction or replacement;
    - b. the Contract Price has been reduced by Change Orders;
    - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
    - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
  - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. the Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. the Contract Price has been reduced by Change Orders;
  - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
  - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount



remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

#### 15.2 *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.

#### 15.3 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.4 *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.

#### 15.5 *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.

#### 15.6 *Final Payment*

- A. *Application for Payment:*
  - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents;
  - b. consent of the surety, if any, to final payment;
  - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
  - d. a list of all disputes that Contractor believes are unsettled; and
  - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

**C. *Completion of Work:*** The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

**D. *Payment Becomes Due:*** Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

#### 15.7 *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.

#### 15.8 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such other adjacent areas;
  - 2. correct such defective Work;
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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

## **ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION**

### **16.1 *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.

### **16.2 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

### 16.3 *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.

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

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

### **17.1 *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**

### **18.1 *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.

### **18.2 *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.

### **18.3 *Cumulative Remedies***

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

18.4 *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.

18.5 *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.

18.6 *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.

18.7 *Controlling Law*

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

18.8 *Headings*

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



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

## 00800 - SUPPLEMENTARY CONDITIONS

Prepared by



Issued and Published Jointly by



This **Supplementary Conditions** has been prepared for use with the Standard General Conditions of the Construction Contract (EJCDC® C-700, 2013 Edition). Their provisions are interrelated and a change in one may necessitate a change in the other. The suggested language contained in the **Guide to the Preparation of Instructions to Bidders** (EJCDC® C-200, 2013 Edition) is also carefully integrated with the suggested language of this document. The full EJCDC Construction series of documents is discussed in the **Commentary on the 2013 EJCDC Construction Documents** (EJCDC® C-001, 2013 Edition).

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## I. SUPPLEMENTARY CONDITIONS

### A. *Caption and Introductory Statements*

#### **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.3** Add the following at the end of the last sentence of Paragraph 1.01.A.3

The Application for Payment form to be used on this project is EJCDC C-620 (2013), or RD Form 1927-7.

**SC 1.01.A.8** Add the following at the end of the last sentence of Paragraph 1.01.A.8

The Change Order form to be used on this Project is EJCDC C-941 or RD Form 1927-7. Agency approval is required before Change Orders are effective or eligible for payment.

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

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

**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.

**SC 1.01.A.50** Add the following new Paragraph after Paragraph 1.01.A.49

**Agency-** The Project is financed in whole or in part by USDA Rural Utilities Services pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Rural Utilities Service programs are administered through USDA Rural Development offices; therefore, the Agency for these documents is USDA Rural Development.

## **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 5 copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

**SC-2.02** Add the following new paragraph immediately after Paragraph 2.02.B:

**C.** Conformed documents incorporate and integrate Addenda and amendments negotiated prior to the Effective Date of the Contract. The conformed documents are produced for the convenience of the user and are not binding on the Owner nor do conformed documents take the place of the Contract Documents.

**SC 2.06.B** Delete Paragraph 2.06.B and replace it with the term [deleted]

## **ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

### *SC-3.01 Intent*

**SC-3.01** Add the following new paragraphs immediately after Paragraph 3.01.E:

**F.** The Specifications may vary in form, format and style. Some specification sections are written in varying degrees of streamlined or declarative style and some sections may be relatively narrative by comparison. Omissions of such words and phrases as "the Contractor shall," "in conformity with," "as shown," or "as specified" are intentional in streamlined sections. Omitted words and phrases shall be supplied by inference. Similar types of provisions may appear in various parts of a section or articles within a part depending on the format of the

section. The Contractor shall not take advantage of any variation of form, format or style in making claims for extra Work.

- G. The cross referencing of specification sections under the subparagraph heading "Related Sections include but are not necessarily limited to:" and elsewhere within each specification section is provided as an aid and convenience to the Contractor. The Contractor shall not rely on the cross referencing provided and shall be responsible to coordinate the entire Work under the Contract Documents and provide a complete Project whether or not the cross referencing is provided in each section or whether or not the cross referencing is complete.

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

SC-4.01A *Commencement of Contract Times; Notice to Proceed*

**SC 4.01A** Amend the last sentence of Paragraph 4.01.A by striking out the following words:

In no event will the Contract Times commence run later than the ninetieth day after the day of Bid opening or the thirtieth day of the Effective Date of the Contract, whichever is earlier

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

SC-5.03 *Subsurface and Physical Conditions*

**SC 5.03** — Add the following new paragraphs immediately after Paragraph 5.03.B:

~~C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:~~

~~1. Report dated [May 21, 2013, prepared by Aye and Bea, Consulting Engineers, Philadelphia, Pa., entitled: "Results of Investigation of Subsoil Conditions and Professional Recommendations for Foundations of Iron Foundry at South and Front Streets, Pembrig, NJ", consisting of 42 pages.] The Technical Data contained in such report upon whose accuracy Contractor may rely are [here indicate any such Technical Data, or state "none."] [or] [those indicated in the definition of Technical Data in the General Conditions.]~~

~~2. Report dated [May 2, 2000, prepared by Ecks, Wye and Tsze, Inc., Baltimore, Md., entitled: "Tests of Water Quality in Mixer River at Pembrig, NJ", consisting of 26 pages.] The Technical Data contained in such report upon whose accuracy Contractor may rely are [here indicate any such Technical Data, or state "none."] [or] [as indicated in the definition of Technical Data in the General Conditions.]~~

~~D. The following drawings of physical conditions relating to existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities) are known to Owner:~~

~~1. Drawings dated [March 2, 2000, of Route 24A Overpass Abutment, prepared by Dea & Associates, Inc., Wilmington, Del., entitled: "Record Drawings: Route No. 24A Overpass Abutment", consisting of 12 sheets numbered 001 to 012, inclusive.]~~

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*{Use one of the following two subparagraphs:}*

~~a. All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely, except for \_\_\_\_\_ appearing on Drawing No. \_\_\_\_\_ and \_\_\_\_\_ appearing on Drawing No. \_\_\_\_\_.~~

*{or}*

~~a. None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.~~

~~E. Contractor may examine copies of reports and drawings identified in SC 5.03.C and SC 5.03.D that were not included with the Bidding Documents at \_\_\_\_\_ *[insert location]* during regular business hours, or may request copies from Engineer.~~

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

A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

~~SC/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:~~

~~a. Report dated *[May 21, 2013, prepared by Aye and Bea, Consulting Engineers, Philadelphia, Pa., entitled: "Results of Investigation of Subsoil Conditions and Professional Recommendations for Foundations of Iron Foundry at South and Front Streets, Pembrig, NJ", consisting of 42 pages.]* The Technical Data contained in such report upon whose accuracy Contractor may rely are *[here indicate any such Technical Data or state "none."]* *{or}* ~~*[those indicated in the definition of Technical Data in the General Conditions.]*~~~~

~~b. Report dated *[May 2, 2000, prepared by Ecks, Wye and Tsze, Inc., Baltimore, Md., entitled: "Tests of Water Quality in Mixer River at Pembrig, NJ", consisting of 26 pages.]* The Technical Data contained in such report upon whose accuracy Contractor may rely are *[here indicate any such Technical Data or state "none."]* *{or}* ~~*[as indicated in the definition of Technical Data in the General Conditions.]*~~~~

~~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:~~



~~a. Drawings dated [March 2, 2000, of Route 24A Overpass Abutment, prepared by Dea & Associates, Inc., Wilmington, Del., entitled: "Record Drawings: Route No. 24A Overpass Abutment", consisting of 12 sheets numbered 001 to 012, inclusive.]~~

~~[Use one of the following two subparagraphs:]~~

~~(1) All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely, except for \_\_\_\_\_ appearing on Drawing No. \_\_\_\_\_ and \_\_\_\_\_ appearing on Drawing No. \_\_\_\_\_.~~

~~{or}~~

~~(2) None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.~~

~~3. Contractor may examine copies of reports and drawings identified immediately above that were not included with the Bidding Documents at \_\_\_\_\_ [insert location] during regular business hours, or may request copies from Engineer, at the cost of reproduction.~~

**~~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, 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: [Geotechnical Baseline Report for Northwest Interceptor, dated February 12, 2013, prepared by ABC Geotechnical Engineers, Inc., Sacramento, California]. This Contract also contains a Geotechnical Data Report (GDR), identified as follows: [Geotechnical Data Report for Northwest Interceptor, dated June 15, 2012, prepared by ABC Geotechnical Engineers, Inc., Sacramento, California]~~
- ~~2. The GBR and GDR are incorporated as Contract Documents. The GBR and GDR are to be used in conjunction with other Contract Documents, including~~

~~the Drawings and Specifications. If there is a conflict between the terms of the GBR and the GDR, the GBR's terms shall prevail.~~

- ~~3. The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (referred to here in the Supplementary Conditions as "Baseline Conditions"). These may include ground, geological, groundwater, and other subsurface geotechnical conditions, and baselines of anticipated Underground Facilities or subsurface structures.~~
- ~~4. The Baseline Conditions shall be used to assist in the administration of the Contract's differing site conditions clause at locations where subsurface conditions have been baselined. If a condition is baselined in the GBR, then only the pertinent Baseline Conditions shall be used to determine whether there is a differing site condition; and no other indication of that condition in the Contract Documents or Technical Data, or of a condition that describes, quantifies, or measures a similar characteristic of the subsurface, shall be used for the differing site condition determination.~~
- ~~5. The Baseline Conditions shall not be used to make differing site conditions determinations at locations that have not been baselined in the GBR, or at any location with respect to subsurface conditions that the Baseline Conditions do not address. If Underground Facilities or Hazardous Environmental Conditions are expressly addressed in the Baseline Conditions, then comparison to such Baseline Conditions shall be the primary means of determining (a) whether an Underground Facility was shown or indicated with reasonable accuracy, as provided in Paragraph 5.05 of the General Conditions, or (b) whether a Hazardous Environmental Condition was shown or indicated in the Contract Documents as indicated in Paragraph 5.06.H of the General Conditions. As indicated in Paragraph SC-5.04 below, the GDR shall be the primary resource for differing site conditions determinations in cases in which the GBR is inapplicable.~~
- ~~6. The descriptions of subsurface conditions provided in the GBR are based on geotechnical investigations, laboratory tests, interpretation, interpolation, extrapolation, and analyses. Neither Owner, Engineer, nor any geotechnical or other consultant warrants or guarantees that actual subsurface conditions will be as described in the GBR, nor is the GBR intended to warrant or guarantee the use of specific means or methods of construction.~~
- ~~7. The behavior of the ground during construction depends substantially upon the Contractor's selected means, methods, techniques, sequences, and procedures of construction. If ground behavior conditions are baselined in the GBR, they are based on stated assumptions regarding construction means and methods.~~
- ~~8. The GBR shall not reduce or relieve Contractor of its responsibility for the planning, selection, and implementation of safety precautions and programs incident to Contractor's means, methods, techniques, sequences, and procedures of construction, or to the Work.~~

#### ~~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 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.~~~~
- ~~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 Add the following new subparagraphs immediately after Paragraph 5.06.A.2:~~

- ~~A.3 The following reports regarding Hazardous Environmental Conditions at the Site are known to Owner:
  - ~~a. Report dated December 10, 2012, prepared by Eph Environmental Consultants, Princeton, N.J., entitled: "Results of Investigation of~~~~

~~Conditions at Iron Foundry at South and Front Streets, Pembrig, NJ, consisting of 27 pages. The Technical Data contained in such report upon whose accuracy Contractor may rely are [here indicate any such Technical Data or state "none."]~~

~~A.4 The following drawings regarding Hazardous Environmental Conditions at the Site are known to Owner:~~

~~a. Drawings dated November 27, 2002, prepared by Eph Environmental Consultants, Princeton, N.J., entitled: "Iron Foundry Site Conditions", consisting of 5 sheets numbered \_\_\_ to \_\_\_, inclusive.~~

~~{Use one of the following two subparagraphs:}~~

~~1) All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely, except for \_\_\_\_\_ appearing on Drawing No. \_\_\_\_\_ and \_\_\_\_\_ appearing on Drawing No. \_\_\_\_\_.~~

~~{or}~~

~~1) None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.~~

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 Insurance—General Provisions

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 Contractor's Insurance

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

<b>Federal, if applicable (e.g., Longshoreman's):</b>	<u>Statutory</u>
<b>Jones Act coverage, if applicable:</b>	
Bodily injury by accident, each accident	\$ _____
Bodily injury by disease, aggregate	\$ _____
<b>Employer's Liability:</b>	
Bodily injury, each accident	\$ <u>500,000</u>
Bodily injury by disease, each employee	\$ <u>500,000</u>
Bodily injury/disease aggregate	\$ <u>500,000</u>
<b>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:</b>	\$ _____
<b>Foreign voluntary worker compensation</b>	<u>Statutory</u>

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

<b>General Aggregate</b>	\$ <u>2,000,000</u>
<b>Products - Completed Operations Aggregate</b>	\$ <u>1,000,000</u>
<b>Personal and Advertising Injury</b>	\$ <u>1,000,000</u>
<b>Each Occurrence (Bodily Injury and Property Damage)</b>	\$ <u>1,000,000</u>

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

<b>Bodily Injury:</b>	
Each person	\$ <u>1,000,000</u>
Each accident	\$ <u>1,000,000</u>
<b>Property Damage:</b>	
Each accident	\$ <u>1,000,000</u>
[or]	
<b>Combined Single Limit of</b>	\$ <u>1,000,000</u>

4. Excess or Umbrella Liability:

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

5. Contractor's Pollution Liability:

Each Occurrence	\$ <u>1,000,000</u>
General Aggregate	\$ <u>1,000,000</u>

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: "None"

7. Contractor's Professional Liability:

Each Claim	\$ <u>2,000,000</u>
Annual Aggregate	\$ <u>2,000,000</u>

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:

14. be subject to a deductible amount of no more than [\$       ] 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: "None"

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

15. include for the benefit of Owner loss of profits and soft cost coverage including, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, plus attorneys fees and engineering or other consultants' fees, if not otherwise covered;
16. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties: "None"
17. include by express endorsement coverage of damage to Contractor's equipment.

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

Contractor shall provide and maintain installation floater insurance for property under the care, custody, or control of Contractor. The installation floater insurance

shall be a broad form or “all risk” policy providing coverage for all materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work. Coverage under the Contractor’s installation floater will include:

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

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

SC 6.05.A. Delete the first sentence of Paragraph 6.05.A and insert the following sentence in its place:

Owner 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).

## ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES

### SC-7.01 *Supervision and Superintendence*

SC-7.01.B. Amend Paragraph 7.01.B to add the following sentences: “The Contractor shall identify their representative at the Site that shall have authority to act on behalf of Contractor. All communications given to or received from this representative shall be binding on Contractor.”

SC-7.01.C. Add the following new paragraph immediately after Paragraph 7.01.B:

Any superintendent or other personnel, who repeatedly fails to follow the Engineer’s written or oral orders, directions, instructions, or determinations, shall be subject to removal from the project. Upon the written request of the Engineer, the Contractor shall immediately remove such superintendent or other personnel and name a replacement in writing. Noncompliance with the Engineer’s request to remove and replace personnel at any level shall be grounds for terminating the Contract.

### 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 *[here insert schedule of regular working hours]*
2. Owner's legal holidays are *[here insert list of legal holidays]*

SC-7.02.B. Amend the first and second sentences of Paragraph 7.02.B to state “...all Work at the Site shall be performed during regular working hours, [ ] through [ ]. Contractor will not perform Work on a [ ], [ ], or any legal holiday.”



**SC-7.02.B. Delete Paragraph 7.02 B. in its entirety, and insert the following:**

**B. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.**

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

**Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.**

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

**1. For purposes of administering the foregoing requirement, additional overtime costs are defined as *[here insert parameters for compensated overtime hours]***

*SC-7.03 Services, Materials, and Equipment*

**SC-7.03.B. Add the following new subparagraphs immediately after Paragraph 7.03.B:**

**1. Where the Work requires equipment be furnished, due to the lack of standardization of equipment as produced by the various manufacturers, it may become necessary to make minor modifications in the structures, buildings, piping, mechanical work, electrical work, accessories, controls, or other work, to accommodate the particular equipment offered. Contractor's bid price for any equipment offered shall include the cost of making any necessary changes subject to the approval of Engineer.**

*SC-7.04 "Or Equals"*

**SC 7.04 Amend the third sentence of Paragraph 7.04.A by striking out the following words:**

**Unless the specifications or description contains or is followed by words reading that no like, equivalent, or "an-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 the paragraph.**

**SC 7.04.A.1 Delete paragraph 7.04.A.1.a.4 and insert "Deleted" in its place**

SC-7.06 *Concerning Subcontractors, Suppliers, and Others*

**SC 7.06.A Amend Paragraph 7.06A by adding the following text at the end of the Paragraph:**

**The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s).**

**SC 7.06.B Delete paragraph 7.06.B and insert "Deleted" in its place.**

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

SC-7.08 *Permits*

**SC-7.08 [Add description of any construction permits or licenses]**

**SC-7.08. Add a new paragraph immediately after Paragraph GC-7.08A. which is to read as follows:**

**"B. In those instances where a certificate of occupancy must be obtained before the Work under this Contract can be occupied and placed into service by Owner, it shall be the responsibility of Contractor to arrange, coordinate, and pay any costs of obtaining said certificate."**

SC-7.09 *Taxes*

**SC 7.09 Add a new paragraph immediately after Paragraph 7.09.A:**

**B. Owner is exempt from payment of sales and compensating use taxes of the State of Kentucky and of cities and counties thereof on all materials to be incorporated into the Work.**

**1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.**

**2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.**

SC-7.12 *Safety and Protection*

**SC-7.12 Insert the following after the second sentence of Paragraph 7.12.C:**

**The following Owner safety programs are applicable to the Work: *[here expressly identify by title and/or date, any such Owner safety programs]*.**

## 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. *[Here identify individual or entirety]* 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: *[here itemize such matters]*;
  3. The extent of such authority and responsibilities is: *[here provide the extent]*

## ARTICLE 9 – OWNER’S RESPONSIBILITIES

### SC-9.13 Owner’s Site Representative

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

SC-9.13 Owner will furnish an “Owner’s Site Representative” to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner’s Site Representative is not Engineer’s consultant, agent, or employee. Owner’s Site Representative will be *[Here identify individual or entirety]*. The authority and responsibilities of Owner’s Site Representative follow: *[Here describe the duties and activities of the Owner’s Site Representative]*

## 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. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work. *[See explanatory text at beginning of SC 9.13, and at beginning of SC 10.03, for discussion of this second alternative SC 10.03.B]*~~

[or]

- 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.
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.
- 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.
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.

*SC-10.06 Determinations for Unit Price Work*

- 10.06.A** Modify Paragraph GC-10.06.A by adding the following sentence at the end of the first sentence: "Contractor shall, at his own expense, provide help and other assistance as may be required for making measurements of Unit Price Work."

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

### SC-11.07 *Execution of Change Orders*

#### 11.07C Add the following new Paragraph after Paragraph 11.07B.

All Contract Change Orders must be concurred by Agency before they are effective or can be eligible for reimbursement.

## 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 *[cite the rate book appropriate for the Project]*. 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 *Allowances*

#### SC 13.02.C Delete Paragraph 13.02.C and insert “Deleted” in its place.

### SC-13.03 *Unit Price Work*

SC-13.03.B. Amend Paragraph 13.03.B to add the following sentences: “Progress estimates serve only as basis for partial payments. The Engineer may revise progress estimates and/or quantities any time before final acceptance. If the Engineer deems it proper to do so, changes may be made in progress estimates and in the final estimate.”

SC-13.03.C. Amend Paragraph 13.03.C to add the following sentences: “Work described in the Contract Documents, or reasonably inferred as required for a functionally complete installation, but not identified in the listing of unit price items, shall be considered incidental to unit price work listed and the cost of incidental work included as a part of the unit price.”

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

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:**
- 1. if the extended price of a particular item of Unit Price Work amounts to [ ] 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 [ ] 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 Progress Payments*

**15.01.B Amend the second sentence of Paragraph 15.01B by striking out the following text: “a bill of sale, invoice, or other.”**

**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.**

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

**The Application for Payment form to be used on the Project is EJCDC C-620 unless another form is agreed upon by the Engineer, Owner, and Agency. 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 entirety and insert the following in its place:**

**The Application for Payment with Engineer’s recommendation 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 and payable twenty (20) days after the Application for Payment if presented to the Owner, and the Owner will make payment to the Contractor.**



SC-15.02 *Contractor's Warranty of Title*

**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 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-15.07 *Waiver of Claims*

**SC-15.07.B. Amend Paragraph 15.07.B to state "The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner and/or Engineer other than those pending matters that have been duly submitted or appealed under the provisions of Article 17."**

**ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

SC-17.02 *Arbitration*

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

**SC-17.02 Arbitration**

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of *[insert name of selected arbitration agency]*, subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.**
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.**
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors,**

partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:

1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
  2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

*SC-17.03 Attorneys' Fees*

**SC-17.03** Add the following new paragraph immediately after Paragraph 17.02.

**SC-17.03 Attorneys' Fees:** For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

**ARTICLE 18 – MISCELLANEOUS**

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

**Tribal Sovereignty:** No provision 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"**

**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.**

**SC 19.02 Add the following sections after Article 19.01 with the title "Contract Approval":**

**Owner and Contractor will furnish Owner's attorney such evidence as required so that the Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Exhibit F) before Owner submits the executed Contract Documents to Agency for approval.**

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

**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 it 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 Subcontractor.**

**SC 19.04 Add the following language after Article 19.03.A with "Gratuities";**

**If Owner finds after a notice and hearing that Contractor, or any of the 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 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.**

**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 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”:

**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 Contractor 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 “Small, Minority, and Women’s Businesses”;

**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; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the US 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 service from labor surplus area firms.**

**SC 19.07** Add the following language after Article 19.06.A with “Anti Kickback”;

**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 Park3, “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, 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 language after Article 19.07.A with “Clean Air and Pollution Control Acts”;

**If this Contract exceeds \$100,000, compliance with all applicable standards orders or requirements issued under sections 306 of the Clean Air Act \*42 USC 1857(b) and 42 USC 7401et.seq.), section 508 of the Clean Water Act (33 USC 1368) and Federal Water Pollution Control Act (33 USC 1251et. seq.), Executive Order 11738, and Environmental Protection Agency regulations as required. Contractor will report any violations to the Agency and the Regional Office of the EPA.**

**SC 19.09 Add the following language after Article 19.08 with the title “State Energy Policy”:**

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

**SC 19.10 Add the following language after Article 19.09 with “Equal Opportunity Requirements”;**

**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 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”**

**Contractor’s compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the Standard Federal equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR art 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.**

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

**SC 19.11 Add the following language after Article 19.10.C with “Restrictions of Lobbying”;**

**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 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 the 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 language after Article 19.11.A with the title “Environmental Requirements”:**

**When constructing a Project involving trenching and/or other related earth excavation, Contractor shall comply with the following environmental conditions:**

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

**Floodplains- When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise concert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, E.G. alluvial soils on NRCS Soul Survey Maps.**

**Historic Preservation- Any excavation by Contractor that uncovers an historical or archaeological artifact or human remains shall immediately report to the 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).**

**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 other threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the US Fish and Wildlife Service.**

**Mitigation Measures- The following environmental mitigation measures are required on this Project: “none”**



## SECTION 00829 - WAGE RATE REQUIREMENTS

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall conform to all provisions of Federal Labor Law and Federal Regulations, relative to wages and hours as they may apply to the work to be accomplished under these Specifications.

In addition to the above, certain laws and regulations of the Kentucky Department of Labor shall govern the work and shall supplement or supplant Federal Labor Law and Regulations cited above. Should the Federal and Kentucky Labor Laws and Regulations conflict, the more stringent of the two shall apply.

#### 1.02 WAGE RATES

Federal wage rates **do** apply to this project.

END OF SECTION 00829





General Decision Number: KY170165 01/06/2017 KY165

Superseded General Decision Number: KY20160165

State: Kentucky

Construction Type: Heavy

Counties: Larue and Meade Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number      Publication Date  
                                   0                           01/06/2017

CARP0064-007 05/01/2015

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 27.50	16.06

ELEC0369-008 06/01/2016

	Rates	Fringes
ELECTRICIAN.....	\$ 30.56	16.10

\* ENGI0181-024 07/01/2016

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 31.05	14.65
GROUP 2.....	\$ 28.28	14.65
GROUP 4.....	\$ 27.97	14.65

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Pumpcrete

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Concrete Pump

GROUP 4 - Oiler; Pump

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

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IRON0070-001 06/01/2016

	Rates	Fringes
IRONWORKER (ORNAMENTAL AND REINFORCING) .....	\$ 27.91	21.11

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LABO0265-014 05/01/2015

	Rates	Fringes
LABORER		
Concrete Saw (Hand Held/Walk Behind) .....	\$ 28.89	9.85
Flagger .....	\$ 28.72	9.85

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LABO0576-002 07/01/2015

	Rates	Fringes
LABORER		
Concrete Finishing .....	\$ 24.21	11.45
Concrete Worker .....	\$ 23.31	11.45

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\* UAVG-KY-0005 06/25/2014

	Rates	Fringes
OPERATOR: Forklift .....	\$ 27.38	14.15

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SUKY2011-042 06/25/2014

	Rates	Fringes
IRONWORKER, STRUCTURAL .....	\$ 25.46	17.49
LABORER: Common or General .....	\$ 17.17	0.00
LABORER: Pipelayer .....	\$ 18.56	4.50
OPERATOR:		
Backhoe/Excavator/Trackhoe .....	\$ 20.85	5.00
OPERATOR: Bulldozer .....	\$ 25.35	16.74
OPERATOR: Loader .....	\$ 26.50	13.00

OPERATOR: Mechanic.....	\$ 25.81	13.00
OPERATOR: Roller.....	\$ 23.39	13.00
OPERATOR: Trencher.....	\$ 26.34	12.58
TRUCK DRIVER: Dump Truck.....	\$ 16.80	4.06

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198

indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on

- a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

□

## SECTION 00900 - ADDENDA

### PART 1 - GENERAL

#### 1.01 ADDENDA

All addenda issued during the bidding of the Project will be reproduced in the signed Contract Documents, on the pages following this heading sheet.

END OF SECTION 00900





## **Additional Exhibits**



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

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

**Application For Payment  
Change Order Summary**

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

**Contractor's Certification**

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

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

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

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

**Contractor Signature**

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

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

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

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

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

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

**Progress Estimate - Unit Price Work**

**Contractor's Application**

For (Contract):						Application Number:					
Application Period:						Application Date:					
A						B	C	D	E	F	
Item		Contract Information				Estimated Quantity Installed	Value of Work Installed to Date	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	Item Quantity	Units	Unit Price	Total Value of Item (\$)						
<b>Totals</b>											

## Stored Material Summary

## Contractor's Application

For (Contract):							Application Number:				
Application Period:							Application Date:				
Bid Item No.	A Supplier Invoice No.	B Submittal No. (with Specification Section No.)	Storage Location	C Description of Materials or Equipment Stored	D		E Amount Stored this Month (\$)	Subtotal Amount Completed and Stored to Date (D + E)	F		G Materials Remaining in Storage (\$) (D + E - F)
					Stored Previously				Incorporated in Work		
					Date Placed into Storage (Month/Year)	Amount (\$)	Date (Month/Year)		Amount (\$)		
				<b>Totals</b>							

**CERTIFICATE OF SUBSTANTIAL COMPLETION**

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

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

All Work  The following specified portions of the Work:

**Date of Substantial Completion**

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

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

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

Amendments to Owner's responsibilities:  None  
 As follows

Amendments to Contractor's responsibilities:  None  
 As follows:

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

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

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

COMPLIANCE STATEMENT

This statement relates to a proposed contract with \_\_\_\_\_

\_\_\_\_\_  
(Name of borrower or grantee)

who expects to finance the contract with assistance from either the Rural Housing Service (RHS), Rural Business-Cooperative Service (RBS), or the Rural Utilities Service (RUS) or their successor agencies, United States Department of Agriculture (whether by a loan, grant, loan insurance, guarantee, or other form of financial assistance). I am the undersigned bidder or prospective contractor, I represent that:

1. I  have,  have not, participated in a previous contract or subcontract subject to Executive Order 11246 (regarding equal employment opportunity) or a preceding similar Executive Order.
2. If I have participated in such a contract or subcontract, I  have,  have not, filed all compliance reports that have been required to file in connection with the contract or subcontract.  
 If the proposed contract is for \$50,000 or more: or  If the proposed nonconstruction contract is for \$50,000 or more and I have 50 or more employees, I also represent that:
3. I  have,  have not previously had contracts subject to the written affirmative action programs requirements of the Secretary of Labor.
4. If I have participated in such a contract or subcontract,  I have,  have not developed and placed on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor.

I understand that if I have failed to file any compliance reports that have been required of me, I am not eligible and will not be eligible to have my bid considered or to enter into the proposed contract unless and until I make an arrangement regarding such reports that is satisfactory to either the RHS, RBS or RUS, or to the office where the reports are required to be filed.

I also certify that I do not maintain or provide for my employees any segregated facilities at any of my establishments, and that I do not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I certify further that I will not maintain or provide for my employees any segregated facilities at any of my establishments, and that I will not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I agree that a breach of this certification is a violation of the Equal Opportunity clause in my contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and wash rooms, restaurants and other eating areas time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. I further agree that (except where I have obtained identical certifications for proposed subcontractors for specific time periods) I will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that I will retain such certifications in my files; and that I will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

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According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays the valid OMB control number. The valid OMB control number for this information collection is 0575-0018. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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**NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR  
CERTIFICATIONS OF NON-SEGREGATED FACILITIES**

A certification of Nonsegregated Facilities, as required by the May 9, 1967, order (32F.R. 7439, may 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding \$ 10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

DATE \_\_\_\_\_

\_\_\_\_\_  
*(Signature of Bidder or Prospective Contractor)*

\_\_\_\_\_  
*Address (including Zip Code)*





United States Department of Agriculture

AD-1048

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion  
 Lower Tier Covered Transactions**

*The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552(a), as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 C.F.R. §§ 180.300, 180.355, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880. Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.*

*According to the Paperwork Reduction Act of 1995 an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0505-0027. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The provisions of appropriate criminal and civil fraud privacy, and other statutes may be applicable to the information provided.*

***(Read Instructions On Page Two Before Completing Certification)***

- A. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency;
- B. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

ORGANIZATION NAME

PR/AWARD NUMBER OR PROJECT NAME

NAME(S) AND TITLE(S) OF AUTHORIZED REPRESENTATIVE(S)

SIGNATURE(S)

DATE

*The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider, employer and lender.*

### *Instructions for Certification*

- (1) By signing and submitting this form, the prospective lower tier participant is providing the certification set out on page 1 in accordance with these instructions.
- (2) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.
- (3) The prospective lower tier participant shall provide immediate written notice to the person(s) to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (4) The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549, at 2 C.F.R. Parts 180 and 417. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
- (5) The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- (6) The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- (7) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the System for Award Management (SAM) database.
- (8) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- (9) Except for transactions authorized under paragraph (5) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or Federal loan, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant or loan.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or loan, the undersigned shall complete and submit Standard Form – LLL, “Disclosure of Lobbying Activities,” in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including contracts, subcontracts, and subgrants under grants and loans) and that all subrecipients shall certify and disclose accordingly.

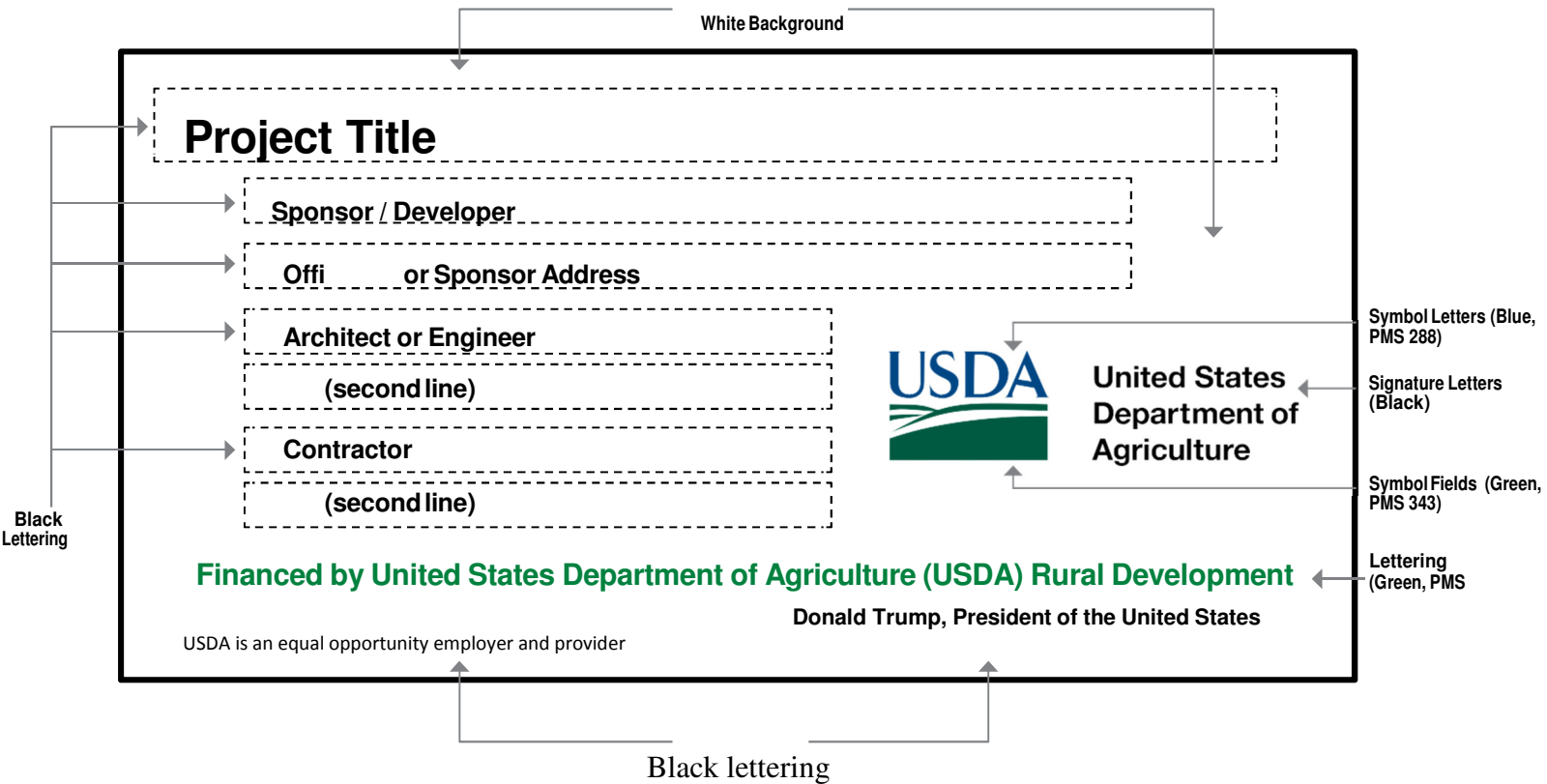
This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any Person who fails to file the required certification shall be subject to a civil penalty of not less than 410,000 and not more than \$100,000 for each such failure.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

# TEMPORARY CONSTRUCTION SIGN FOR **RURAL DEVELOPMENT PROJECTS**



Sign Dimensions: 1200 mm x 2400 mm x 19 mm (approx. 4' x 8' x 3/4")  
 PLYWOOD PANEL (APA RATED A-B GRADE-EXTERIOR)

CERTIFICATE OF OWNER'S ATTORNEY AND AGENCY CONCURRENCE

CERTIFICATE OF OWNER'S ATTORNEY

PROJECT NAME: \_\_\_\_\_

CONTRACTOR NAME: \_\_\_\_\_

I, the undersigned, \_\_\_\_\_, the duly authorized and acting legal representative of \_\_\_\_\_, 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; and that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the forgoing 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 the 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

ENGINEER'S CERTIFICATION ON FINAL PLANS AND SPECIFICATIONS

PROJECT NAME: \_\_\_\_\_

The final Drawings and Specifications, other assembled Construction Contract Documents, bidding-related documents (or request for proposals or other construction procurement documents), and any other Final Design Phase deliverables, comply with all requirements of the US Department of Agriculture, Rural Utilities Service, to the best of my knowledge and professional judgement.

If the EJCDC documents have been used, all modifications required by Kentucky Bulletin 1780-1 have been made in accordance with the terms of the license agreement, which states in part that the Engineer "must plainly show all changes to the Standard EJCDC text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions." Such other means may include attachments indicating changes (e.g. Supplementary Conditions modifying the General Conditions).

---

Engineer

Date

---

Name and Title

## **Division 1 - General Requirements**





**SECTION 01010**  
**SUMMARY OF WORK**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Installation/construction of approximately 28,560 lineal feet of 6- through 12-inch water mains, control valve vault and appurtenances and a 1,000 gpm booster pumping station in Meade County, Kentucky.
- B. The Contractor shall provide all materials, labor and equipment necessary for completion of the Project, with the exception of the water meter vaults and setters, which will be provided MCWD for the Contractor to install. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the Project shall be included.
- C. Continuous Operations: The existing system must be maintained in continuous operation in such a manner that it meets all local, state, and federal requirements. The Contractor is responsible not to deactivate, demolish, or interfere with any system component required for the continuous operation until a new or temporary permanent-like system has been installed and is operational. The Contractor is responsible for payment of all fines resulting from any action or inaction on his part or the part of his subcontractors during performance of the Work that causes the facility/facilities to operate in an illegal manner or fail to operate in a legal manner.
- D. The following major Work items are included in the Contract:
  - Construction/installation of the following (Quantities are approximate):
    1. Furnish and install approximately 27,838 lf of 12-inch PVC/DI water mains
    2. Furnish and install 310 lf of 8-inch PVC/DI water mains
    3. Furnish and install 478 lf of 6-inch PVC water mains
    4. Furnish and install eighteen (18) 12" GVs.
    5. Furnish and install fourteen (14) air release valves
    6. Furnish and install eight (8) hydrant assemblies
    7. Bore and jack with 20-inch and 12-inch steel casing pipe at various locations
    8. Electrical and site work for BPS site
    9. Furnish and install duplex booster pump station with a pumping capacity of 1,000 gpm
    10. Furnish and install control valve vault and appurtenances

**1.2 PERMITS**

- A. The Owner will provide Kentucky Division of Water Construction Approval prior to award of contract.
- B. The Contractor shall obtain all other permits related to or required by the Work in this Contract.

**1.3 CODES**

- A. Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations and similar communications, to the Owner.

#### **1.4 EXISTING CONDITIONS AND DIMENSIONS**

- A. The Work in this Contract will primarily be performed in or around existing facilities of which a portion must remain functional. The Contractor must maintain the required items and/or systems functional without additional effort by the Owner's personnel and at no extra costs to the Owner.
- B. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc., and providing his finished work to facilitate existing conditions.

#### **PART 2 - PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01015 SEQUENCE OF WORK**

### **PART 1 - GENERAL**

#### **1.1 WORK INCLUDED**

- A. The Contractor shall conform to all miscellaneous requirements as contained in the Contract.
- B. The Contractor shall perform all Work included in the Contract Documents.
- C. The Contractor shall perform all the Work incidental to the items shown in the Contract Documents even though it may not be specifically enumerated.
- D. The Contractor will have to perform the work in a sequence acceptable to the Owner, and in some instances the Work will have to be performed in a sequence directed by the Owner.

#### **1.2 RELATED REQUIREMENTS**

- A. Section 00710 - General Conditions.
- B. Section 01010 - Summary of Work.
- C. Section 01040 - Coordination.

### **PART 2 - PART 2 - PRODUCTS (NOT APPLICABLE)**

### **PART 3 - PART 3 - EXECUTION**

#### **3.1 SCHEDULING THE SEQUENCE OF CONSTRUCTION OPERATIONS**

- A. The Contractor shall submit to the Engineer, for review and approval, a complete schedule (progress chart) of his proposed sequence of construction operations prior to commencement of the work.
- B. The Engineer will neither consider nor approve a construction schedule that fails to utilize the entire time allocated by the Contract for the construction of the Project.
- C. The Contractor shall schedule the various construction activities to complete the Project throughout the entire Contract time period. This schedule requirement shall not prevent the Contractor from completing the Project in a shorter time frame than illustrated in the schedule. The construction schedule along with a cost breakdown schedule shall be reviewed and approved by the Owner prior to the submission of the first partial payment request in accordance with the General Conditions.
- D. A copy of the construction schedule shall be submitted to the Owner with each pay request, appropriately marked to indicate the actual progress of the work compared to the planned schedule. This revised schedule must be approved by the Owner prior to payment.

#### **3.2 OTHER WORK SEQUENCE ITEMS (NOT USED)**

**END OF SECTION**

**SECTION 01025**  
**MEASUREMENT AND PAYMENT**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, services and other necessary supplies and perform all work shown on the Drawings and/or described in the Specifications and Contract Documents at the unit or lump sum prices for the items enumerated in Part 2 of this Section.

**1.2 COMPUTATION OF QUANTITIES**

- A. For estimating quantities in which the computation of areas by geometric methods would be comparatively laborious, it is agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas.
- B. It is further agreed that the computation of the volume of prisms shall be by the method of average end area.

**PART 2 - PRODUCTS**

**2.1 MOBILIZATION**

- A. Payment for the Contractor's mobilization will be made at the Contract lump sum price and shall include all costs incurred for moving equipment onto the Project area and any pertinent costs related thereto.

**2.2 BONDS AND INSURANCE**

- A. Payment for bonds and insurance will be made at the Contract lump sum price, and shall include the costs of the Performance and Payment Bonds provided under the Contract, and the premiums for insurance required under the Contract.

**2.3 GENERAL REQUIREMENTS**

- A. Payment for general requirements will be made at the Contract lump sum price distributed over the initial term of the Contract and shall include field supervision and support staff, office supervision and support staff, costs associated with maintaining the field operation, and other items required by the general requirements and conditions of the Contract.

**2.4 CLEARING AND GRUBBING**

- A. Payment for clearing and grubbing will be made at the Contract lump sum price. Payment shall include clearing, grubbing, removing and disposing of vegetation, brush and tress within designated limits of inside the right of way and easement areas.

## 2.5 WATER LINE

- A. Payment for this item includes the pipe specified by the plans and specifications, restrained and regular joint pipe, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), line markers, tracing wire with test boxes (if required by specification), friction type retainer glands on all fittings, polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, backfill, etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications.
- B. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. Paid Linear Feet (LF)
- C. Payment for final backfill shall be included in this pay item including asphalt material and concrete required in restoration of paved areas as defined in Sections 02510 and 02512. All excavation is unclassified and is included in this pay item and will not be paid for separately.
- D. Testing of the completed water line is included in this pay item. However, no payment for the labor portion of this unit item shall be made until the line has been tested and accepted by the Engineer.
- E. Payment for seeding and final clean-up (including furnishing and placing topsoil, finish grading, seeding, mulching and erosion control, removal of construction materials and debris, cleaning, and site restoration) is included in this pay item. However, the Owner will not pay eight percent (8%) per foot of the line unit cost until final clean-up and seeding has been performed to the satisfaction of the Owner. The eight percent (8%) per foot of the line unit cost shall be shown as a subsidiary line item on the payment request, which shall also be subject to retainage.
- F. Fence and mailbox repair/replacement incidental to water line construction is included in this pay item and will not be paid for separately.

## 2.6 GATE VALVES

- A. This description shall apply to all valves of every size required in the plans and specifications. Payment under this description is to be for gate valves being installed with the new main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, disinfection, etc. required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Mechanical joint valve connections shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. Paid EACH (EA) when complete.
- B. Valves related to flush and fire hydrants are NOT included in this pay item and shall be paid for under Flush Hydrant Assembly and fire hydrant assembly.

## **2.7 AIR RELEASE VALVE ASSEMBLY**

- A. This bid item description shall apply to all air release valve installations. This item shall include the air release valve, main to valve connecting line or piping, manhole, vault, structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release valves on a project shall be paid under one bid item regardless of size. Paid EACH (EA) when complete.

## **2.8 ENCASEMENT STEEL - BORED**

- A. Payment for water lines crossing under roadways or railroads as shown on the drawings shall include the respective encasement pipe bored and jacked under the roadway or railroad and will be paid for at the Contract unit price per linear foot of encasement pipe bored and jacked for the size and type. This work shall include the encasement pipe, casing spacers, end seals, labor and equipment to bore and jack, welding sections and all items necessary for its construction and installation. Carrier pipe is paid separately under items 2.5.

## **2.9 ENCASEMENT STEEL – OPEN CUT**

- A. Payment for waterline roadway crossings as shown on the drawings shall include the respective encasement pipe - open cut installation and will be paid for at the contract unit price per linear foot of encasement pipe for the size and type. This work shall include the encasement pipe, complete in place with fittings, blocking, casing spacers, end seals and all the items necessary for its construction and installation. Carrier pipe and restoration is paid separately under items 2.5.

## **2.10 DIRECTIONAL BORE (FREE BORE)**

- A. Payment under this item is made whenever the plans or specifications specifically show directional boring (horizontal direction drill or free bore) to be utilized in order to minimize the impact of open cut for the installation of water main service under streets, driveways, creeks, etc.
- B. Payment under this item shall include the specified bore pipe, labor, and equipment.
- C. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Paid Linear Feet (LF)

## **2.11 CONCRETE ENCASEMENT (MINOR DITCH/STREAM CROSSING)**

- A. Includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, etc. to construct the concrete encasement of the water main as shown on the plans, and in accordance with the specifications and standard drawings. Carrier pipe is not included in this bid item and is paid separately under Bid Item 2.5. Any and all concrete encasement shall be paid under one bid item included in the contract regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as specified in the plans and specifications. No separate bid items will be established for size variations.
- B. Measurement of pay quantity shall be from end of concrete to end of concrete. Paid Linear Feet (LF) when complete.

## **2.12 FLUSH HYDRANT ASSEMBLY**

- A. This item shall include the flushing hydrant assembly which includes the hydrant service line and valve, tapping the main, fittings, anchor tees, thrust blocking, drainage pit and all labor, equipment, excavation, backfill, and restoration required to install the flush hydrant at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Paid EACH (EA) when complete.

## **2.13 FIRE HYDRANT ASSEMBLY**

- A. This item shall include the fire hydrant assembly which includes the hydrant service line and valve, tapping the main, fittings, anchor tees, thrust blocking, drainage pit and all labor, equipment, excavation, backfill, and restoration required to install the fire hydrant at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Paid EACH (EA) when complete.

## **2.14 CAP MAIN**

- A. This item shall include the specified cap, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the cap at the location shown on the plans or as directed in accordance with the specifications. Any and all caps shall be paid under one bid item included in the contract regardless of size. This item shall be paid EACH (EA) when complete.

## **2.15 TAPPING VALVE AND SLEEVE**

- A. Payment for tapping valve and sleeve connections from the new water line to the existing water system will be made at the contract unit price which includes excavation, backfill, valve, valve box, sleeve, gaskets and fittings required to complete the connections.

## **2.16 WATER BOOSTER PUMP STATION**

- A. Payment for water booster pumping station shall include all necessary internal piping, pumps, motors, valves, controls and other necessary appurtenances installed on a fabricated steel base and enclosed in a structure as shown on the plans and specifications. Payment also includes any site work, installation on a concrete foundation and slab, pipeline hookup and electrical service.

## **2.17 CONTROL VALVE AND VAULT**

- A. Payment for control valve and vault shall include all necessary internal piping, precast concrete vault, aluminum access hatch, access ladder and safety posts, excavation, backfill, supports, gaskets, and fittings needed for installation and construction. MCWD will supply the butterfly valve and actuator and Contractor will install. Contractor shall also furnish and install the pvc conduits for control and electrical wiring. MCWD will be responsible for installation of control and power wiring and make terminations in the tank site panel board and control valve vault.

## **2.18 EROSION PREVENTION AND SEDIMENT CONTROL**

- A. Payment for the erosion prevention and sediment control will be made at the contract lump sum price and shall include all necessary labor, equipment and materials to install and maintain erosion and sediment control measures including silt fences, stone bag check dams, stabilized construction entrances, and temporary seeding to prevent the erosion of exposed soil and transportation of sediment offsite.

## **2.19 TRAFFIC CONTROL**

- A. Payment for traffic control will be made at the Contract lump sum price. Payment shall include all signs, traffic control devices and other materials, flaggers and other labor required, and all items necessary to provide traffic control for the duration of the project, in accordance with the specifications.

## **2.20 DEMOBILIZATION**

- A. Payment for the Contractor's demobilization upon completion of the Project will be made at the Contract lump sum price and shall include all costs incurred for removing equipment and materials from the Project area and any pertinent costs related thereto.

## **PART 3 - EXECUTION**

### **3.1 PAY ITEMS**

- A. The pay items listed hereinbefore refer to the items listed in the Bid Schedule and cover all of the pay items for this Contract.
- B. Any and all other items of Work listed in the Specifications or shown on the Drawings for this Contract shall be considered incidental to and included in those pay items.

### **3.2 ESTIMATED QUANTITIES OF WORK**

- A. Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is specifically reserved, except as otherwise limited by the Contract Documents, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract. Such increase or diminution shall be accompanied by an adjustment in the Contract Amount in accordance with the Contract Conditions, and shall not give cause for claims or liability for damages against the Owner or the Engineer, due to such increase or diminution.

**END OF SECTION**



**SECTION 01040**  
**COORDINATION**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall coordinate the Work of all crafts, trades and subcontractors engaged on the Work, and he shall have final responsibility in regards to the schedule, workmanship and completeness of each and all parts of the Work.
- B. The Contractor shall be prepared to guarantee to each of his subcontractors the dimensions which they may require for the fitting of their work to the surrounding work.
- C. All crafts, trades and subcontractors shall be made to cooperate with each other and with others as they may be involved in the installation of work which adjoins, incorporates, precedes or follows the work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to execution of subcontract agreements and the assignment of the parts of the Work. Each craft, trade and subcontractor shall be made responsible to the Contractor, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the Work.
- D. The Contractor shall be responsible for all cutting, digging and other actions of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.
- E. Each subcontractor is expected to be familiar with the General Requirements and all Sections of the Detailed Specifications for all other trades and to study all Drawings applicable to his work to the end that complete coordination between the trades will be affected. Each subcontractor shall consult with the Contractor, who shall advise the Engineer if conflicts exist on the Drawings.
- F. No extra compensation will be allowed to cover the cost of removing piping, conduits, etc., or equipment found encroaching on space required by others.

**1.2 COORDINATION WITH WORK BY OTHER UTILITIES AND ROADWAY CONTRACTOR**

- A. The Contractor (waterline) shall coordinate the water main relocation work with other work that may be ongoing along the roadway corridor.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**



**SECTION 01045**  
**CUTTING AND PATCHING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Provide cutting and patching work to properly complete the work of the project, complying with requirements for connection to existing lines and structures.
- B. Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decreased energy efficiency, increased maintenance, reduced operational life, or decreased safety.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Match existing materials with new materials conforming to project requirements when performing cutting and patching work.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.
- B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.
- C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.
- D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.
- E. Clean work area and areas affected by cutting and patching operations.

**END OF SECTION**



**SECTION 01090**  
**REFERENCES AND ABBREVIATIONS**

**PART 1 - GENERAL**

**1.1 REQUIREMENTS INCLUDED**

- A. Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth as follows:

ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
ANS	American National Standard
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American or Brown and Sharpe Wire Gage
AWPA	American Wood-Preservers' Association
AWWA	American Water Works Association
Fed. Spec.	Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, DC
IBR	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IPS	Iron Pipe Size
NBS	National Bureau of Standards
NEC	National Electrical Code; latest edition
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPT	National Pipe Thread
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
Stl. WG	U.S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebling Gage
125-lb. ANS;	American National Standard for Cast-Iron Pipe Flanges and
250-lb. ANS	Flanged Fittings, Designation B16.1-1975, for the appropriate class
UL	Underwriters' Laboratories

- B. Reference Standards:

1. For products or workmanship specified by association, trade or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
2. The date of the standard is that in effect as of the Bid date, or the date of the Owner-Contractor Agreement when there are no bids, unless a certain date is indicated for the standard in the Contract Documents.
3. When required by an individual Specification section, the Prime Contractor shall obtain a copy of the standard. Maintain the copy at the job site, available for review by Owner, Engineer, Resident Representative and other appropriate parties until Substantial Completion.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01120**  
**ENVIRONMENTAL PROTECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. For the purpose of this Specification, environmental protection is defined as the retention of the environment in Project construction and to enhance the natural appearance in its final condition. Environmental protection requires consideration of air and land and involves noise as well as other pollutants. In order to prevent, and to provide for abatement and control of, any environmental pollution arising from the construction activities in the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable federal, state and local laws and regulations concerning environmental pollution control and abatement. This Section covers the furnishings of all labor, materials, equipment and performing all work required for the protection of the environment during construction operations except for those measures set forth in other Sections of these specifications.

**1.2 PROTECTION OF LAND RESOURCES**

- A. The land resources within the Project boundaries and outside the limits of work performed under this Contract shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project.

**1.3 RECORDING AND PRESERVING HISTORICAL AND ARCHAEOLOGICAL FINDS**

- A. In the event archaeological materials (arrowheads, stone tools, stone axes, prehistoric and historic pottery, bottles, foundations, Civil War artifacts, and other types of artifacts) are uncovered during the construction of this project, work is to immediately cease at the location and the Kentucky Heritage Council shall be contacted. The telephone number is (502) 564-7005. Construction shall not commence at this location until a written release is received from the Kentucky Heritage Council. Failure to report a find could result in legal action.

**1.4 PROTECTION OF LAND AREAS**

- A. Except for any work on storage areas and access routes specifically assigned for the use of the Contractor under this Contract, the land areas outside the limits of permanent work performed under this Contract shall be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work on the plans or specifically assigned for his use. No other areas shall be used by the Contractor without written consent of the Owner.

**1.5 PROTECTION OF TREES AND SHRUBS**

- A. Reasonable care shall be taken during construction to avoid damage to vegetation.
- B. The Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without prior approval from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage.

**1.6 TREE PROTECTIVE STRUCTURES**

- A. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured or otherwise damaged by the Contractor's equipment or by his other operations, he may direct the Contractor to provide temporary protection of such trees by placing boards, plans, or poles around them. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage.

## **1.7 RESTORATION OF DAMAGED TREES**

- A. Any tree scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. All scars made on trees shall be coated as soon as possible with an approved tree wound dressing.
- B. Trees that are to remain, either within or outside established clearing limits, that are damaged by the Contractor so as to be beyond saving in the opinion of the Engineer, shall be immediately removed, if so directed, and replaced with a nursery-grown tree of the same species and size.

## **1.8 PROTECTION OF WATER RESOURCES**

- A. The Contractor shall control the disposal of fuels, oils, bitumens, calcium chloride, acids, or harmful materials, and shall comply with applicable Federal, State, County and Municipal laws concerning pollution of rivers and streams while performing work under this Contract. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, herbicides and insecticides from entering public waters. Water used in on-site material processing, concrete curing, foundation and concrete cleanup, and other waste waters shall not be allowed to reenter a stream if an increase in the turbidity of the stream could result therefrom.

## **1.9 BURNING**

- A. Air pollution restrictions applicable to this project are as follows: Materials shall not be burned on the premises. If the Contractor elects to dispose of waste materials off the premises, by burning, he shall make his own arrangements for such burning area and shall, as specified in the General Conditions, conform to all applicable regulations.

## **1.10 DUST CONTROL**

- A. The Contractor shall maintain all excavations, stockpiles, access roads, waste areas, and all other work free from excess dust to such reasonable degree as to avoid causing a hazard or nuisance to others. Approved temporary methods consisting of sprinkling, chemical treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

## **1.11 EROSION CONTROL**

- A. Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall be graded to control erosion within acceptable limits. Temporary control measures shall be provided and maintained until permanent drainage facilities are completed and operative. The area of bare soil exposed at any one time by construction operations, should be held to a minimum.

## **1.12 CORRECTIVE ACTION**

- A. The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.



### **1.13 POST-CONSTRUCTION CLEANUP OR OBLITERATION**

- A. The Contractor shall, unless other wise instructed in writing by the Engineer, obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed areas shall be graded and filled and the entire area seeded.

**END OF SECTION**



**SECTION 01200**  
**PROJECT MEETINGS**

**PART 1 - GENERAL**

**1.1 PRECONSTRUCTION CONFERENCES**

- A. Prior to commencing the work, a preconstruction conference will be held at the job site and representatives of the following organizations shall have at least one representative in attendance:
  - 1. Owner.
  - 2. Engineer.
  - 3. Contractor.
  - 4. Major subcontractors as the Contractor may direct, or the Engineer may require upon sufficient notice.
  - 5. Representatives of the appropriate state and federal agencies as they may choose to attend.
- B. The preconstruction conference will be for the purpose of reviewing procedures to be followed concerning the orderly flow of required paperwork; coordination of the various parties involved with the project, review of Shop Drawing submittals, Contract time, liquidated damages, payment estimates, Change Orders, and other items of interest to the parties involved.

**1.2 PROGRESS MEETINGS**

- A. With the express purpose of expediting construction and providing the opportunity for cooperation of affected parties, meetings shall be called which shall be attended by representatives of (a) Owner, (b) the Engineer, (c) the Contractor, (d) all Subcontractors. A location on or near the site will be designated where such meetings will be held. The frequency of meetings shall be at the discretion of the Engineer and Owner.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**



## **SECTION 01300**

### **SUBMITTALS**

#### **PART 1 - GENERAL**

##### **1.1 WORK INCLUDED**

- A. Shop drawings, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished in at least three (3) copies to be retained by the Engineer and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the submittal by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Review of such submittal will not relieve the Contractor of the responsibility for any errors which may exist as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

##### **1.2 RELATED REQUIREMENTS**

- A. Section 00710 - General Conditions.
- B. Section 01720 - Project Record Documents.

##### **1.3 DEFINITIONS**

- A. The term "submittals" shall mean shop drawings, manufacturer's drawings, catalog sheets, brochures, descriptive literature, diagrams, schedules, calculations, material lists, performance charts, test reports, office and field samples, and items of similar nature which are normally submitted for the Engineer's review for conformance with the design concept and compliance with the Contract Documents.

##### **1.4 CONTRACTOR'S ULTIMATE RESPONSIBILITY**

- A. Review by the Engineer of shop drawings or submittals of material and equipment shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quantity, materials and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Review of shop drawings shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

##### **1.5 GENERAL REQUIREMENTS FOR SUBMITTALS**

- A. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Documents. Where applicable, show fabrication, layout, setting and erection details. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting or erection details of equipment, materials and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for his distribution plus three (3) which will be retained by the Engineer and Owner. Shop drawings shall be folded to an approximate size of 8-1/2 inch x 11 inch and in such manner that the title block will be located in the lower righthand corner of the exposed surface.

- B. Project data shall include manufacturer's standard schematic drawings modified to delete information which is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project.
- C. Where samples are required, they shall be adequate to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.
- D. All submittals shall be referenced to the applicable item, section and division of the Specifications, and to the applicable Drawing(s) or Drawing schedule(s) and shall be accompanied by transmittal forms in the format provided by the Engineer.
- E. The Contractor shall review and check submittals, and indicate his review by initials and date.
- F. If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefor. All changes shall be clearly marked on the submittal with a bold mark other than red. Any additional costs for modifications shall be borne by the Contractor.
- G. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work, etc., that may be necessary to accommodate this equipment or material. Should equipment other than that on which design drawings are based be accepted by the Engineer, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted item.
- H. Additional information on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.
- I. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing lead, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.
- J. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers and fabricators; the Contractor shall be responsible for insuring the compatibility of such coatings with the field-applied paint products and systems.
- K. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.
- L. Where manufacturer's brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions and similar products, the Contractor shall submit names and descriptive literature of such materials and products he proposes to use in this Contract.
- M. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.
- N. All bulletins, brochures, instructions, parts lists, and warranties packaged with and accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to the Owner through the Engineer.

## **1.6 CONTRACTOR RESPONSIBILITIES**

- A. Verify field measurements, field construction criteria, catalog numbers and similar data.
- B. Coordinate each submittal with requirements of Work and Contact Documents.

- C. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- D. Begin no work, and have no material or products fabricated or shipped which required submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**





**SECTION 01380**  
**CONSTRUCTION PHOTOGRAPHS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Provide monthly photographs of the construction throughout the progress of the Work.

**1.2 RELATED WORK**

- A. Section 00710 - General Conditions.
- B. Section 01700 - Project Closeout.

**1.3 CONSTRUCTION PHOTOGRAPHY**

- A. The term "photograph" as used herein refers to a photographic view, including similar exposures taken to assure the usefulness of the photographic record. All necessary photographs shall be taken to assure the usefulness of the photographic record. All photographs shall be taken in color, not black and white. Minimum film size shall be 35 mm print film, film speed and illumination as necessary to provide clear, crisp images. Digital photography may be substituted for film photography as approved by Owner.
- B. Provide monthly photographs (two sets) of the construction throughout the progress of the Work. Provide twenty-four (24) views of Work each month or more as may be necessary to clearly show any new work.
- C. Take the photographs as close as possible to the cutoff date for each Application for Payment, except for those photographs necessary to comply with Paragraph D., following.
- D. Take photographs at the beginning, during, and completion of each element of construction listed below:
  - 1. Installation of fittings, valves, flush hydrants, and leak detection.
  - 2. Water main prior to backfilling.
  - 3. Connection to existing mains.

**1.4 PRINTS**

- A. Two prints of each photograph shall be furnished to the Engineer with each pay request, and each print shall have a glossy finish and be mounted in plastic sleeving on a substantial backing. The overall dimensions of each mounted print shall be 4-inches x 6-inches, or larger. Mount with binder tabs or in clear plastic sheets.
- B. Each photograph shall have attached to the backing a paper label, approximately 2-1/4-inches wide by 1-3/4-inches high containing the following information in neat lettering:
  - 1. Project name.
  - 2. Contractor's name.
  - 3. Short Description of View.
  - 4. Photo Number and Date Taken.
  - 5. Photographer's (Firm) Name.

**1.5 NEGATIVES**

- A. The film negatives shall be indexed, cataloged and retained in the files of the Contractor until the completion of the project and shall then be turned over to the Engineer. Digital photographs shall be provided on compact disks with label and identification requirements specified above.

## **1.6 TECHNIQUE**

- A. All views shall provide factual presentation of the Work progress.
- B. All photos shall provide correct exposure and focus, high resolution and sharpness, maximum depth of field and minimum distortion.

## **1.7 VIEWS**

- A. The photographs shall be from varied views which show the most representative examples of the Work progress.

## **1.8 PRECONSTRUCTION VIDEO**

- A. Prior to the initiation of any construction activities, the Contractor shall videotape the entire site, including the complete exterior of all buildings within fifty (50) feet of the edge of Construction Limits.
- B. The original of the tape(s) shall be provided to the Owner. One (1) copy of the tape(s) shall be provided to the Engineer. Contractor shall retain one or more copies, as necessary to meet the requirements of their insurance and bonding coverage.
- C. Maximum camera travel speed during the taping shall not exceed 5.9 feet per second (approximately 4 miles per hour). Slower camera travel speeds are recommended in and around developed areas. Addresses, stationing, or other orientation information should be provided on an audio track of the videotape. A typewritten index of the tape shall be provided, indicating by tape counter location each address, stationing number or other location identifier, to allow rapid location of specific views on the video record.
- D. A minimum of (1) two hour color tape shall be used for documenting the existing site conditions.

## **1.9 SUBMITTALS**

- A. Submit Preconstruction Video prior to beginning site clearing activities.
- B. Submit monthly construction photograph prints with each Application for Payment.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION (NOT USED)**

### **END OF SECTION**

**SECTION 01400**  
**QUALITY CONTROL**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings or from instructions by the Engineer.
- B. Unless otherwise shown, all work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The Work shall be accurately measured and fitted to tolerance as established by the best practices of the crafts and trades involved, and shall be as required to fit all parts of the Work carefully and neatly together.
- C. All equipment, materials and articles incorporated into the Work shall be new and of comparable quality to that specified. All workmanship shall be first-class and shall be performed by mechanics skilled at, and regularly employed in, their respective trades.
- D. The Contractor shall determine that the equipment he proposes to furnish can be brought into the facility and installed in the space available. Equipment shall be installed so that all parts are readily accessible for inspection and maintenance.

**1.2 WORKMANSHIP**

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

**1.3 MANUFACTURER'S INSTRUCTIONS**

- A. Comply with manufacturer's instructions in full detail as to shipping, handling, storing, installing, start-up and operation.

**1.4 MANUFACTURER'S FIELD SERVICES**

- A. The Contractor shall arrange for the services of qualified service representatives from the companies manufacturing or supplying each type of equipment required in the Specification sections.
- B. The manufacturer or supplier shall provide sufficient engineering and technician manhours to satisfactorily complete Supervision of Installation, Equipment Check-out, Field Acceptance Tests, Pre-startup Operator Training, and Post-startup Services.

**1.5 TESTING SERVICES**

- A. Tests, inspections and certifications of materials, of equipment, of subcontractor's work, or of completed work shall be provided by the Contractor, as required by the various sections of the Specifications, and all costs for such tests, inspections and certifications shall be included in the Contract Price.
- B. The Contractor shall submit the name of testing laboratory proposed for use on the Project to the Owner, for approval.
- C. The Contractor shall deliver written notice to the Engineer at least two (2) work days in advance of any inspections or tests to be made at the Project site. All inspections or tests to be conducted in the field shall be done in the presence of the Owner or his representative.
- D. Certifications by independent testing laboratories may be by properly attested copies of the data including scientific procedures and results of tests.

**END OF SECTION 01400**



**SECTION 01510**  
**TEMPORARY UTILITIES**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall maintain strict supervision of use of temporary utility services:
  - 1. Enforce compliance with applicable standards.
  - 2. Enforce safety practices.
  - 3. Prevent abuse of services.

**1.2 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Obtain and pay for all permits as required by governing authorities.
- B. Obtain and pay for temporary easements required across property other than that of Owner.
- C. Comply with applicable codes.

**1.3 REMOVAL**

- A. Completely remove temporary materials, equipment, and miscellaneous items upon completion of construction and approval of the Engineer.
- B. Repair damage caused by installation and restore to specified or original condition.

**1.4 TEMPORARY ELECTRICITY**

- A. Electrical services for construction needs and for lighting and heating the work area will be provided by the Contractor.

**1.5 TEMPORARY WATER**

- A. Water necessary for construction, testing and disinfection will be provided by the owner for passing tests. Water for repeated fall tests shall be provided at the contractor's expense.

**END OF SECTION**



**SECTION 01530  
BARRIERS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall provide all temporary barriers in conformance with local, state, and federal codes.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**





**SECTION 01535**  
**PROTECTION OF INSTALLED WORK**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Protection for products, including Owner-provided products, after installation.

**1.2 RELATED REQUIREMENTS**

- A. Division 1 - General Requirements.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 PROTECTION AFTER INSTALLATION**

- A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.
- B. Restrict traffic of any kind across planted lawn and landscape areas.

**END OF SECTION**



**SECTION 01540**  
**SECURITY**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Project area has to remain safely accessible to Owner's personnel; however, the Contractor will provide any non-interfering security he deems necessary to protect his work, equipment, etc.
- B. Provide an adequate system to secure the Project area at all times, especially during non-construction periods; the Contractor shall be solely responsible for taking proper security measures.
- C. For both security and safety purposes, cranes, vehicles and other equipment left on-site by the Contractor shall be locked at the end of each working day.

**1.2 COSTS**

- A. Contractor shall pay for all costs for protection and security systems.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**



**SECTION 01550**  
**ACCESS ROADS AND PARKING AREAS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Access roads.
- B. Temporary parking.
- C. Existing pavements and parking areas.
- D. Permanent pavements and parking areas.
- E. Maintenance.
- F. Removal and repair.

**1.2 RELATED REQUIREMENTS**

- A. Section 01045 - Cutting and Patching.
- B. Section 01510 - Temporary Utilities.

**PART 2 - PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. For temporary construction: Contractor's option but must be approved by the Owner.

**PART 3 - PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Clear areas, provide proper surface and storm drainage of premises and adjacent areas. Install erosion protection.

**3.2 ACCESS ROADS**

- A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.
- B. Construct temporary bridges and/or culverts to span low areas and allow unimpeded drainage.
- C. Extend and relocate as work progress requires, and provide detours as necessary for unimpeded traffic flow.
- D. Locate temporary access roads as approved by the Owner and/or the Engineer.
- E. Provide and maintain access to all Owner facilities.

**3.3 TEMPORARY PARKING**

- A. Construct temporary parking areas to accommodate use of construction personnel in an area acceptable to the Owner and/or the Engineer. The Contractor shall enforce the requirement that all Project employees and subcontractors park only in the designated areas. Pay all costs relating to temporary parking.

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### **3.4 MAINTENANCE**

- A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow and ice. Use whatever dust control measures required to prevent airborne particles.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies to maintain paving and drainage in original and/or specified condition.

### **3.5 REMOVAL AND REPAIR**

- A. Remove temporary materials and construction when permanent facilities are usable as directed by the Engineer.
- B. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.
- C. Repair existing permanent facilities damaged by usage to original and/or specified condition.

**END OF SECTION**

**SECTION 01563**  
**DUST CONTROL**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Dust control.

**1.2 RELATED REQUIREMENTS**

- A. Section 01565 - Erosion and Sediment Control.

**PART 2 - PART 2 - PRODUCTS (NOT USED)**

**PART 3 - PART 3 - EXECUTION**

**3.1 DUST CONTROL**

- A. Execute work by methods to minimize raising dust from construction operations.
- B. Provide positive means to minimize construction or traffic generated dust from dispersing into atmosphere.
- C. Provide spraying of construction traffic areas with water to hold dust leaving the construction site to the minimum amounts allowed by regulations.

**END OF SECTION**





**SECTION 01565  
EROSION AND SEDIMENT CONTROL**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall do all Work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands or water courses.
- B. The Contractor is responsible for following current procedures, regulations and/or guidelines enacted by the federal, state or local agencies with jurisdiction over the project area and the environmental effects of construction. The Contractor shall employ Best Management Practices for erosion and sediment control and is responsible for the effectiveness of his construction methods throughout the duration of the project.
- C. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.
- D. See the Contract Drawings for additional information.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Silt checks shall be constructed of No. 1 coarse aggregate as defined by the Kentucky Transportation Cabinet. Filter fabric for sediment traps shall be of suitable materials acceptable to the Engineer. Bales may be hay or straw, and shall be reasonably clean and free of noxious weeds and deleterious materials.

**PART 3 - EXECUTION**

**3.1 METHODS OF CONSTRUCTION**

- A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of silt fences, water diversion structures, temporary revegetation, diversion ditches and settling basins.
- B. Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent watercourses. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.
- C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason

construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.

- D. For Work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of these easements or rights-of-way.
- E. The Contractor shall not pump silt-laden water from trenches or other excavation into the wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged into sediment traps or ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.
- F. Prohibited construction procedures include, but are not limited to the following:
  - 1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
  - 2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
  - 3. Pumping of silt-laden water from trenches or excavations into surface waters, or wetlands.
  - 4. Damaging vegetation adjacent to or outside of the construction area limits.
  - 5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
  - 6. Permanent or unauthorized alteration of the flow line of any stream.
  - 7. Open burning of debris from the construction work.
- G. Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign fill materials shall be removed from the site following construction.

### **3.2 EROSION CHECKS**

- A. The Contractor shall furnish and install baled hay or straw erosion checks surrounding the base of all deposits of stored excavated material outside of the disturbed area, and where indicated by the Engineer. Checks located surrounding stored material shall be located approximately 6 feet from that material. Bales shall be held in place with two 2 inch by 2 inch by 3 feet wooden stakes. Each bale shall be butted tightly against the adjoining bale to preclude short circuiting of the erosion check.
- B. The Contractor shall remove silt and sediment from the site as it accumulates at erosion checks and repair damaged checks during construction.
- C. The Contractor shall remove all erosion control materials from the site as soon as potential for erosion has been eliminated and when approved by the Engineer. Reseed area where hay bales or silt has been removed.

**END OF SECTION**

**SECTION 01570**  
**TRAFFIC REGULATION**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Construction parking control.
- B. Flagmen.
- C. Flares and lights.
- D. Haul routes.
- E. Removal of controls.

**1.2 RELATED REQUIREMENTS**

- A. Section 01530 - Barriers.

**PART 2 - PRODUCTS**

**2.1 SIGNS AND DEVICES**

- A. Traffic Cones and Drums, Flares and Lights: As approved by KTC.
- B. Flagman Equipment: As required by KTC.

**PART 3 - EXECUTION**

**3.1 CONSTRUCTION PARKING CONTROL**

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles and Owner's operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

**3.2 TRAFFIC CONTROL**

- A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off any highway area affected by construction operations.
- B. Contractor shall abide by county and state regulations governing utility construction work.
- C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

**3.3 FLAGMEN**

- A. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

**3.4 FLARES AND LIGHTS**

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

### **3.5 HAUL ROUTES**

- A. Consult with authorities to establish public thoroughfares to be used for haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

### **3.6 REMOVAL OF CONTROLS**

- A. Remove equipment and devices when no longer required.

**END OF SECTION**

**SECTION 01600**  
**MATERIAL AND EQUIPMENT**

**PART 1 - GENERAL**

**1.1 STORAGE OF MATERIALS AND EQUIPMENT**

- A. All excavated spoil, all materials and all equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

**1.2 HANDLING AND DISTRIBUTION**

- A. The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until final completion and acceptance of the Work.
- B. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

**1.3 MATERIALS, SAMPLES, INSPECTION**

- A. Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.
- B. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the Work.
- C. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for and make the concrete test cylinders. Except as otherwise expressly specified, the Contractor shall make arrangements for, and pay for, the tests.
- D. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.
- E. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

- F. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.
- G. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.
- H. After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01620**  
**STORAGE AND PROTECTION**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. General storage.
- B. Enclosed storage.
- C. Exterior storage.
- D. Maintenance of storage.

**1.2 RELATED REQUIREMENTS**

- A. Division 1 - General Requirements.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 GENERAL STORAGE**

- A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
- B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

**3.2 ENCLOSED STORAGE**

- A. Store products, subject to damage by the elements, in substantial weathertight enclosures.
- B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

**3.3 EXTERIOR STORAGE**

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials.

### **3.4 MAINTENANCE OF STORAGE**

- A. Periodically, inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Engineer on request.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

### **3.5 MAINTENANCE OF EQUIPMENT STORAGE**

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on a regularly scheduled basis, in accordance with the manufacturer's recommendations, maintaining a log of services; submit as a record document.

**END OF SECTION**



**SECTION 01700**  
**PROJECT CLOSEOUT**

**PART 1 - GENERAL**

**1.1 RELATED REQUIREMENTS**

- A. Section 00710 - General Conditions.
- B. Section 01710 - Cleaning.
- C. Section 01720 - Project Record Documents.

**1.2 SUBSTANTIAL COMPLETION**

- A. Contractor:
  - 1. Submit written certification to Engineer that project is substantially complete.
  - 2. Submit list of major items to be completed or corrected.
- B. Engineer will make an inspection within seven days after receipt of certification, together with the Owner's representative.
- C. Should Engineer consider that work is substantially complete:
  - 1. Contractor shall prepare, and submit to Engineer, a list of the items to be completed or corrected, as determined by on-site observation.
  - 2. Engineer will prepare and issue a Certificate of Substantial Completion, containing:
    - a. Date of Substantial Completion.
    - b. Contractor's list of items to be completed or corrected, verified and amended by Engineer.
    - c. The time within which Contractor shall complete or correct work of listed items.
    - d. Time and date Owner will assume possession of work or designated portion thereof.
    - e. Responsibilities of Owner and Contractor for:
      - 1) Insurance.
      - 2) Utilities.
      - 3) Operation of mechanical, electrical and other systems.
      - 4) Maintenance and cleaning.
      - 5) Security.
    - f. Signatures of:
      - 1) Engineer.
      - 2) Contractor.
      - 3) Owner.
  - 3. Contractor: Complete work listed for completion or correction, within designated time.
- D. Should Engineer consider that work is not substantially complete:
  - 1. He shall immediately notify Contractor, in writing, stating reasons.
  - 2. Contractor: Complete work, and send second written notice to Engineer, certifying that Project, or designated portion of project is substantially complete.
  - 3. Engineer will re-review work.

**1.3 FINAL INSPECTION**

- A. Contractor shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Project has been inspected for compliance with Contract Documents.
  - 3. Work has been completed in accordance with Contract Documents.
  - 4. Equipment and systems have been tested in presence of Owner's representative and are operational.

5. Project is completed and ready for final inspection.
- B. Engineer will make final on-site observation/review within seven (7) days after receipt of certification.
- C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.
- D. Should Engineer consider that work is not finally complete:
  1. He shall notify Contractor, in writing, stating reasons.
  2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
  3. Engineer will re-review the work.

#### **1.4 FINAL CLEANING UP**

- A. The work will not be considered as completed and final payment made until all final cleaning up has been done by the Contractor in a manner satisfactory to the Engineer. See Section 01710 for detailed requirements.

#### **1.5 CLOSEOUT SUBMITTALS**

- A. Project Record Documents: to requirements of Section 01720.
- B. Operation and Maintenance Data
- C. Warranties and Bonds: to requirements of particular technical specifications and Section 01740.

#### **1.6 INSTRUCTION**

- A. Instruct Owner's personnel in operation of all systems, mechanical, electrical and other equipment.

#### **1.7 FINAL APPLICATION FOR PAYMENT**

- A. Contractor shall submit final applications in accordance with requirements of General Conditions.

#### **1.8 FINAL CERTIFICATE FOR PAYMENT**

- A. Engineer will issue final certificate in accordance with provisions of General Conditions.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-final Certificate for payment.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01710 CLEANING**

### **PART 1 - GENERAL**

#### **1.1 WORK INCLUDED**

- A. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.
- B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave Project clean and ready for occupancy.

#### **1.2 RELATED REQUIREMENTS**

- A. Section 01045 - Cutting and Patching.
- B. Section 01700 - Project Closeout.
- C. Cleaning for Specific Products or Work: Specification Section for that work.

#### **1.3 SAFETY REQUIREMENTS**

- A. Hazards control:
  - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
  - 2. Prevent accumulation of wastes which create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 1. Do not burn or bury rubbish and waste materials on Project site without written permission from the Owner.
  - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 3. Do not dispose of wastes into streams or waterways.

### **PART 2 - PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

### **PART 3 - EXECUTION**

#### **3.1 DURING CONSTRUCTION**

- A. Execute cleaning to ensure that building, grounds and public properties are maintained free from accumulations of waste materials, trash, and rubbish.
- B. Wet down dry materials and rubbish to allay dust and prevent blowing dust.
- C. At reasonable intervals during progress of Work, clean site and public properties. Provide on-site containers for collection of waste materials, debris, trash, and rubbish.

- D. Remove waste materials, debris, trash, and rubbish from site when containers are full, or when directed by the Engineer or Owner's representative, but not less often than once weekly. Legally dispose of all waste materials, debris, trash, and rubbish at dumping areas off of Project site.
- E. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- F. The Contractor shall thoroughly clean all materials and equipment installed.

### **3.2 FINAL CLEANING**

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion, conduct final inspection of sight-exposed interior and exterior surface, and of concealed spaces.
- C. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- D. Broom clean paved surfaces; rake clean other surfaces of grounds.
- E. Maintain cleaning until Project, or portion thereof, is occupied by Owner.
- F. The Contractor shall restore or replace existing property or structures as promptly and practicable as work progresses.

**END OF SECTION**

**SECTION 01720**  
**PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

**1.1 RELATED REQUIREMENTS**

- A. Section 00710 - General Conditions.
- B. Section 01300 - Submittals.

**1.2 MAINTENANCE OF DOCUMENTS**

- A. Maintain at job site, one copy of:
  - 1. Contract Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Reviewed Shop Drawings.
  - 5. Change Orders.
  - 6. Other Modifications to Contract.
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

**1.3 MARKING DEVICES**

- A. Provide colored pencil or felt-tip marking pen for all marking.

**1.4 RECORDING**

- A. Label each document "RECORD DRAWING" in 2-inch high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings: Legibly mark to record actual construction:
  - 1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
  - 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
  - 3. Field changes of dimension and detail.
  - 4. Changes made by Change Order or Field Order.
  - 5. Details not on original Contract Drawings.
- E. Specifications and Addenda: Legibly mark up each Section to record:
  - 1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
  - 2. Changes made by Change Order or Field Order.
  - 3. Other matters not originally specified.
- F. Shop Drawings: Maintain as record documents; legibly annotate Shop Drawings to record changes made after review.

## **1.5 SUBMITTAL**

- A. At completion of project, deliver record documents to Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
  - 1. Date.
  - 2. Project title and number.
  - 3. Contractor's name and address.
  - 4. Title and number of each record document.
  - 5. Certification that each document as submitted is complete and accurate.
  - 6. Signature of Contractor or his authorized representative.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01740**  
**WARRANTIES AND BONDS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when required.
- D. Review submittals to verify compliance with Contract Documents.

**1.2 RELATED REQUIREMENTS**

- A. Performance and Payment Bonds.
- B. Guaranty.
- C. General Warranty of Construction.
- D. Warranties and Bonds required for specific products: As listed in other Specification sections.

**1.3 WARRANTY BONDS OR CORPORATE GUARANTEES IN LIEU OF EXPERIENCE RECORD**

- A. When specifically requested in the products and installation general provisions of a Specification section for a particular piece of equipment or product, a record of five (5) years of successful full-scale operation shall be required from the equipment manufacturer. This record of full-scale operation shall be from existing facilities utilizing the equipment or product specified, in an application similar to the application intended for this Project.
- B. The manufacturer shall certify in writing to the Contractor that it has the required record of successful full-scale operation. This certification shall be submitted by the Contractor with his construction materials and/or equipment data list. In the event the manufacturer cannot provide the five (5) year certification of experience to the Contractor, the Contractor shall furnish within thirty (30) days after the Notice of Award, a Warranty Bond or Corporation Guarantee from the equipment manufacturer written in the name of the Contractor and acceptable to the Owner. The Warranty Bond or Corporate Guarantee shall be kept in force for five (5) years from the Date of Substantial Completion of the Contract less the number of years of experience the manufacturer may be able to certify to the Engineer. As a minimum, the Bond or Guarantee shall be in force for one (1) year after the Date of Substantial Completion of the Contract. The Warranty Bond shall be written in an amount equivalent to the manufacturer's quotation, the Contractor's installation cost plus 100 percent (100%). The Warranty Bond or Corporate Guarantee will assure the Owner that, if in the judgment of the Engineer, the equipment does not perform its specified function, the Contractor shall remove the equipment and install equipment that will perform the specified function and the work by the Contractor shall be paid for by the Warranty Bond or Corporate Guarantee.

**1.4 SUBMITTALS REQUIREMENTS**

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Furnish two (2) original signed copies.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product, equipment or work item.
2. Firm name, 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 and 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 name, address and telephone number.

#### **1.5 FORM OF SUBMITTALS**

- A. Prepare in duplicate packets.
- B. Format:
  1. Size 8 1/2-inch x 11 inches, punch sheets for 3-ring binder: 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-ring, with durable and cleanable plastic covers.

#### **1.6 TIME OF SUBMITTALS**

- A. For equipment or component parts of equipment put into service during progress of construction: Submit documents within ten (10) days after inspection and acceptance.
- B. Otherwise, make submittals within ten (10) days after date of substantial completion, prior to final request for payment.
- C. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing the date of acceptance as the start of the warranty period.

#### **1.7 SUBMITTALS REQUIRED**

- A. Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the Specifications. Additionally, the Contractor shall warrant the entire contract, including all concrete, paving, building, plumbing, HVAC, mechanical and electrical equipment to be free from defects in design and installation for one (1) year from the date of startup. In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Contractor shall repair the defect without cost to the Owner.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**



## **Division 2 - Site Work**



**SECTION 02110**  
**SITE CLEARING**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Clear site within construction limits of plant life and grass.
- B. Remove root system of trees and shrubs.
- C. Remove surface debris.

**1.2 REGULATORY REQUIREMENTS**

- A. Conform to applicable local codes and ordinances for disposal of debris.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 EXISTING TREES AND OTHER VEGETATION**

- A. The Contractor shall not cut or injure any trees or other vegetation outside right-of-way or easement lines and outside areas to be cleared, as indicated on the Drawings, without written permission from the Engineer. The Contractor shall be responsible for all damage done outside these lines.
- B. The Engineer shall designate which trees are to be removed within permanent and temporary easement lines or right-of-way lines.

**3.2 CLEARING**

- A. From areas to be cleared, the Contractor shall cut or otherwise remove all trees, brush, and other vegetable matter such as snags, bark and refuse. The ground shall be cleared to the width of the permanent easement or right-of-way unless otherwise directed by the Engineer.
- B. Except where clearing is done by uprooting with machinery, trees, stumps, and stubs to be cleared shall be cut as close to the ground surface as practicable, but no more than 6 inches above the ground surface for small trees and 12 inches for larger trees.
- C. Elm bark shall be either buried at least 1 foot deep or burned in suitable incinerators off site with satisfactory antipollution controls and fire prevention controls, to prevent the spread of Dutch Elm disease and as required by applicable laws.

**3.3 GRUBBING**

- A. From areas to be grubbed, the Contractor shall remove completely all stumps, remove to a depth of 12 inches all roots larger than 3-inch diameter, and remove to a depth of 6 inches all roots larger than 1/2-inch diameter. Such depths shall be measured from the existing ground surface or the proposed finished grade, whichever is lower.

**3.4 STRIPPING OF TOPSOIL**

- A. Prior to starting general excavation, strip topsoil to a depth of 6 inches or to depths required by the Engineer. Do not strip topsoil in a muddy condition and avoid mixture of subsoil. Stockpile the stripped topsoil within easement or right-of-way lines for use in finish grading and site

restoration. Topsoil stockpiled shall be free from trash, brush, stones over 2 inches in diameter and other extraneous material.

### **3.5 PROTECTION**

- A. Protect plant growth and features remaining as final landscaping.
- B. Protect bench marks and existing work from damage or displacement.
- C. Maintain designated site access for vehicle and pedestrian traffic.

### **3.6 REMOVAL**

- A. All material resulting from clearing and grubbing and not scheduled for reuse shall become the property of the Contractor and shall be suitably disposed of off-site, unless otherwise directed by the Engineer, in accordance with all applicable laws, ordinances, rules and regulations.
- B. Such disposal shall be performed as soon as possible after removal of the material and shall not be left until the final period of cleaning up.

**END OF SECTION**

**SECTION 02150**  
**SHORING AND BRACING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Shore and brace sidewalls in excavations with steel sheet piles with wale systems or soldier piles with timber lagging and tie back system as required to protect existing buildings, utilities, roadways, and improvements.
- B. Maintain shoring and bracing during construction activities, and remove shoring and bracing if practical when construction and filling is complete.

**1.2 SUBMITTALS**

- A. Provide copies of information on methods of the shoring and bracing system proposed for the work, design basis, calculations where applicable, and copies of shop drawings for inclusion in the project and job-site record files.

**1.3 QUALITY ASSURANCE**

- A. Comply with governing codes and regulations. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Shoring and bracing system design shall be prepared and sealed by a registered professional engineer or structural engineer. The system design shall provide the sequence and method of installation and removal. Shoring and bracing system design shall be in accordance with Occupational Safety and Health Administration (OSHA) requirements 29 CFR Section 1926.652.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Steel Sheet Piles: Heavy-gauge steel sheet.
- B. Soldier Piles: Steel H-beams.
- C. Timber Lagging: Heavy timber. Pressure treated with wood preservative for use below water table for extended time period.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Install in proper relation with adjacent construction. Coordinate with work of other sections.
- B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

**END OF SECTION**



**SECTION 02221**  
**ROCK REMOVAL**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall excavate rock, if encountered, as required to perform the required work, and shall dispose of the excavated material, and shall furnish acceptable material for backfill in place of the excavated rock.
- B. In general, rock in pipe trenches shall be excavated so as to be not less than 4 inches from the pipe after it has been laid.

**1.2 REFERENCES**

- A. NFPA 495 - Code for the Manufacture, Transportation, Storage and use of Explosive Materials.
- B. Commonwealth of Kentucky Department of Mines and Minerals, Laws and Regulations Governing Explosives and Blasting.

**1.3 REGULATORY REQUIREMENTS**

- A. Conform to Kentucky Department of Mines and Minerals code for explosive disintegration of rock.
- B. Obtain permits from local authorities having jurisdiction before explosives are brought to site or drilling is started.
- C. KRS 351.330
- D. 805 KAR Chapter 4

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Rock definition: Solid mineral material that cannot be removed with a power shovel.
- B. Explosives: Type recommended by explosives firm and required by authorities having jurisdiction.
- C. Delay devices: Type recommended by explosives firm and conforming to state regulations.
- D. Blasting mat materials: Type recommended by explosives firm and conforming to state regulations.

**PART 3 - EXECUTION**

**3.1 EXPLOSIVES**

- A. The Contractor shall keep explosives on the site only in such quantity as may be needed for the Work under way and only during such time as they are being used. He shall notify the Engineer, in advance, of his intention to store and use explosives. Explosives shall be stored in a secure manner and separate from all tools. Caps or detonators shall be safely stored at a point over 100 feet distance from the explosives. When the need for explosives has ended, all such materials remaining on the Work shall be promptly removed from the premises.
- B. The Contractor shall observe all state, federal and municipal laws, ordinances and regulations relating to the transportation, storage, handling and use of explosives. In the event that any of the above-mentioned laws, ordinances or regulations require a licensed blaster to perform or supervise the Work of blasting, said licensed blaster shall, at all times have his license on the Work and shall permit examination thereof by the Engineer or other officials having jurisdiction.

### **3.2 BLASTING PRECAUTIONS**

- A. No explosives shall be used within 20 feet of:
  - 1. Building and/or structures existing, constructed or under construction.
  - 2. Underground and/or overhead utilities whether existing or partially constructed.
- B. Permission for any deviation from the restriction set forth above shall be secured from the Engineer, in writing; however, permission for any such deviations shall not relieve the Contractor from any responsibility in the event of damage to buildings, structures or utilities.
- C. All operations involving explosives shall be conducted with all possible care to avoid injury to persons and property. Blasting shall be done only with such quantities and strengths of explosives and in such a manner as will break the rock approximately to the intended lines and grades and yet will leave the rock not to be excavated in an unshattered condition. Care shall be taken to avoid excessive cracking of the rock upon or against which any structure will be built, and to prevent injury to existing pipes or other structures and property above or below ground. Rock shall be well covered with logs or mats, or both, where required. Sufficient warning shall be given to all persons in the vicinity of the Work before a charge is exploded.
- D. The Contractor shall be solely responsible for his blasting operations. The Contractor shall not hold the Owner and/or the Engineer liable for any damages resulting from his blasting operations on this project.

### **3.3 PREBLAST STRUCTURE SURVEY**

- A. Perform a preblast survey to determine and document with pictures the condition of adjacent structures, utilities, wells, buried cables, and other features within a minimum of 400 ft. of the blast area unless otherwise required by applicable regulatory authorities. Determine safe distances to structures or other facilities according to NFPA 495, Appendix B. Where facilities are closer than these distances, and natural barriers are not present, or when the amount of explosive cannot be reduced economically, blasting mats shall be used. Provide mats to protect environmentally sensitive areas, trees within 20 feet from the blasting area, streams, and rock formations from throw rock.
- B. Purpose of survey is to document existing condition of structures prior to blasting, and is intended to be used as evidence in ascertaining whether and to what extent damage may have occurred as result of blasting.
- C. Conduct survey prior to start blasting.
- D. Record information for each structure surveyed:
  - 1. Age and type of construction.
  - 2. Location and character of cracks.
  - 3. Evidence of settlement and leakage.
  - 4. Other pertinent information.
- E. Record preblast survey information on forms prepared specifically for preblast surveys.
- F. Supplement written records with photographs or videotape recordings.
- G. Submit copies of written records and photographs or videotapes to respective property owner, as well as, OWNER and ENGINEER, prior to start of blasting.

### **3.4 BLAST DESIGN**

- A. Design each blast to avoid damage to existing facilities, adjacent property, and completed Work. Consider effects of blast-induced vibrations and air blast, and fly rock potential in design of each blast.
- B. Whenever peak particle velocity exceeds vibration limits, change design of subsequent blasts, as necessary to reduce peak particle velocity to within limits established by BIC.
- C. Whenever air blast exceeds limits, change design of subsequent blasts or provide controls necessary to reduce air blast to within specified limits.



### **3.5 VIBRATION LIMITS**

- A. General: Establish appropriate maximum limit for vibration for each structure or facility that is adjacent to or near blast sites. Base maximum limits on expected sensitivity of each structure or facility to vibration, and federal, state, or local regulatory requirements, but not to exceed 1.25 in/sec.

### **3.6 AIR-BLAST LIMITS**

- A. Establish appropriate maximum limit for air blast for each structure or facility that is adjacent to or near blast sites. Base maximum limits on expected sensitivity of each structure or facility to air blast, and federal, state, or local regulatory requirements, but not to exceed 0.015 psi peak overpressure (133 decibels).

### **3.7 FLY ROCK CONTAINMENT**

- A. Where fly rock may damage existing facilities, adjacent property, or completed Work, cover area to be blasted with blasting mats or provide other means that will contain and prevent scattering of blast debris.

### **3.8 VIBRATION AND AIR-BLAST MONITORING**

- A. Monitor and record blast-induced vibrations and air blast using suitable sensors and recording equipment for each blast.
- B. Contractor shall provide two (2) seismographs during blasting operations capable of the following:
  - 1. Designed for monitoring blast-induced vibrations and air blast. Capable of recording particle velocity in three mutually perpendicular directions in range from 0 to 6 inches per second.
  - 2. Flat vibration frequency response between 4- and 200-Hz.
  - 3. Capable of recording air-blast overpressure up to 140 decibels.
  - 4. Flat air-blast frequency response between 2- and 500-Hz.
- C. Monitor on, or at, structures or other facilities that are closest to point of blasting. Monitoring more distant facilities that are expected to be sensitive to blast-induced vibrations and air blast.
- D. BIC shall supervise establishment of monitoring programs and initial operation of equipment; review interpretation of records and recommend revisions of blast designs.
- E. Include following information in blasting plan.
  - 1. Vibration and air-blast limits as recommended by BIC.
  - 2. Name of qualified BIC who will be responsible for monitoring program and interpretation of records.
  - 3. Types and models of equipment proposed for monitoring.
  - 4. Numbers and locations of proposed monitoring stations.
  - 5. Procedures to be used for coordinating recording of each blast.
  - 6. Steps to be taken if blasting vibrations or air blast exceed limits.

### **3.9 EXPLOSIVES**

- A. The CONTRACTOR shall keep explosives on the site only in such quantity as may be needed for the Work under way and only during such time as they are being used. Notify the OWNER, in advance, of provisions to store and use explosives.

### **3.10 BLASTING PRECAUTIONS**

- A. Permission for any deviation from the blasting plan and other specified restrictions shall be secured from the OWNER and applicable authorities, in writing; however, permission for any such deviations shall not relieve the CONTRACTOR from any responsibility in the event of damage to buildings, structures or utilities.

- B. All operations involving explosives shall be conducted with all possible care to avoid injury to persons and property. Blasting shall be done only with such quantities and strengths of explosives and in such a manner as will break the rock approximately to the intended lines and grades and yet will leave the rock not to be excavated in an unshattered condition. Care shall be taken to avoid excessive cracking of the rock upon or against which any structure will be built, and to prevent injury to existing pipes or other structures and property above or below ground. Rock shall be well covered with logs or mats, or both, where required. Sufficient warning shall be given to all persons in the vicinity of the Work before a charge is exploded.
- C. The CONTRACTOR shall be solely responsible for his blasting operations. The CONTRACTOR shall not hold the OWNER and/or the ENGINEER liable for any damages resulting from his blasting operations on this project.

### **3.11 BLASTING RECORDS**

- A. For each blast, document the following:
  - 1. Location of blast in relation to Project stationing or state plane coordinate system and elevation.
  - 2. Date and times of loading and detonation of blast.
  - 3. Name of person in responsible charge of loading and firing.
  - 4. Details of blast design, as previously specified.
  - 5. Vibration records including location and distance of seismograph geophones to blast and to nearest structure, and measured peak particle velocity. Report peak particle velocity in units of inches per second.
  - 6. Air-blast records. Report peak air blast values in units of pounds per square inch overpressure above atmospheric or in decibels at linear response.
  - 7. Comments by BIC regarding damage to existing facilities, adjacent property, or completed Work, misfires, fly rock occurrences, unusual results, or unusual effects as required.

### **3.12 SUSPENSION OF BLASTING**

- A. In event damage to existing facilities, adjacent property, or completed Work occurs due to blasting, immediately suspend blasting and report damage to ENGINEER and OWNER. CONTRACTOR shall be responsible for all costs of repairs or replacement due to damage from blasting.
- B. Before resuming blasting operations, adjust design of subsequent blasts, or take other appropriate measures to control effects of blasting, and submit complete description of proposed changes for reducing potential for future damage.
- C. Do not resume blasting until authorized by OWNER and applicable regulatory authorities.

### **3.13 ROCK REMOVAL B MECHANICAL METHOD**

- A. Excavate and remove rock by the mechanical method. Drill holes and utilize mechanical impact to fracture rock.
- B. In utility trenches, excavate 4 inches below invert elevation of pipe and a min 4 inches wider than pipe diameter.
- C. Stockpile excavated materials and reuse select materials for site landscaping. Remove and dispose of excess materials offsite at approved location.
- D. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section 02220.

### **3.14 PAYMENT**

- A. Rock excavation shall be bid as unclassified and will **not** be paid for separately.

**END OF SECTION 02221**

## **SECTION 02225**

### **EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES**

#### **PART 1 - GENERAL**

##### **1.1 WORK INCLUDED**

- A. The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

##### **1.2 RELATED WORK**

- A. Section 02221-Rock Removal
- B. Section 02610 - Water Pipe and Fittings.

#### **PART 2 - PRODUCTS**

##### **2.1 MATERIALS**

- A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Bureau of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.
- B. Two classes of crushed stone material are used in this Section. The type of material in each class is as follows:
  - 1. Class I - No. 9 Aggregate.
  - 2. Class II - Dense Graded Aggregate (DGA).

#### **PART 3 - EXECUTION**

##### **3.1 EXCAVATION OF TRENCHES**

- A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.
  - 1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.
  - 2. Where pipe is to be laid directly on the trench bottom, the lower part of trenches in earth shall not be excavated to subgrade by machinery. However, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.
- B. Trenches shall be sufficient width to provide working space on each side of the pipe and to permit proper backfilling around the pipe.
  - 1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut with pneumatic tools, without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.

- C. All excavated materials shall be placed a safe distance back from the edge of the trench.
- D. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the Contractor.
- E. When so required, or when directed by the Engineer, only one-half of local road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.
- F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

### 3.2 WATER PIPE BEDDING

- A. Piping for water mains shall be supported as follows:
  - 1. The trench bottom for water main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. The foundation for water main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide a minimum 4 inches of clearance around the pipe. Class I granular bedding shall be used to bring the trench bottom to grade.
- B. After each pipe has been brought to grade, aligned, and placed in final position, earth material for water main piping in areas not subject to vehicular traffic and Class I material for water mains in paved areas, including existing roads and proposed roadways and shoulders, shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.
- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, C, and D of this Section is **not** considered a separate pay item.

### 3.3 WATER PIPE BACKFILLING

- A. Initial Backfill:

1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 6 inches above the top of the pipe. For water main piping in areas not subject to vehicular traffic, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3. below. For water main piping in paved areas including existing and proposed roadways and shoulders, initial backfill shall be Class I material.
  2. Material used, whether earth or Class I, in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of water main.
  3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order Class I material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.
- B. Final Backfill:
1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
    - a. Case I - Areas not subject to vehicular traffic.
    - b. Case II - Paved areas including existing and proposed roadways and shoulders, drives, parking areas, and walks.
  2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 6 inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
    - a. Case I - The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 8 inches below the surface of the ground with earth material free from large rock (no greater than 6 inches in the longest dimension), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
    - b. Case II - The trench shall be backfilled from a point 6 inches above the top of the pipe with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain the maximum possible compaction. The remaining backfill shall be as follows:
      - c. For gravel surfaces - Class II (dense graded aggregate) material mechanically tamped to maximum possible compaction. The trench may be left with a slight mound if permitted by the Engineer.
      - d. For bituminous and concrete surfaces - Bituminous and concrete pavement sections as detailed on the Drawings and as specified for Bituminous Pavement Replacement and Concrete Pavement Replacement.
  3. Earth, Class I and Class II material and bituminous and concrete surfaces used in final backfill is not a separate pay item. Payment shall be included in the unit price of water main.
- C. A sufficient amount of Class II material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.
- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

### **3.4 PLACEMENT OF IDENTIFICATION TAPE**

- A. Detectable underground marking tape shall be placed over all utility lines. Care shall be taken to insure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III. The identification tape is manufactured by Lineguard, Inc., P.O. Box 426, Wheaton, IL 60187.
- B. The identification tape shall bear the printed identification of the utility line below it, such as "Caution - Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be 2 inches in width. Colors are: yellow - gas, green - sewer, red - electric, blue - water, orange - telephone, brown - force main.
- C. The tape shall be the last equipment installed in the trench so as to be first out. The tape shall be buried 4 to 6 inches below top of grade. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill. The tape may be plowed in after final settlement, installed with a tool during the trench backfilling process, unrolled before final restoration or installed in any other way acceptable to the Owner or Engineer.

### **3.5 PLACEMENT OF LOCATION WIRE**

- A. Detectable underground location wire shall be placed above all non-metallic water mains and force mains. Care shall be taken to insure that the buried wire is not broken.
- B. The location wire shall be no smaller than #10 AWG solid copper-coated steel wire with minimum 550 lb. tensile strength or #12 AWG stranded wire, either copper-coated steel or solid copper with minimum 300 lb. tensile strength; each with HDPE insulating jacket. Wire requirements are based on electrical resistance per 1000 foot length. Copper-coated steel wire is preferred to reduce the likelihood of vandalism theft.
- C. The location wire shall be continuous from valve box to valve box and shall be terminated (unconnected) with a wire nut and enough "loose" wire to extend 24 inches outside the valve box.

**END OF SECTION**

## **SECTION 02400**

### **TUNNELING, JACKING, BORING, MICROTUNNEL, AND DIRECTIONAL BORE**

#### **PART 1 - GENERAL**

##### **1.1 DESCRIPTION**

- A. Scope: CONTRACTOR shall provide all labor, materials, equipment, supervision and incidentals required to furnish and install casing pipe and carrier pipe as shown on the Plans or specified herein.
  - 1. The CONTRACTOR'S attention is directed to the methods described herein and shown on the drawings for installing the casing pipe below existing facilities. They are jacking and boring method.
  - 2. Horizontal and vertical tolerance for the crossings shall be limited to the requirements herein. Should the tolerances be exceeded, it shall be at the option of the OWNER to: accept the installation; abandon the installation at the CONTRACTOR'S expense and require a new installation; or require a combination of hand-mined tunnel and casing pipe at the CONTRACTOR'S expense.
- B. Coordination: CONTRACTOR shall carefully coordinate work at crossings to avoid existing utilities.
- C. Related Work Specified Elsewhere:
  - 1. Section 01565, Erosion and Sediment Control
  - 2. Section 02225, Excavating, Backfilling, and Compacting for Utilities.
  - 3. Section 03300, Cast-In-Place Concrete.

##### **1.2 RELATED WORK**

- A. Section 02610 – Water Pipe and Fittings
- B. Section 02630 – Encasement Pipe

##### **1.3 QUALITY ASSURANCE**

- A. Installer's Qualifications and Experience:
  - 1. Installer shall be a specialist in the construction of casing pipes by jacking, and boring and shall have at least 5 years experience in this specialty. Installer shall have satisfactorily constructed completely in his own name, during the past 5 years not less than ten similar installations which are comparable in diameter and length to that shown and specified herein.
  - 2. The CONTRACTOR chosen to perform this work shall present evidence to prove to the satisfaction of the OWNER and ENGINEER that his company and the superintendent he will employ for this Project have experience in boring and jacking through ground similar to that found on the Project. The CONTRACTOR shall keep such a superintendent continuously employed until the boring and jacking work is completed.
  - 3. Use only personnel thoroughly trained and experienced in the skills required. The field supervisor of boring operations and the boring machine operator shall have not less than 12 months experience in the operations of the equipment being used.
  - 4. Welds shall be made only by experienced welders, tackers and welding operators who shall have at least 10 years experience in this specialty. Welders previously qualified by tests as prescribed in the American Welding Society, AWS D.1.1 to perform the type of work required are adequate but a certified welder is not required. See additional requirements in Section 15051.
    - a. Casing Welding Requirements

- 1) Conform to AWS D1.1, AWWA C206, approved welding procedures, and referenced welding codes.
  - 2) Rejectable weld defects shall be repaired or redone, and retested until sound weld metal has been deposited in accordance with appropriate welding codes.
- b. Field Welding:
- 1) Butt Joint Welded: Plain ends beveled as required by A WW A C200 and Contractor's welding procedure.
  - 2) OWNER shall contract with a third party testing agency to visually inspect the welds and the welders procedures and processes. CONTRACTOR shall notify OWNER and ENGINEER at least 48 hours in advance of when welding will begin.
  - 3) OWNER reserves the right to inspect 100 percent of all butt welds with full circumference radiographic inspection performed by approved NDT Quality Control personnel at the CONTRACTOR's sole expense if welds do not appear sound or filled in the field upon OWNER's inspection.
- c. Defective Welds: Remove in manner that permits proper and complete repair by welding.
- d. Retest unsatisfactory welds. Submit test results to OWNER.
5. Perform topographical surveys prior to the beginning of any excavation in the area and upon completion of the carrier pipe installation and backfilling. CONTRACTOR shall restore all existing surface and sub-surface facilities damaged due to measurable settlement at no additional cost to the OWNER.
  6. CONTRACTOR shall submit a plan to monitor vibration, movement, and cracks at nearby structures during the jacking and boring operation. A pre-construction plan to examine existing cracks and install vibration monitors on nearby structures prior to the start of the Work shall also be submitted. Vibration monitors shall record movement continuously and be checked frequently by the CONTRACTOR during the boring and jacking operation. If vibration, movement, or cracking is noticed to a degree that could or is suspected to cause damage, the jacking and boring operation shall be immediately terminated and the CONTRACTOR's operations adjusted to prevent damage to nearby structures.
  7. The CONTRACTOR shall be completely responsible and liable for protecting the work and adjacent property from vibration, movement, cracking, and other damage and for all costs associated with any damages and repair of damages that result due to the installation operation.
- B. Permits:
1. Where permits are required, the CONTRACTOR shall be responsible to obtain and pay for all permits, insurance and bonds required completing the work.
  2. The CONTRACTOR shall obtain copy of the permits and be familiar with all necessary requirements of the agencies having jurisdiction prior to starting any boring or jacking operations. Adequate means shall be provided and dewatering shall be performed prior to excavation to keep the work free from water.
- C. Requirements of Regulatory Agencies: Comply with the OSHA Standards, Underwriter Laboratories, Kentucky Transportation Cabinet and all other authorities having jurisdiction. Requirements set forth in any license, permit or similar agreement issued by the railroad company, highway, or other agency beneath whose facility the casing pipe is to be installed, shall be fully complied with an in the event of a conflict with information given in these specifications or shown on the plans, the requirements stipulated in the license or permit agreement shall govern.
- D. Tolerances:
1. The casing pipes shall be installed on the lines and grades shown on the Plans and within tolerances required to allow the sewer pipe to be installed in accordance with the lines and grades shown on the plans.
  2. The maximum allowable tolerance are as follows:
    - a. Allowable Horizontal Tolerance (ft): 1.0'
    - b. Allowable Vertical Tolerance (ft): 1.0'



3. Refer to paragraph 3.1, herein.
- E. Reference Standards:
1. ANSI B36.10, Welded and Seamless Wrought Steel Pipe.
  2. ASTM A 53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  3. ASTM A 106, Standard Specification for Seamless Carbon Steel Pipe for High Temperature Service.
  4. ASTM A 139, Electric-Fusion (ARC Welded) Steel Pipe.
  5. ASTM A 153, Zinc-Coating (Hot Dip) on Iron and Steel Hardware.
  6. ASTM A 252, Welded and Seamless Steel Pipe Piles.
  7. ASTM A 307, Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
  8. ASTM A 569, Carbon Steel, Hot-Rolled Sheet and Strip, Commercial Quality.
  9. AREA Chapter 1, Part 4, "Jacking Culvert Pipe through Fills".
  10. AREA Chapter 1, Part 5, "Specification for Pipelines Conveying Non-Flammable Substances".
  11. AWS D1.1, Structural Welding Code.
  12. OSHA.

#### **1.4 SUBMITTALS**

- A. Installation Methods: Before starting work, the CONTRACTOR shall submit drawings and descriptions showing methods and equipment for the excavation of the jacking pits and installation of the casing pipes and the carrier pipe for approval by the OWNER. The CONTRACTOR shall prepare a report of anticipated construction method information, dewatering methods, jacking pit elevations and profile of proposed bore. The report shall be submitted to the OWNER.
- B. Technical data, test reports, work schedules and any other information required by the authority having jurisdiction.
- C. Certificates: Certificate of Conformance in accordance with paragraph 21.1. of ASTM A139.

#### **1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Delivery:
1. Exercise special care during delivery not to damage the casing pipe and carrier pipe.
  2. Damaged materials will be rejected by the OWNER'S Project Representative and replaced by the CONTRACTOR at his expense.
  3. Deliver materials to such locations so as to avoid excessive handling.
  4. The OWNER is not responsible for accepting shipments of any kind.
- B. Storage:
1. Store casing pipe and carrier pipe on approved blocking for protection from corrosion until incorporation into the Work in accordance with manufacturer's recommendation.
  2. Store in areas shown on the Plans or as approved by the OWNER'S Project Representative.
  3. The OWNER shall be permitted access to inspect the materials in storage areas.
- C. Handling:
1. Handle materials in a manner so as to avoid damage.
  2. Materials damaged during handling shall be repaired or replaced as ordered by the OWNER'S Project Representative.

#### **1.6 JOB CONDITIONS**

- A. Subsurface Information:
1. CONTRACTOR shall refer to the Supplementary Conditions for requirements on subsurface information.

2. Data on subsurface conditions is not intended as a representation or warranty of continuity of such conditions between soil borings. ENGINEER will not be responsible for interpretation or conclusions drawn therefrom by CONTRACTOR.
  3. Additional test borings and other exploratory operations may be made by CONTRACTOR at no cost to OWNER.
- B. Existing Structures: The Drawings show certain existing facilities and surface and underground structures located on or adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of CONTRACTOR. CONTRACTOR shall explore ahead of the required Work to determine the exact location of all structures. They shall be supported and protected from damage by CONTRACTOR. If they are broken or damaged, they shall be restored immediately by CONTRACTOR at his expense.
- C. Existing Utilities: Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during all operations.
1. Should uncharted or incorrectly charted piping or utilities be encountered during Work, consult ENGINEER immediately for directions as to procedure. Cooperate with OWNER and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  2. Do not interrupt existing utilities serving facilities occupied and used by OWNER or others, except when permitted in writing by ENGINEER and then only after acceptable temporary utility services have been provided.
  3. Coordinate with utility companies for shut-off of services, if required and the lines are active.
  4. See additional requirements specified on the Contract Drawings.
- D. Protection of Persons and Property: Barricade open excavations occurring as part of this Work. Obtain approval of OWNER prior to use of warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required, per approval of OWNER.
1. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- E. Topographic mapping shown on plan/profile drawings was derived using photogrammetric survey methods. The mapping should be regarded as accurate within normal tolerance for 2-foot contour interval photogrammetric mapping as of the date of photography.
- F. The ground profiles and vertical alignments shown on plan/profile drawings are derived from the topographic mapping and therefore are approximate.
- G. Use of Explosives: Do not bring explosives onto site or use in the Work. Use of explosive materials is specifically prohibited.
- H. Dust Control: CONTRACTOR shall conduct all operations and maintain the area of activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. Calcium chloride shall be used to control serious or prolonged dust problems, subject to approval of ENGINEER.
- I. All excavations shall be sheeted, shored and braced as required to prevent subsurface subsidence. Refer to Section 02225 for additional requirements.
- J. All jacking and receiving pits shall be kept dewatered, and pumps shall be attended on a 24-hour basis, if conditions so require. Close observation shall be maintained to detect any settlement or displacement of facilities during dewatering operations. Dewater into a sediment trap and comply with applicable environmental protection criteria specified elsewhere in these Contract Documents.
- K. Maintain the air in the pipe, when hand excavating, in a condition suitable for the health of workmen at all times.

## 1.7 GUARANTEE

- A. Guarantee of Work completed by the CONTRACTOR shall be as specified in the General Conditions of these specifications, except that longer periods may be required where noted in the permits or specified by applicable authorities.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Steel Casing Pipe:
  - 1. Casing pipe shall be steel pipe meeting the requirements as specified below:
    - a. Unless otherwise called for, casing pipe shall be smooth-wall steel pipe of welded steel construction conforming to ASTM A-139, Grade B, with butt welded joints when more than one length is used. The steel casing pipe shall be of new material with a minimum yield point of 36,000 psi.
    - b. Sections of the casing pipe shall be welded together to form a continuous conduit capable of resisting all stresses, including jacking stresses. Welding of the steel casing pipe shall be solidly butt-welded with a smooth non-obstructive joint inside. Casing pipe shall be designed for earth cover shown on the Drawings and live load including impact equal to HS-20 wheel loading for roadway crossings.
  - 2. Inside diameter shall be 4-inches minimum greater than outside diameter of water main at joints or couplings. If the casing pipe is furnished in sections and requires field welding, then it shall be furnished with plain ends, mill beveled for field butt welding. Field welded joints shall be performed by experienced welders as specified in paragraph 1.2.A.4 above and be full penetration single-vee groove, butt type welds around the entire circumference of the pipe. All welding shall receive testing as specified in paragraph 1.2.A. Copies of test reports shall be submitted to the OWNER.
    - a. Coatings: No exterior and interior coatings of the casing pipe are required.
  - 3. CONTRACTOR may use a mechanical joint type pipe in lieu of welded joints. The pipe joint shall be flush with the inside and outside diameter. The joints shall be manufactured by Permalok Corporation or ENGINEER approved equal.
- B. Inside tunneling or casing pipe, all carrier pipe shall be harnessed or restrained with casing spacers (top, bottom, and sides).
- C. Casing Spacers and End Seals
  - 1. As specified herein

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Installation of the crossings shall be by jacking and boring and shall conform in all respects to the requirements contained herein and other applicable standards.
- B. Lines and Grades: The CONTRACTOR is responsible for establishing and maintaining proper line and grade at each crossing.
  - 1. The CONTRACTOR shall periodically check his line and grade to assure conformance with line and grade shown on the Plans and within the tolerances indicated in this Section.
  - 2. Extra work required because of the CONTRACTOR'S failure to maintain the proper line and grade, as shown on the Plans, shall be performed, by the CONTRACTOR, at no additional cost to the OWNER.

3. The casing pipe and carrier pipe in its final position shall be straight and true in alignment and grade, as indicated on the drawings. Sufficient deviation from line or grade, in the opinion of the OWNER or ENGINEER, shall be justification for disapproving the installation. No space shall be left unfilled between the earth and the outside of the casing.

### 3.2 PREPARATION

- A. Work pits at each end of the crossings shall be sufficiently large to permit satisfactory installation of the casing pipe or tunnel liner plates. All excavation, backfill, sheeting, shoring, bracing, and dewatering shall comply with the applicable requirements of Section 02225 of these Specifications and the requirements of the applicable authorities.
- B. All pits and their locations necessary in the performance of this work shall be acceptable to the OWNER, ENGINEER, and the agency having jurisdiction prior to starting work. All pits shall be adequately sheeted to protect the work, all persons, and adjacent property. The CONTRACTOR shall provide all additional shields, headers, or stabilization of the pit faces, as required by the OWNER or ENGINEER, to prevent settlement or damage to the areas above the casing. The CONTRACTOR shall be completely responsible and liable for protecting the work and adjacent property and for any damages that may result due to insufficient stabilization.
- C. The CONTRACTOR shall dispose of excess excavated material or drilling mud/cuttings in an approved upland disposal site.

### 3.3 INSTALLATION

- A. Installation of Steel Casing Pipe by Jacking:
  1. Install in accordance with current American Railroad Engineering Association Specifications requirements.
  2. Design bracing and backstops and use jacks of sufficient rating such that jacking can be accomplished in a continuous manner until the leading edge of the pipe reaches the final positions shown on the Plans.
  3. If voids develop around the casing pipe as it is jacked, pump cement grout to fill all such voids, or fill by other means acceptable to the OWNER'S Project Representative.
  4. Fill all voids as specified hereafter as soon as possible after completion of jacking operation.
- B. Installation of Steel Casing Pipe by Boring:
  1. The boring method shall consist of pushing the pipe into the fill with a boring auger rotating inside the pipe to remove the soil.
  2. Provide the front of the casing pipe with suitable mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.
  3. The equipment and mechanical arrangements or devices used to bore and remove the earth shall be removable from within the casing pipe in the event an obstruction is encountered.
  4. The face of the cutting edge shall be arranged to provide reasonable obstruction to the free flow of soft or poor soil.
  5. Do not use water or other liquids to facilitate casing emplacement or spoil removal.
  6. If voids develop around the casing pipe as it is bored, pump cement grout to fill all such voids, or fill by other means acceptable to the OWNER'S Project Representative.
  7. Fill all voids as specified hereinafter as soon as possible after completion of boring operation.
- C. Obstructions: If an obstruction is encountered during installation to stop the forward action of the casing pipe, and it becomes evident that it is impossible to advance the pipe, the CONTRACTOR shall continue the casing pipe by hand tunneling and installation of tunnel liner plates. The continuation by the tunneling method shall be at the CONTRACTOR'S expense and at no additional cost to the OWNER.
- D. Installation of the Water Main:
  1. After completion of the tunnel or steel casing pipe, the Water Main pipe shall be installed and pressure tested by an approved method.

2. Care shall be taken to prevent undue disturbances of the joints.
  3. The water main pipe shall be blocked in place, using stainless steel casing spacers as specified below:
    - a. Centered/Restrained Casing spacers shall be installed to position the carrier pipe within the center of the casing pipe or at a slope as required to meet the specified slope of the carrier pipe as shown on the Drawings, except that for PVC carrier pipe, a minimum of 3 spacers shall be installed on each length of pipe with a maximum 6 feet spacing between spacers. The required spacing and installation shall be per the manufacturer's recommendation and shall be 304 or 316 stainless steel as manufactured by Cascade Waterworks MFG Co., Advance Products and Systems (APS) or other approved equal. Casing spacers shall be provided with height field-adjustment capability for installation of Water Main on a constant slope.
  4. The water main pipe shall be installed with casing spacers in a centered/restrained position.
  5. The CONTRACTOR shall repair, replace or take whatever action is deemed necessary by the OWNER to correct all disturbed joints at no additional cost to the OWNER.
- E. End Seals:
1. After the water main pipe is installed in the steel casing, and successfully pressure tested, construct end seals as shown on the Plans and as specified below:
    - a. Casing pipe end seals shall be installed at each end of the casing pipe and shall consist of a proper sized rubber seal and attached to the carrier and casing pipe with stainless steel bands per the manufacturers recommendation. Casing pipe end seals shall be manufactured by Cascade Waterworks MGG Co., Advanced Products and Systems (APS) or other approved equal.
  2. Prior to the installation of end seals, the water main pipe shall be properly and sufficiently secured against flotation and against all movement, which would disturb joints.
    - a. The CONTRACTOR shall be responsible for all joints.
- F. The CONTRACTOR shall repair, replace, or take whatever action is deemed necessary by the OWNER'S Project Representative to correct all disturbed joints at no additional expense to OWNER.

## **END OF SECTION**



**SECTION 02505**  
**CRUSHED STONE PAVING**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Crushed stone paving course, compacted.

**1.2 REFERENCES**

- A. ASTM C33 - Aggregate for Concrete.

**1.3 TESTS**

- A. Gradation of stone materials will be performed in accordance with ASTM C33.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Crushed stone shall conform to ASTM C33, Type No. 57, Type No. 2, No. 610 and Type DGA.

**PART 3 - EXECUTION**

**3.1 INSPECTION**

- A. Verify compacted subgrade.
- B. Verify that gradients and elevations of base are correct.
- C. Beginning of installation means acceptance of existing conditions.

**3.2 PLACING STONE PAVING**

- A. Spread stone material over prepared base to a total compacted thickness of 12 inches.
- B. Place stone in 6-inch layers and compact.
- C. Level surfaces to elevations and gradients indicated.
- D. Add small quantities of sand to stone mix as appropriate to assist compaction.
- E. Adequately compact placed stone materials.
- F. Add water to assist compaction. With an excess water condition, rework topping and aerate to reduce moisture content.

**END OF SECTION**





**SECTION 02510**  
**BITUMINOUS PAVEMENT**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Provide bituminous pavement for following applications, with prepared subbase and compacted base.
  - 1. Roads and Shoulders.
  - 2. Parking areas.
  - 3. Driveways.
  - 4. Walkways.
  - 5. Curbs.
- B. Provide striping for parking, roadway, and handicapped markings.

**1.2 SUBMITTALS**

- A. Submit for approval product data, test reports.

**1.3 QUALITY ASSURANCE**

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Prime coat: Cut-back asphalt.
- B. Tack coat: Emulsified asphalt.
- C. Asphaltic cement: AASHTO M226 and as required by local authorities.
- D. Aggregate: Crushed stone or crushed gravel.
- E. Traffic paint: Quick-drying chlorinated-rubber alkyd type, color as approved.
- F. Wheel-stops: Precast concrete of uniform color and texture with steel stakes.

**PART 3 - EXECUTION**

**3.1 NEW PAVEMENT INSTALLATION**

- A. Asphalt/aggregate Mixture: Comply with local DPW Standard Specifications for Highways and Bridges. Class as required by loading and use.
- B. Remove loose material from existing pavement. Proof roll and check for areas requiring additional compaction. Report unsatisfactory conditions in writing. Beginning of work means acceptance of condition of existing pavement and subbase.
- C. Apply prime coat to prepared surface. Apply tack coat to previous laid work and adjacent in-place concrete surfaces.

- D. Place bituminous concrete at minimum temperature of 225 degrees F in strips not less than 10' wide overlapping joints in previous courses. Complete entire base course thickness before beginning surface course.
- E. Construct curbs, where required, to dimensions indicated or if not indicated to standard shapes. Provide tack coat between curb and pavement.
- F. Begin rolling when pavement can withstand weight of roller. Roll while still hot to obtain maximum density and to eliminate roller marks.
- G. Provide 4" lane and striping paint in uniform, straight lines. Provide wheelstops where indicated and securely dowel into pavement. Protect work from traffic and damage.

### **3.2 TRENCH WIDTH PAVEMENT REPLACEMENT**

- A. Sections of pavement shall be replaced as required to install the pipelines. Disturbed pavement shall be reconstructed to original lines and grades with bituminous binder as detailed on the Drawings and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to these operations.
- B. Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the binder course or concrete.
- C. Backfilling of trenches shall be in accordance with the applicable portions of Section 02225.
- D. Bituminous surface shall be one course construction of an appropriate surface JMF prepared and installed in accordance with the requirements of the Kentucky Department of Highways.
  - 1. Placement and compaction of surface course shall be in accordance with Section 403 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be as detailed on the Drawings.
- E. Dense graded aggregate base, as detailed on the drawings, shall conform to the applicable requirements of the Kentucky Department of Highways.
- F. Bituminous pavement replacement is **NOT** separate pay item.

**END OF SECTION**

## SECTION 02512

### PAVEMENTS, WALKS, AND CURBS

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. This Section includes all labor, materials, equipment and related items required to complete the work of pavements, walks, and curbs shown on the Drawings and specified herein.
- B. This Section does not include the following related items:
  - 1. Clearing and grubbing.
  - 2. Earthwork, including establishing of subgrades for pavements, walks, and curbs.
  - 3. Storm drainage and utilities.
  - 4. Concrete work in connection with storm drainage.

##### 1.02 COORDINATION

- A. Coordinate carefully the Work specified in this Section with storm drainage and utility installations specified under other Sections of these Specifications. Notify the Engineer promptly of any conflict between work of this Section and that of other trades.

##### 1.03 STATE SPECIFICATIONS

- A. Where the words "State Specifications" are used herein, they shall be understood to refer to the Standard Specifications of the Kentucky Department of Highways. Reference to State Specifications is solely for the purpose of specifying kind and quality of materials and methods of construction. Where, in such specifications, the word "Engineer" or the title of any other State Official or employee appears, it shall for the purpose just stated and be understood to mean the duly authorized representative of MCWD.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.01 SUBGRADES FOR PAVEMENTS, WALKS, AND CURBS

- A. Grading. Do any necessary grading in addition to that performed in accordance with Section 02225 to bring subgrades after final compaction to the required grades and sections for pavements and curbs.
- B. Preparation of Subgrades. Loosen exceptionally hard spots and recompact. Remove spongy and otherwise unsuitable material and replace it with stable material. Fill and tamp traces of storm drain trenches.
- C. Compaction of Subgrade. Compact the subgrades of all surface areas with appropriate compacting equipment or by other means to such degree as will ensure against settlement of the superimposed work.
- D. Checking Subgrade. Maintain all subgrade in satisfactory condition, protected against traffic and properly drained until the surface improvements are placed. Immediately in advance of concreting, check subgrade levels with templates riding the forms, correct irregularities and compact thoroughly any added fill material. On areas to receive concrete pavement, place grade stakes spaced sufficiently to afford facility for checking subgrade levels. Correct irregularities, compacting thoroughly any fill material.
- E. Drainage Structures. Check for correct elevation and position all manhole covers, grates, and similar structures located within areas to be paved and make, or have made, any necessary adjustments in such structures.

### **3.02 CONCRETE WORK**

- A. General. Concrete and concrete materials for work of this Section shall conform to applicable requirements of Section 03300, and, in addition the following:
  - 1. Concrete used in all work of this Section shall be Class A and shall have a minimum 28-day allowable compressive strength of 4,000 pounds per square inch, shall contain not less than six (6) sacks of cement per cubic yard, and shall be an air entrained type, with 4 percent to 6 percent total air content, by use of an approved air entraining agent as specified under Section 03300.
- B. Requirements for forms, reinforcement, mixing, placing, finishing and curing shall be generally as specified for other concrete work under Section 03300, as modified hereinafter under particular item specification.

### **3.03 CONCRETE CURBS**

- A. General. Concrete curb and gutter and header curb shall be constructed in accordance with State Specifications at locations shown and to details shown on the Drawings. Curved forms shall be used where curbs are curved to a radius of 100 feet or less.
  - 1. The Contractor may, at his option, install extruded section curb and gutter and header curb. If used, the section, equipment, jointing provisions, etc., shall be reviewed by the Engineer and approved prior to installation.
- B. Contraction Joints. Construct concrete curbs in sections 6 to 10 feet long by use of 1/8-inch steel division plates. Such plates shall be of size and shape conforming to cross sections of the concrete and shall not be bent or otherwise deformed.
- C. Expansion Joints. Provide expansion joints with premolded filler cut to shape of cross section as follows: (1) at ends of all the returns, (2) at not more than 50 feet intervals. Expansion joints shall be at least 2-inch wide, and if adjoining pavement is concrete, of the same width and at same locations as expansion joints in the pavement.
- D. Finish. Tamp and screed concrete as soon as placed. Remove division plates and face forms as soon as practicable; fill any honeycombed places with 1:2 mortar and give exposed surfaces a smooth, wood-float finish without plastering. Finish square corners to 1/4-inch radius and other corners to radius shown.
- E. Height. Curb height shall be as detailed on the Drawings. Transition height at handicap ramp locations to meet level of drive and walk pavement.
- F. Protection. Remove no forms (except face forms) for 24 hours after placing concrete. Barricade against vehicular traffic 14 days and against pedestrian for 3 days. Compact thoroughly the backfill behind the curb.

### **3.04 CONCRETE WALKS AND PAVING**

- A. General. Walks in City streets or in streets to be dedicated shall be constructed in accordance with the local agency having jurisdiction over the roadway impacted or in the absence of same, in accordance with the following specifications for all other concrete walks.
- B. Concrete walks shall be one course construction, reinforced concrete nominally 5-inches thick, but in no case less than 4-inches actual thickness, of widths shown on the Drawings. Edges of walks shall be formed adequately and braced to maintain alignment. Use flexible or curved forms for all curves in walks.
  - 1. Provide integral turn-down at walk edges where abutting bituminous paving as detailed.
  - 2. Slopes. Provide grade stakes not more than 25 feet apart for all walk construction. Check tops of forms for grade before placing concrete. Introduce short vertical curves in all walks as shown on the Drawings, or at points where change in walk grade exceeds 2%. For a distance of 2 feet from top and bottom of steps, walk slopes shall not exceed 2 inch per foot. Provide 1/4 inch per foot cross slope in the direction of natural drainage, and make slight adjustments in slopes at walk intersections as necessary or directed to provide proper drainage.

3. Finish. Tamp and screed the concrete true to grade and section bringing sufficient mortar to the surface for finishing and give a wood or carpet-float finish, providing that where the walk grade exceeds 5%, the surface shall be given a belted or broomed finish as directed by the Engineer. Round all edges, including those along expansion joints and scored joints to a 1/4 inch radius. Where walks terminate at curbs, finish the walk 1/4 inch above the curb providing a neat bevel.
  4. Expansion Joints. Provide 2 inch transverse expansion joints with premolded filler not more than 50 feet apart, also at walk junctions and intersections, at top and bottom of steps and where walks abut curb returns, buildings, platforms, or other fixed structures, or terminate at curbs. Such expansion joints are not required (except for curb returns) between walks and contiguous parallel curbs. At walk junctions and intersections, the required expansion joints shall be located at the end of each rounding or fillet. Expansion joints shall be at right angles to the slab and extend the full depth thereof; the premolded filler shall extend to within 1/4 inch of the walk surface. Locate expansion joints in all walks as nearly as practicable opposite those in abutting curbs.
  5. Scored Joints. Between expansion joints, cut grooves 1/8 inch to 1/4 inch wide, at least 3/4 inch deep, and with a spacing approximately equal to the walk width but not greater than 6 feet on centers.
- C. Handicap Ramp. Provide ramped sections for handicapped access where shown and as detailed. Ramp surface shall be given a uniform medium broomed finish at right angles to ramp pitch. Install tactile warning strip of width shown in Cobble II pattern as manufactured by Paverlock, Inc., of Cincinnati, Ohio.
- D. Other concrete paving at exterior areas shall conform to requirements shown on the Drawings.
- E. Provide reinforced concrete entrance area paving at Auditorium Building where shown. Thickness and dimensions shall be as detailed. Surface shall match grade of adjacent existing paving and finish spot grades as shown on the Drawings. The pad shall be given a uniformly textured finish to match existing paving.
- F. Protection. Remove no forms for 24 hours after pouring concrete. Protect concrete walks and paving form pedestrian traffic for a period of 3 days after pouring, and against vehicular traffic for a period of 14 days.

### **3.05 CONCRETE STEPS**

- A. Concrete steps shall be constructed under work of this Section where shown and as detailed on the Drawings. Verify elevations at top and bottom landings prior to laying out formwork, excavation or preparation of subgrade.
- B. Excavation and Preparation of Subgrade. Excavate for corner posts to dimensions shown, and trim subgrade of concrete to required shape and slope. Footing excavations and subgrades shall be in a firm, moist condition, prior to placing any concrete, clean and free from loose material.
- C. Build forms to details shown on the Drawings, and so as to permit their removal without damage to the concrete. Place reinforcement as detailed, properly supported to maintain it in position during placing of concrete.
- D. Finish. Place concrete, and thoroughly compact it in the forms by means of spading, rodding, tamping or vibrating so as to thoroughly work into all corners and around reinforcement. All treads shall be pitched as detailed to drain, and shall be given a uniformly textured wood or carpet float finish. Exposed edges of treads shall be rounded smoothly to 2-inch radius. Remove face forms as soon as practicable, patch any surface voids with 1:2 mortar to match color of concrete, and rub with carborundum stone and water to a uniformly textured finish. Plastering of concrete surfaces will not be permitted.
- E. Protection. Do not open steps for use for seven days after concrete is placed.

### **3.06 BITUMINOUS PAVING**

- A. General. All roadway and parking area pavement designated as bituminous shall consist of a crushed stone and dense graded aggregate base, and bituminous surface course. Refer to the Drawings for thickness of base, and surfacing, and total paving thickness.

- B. Subgrades shall be in accordance with applicable provisions of State Specifications. The subgrades shall be shaped to conform to the lines, grades, and cross sections indicated on the Drawings. All high areas shall be removed and all low areas shall be filled with approved material and compacted. Areas of yielding or unstable material shall be excavated and backfilled with approved material as directed by the Engineer. Compaction shall be to a uniform density throughout.
- C. Bituminous Surface
  - 1. Surfacing shall be one-course bituminous concrete construction and in accordance with applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 402. The surface course shall contain no aggregate larger than 2-inch. The surface mixture shall contain natural sand in the proportions of no less than 25 percent of the total combined fine and course aggregates.
  - 2. Surface course shall be of minimum thickness after compaction as shown on the Drawings.
  - 3. Thickness of bituminous surface and base shall be determined by coring of the newly constructed pavement in accordance with Kentucky Method 64-420-04, Paragraphs 1.2, 1.3, 2, and 3, with the following exceptions:
    - a. Coring frequency shall be 500 feet.
    - b. Exploratory cores for a deficiency shall be spaced at 100 foot intervals.
    - c. Excess thickness will be considered as included in the Contract price per square yard.
    - d. Deficient thickness between 2-inch and 3/4-inch will require a deduction from the unit price per square yard in the proportion of the actual thickness to the design thickness for the area of the deficiency as determined in accordance with the stipulated method. Deficient thickness of greater than 3/4-inch will require an additional 1-inch layer of surface to be overlaid over the area of the deficiency.
- D. Dense Graded Aggregate Base
  - 1. Dense graded aggregate base shall be one-course construction and shall conform to the applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 303. The base shall consist of graded aggregate no larger than 1 inch and water sufficient to provide the mixture with a satisfactory moisture content for compaction to a density of not less than 84 percent of the solid volume.
  - 2. Dense graded aggregate base shall be of minimum thickness after compaction as shown on the Drawings.
- E. Crushed Stone Base
  - 1. Crushed stone base shall be one-course construction of No. 2 aggregate and shall conform to the applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 302 for Gravel Base Type 1. The crushed stone shall consist of graded aggregate no larger than 3 inches and compacted to a minimum thickness as shown on the Drawings.
- F. A cut-back asphalt emulsion primer shall be applied to the dense graded aggregate base course prior to placing the bituminous surface course. Primer-L shall conform to the applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 407 for materials and application.
- G. Compact the subgrade of all pavement areas and place and compact crushed stone base, dense graded aggregate base, and bituminous surface course in conformance with applicable sections of the Kentucky Department of Highways Standard Specifications to the lines, grades and cross-sections shown on the Drawings.
- H. Signing: Construct signs for traffic control in areas as shown on the Drawings in accordance with the MUTCD, latest edition.
- I. Striping: Lay off and stripe parking areas and service road as indicated on the Drawings and in accordance with the MUTCD, latest edition. Provide cross-hatching, stop bars, and centerline stripes for roadway to limits shown on the Drawings. Cross-hatching and stripes shall be approximately 4 inches wide, stop bars shall be 24-inches wide, of lengths indicated. Paint materials shall be as recommended in State Specifications. Color shall be white.
  - 1. Provide painted lettering for "Stop" in location shown on the Drawings. Color shall be white and material shall be as specified above.

2. Paint face and top of curbs in locations shown on the Drawings. Color shall be yellow and material shall be as specified above.

**END OF SECTION**





**SECTION 02610**  
**WATER PIPE AND FITTINGS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall furnish all labor, material, and equipment necessary to install water main piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

**1.2 RELATED WORK**

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02630 - Encasement Pipe.
- C. Section 02640 - Water Valves and Gates.
- D. Section 02675 - Disinfection of Potable Water Pipe.

**PART 2 - PRODUCTS**

**2.1 DUCTILE IRON PIPE (DIP) AND FITTINGS**

- A. Ductile iron pipe (DIP) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe shall conform to pressure class 350 minimum unless noted otherwise. All fittings and joints should be capable of accommodating pressure of not less than 250 psi.
- B. Fittings shall be ductile iron in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings and shall conform to the details and dimensions shown therein. Fittings shall have rubber gasket joints meeting the requirements of AWWA C111. Fittings shall be cement-mortar lined and bituminous coated to conform to the latest revision of ANSI/AWWA standards.
- C. Ductile iron mechanical joint fittings shall be in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 (or A21.53 for compact fittings) and have joints in accordance with ANSI/AWWA C111/A21.11. Fittings and joints shall be supplied with all accessories.
- D. Restrained joint pipe shall be a boltless gripper type system equal to "Field- Lok" as manufactured by Romac, Ford or approved equivalent. Mechanical joint fittings shall be restrained with friction type retainer gland system equal to "Megalug" as manufactured by EBAA.
- E. Gasket material for all push-on and mechanical joint ductile iron pipe and fittings where ductile iron pipe is laid within a 200 foot radius of existing petroleum, gasoline, and oiling lines and tanks shall be hydrocarbon and petroleum resistant. Gasket materials shall be made of nitrile (NBR) or cytroen rubber.
- F. All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 70-50-05 per ASTM Specification A339-55.
- G. Cement mortar lining and seal coating for pipe and fittings, where shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.
- H. Where indicated, high-density, cross-laminated polyethylene film shall be provided for encasement of ductile iron pipe. The film shall meet the requirements of AWWA C105.

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MCWD PS & WM IMPROVEMENTS

- I. Horizontal or veridical bends, whether shown on the Drawings or not, shall be provided to achieve the desired horizontal and vertical routing. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the unit price for pipe.
- J. Ductile iron pipe and fittings shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or approved equivalent.

## **2.2 POLYVINYL CHLORIDE (PVC) WATER PIPE**

- A. Polyvinyl chloride (PVC) pipe for water mains shall be SDR 17 (250 psi) meeting requirements of ASTM 2241 with integral bell joints with rubber O-ring seals.
- B. All PVC pipe shall conform to the latest revisions of ASTM D-1784 (PVC Compounds), ASTM D-2241 (PVC Plastic Pipe, SDR), and ASTM D-2672 (Bell-end PVC Pipe). PVC pipe shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. Rubber gasketed joints shall conform to ASTM D-3139. The gaskets for the PVC pipe joint shall conform to ASTM F-477 and D-1869.
- C. Fittings for all lines 4 inches in diameter or larger shall be ductile iron and in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings. Cement mortar lining and seal coating shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C110/A21.10. All fittings shall be rated at 250 psi water working pressure plus water hammer and be ductile cast-iron grade 70-50-05 per ASTM Specification A339.
- D. Horizontal or veridical bends, whether shown on the Drawings or not, shall be provided to achieve the desired horizontal and vertical routing. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the unit price for pipe.
- E. Rubber gasket joints shall provide adequate expansion to allow for a 50 degree change in temperature on one length of pipe. Lubrication for rubber connected couplings shall be water soluble, non-toxic, be non-objectionable in taste and odor and have no deteriorating affect on the PVC or rubber gaskets and shall be as supplied by the pipe manufacturer.
- F. All pipe and couplings shall bear identification markings that will remain legible during normal handling, storage and installation, which have been applied in a manner what will not reduce the strength of the pipe or the coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio number, ASTM Pressure Class, ASTM designation number for this standard, manufacturer's name or trademark, seal (mark) of the testing agency that verified the suitability of the pipe material for potable-water service. Each marking shall be applied at intervals of not more than 5 feet for the pipe and shall be marked on each coupling.

## **PART 3 - EXECUTION**

### **3.1 LAYING DEPTHS**

- A. In general, water mains shall be laid with a cover of 42 inches, except as otherwise indicated on the Drawings.

### 3.2 SEWER/CONTAMINANT PIPE CROSSING CONCRETE ENCASEMENT

- A. At locations shown on the Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed water pipe and any existing sewer or contaminant carrying pipe is 18 inches or less. Contaminant carrying pipe includes underground petroleum, slurry, food processing, and other pipe as determined by the Engineer.
- B. Whether the proposed water pipe is above or below the existing sewer/contaminant pipe, the concrete shall fully encase the sewer/contaminant pipe and extend to the spring line of the water pipe. Encasement shall extend in each direction along the sewer/contaminant pipe until the encased sewer/contaminant pipe is 10 feet from the proposed water main, measured perpendicular to the water main.
- C. Concrete shall be 3,000 psi and shall be mixed sufficiently wet to permit it to flow between and under the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.

### 3.3 PIPE LAYING

- A. Slip Jointed Pipe:
  - 1. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the plans. Pipe shall be fitted and matched so that when laid in the Work, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
  - 2. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure it being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fittings shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe. Bevel can be made with hand or power tools.
  - 3. The interior of the pipe, as the Work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.
  - 4. Anchorage of Bends:
    - a. At all tees, plugs, caps and bends of 11-1/4 degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement from thrust shall be prevented by using both concrete thrust blocks and friction type retainer glands or boltless gripper type system as manufactured by Romac or approved equipment. Thrust blocks shall be as shown on the Drawings, with sufficient volumes of concrete being provided; however, care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair.
    - b. No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances. Such items shall be included in the price bid for the supported item.
  - 5. Foster adapters shall be installed on all fittings to valve connections.
  - 6. No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has the opportunity to make an inspection of the joints, alignment and grade in the section laid, but such inspection shall not relieve the Contractor of further liability in case of defective joints, misalignment caused by backfilling and other such deficiencies that are noted later.

7. All joint surfaces shall be cleaned immediately before jointing the pipe. The joint shall be lubricated in accordance with the pipe manufacturer's recommendations. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the manufacturer's direction for the joint type and material of the pipe. The resulting joints shall be watertight and flexible.

### 3.4 TESTING OF WATER PIPE

- A. The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor at no expense to the Owner.
- B. Water main piping shall be pressure tested to 250 percent of the normal system operating pressure or to 100 percent of the rated working pressure of the pipe, whichever is less. At no time shall the test pressure exceed 100 percent of the pipe's rated working pressure. A pipe section shall be accepted if the test pressure does not fall more than 5 psi during the minimum 2-hour test period. The pipe shall be tested for allowable leakage according to AWWA C-600 or C-605, as applicable, concurrently with the pressure test.
- C. Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 6,000 feet. Testing shall proceed from the source of water toward the termination of the line. The line shall be tested upon the completion of the first 6,000 feet. After the completion of two (2) consecutive tests without failure, the Contractor, at his option and with the Engineer's approval, may discontinue testing until the system is complete.
- D. All pipe, fittings and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.
- E. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at high points within the test section, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water.
- F. All piping shall be tested for leakage at a pressure no less than that specified for the pressure test. The leakage shall be defined as the quantity of water that must be supplied to the tested section to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. The leakage shall be less than an allowable amount determined by the following equation:

$$L = \frac{SD (P)^{1/2}}{133,200}$$

- Where:
- L = allowable leakage (gallons/hour)
  - S = length of pipe tested, in feet
  - D = nominal diameter of pipe (inches)
  - P = test pressure (psig)

- G. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation. All visible leaks are to be repaired regardless of the amount of leakage.
- H. If in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

**3.5 PLACEMENT OF IDENTIFICATION TAPE**

- A. The placement of detectable underground marking tape shall be installed over all water mains as specified in Section 02225.

**3.6 PLACEMENT OF LOCATION WIRE**

- A. The placement of detectable underground location wire shall be installed above all non-metallic water main as specified in Section 02225.

**END OF SECTION**



**SECTION 02630**  
**ENCASEMENT PIPE**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall furnish all labor, material, and equipment necessary to install encasement pipe together with all appurtenances as shown and detailed on the Drawings and specified herein.

**1.2 RELATED WORK**

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02400 – Tunneling, Jacking, Boring, Microtunnel and Directional Bore.
- C. Section 02610 - Water Pipe and Fittings.

**PART 2 - PRODUCTS**

**2.1 STEEL PIPE**

- A. Steel seamless pipe shall be new Grade B steel material, with a minimum yield of 35,000 psi and a wall thickness as shown below unless otherwise required by a permitting authority. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) - Welded Steel Pipe (NPS 4 and Over)," unless otherwise stated herein.
- B. The minimum wall thickness shall be in accordance with the following table:

**Steel Casing Pipe Wall Thickness**

<b>Casing Diameter (inches)</b>	<b>(Minimum Wall Thickness Under Railroads (inches)</b>	<b>Minimum Wall Thickness All Other Uses (inches)</b>
16 and under	0.250	0.250
18	0.281	0.250
20 and 22	0.312	0.281
24	0.344	0.312
26	0.375	0.344
28	0.406	0.375
30	0.438	0.406
32	0.469	0.438

<b>Casing Diameter (inches)</b>	<b>(Minimum Wall Thickness Under Railroads (inches)</b>	<b>Minimum Wall Thickness All Other Uses (inches)</b>
34 and 36	0.500	0.469

- C. Welds of the steel casing pipe shall be solid butt-welds with a smooth non-obstructing joint inside and conform to all specifications as required by American Welding Society (AWS). The casing pipe shall be installed without bends. All welders and welding operators shall be qualified as prescribed by AWS requirements.
- D. The wall thickness at any point shall be within 12.5% inches of the nominal metal thickness specified.
- E. Hydrostatic testing shall not be necessary.
- F. A protective coating shall be applied to each length of pipe. Following an SSPC SP-7 "Brush-Off Blast Cleaning" surface preparation, 3 (dry) mils of Tnemec-Primer 10-99 (red), or Porter International Primer 260FD (red), or an equivalent thickness of an approved equivalent paint shall be applied in the manner recommended by the respective paint manufacturer.
- G. Each length of pipe shall be legibly marked, stating: manufacturer, diameter, wall thickness and primer.
- H. Precaution shall be taken to avoid deforming the pipe and damaging the primer during shipping.

**2.2 CARRIER PIPE SPACERS**

- A. Carrier pipes installed inside encasement pipes shall be centered throughout the length of encasement pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the encasement pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; of such thickness to allow installation and/or removal of the pipe; and to allow no greater than 1/2 inch movement of the carrier pipe within the cover pipe after carrier pipe is installed.
- B. Spacers shall be located immediately behind each bell and at a maximum spacing distance as follows:

<b>Carrier Pipe Diameter (inches)</b>	<b>Maximum Spacing (feet)</b>
2 - 2-1/2	4
3 - 8	7
10 - 26	10

- C. The materials and spacing to be used shall be accepted by the Engineer prior to installation. The polyethylene pipeline spacers shall be manufactured by Pipeline Seal and Insulator, Inc. (PSI), Raci Spacers, Inc., or equivalent. Installation shall be in accordance with manufacturer's recommendations.

**2.3 ENCASEMENT PIPE END SEALS**

After installation of the carrier pipe within the encasement pipe, the ends of the casing shall be sealed with either a wraparound or a pull-on casing end seals fabricated of minimum 1/8-inch thick neoprene rubber. The seals shall be attached to the encasement pipe and the carrier pipe by 304 stainless steel band clamps not less than 1/2-inch wide. The casing end seals shall be as manufactured by Advance Products & Systems, Inc., or approved equivalent.



## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Where shown on the Drawings, the Contractor shall install encasement pipe. Install encasement pipe to maintain alignment, grade and the circular shape of the encasement pipe. The encasement pipe shall be straight and true in alignment; and any significant deviation from line or grade, in the opinion of the Engineer or permitting authority, shall be sufficient cause for disapproving or rejecting the installation.
- B. Two methods of installation are designated, the open-cut method and the boring method.
  - 1. The open-cut method shall consist of placing the encasement pipe in the excavated trench, then installing the carrier pipe inside the encasement pipe. Excavation, bedding and backfilling shall be in accordance with Section 02225.
  - 2. The boring and jacking method consists of pushing or jacking the encasement pipe into the subsurface material as an auger cuts out the material or after the auger has completed the bore. Where designated on the drawings, crossings beneath state maintained roads, railroads, or other surfaces not to be disturbed, shall be installed by boring and jacking of steel casing pipe followed by installation of the carrier pipe within the casing pipe. The Contractor shall provide a jacking pit, bore through the earth, and/or rock, jack the casing pipe into proper line and grade and then install the carrier pipe within the casing pipe. The approach trench shall be large enough to accommodate one section of casing pipe, the jacks and blocking. The Contractor shall furnish and use adequate equipment to maintain the line and grade.
- C. The carrier pipe shall be ductile iron, polyvinyl chloride, or polyethylene pipe as designated on the Drawings. The carrier pipe shall be installed using pipe spacers as described in this Section. Carrier pipe will not be permitted to rest on bells or couplings.
- D. Following installation of the carrier pipe, the ends of the encasement pipe shall be sealed with products of the type described in this Section.

### **3.2 DAMAGE**

- A. The cost of repairing damage to the highway or railroad which is caused by a boring and jacking installation shall be borne by the Contractor.

**END OF SECTION**



**SECTION 02640**  
**WATER VALVES AND GATES**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall furnish all labor, material, and equipment necessary to install valves together with all appurtenances as shown and detailed on the Drawings and specified herein.

**1.2 RELATED WORK**

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02610 - Water Pipe and Fittings.
- C. Section 02645 - Hydrants.

**1.3 SUBMITTALS**

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer in accordance with the requirements of Section 01300.
- B. The manufacturer shall furnish the Engineer two (2) copies of an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of the latest revision of the applicable AWWA Standard, and that all tests specified therein have been performed and that all test requirements have been met.
- C. The Engineer shall be furnished two (2) copies of an affidavit that the "Valve Protection Testing" has been done and that all test requirements have been met.
- D. The Engineer shall be furnished with two (2) copies of an affidavit that inspection, testing and rejection are in accordance with the latest revision of the applicable AWWA Standard.

**PART 2 - PRODUCTS**

**2.1 GATE VALVES**

- A. All gate valves shall be of the resilient seat type in accordance with the latest revision of AWWA C509 Standard. The valve body, bonnet and gate castings shall be ductile iron or cast iron. The valve shall have a non-rising stem (NRS), fully bronze mounted or stainless steel with o-ring seals. Valve body and bonnet, inside and out, shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard. Valves shall have a rated working pressure of 200 psi.
- B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified herein. The end connection shall be suitable to receive ductile iron or PVC pipe.
- C. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve.
- D. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).
- E. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street.

- F. Valves shall be those manufactured by Mueller, M & H Valve Company, American or approved equivalent.

## **2.2 TAPPING VALVES**

- A. All tapping valves shall be of the resilient seat, gate valve type in accordance with the latest revision of AWWA C509 Standard. The valve body, bonnet and gate castings shall be cast iron. The valve shall have a non-rising stem (NRS), fully bronze mounted with o-ring seals. Valve body and bonnet, inside and out, shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard. Valves shall have a rated working pressure of 200 psi.
- B. Valve shall be furnished with ANSI B16.1 flanged end with centering ring on tapping side. Outlet side shall be mechanical joint. All valves through 12 inches shall mate all sleeves through 12-inch outlet regardless of manufacturer.
- C. All cast iron shall conform to ASTM A126, Class B. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed. Bolts shall be electric-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563.
- D. Stems shall be manganese bronze having a minimum tensile strength of 60,000 psi, a minimum yield of 20,000 psi. NRS stem collars shall be cast integral with them and machined to size. The housing for the valve stem collar shall be machined. All thrust bearing shall be incorporated as required, to optimize operating torques. NRS valves shall be furnished with two (2) o-ring stem seals located above the thrust collar and one (1) below. O-rings shall be set in grooves in the stem. The o-ring grooves shall not be less than the root diameter of the stem threads.
- E. Gates for valve shall be totally encapsulated in rubber, be field replaceable, and provide a dual seal on the mating body seat. Valve shall be capable of installation in any position with rated sealing in both directions. Rubber sets of specially compounded SBR materials shall be utilized and be capable of sealing even under conditions of normal wear. The valve body shall have integral guide engaging lugs in the gate in a tongue-and-groove manner, supporting the gate throughout the entire open/close travel.
- F. Tapping valves shall be capable of making taps by using a cutter not less than 1/4-inch smaller than nominal pipe size.
- G. All tapping valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve.
- H. Tapping valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left counterclockwise).
- I. Tapping valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street.
- J. Valves shall be those manufactured by Mueller, M & H Valve Company, American or approved equivalent.

## **2.3 TAPPING SLEEVES**

- A. Tapping sleeves shall be cast iron and capable of containing pressure within the full volume of the sleeve. Sleeve shall be mechanical joint suitable for use with ductile iron or PVC pipe.
- B. Sleeve shall be rated at 200 psi working pressure through 12-inch size and 150 psi for sleeves 14-inch through 24-inch.
- C. Flanged throat section of mechanical joint sleeves through 12-inch size shall conform to MSS SP60 Standard. For throat sections larger than 12 inches, flanged section shall mate valves of same manufacture as sleeves.

- D. All cast iron shall conform to ASTM A126, Class B. Castings shall be cleaned and sound without defects that will impair their service. No plugging or welding of such defects will be allowed. Bolts, nuts, and gaskets shall be in accordance with mechanical joint requirements of AWWA C111.
- E. Tapping sleeves shall be capable of withstanding their rated pressure without leakage past the side gaskets and end gaskets of the sleeve. Sleeves shall be supplied with split end gaskets and two-piece glands. Side flange rubber gaskets shall butt against the rubber end gaskets to make a watertight seal. Side and end bolts shall be of a T-head design. The throat flange shall be designed to center the tapping valve to the sleeve. Tapping sleeve shall be equipped with a test plug.
- F. Tapping sleeves shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard.
- G. Sleeves shall be marked with the name of the manufacturer and size (run x branch).
- H. Tapping sleeve shall be manufactured by Mueller, M & H Valve Company, or approved equivalent.

#### **2.4 AIR RELEASE VALVES**

- A. The air release valves shall have a 1-inch inlet pipe thread capable of handling working pressures up to 160 psi and be equivalent to APCO Series 200A, as manufactured by Valve and Primer Corp.
- B. The valves shall be in accordance with ANSI/AWWA C512.
- C. The valves shall be of the type that automatically exhausts large quantities of air during the filling of a system and allows air to re-enter during draining or when a vacuum occurs. The overall height less back wash accessories shall not exceed 21 inches. Valves shall be constructed of cast iron body and cover, stainless trim and float with a Buna-N seat for positive seating.
- D. The baffle shall be ductile iron and shall protect float from direct impact of air and water. The seat shall slip fit into the baffle or cover and lock in place without any distortion. The float and baffle assembly shall be shrouded with a water diffuser. The float shall be stainless steel center guided for positive seating and be rated at 1,000 psi non-shock service.
- E. The discharge orifice shall be fitted with a double-acting throttle device to regulate and restrict air venting.
- F. All parts of the valves and the operating mechanisms shall be made of non-corrodible materials.

#### **2.5 VALVE BOXES**

- A. Each buried stop and valve shall be provided with a suitable valve box. Boxes shall be of the adjustable, telescoping, heavy-pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.
- B. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and rest on the valve bonnet.
- C. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.
- D. The inside diameter of boxes for valves shall be at least 4-1/2 inches, and the lengths shall be as necessary for the depths of the valves or stops with which the boxes are to be used.
- E. Covers for valves shall be close fitting and substantially dirt-tight.
- F. The top of the cover shall be flush with the top of the box rim. An arrow and the word OPEN to indicate the direction of turning to open the valve shall be cast in the top of the valve covers.

## 2.6 COUPLING ADAPTER

- A. The pipe couplings shall be of a gasketed, sleeve-type with diameter to properly fit the pipe. Each coupling shall consist of one (1) steel middle ring, of thickness and length specified, two (2) steel followers, two (2) rubber-compounded wedge section gaskets and sufficient track-head steel bolts to properly compress the gaskets. Field joints shall be made with this type of coupling. The middle ring and followers of the coupling shall be true circular sections free from irregularities, flat spots, or surface defects. They shall be formed from mill sections with the follower-ring section of such design as to provide confinement of the gasket. After welding, they shall be tested by cold expanding a minimum of 1 percent beyond the yield point. The coupling bolts shall be of the elliptic-neck, track-head design with rolled threads. The manufacturer shall supply information as to the recommended torque to which the bolts shall be tightened. All bolt holes in the followers shall be oval for greater strength. The gaskets of the coupling shall be composed of a crude or synthetic rubber base compounded with other products to produce a material which will not deteriorate from age, from heat, or exposure to air under normal storage conditions. It shall also possess the quality of resilience and ability to resist cold flow of the material so that the joint will remain sealed and tight indefinitely when subjected to shock, vibration, pulsation and temperature or other adjustments of the pipe line. The couplings shall be assembled on the job in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement, unavoidable variations in trench gradient, etc.
- B. Nuts and bolts shall be in accordance with AWWA C111.
- C. Couplings shall be shop primed and field painted in accordance with Division 9 (or one coat of coal tar epoxy if not specified in Division 9).
- D. Compression couplings shall be equivalent to Style 38 manufactured by Dresser. Flanged couplings shall have flanges in accordance with AWWA C207 and be equivalent to Style 128 manufactured by Dresser.

## 2.7 FIBERGLASS LINE MARKER FOR BURIED VALVES

- A. General:
  - 1. Design: The continuous fiberglass reinforced composite line marker shall be a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The marker, upon proper installation, shall resist displacement from wind and vehicle impact forces. The marker shall be of a constant flat "T" cross-sectional design with reinforcing support ribs incorporated longitudinally along each edge to provide sheeting protection and structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.
  - 2. Material: The marker shall be constructed of a durable, UV resistant, continuous glass fiber and marble reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of -40<sup>0</sup> F to +140<sup>0</sup> F.
  - 3. Workmanship: The marker shall exhibit good workmanship and shall be free of burns, discoloration, cracks, bulges or other objectionable marks which would adversely affect the marker's performance or serviceability.
  - 4. Marking: Each marker shall be permanently marked "Water Line Below." The letters shall be a minimum of 2 inches in height. A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth as shown in the standard detail. The marker shall be a CRM-375 as manufactured by Carsonite International, or approved equivalent.
- B. Physical and Mechanical Requirements:
  - 1. Dimensions: The marker shall conform to the shape and overall dimensions shown in the standard detail.
  - 2. Mechanical Properties: The marker shall have the minimum mechanical properties as follows:

Property	ASTM Test Method	Minimum Value
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight % Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47

3. Color Fastness: The marker shall be pigmented throughout the entire cross-section so as to produce a uniform color which is an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.
  4. Vehicle Impact Resistance: The marker shall be capable of self-erecting and remain functional after being subjected to a series of ten head on impacts by a typical passenger sedan at 35 miles per hour. The marker shall retain a minimum of 60 percent of its sheeting.
- C. Reflectors:
1. The reflector shall be of impact resistant, pressure sensitive retro-reflective sheeting which shall be subject to approval by the Engineer. The sheeting shall be of appropriate color to meet MUTCD requirements.
  2. Mounting: The retro-reflective sheeting shall consist of a minimum of a 3-inch wide strip placed a maximum of 2 inches from the top of the post unless otherwise specified.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Valves shall be installed as nearly as possible in the positions indicated on the Drawings consistent with conveniences of operating the handwheel or wrench. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain on appurtenances during handling and installation.
- B. All material shall be carefully inspected for defects in workmanship and material, all debris and foreign material cleaned out of valve openings and seats, all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness.
- C. Valves and other equipment which do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense.
- D. Valves shall not be installed with stems below the horizontal.
- E. Valves shall be set plumb and supported adequately in conformance with the instructions of the manufacturer.
- F. Valves shall be provided with extension stems where required for convenience of operation. Extension stems shall be provided for valves installed underground and elsewhere so that the operating wrench does not exceed 6 feet in length.

### **3.2 PAINTING**

- A. Valves shall be factory primed and fully coated, inside and out, with fusion bonded epoxy in accordance with the latest revision of AWWA C550 Standard.

## **END OF SECTION**





**SECTION 02645**  
**HYDRANTS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall furnish all labor, materials, and equipment required to complete the work of installing fire and flush hydrants with all appurtenances as shown on the Drawings and specified herein.

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. Each hydrant shall be installed with an auxiliary gate valve and valve box; valve box cover shall be marked "water" as required.
- B. Inlet cover depth shall be 48 inches and the minimum dimension from ground to centerline of lowest opening shall be 18 inches. Hydrants shall be supported on a poured-in-place concrete thrust block and provided with a drainage pit as indicated on Standard Detail Sheet.
- C. All hydrants shall be fully coated, inside and out, with fusion bonded epoxy coating in accordance with AWWA C550 Standard and color shall be as selected by the Owner.

**2.2 FIRE HYDRANTS**

- A. Fire hydrants shall be improved AWWA compression model with 5-1/4 inch hydrant valve, two (2) 2-1/2 inch hose outlets, one (1) 4-1/2 inch pumper nozzle, national standard threads, national standard pentagon operating nut opening left. Fire hydrant shall be equipped with safety flanges designed to prevent barrel breakage when struck by a vehicle, flanged inlets and auxiliary gate valves. Fire hydrants shall have 6-inch inlets. Fire hydrants shall be Mueller Super Centurion 200 as manufactured by Mueller Company, or approved equivalent.

**2.3 FLUSHING HYDRANTS**

- A. Flushing hydrants shall be box hydrants, with 4 cubic feet of crushed stone beneath hydrant to allow drainage. All working parts shall be brass, with hydrant main valve opening being at least 2-1/8". Inlet connection shall be 4" MJ, with the outlet being two (2) 2-1/2" NST hose nozzles. The operating rod shall be non-turning, and all operating parts shall be removable from above ground with no special wrenches. This self-draining, non-freeze hydrant's barrel will be made of 3" ductile iron pipe, and shall have a lockable cast iron box, equal to the Eclipse #2 as manufactured by Kupferle Foundry or equivalent.

**2.4 SPARE PARTS**

- A. The Owner shall be furnished with two (2) hydrant barrel wrenches, four (4) spanner wrenches and two (2) operating nut wrenches.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Fire and flush hydrants shall be installed in accordance with the manufacturer's directions and as detailed on the Drawings.

**END OF SECTION**



**SECTION 02675**  
**DISINFECTION OF POTABLE WATER PIPE**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The Contractor shall furnish all labor, material and water necessary to disinfect the potable water pipe as shown on the Drawings and specified herein.

**1.2 RELATED WORK**

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02610 - Water Pipe and Fittings.
- C. Section 02640 - Water Valves and Gates

**PART 2 - PART 2 - PRODUCTS (NOT USED)**

**PART 3 - PART 3 - EXECUTION**

**3.1 DISINFECTION OF WATER LINES**

- A. Sterilization of pipe line shall be in accordance with the American Water Works Association Specification C651-05 using liquid chlorine. The pipe line shall be disinfected by using a 50 mg/l chlorine solution for a contact period of 24 hours. At the end of the 24 hour retention period, the required residual shall be 25 ppm. Pipes shall be thoroughly flushed upon meeting the chlorine residual requirements.
- B. Before the pipes are placed in service, samples of the water must be taken by the Contractor and submitted to the public health agency for testing. No pipes shall be placed in service until the samples have been approved by the agency. The Contractor shall bear all the cost of sampling, testing, and postage.
- C. Sampling locations shall be approved by the Engineer and the public health agency having jurisdiction.
- D. A satisfactory report for the section(s) under test must be submitted to the owner and the Engineer before authorizing domestic consumption of the water.
- E. Sterilization procedures shall be continued until approved samples have been obtained.

**END OF SECTION**



**SECTION 02930**  
**RESTORATION OF LAWNS AND GRASSES**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. The work covered by this section shall include the establishment or restoration of all ground cover including areas to be seeded and/or sodded. This work shall include the supply of all materials, labor, superintendence and maintenance as outlined in these specifications.

**1.2 RELATED WORK**

- A. Section 01565 - Erosion and Sediment Control.
- B. Section 02225 – Excavation, Backfilling and Compacting for Utilities.

**1.3 SCOPE OF THE WORK**

- A. Restoration of Lawns and Grasses by seeding and/or sod placement shall be performed on all areas which are not occupied by structures, roads, curbs and gutters, sidewalks, and concrete slab walls, etc.

**PART 2 - PART 2 - PRODUCTS**

**2.1 SEED**

- A. The seed mixture furnished shall be in the following proportions:

<b>Common Name</b>	<b>Proportion By Weight</b>	<b>Percent of Purity</b>	<b>Percent of Germination</b>
Kentucky Bluegrass	40	90	85
Chewings Fescue	25	90	85
Italian Rye Grass	20	90	85
Red Top	10	90	85
White Clover	05	95	90

- B. All seed shall be fresh and clean and shall be delivered mixed, in unopened packages, bearing a guaranteed analysis of the seed and mixture.

**2.2 SOD**

- A. Sod shall be bluegrass or fine fescue sod strongly rooted and free of pernicious weeds. It shall be a uniform thickness of not more than 1-½ inches and shall have not less than ¾ inches of soil. All sod shall be grown on a commercial turf farm and no pasture sod shall be acceptable. The source of the sod must be approved by the Engineer before it is cut for delivery.
- B. The sod shall be delivered and installed within 48 hours of being harvested by the producer.

**2.3 FERTILIZER**

- A. A complete commercial fertilizer with a 1:2:2 ratio of nitrogen, phosphorus, and potassium shall be furnished. It shall be free flowing and suitable for application with approved equipment. The material shall conform to State fertilizer laws. Bagged fertilizer shall be delivered in sealed standard containers and shall bear the name, trademark, and warranty of the producer.

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## 2.4 LIME

- A. Lime shall be agricultural grade limestone crushed so that no less than 85% will pass a No. 10 sieve.

## PART 3 - EXECUTION

### 3.1 SEQUENCE OF WORK

- A. All finish grading in a general area shall be complete before fertilizing and seeding or sodding begins.

### 3.2 SOIL PREPARATION AND SEEDING

- A. The work consists of furnishing all labor, equipment, and materials in all operations in connection with the fertilizing and seeding of all the finished graded areas not occupied by structures, roads, concrete slabs, sidewalks, walls, etc., and including grassed areas destroyed or damaged by the Contractor.
- B. The areas to be seeded shall be thoroughly tilled to a depth of at least 4 inches by discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer or, in the event of work on an existing utility easement, to the satisfaction of the easement holder. After harrowing or discing, the seed bed shall be dragged and/or hand raked to finish grade.
- C. The incorporation of the fertilizer and the agricultural lime may be a part of the tillage operation and shall be applied not less than 24 hours nor more than 48 hours before the seed is to be sown. Fertilizer shall be applied at a rate to provide not less than 2 ½ pounds of nitrogen, 5 pounds of phosphorus, and 5 pounds of potash per 1,000 square feet. Agricultural limestone shall be applied at a rate of not less than 100 pounds per 1,000 square feet.
- D. Seed shall be broadcast either by hand or approved sowing equipment at the rate of ninety pounds per acre (two pounds per 1,000 square feet), uniformly distributed over the area. Broadcasting seed during high winds will not be permitted. The seed shall be drilled or raked into a depth of approximately ½ inch and the seeded areas shall be lightly raked to cover the seed and rolled. Drill seeding shall be done with approved equipment with drills not more than 3 inches apart. All ridges shall be smoothed out, and all furrows and wheel tracks shall be removed.
- E. Seed may be sown during the following periods:
  - February 1 to April 15.
  - August 15 to October 15.
- F. Seed may not be sown at any other time except with the written approval of Owner.
- G. After the seed has been sown, the areas so seeded shall be mulched with clean straw at the rate of one bale per 2,000 square feet (approximately 1-inch loose depth). Mulch on slopes exceeding 20% shall be held in place with binder twine staked down at approximately 18-inch centers or by other equally acceptable means.
- H. Areas seeded shall be protected until a uniform stand develops, when it will be accepted and the Contractor relieved of further responsibility for maintenance. Displaced mulch shall be replaced or any damage to the seeded area shall be repaired promptly, both in a manner to cause minimum disturbance to the existing stand of grass. If necessary to obtain a uniform stand, the Contractor shall fertilize, seed, and mulch again as needed. Scattered bare spots up to one square yard in size will be allowed up to a maximum of ten percent (10%) of any area.

### 3.3 SOIL PREPARATION AND SOD PLACEMENT

- A. This work consists of furnishing all labor, equipment, and materials and all operations in connection with the placement of sod on all of the finished graded areas not occupied by structures, roads, concrete slabs, sidewalks, walls, etc., and including grassed areas destroyed or damaged by the Contractor.
- B. The areas where sod is to be placed shall be thoroughly tilled to a depth of at least 4 inches by discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer or, in the event of work on an existing utility easement, to the satisfaction of the easement holder . After harrowing or discing, the sod bed shall be dragged and/or hand raked to 1/2" below finish grade.
- C. The incorporation of the fertilizer and the agricultural lime may be a part of the tillage operation and shall be applied not less than 24 hours nor more than 48 hours before the sod is to be placed. Fertilizer shall be applied at a rate to provide not less than 2 1/2 pounds of nitrogen, 5 pounds of phosphorus, and 5 pounds of potash per 1,000 square feet. Agricultural limestone shall be applied at a rate of not less than 100 pounds per 1,000 square feet.
- D. Prior to the sod being placed, the area to be sodded shall be lightly watered to moisten the soil surface. The sod shall be carefully unrolled and trimmed to fit irregular areas, with the edges of the sod strips placed tightly together in such a manner as to conceal the joints between the strips. Following placement, the sod shall be lightly watered (approximately a 1/4" application) and rolled with a medium weight lawn roller to minimize any ridging at the seams.
- E. Sod may be placed whenever the sod is not dormant, and the ground is not frozen or muddy. Sod may not be placed at any other time.
- F. For a period of first two weeks following placement, the sod shall be maintained by thoroughly watering the entire area covered by the sod every second day, with a 1/2" minimum application by sprinklers or a misting hose. Lawn watering gauges shall be used to measure the application. Flooding or sheet watering will not be allowed. For the third through sixth weeks following placement, the sod shall be maintained by thoroughly watering the entire area covered by the sod twice weekly (three to four days apart), with a 1/2" minimum application by sprinklers or a misting hose. Lawn watering gauges shall be used to measure the application. Flooding or sheet watering will not be allowed.
- G. Actual rainfall event amounts received during the period of watering may be counted towards the required application totals when the amount of the rainfall exceeds 1/4" per event.
- H. In the third through sixth week following placement, the Contractor shall maintain the sodded areas by mowing to a height of not less than three inches, prior to water applications. Contractor shall not allow sod blade height to exceed five inches during this period.
- I. Following the six-week watering period, the area covered by the sod will be rolled one additional time with a medium weight lawn roller, and shall be inspected by the Owner for acceptance.

### END OF SECTION





## Division 3 - Concrete



**SECTION 03300**  
**CAST-IN-PLACE CONCRETE**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Formwork.
- B. Reinforcing Steel.
- C. Concrete.

**1.2 RELATED REQUIREMENTS**

- A. Section 00710 - General Conditions.
- B. Section 02225 – Excavation, Backfilling and Compacting for Utilities.

**1.3 REFERENCES**

- A. ACI 350R Environmental Engineering Concrete Structures.
- B. ACI318 - Building Code Requirements for Reinforced Concrete.
- C. ACI347 - Recommended Practice for Concrete Formwork.
- D. CRSI - Manual of Standard Practice.
- E. CRSI - Placing Reinforcing Bars.
- F. ASTM - A-615, A-120, A-185, C-31, C-39

**1.4 SUBMITTALS**

- A. The Contractor shall submit the following data to the Engineer for review:
  - 1. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
  - 2. Certification by the manufacturer that cement meets the Specification contained herein.
  - 3. Shop drawing for reinforcing steel showing bar schedules, location, and splices.
  - 4. Reports on laboratory compression tests of cylinders taken during concrete placement.
  - 5. Manufacturer's cut sheets for all other concrete related products.

**PART 2 - PRODUCTS**

**2.1 CLASSES OF CONCRETE AND USAGE**

- A. Structural concrete of the various classes required shall be proportioned to produce the following 28-day compressive strengths:
  - 1. Selection of Proportions for 4,500 psi Concrete:
    - a. 4,500 psi compressive for strength at 28 days.
    - b. Type I/II cement plus air.
    - c. Maximum water/cement ratio - 0.42.
    - d. Minimum cement content - 564 lbs. (6.0 bags)/cubic yard concrete.
    - e. Nominal maximum size coarse aggregate - No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
    - f. Air content - 5% plus or minus 1% by volume.

- g. Slump - 4 inches in accordance with ASTM C-143, when measured with only an air entraining admixture. Additional slump is allowed by use of water reducing or superplasticizing admixtures.
- 2. Selection of Proportions for 3,000 psi Concrete:
  - a. 3,000 psi compressive strength at 28 days.
  - b. Type I/II cement plus air.
  - c. Maximum water/cement ratio - 0.56.
  - d. Minimum cement content - 470 lbs. (5.0 bags)/cubic yard concrete.
  - e. Nominal maximum size coarse aggregate - No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
  - f. Air content - 5% plus or minus 1% by volume.
  - g. Slump - 4 inches in accordance with ASTM C-143, when measured with only an air entraining admixture.
- B. Concrete shall be used as follows:
  - 1. 4,500 psi concrete for all concrete work except as noted below.
  - 2. 3,000 psi concrete for encasement of piping where indicated, and thrust blocking.
- C. All testing of aggregates and determination of proportions shall be or have been performed by a recognized independent testing laboratory.
- D. Cement for exposed concrete shall have a uniform color classification.
- E. Type I/II cement conforming to ASTM C-150 shall be used in all concrete.
- F. Coarse aggregate shall be crushed stone having clean, hard, uncoated particles, and shall be free from injurious amount of soft, friable, thin, elongated or laminated pieces. Coarse aggregates shall conform to all requirements of ASTM C-33.
- G. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.
- H. Water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

## **2.2 ADMIXTURES**

- A. An air entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, Euclid Chemical Company AIR-MIX or equivalent. The admixture shall meet the requirements of ASTM C-260.
- B. Other admixtures (water reducing agents, accelerating agents, retarding agents, superplasticizing agents) shall be considered where necessary to meet the needs of construction.
- C. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary test submitted to the Engineer for review prior to the start of construction.

## **2.3 REINFORCEMENT**

- A. The minimum yield strength of the reinforcement shall be 60,000 pounds per square inch. Bar reinforcement shall conform to the requirements of ASTM A-615. All bar reinforcement shall be deformed.
- B. Welded wire fabric shall conform to ASTM A-185 and shall be of weight and gauge as indicated on the Drawings.

- C. Reinforcement supports and other accessories in contact with the forms for members which will be exposed to view in the finished work shall be of stainless steel or shall have approved high-density polyethylene tips so that the metal portion shall be at least one-quarter of an inch from the form or surface. Supports for reinforcement, when in contact with the ground or stone fill, shall be precast stone concrete blocks.

## 2.4 FORMS

- A. Forms shall be of suitable material, design, and construction so as to be rigid, tight enough to prevent the passage of mortar, and plane surfaces with a tolerance of 1/16-inch in 4 feet.
- B. For surfaces to be given burlap-rubbed finish, the form surface in contact with the concrete shall be made of heavy gauge metal, new plywood (used plywood which, in the opinion of the Engineer, is substantially equal to new plywood may be used), tempered wood fiberboards with smooth surface, or similar materials. Metal forms or form linings shall have square edges so that the concrete will not have fins or fluting. Forms shall not be pieced out by use of materials different from those in the adjacent form or in such manner as will detract from the uniformity of the finished surface.
- C. For surfaces other than those to be given burlap-rubbed finish, forms shall be made of wood, metal, or other acceptable material. Wooden forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots. Plywood shall be reasonable good, as accepted. Metal forms shall be of an acceptable type for the work involved. Edges of forms in contact with concrete shall be flush within 1/16-inch.
- D. Form for walls, columns, or piers shall have removable panels at the bottom for cleaning, inspection, and scrubbing-in of bonding grout. Forms for thin sections (such as walls or columns) of considerable height shall be arranged with suitable openings so that the concrete can be placed in a manner that will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the fresh concrete, unless special spouts are used to place concrete, and so that construction joints can be properly keyed and treated.
- E. Forms for exposed surfaces shall be built with 3/4-inch chamfer strips attached to produce smooth, straight chamfers at all sharp edges of concrete.
- F. Form ties to be encased in concrete shall not be made of through-bolts or common wire, but shall be of a well-established type, so made and installed as to embody the following features:
  - 1. After removal of the protruding part of the tie, there shall be no metal nearer than 1 inch to the face of the concrete.
  - 2. That part of the tie which is to be removed shall be at least 1/2-inch in diameter, or if smaller, it shall be provided with a wood or metal cone 1 inch long placed against the inside of the forms. Cones shall be carefully removed from the concrete after the forms have been stripped.
  - 3. Ties which pass through walls subject to hydrostatic pressure shall be provided with acceptable water stops, such as washers, securely fastened to the ties.
- G. Adhesive Dowels:
  - 1. Drilling equipment used and installation of adhesive dowels shall be in accordance with manufacturer's instructions.
  - 2. Assure that embedded items are protected from damage and are not filled in with concrete.
  - 3. Unless otherwise shown or approved by Engineer, embedment depths shall be based on a compressive strength of 2,500 psi when embedded into existing concrete.)
  - 4. The Contractor shall comply with the adhesive material manufacturer's installation instructions on the hole diameter. The Contractor shall properly clean out the hole utilizing a synthetic brush and compressed air to remove all loose material from the hole, prior to installing adhesive capsules or material. Proper mixing of the two-component system shall be done to the manufacturer's recommendations.

5. Adhesive material manufacturer's representative shall observe and demonstrate the proper installation procedures for the adhesive dowels and adhesive material at no additional expense to the Owner. Each installer shall be certified in writing by the manufacturer to be qualified to install the adhesive dowels.
6. Provide two-component dowel installation adhesive as manufactured by Hilti Corporation, or approved equivalent product.

## **PART 3 - EXECUTION**

### **3.1 FORMING**

- A. Forms shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions and to the elevations indicated on the Drawings or specified, and exposed concrete will be substantially free from board or grain marks, poorly matched joints, and other irregularities or defects.
- B. Forms shall be sufficiently rigid to prevent displacement or sagging between supports, and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.
- C. All falsework to support structural slabs, beams, girders, etc., shall be designed to safely and adequately support the concrete and forms during placement and curing. The adequacy and safety of the falsework shall be the sole responsibility of the Contractor.
- D. All forms shall be oiled with an acceptable nonstaining oil or liquid form coating before reinforcement is placed.
- E. Before form material is reused, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged places repaired, and all projecting nails withdrawn.
- F. Except as otherwise specifically authorized by the Engineer, forms shall not be removed until the concrete has aged for the following number of days-degrees\*:
  1. Beams and slabs: 500 day-degrees.
  2. Walls and vertical surfaces: 100 day-degrees.
  3. \*Day-degree: Total number of days times average daily air temperature at surface of concrete. For example, 5 days at a daily average temperature of 60 degrees F, equals 300 day-degrees.
- G. Shores under beams and slabs shall not be removed until the concrete has attained at least 60 percent of the specified compressive strength and also sufficient strength to support safely its own weight and the construction live loads upon it.

### **3.2 PLACING REINFORCEMENT**

- A. Reinforcement shall be bent cold to the dimensions and shapes shown on the Drawings and within tolerances specified in the CRSI Manual of Standard Practice.
- B. Before being placed in position, reinforcement shall be cleaned of loose mill and rust scale, dirt and other coatings that will interfere with development of proper bond.
- C. Reinforcement shall be accurately placed in positions shown on the Drawings and firmly held in place during placement and hardening of concrete by using annealed wire ties. Bars shall be tied at all intersections except where spacing is less than one foot in both directions, then alternate intersections may be tied.

- D. Distance from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved supports. Blocks for holding the reinforcement from contact with the forms shall be precast mortar blocks or approved metal chairs. Layers of bars will be separated by precast mortar blocks or other equally suitable devices; the use of pebbles, pieces of broken stone or brick, metal pipe and other such blocks will not be permitted. If fabric reinforcement is shipped in rolls, it shall be straightened into flat sheets before being placed.
- E. Before any concrete is placed, the Engineer shall have inspected the placing of the steel reinforcement and given permission to deposit the concrete. Concrete placed in violation of this provision will be rejected and thereupon shall be removed.
- F. Unless otherwise specified, reinforcement shall be furnished in the full lengths indicated on the plans. Splicing of bars, except where shown on the plans, will not be permitted without the approval of the Engineer. Where splices are made, they shall be staggered insofar as possible.

### **3.3 TESTING AGGREGATES AND DETERMINING PROPORTIONS**

- A. No concrete shall be used in the work until the materials and mix design have been accepted by the Engineer.
- B. The conformity of aggregates to the Specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.
- C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth herein shall be determined by making test cylinders using representative samples of the materials to be used in the work. A set of four standard 6-inch cylinders shall be made and cured per ASTM C-31. Two shall be tested at 7 days and two at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.
- D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and of date not more than four months prior to the time when concrete will be used on this project, the above requirements for laboratory test may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.
- E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified requirements.
- F. The Contractor may request permission to add water at the job site; and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed the ratio set forth herein.
- G. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

### **3.4 MIXING**

- A. All central-plant and rolling-stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Association, as well as the ACI Standards for measuring, Mixing and Placing Concrete (ACI 614), and with the ASTM Standard Specification for Ready-Mixed Concrete, Designation C94, insofar as applicable.

- B. Ready-mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.
- C. Central-mixed concrete shall be plant-mixed a minimum of 1-1/2 minutes per batch, and then shall be truck-mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the premixed concrete is placed in the truck and shall continue without interruption until discharge. For transit-mixed concrete the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.
- D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information; no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.
- E. Concrete which has become compacted or segregated during transportation to or in the site of the work shall be satisfactorily remixed just prior to being placed in the forms.
- F. Partially hardened concrete shall not be deposited in the forms. The retempering of concrete which has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.

### **3.5 COMPRESSION TESTS**

- A. During the progress of the work, at least one (1) set of four (4) compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each day's pouring. Cylinders made in the field shall be made and cured in accordance with the ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31, except that wherever possible molds shall be left on the cylinders until they have reached the laboratory. Testing services to satisfy the requirements of ACI shall be paid for by the Contractor at his expense. Testing lab must be approved by the Engineer.
- B. One cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and the other two at twenty-eight (28) days. Two copies of these test results shall be submitted to the Engineer on the same day of the tests.
- C. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.

### **3.6 METALWORK IN CONCRETE**

- A. All trades shall be notified, at the proper time, to install items to be embedded in concrete.
- B. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor as directed, and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
- C. Anchor bolts shall be set by means of substantial templates.

### **3.7 PLACING AND COMPACTING CONCRETE**

- A. At least twenty-four (24) hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.



- B. No concrete shall be placed until the subgrade has been accepted in accordance with the requirements of Section 01400, Quality Control, nor shall it be placed on frozen subgrade or in water. Placement of concrete shall not be scheduled until the forms, reinforcing, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.
- C. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thoroughly wetted just prior to placement of concrete.
- D. Concrete placed at air temperatures below 40 degrees shall have a minimum temperature of 50 degrees F. and a maximum of 70 degrees F. when placed.
- E. Concrete shall be transported from the mixer to the place of final deposit as rapidly as practicable and by methods which will prevent separation of ingredients and avoid rehandling.
- F. Chutes for conveying concrete shall be metal or metal-lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall be not flatter than 1 on 2 and all parts of a chute shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or, if required, a spout; and the end of the chute or spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.
- G. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such a manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers, spouts with restricted outlets, etc., shall be used as required or permitted unless the forms are provided with suitable openings.
- H. Chutes, hoppers, spouts, etc., shall be thoroughly cleaned before and after each run and the water and debris shall not be discharge inside the form.
- I. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain, until the completion of the unit, an approximately horizontal, plastic surface.
- J. No wooden spreaders shall be left in the concrete.
- K. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal-type mechanical vibrators operating at not less than 5,000 rpm., or other tool spading, to produce the required density and quality of finish. Vibration shall be done only by experienced operators under close supervision and shall be carried on in such a manner and only long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results. All vibrators shall be supplemented by proper spade puddling approximately 2 to 3 inches away from forms to remove included bubbles and honeycomb. Excessive spading against the forms, causing the deposition of weak mortar at the surface, shall be avoided.
- L. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure perfect adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.

**3.8 HOT WEATHER CONDITIONS**

- A. Placing of concrete under conditions of high temperature, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Conditions" (latest edition).

**3.9 COLD WEATHER CONDITIONS**

- A. Cold weather concreting procedures precautions shall conform with American Concrete Institute "Cold Weather Concreting" (latest edition).

**END OF SECTION**

**Divisions 4 through 10 - Not Used**



## **Division 11 – Equipment**



**SECTION 11213**  
**WATER BOOSTER PUMP STATION**

**PART 1 - GENERAL REQUIREMENTS**

**1.1 SCOPE OF WORK**

- A. The Contractor shall furnish and install a factory built, above grade, water booster pumping station. The pump station shall be complete with all the necessary internal piping, pumps, motors, valves, control, and other necessary appurtenances installed on a fabricated steel base and enclosed in a structure as shown on the plans and specified herein. The completed booster pump station shall be one (1) piece when delivered and require only off-loading, installation on a foundation and slab, pipeline hookup and electrical service.
- B. This specification is designed around a factory built water booster pumping station. The Contractor may provide a built in place station if the Contractor and Subcontractors meets the qualifications and experience requirements and special provisions outlined in Article 1.4.
- C. Coordination of Work - Contractor will be required to coordinate his/her work with work performed by the Owner. See Article 1.2.
- D. The Contractor shall provide all labor and materials to connect the water booster pump to external piping and electrical power.

**1.2 WORKS BY OWNER**

- A. VFDs/Pump Control Panels and RTU/SCADA Cabinet will be provided by the Owner. Owner will purchase all equipment, enclosures, perform detailed design and programming, build and assemble equipment, controls, modules and terminal boards for a complete functioning unit. Owner will ship to pump station manufacturer for pump manufacturer to install, fasten, erect inside the station including power wiring and motor conductors between pumps, VFDs/Pump Control Panel, Power Distribution Panel, and LV Panelboard.
- B. Magnetic flow meter will be provided by the Owner and shipped to the pump manufacturer for installation and assembly with the DI flanged piping.
- C. After the pump station has been installed at the project site the Owner will furnish and install instrumentation, monitoring devices, control and signal wiring and conduits, and pressure gauges.
- D. Coordination will be required by the Contractor with Owner during shop drawing submittals and reviews for compatibility and functionality of equipment provided by the pump station manufacturer.

**1.2 RELATED SECTIONS**

- A. Section 01300 – Submittals
- B. Section 02610 – Water Pipe and Fittings
- C. Section 02640 – Water Valves and Gates
- D. Section 03300 – Cast-in place Concrete
- E. Section 16050 – Electrical Work and Service for Booster Pumping Station

### 1.3 PUMP STATION MANUFACTURERS

- A. The water booster pumping station shall be manufactured by Dakota Pump Incorporated, Engineered Fluids Incorporated or Approved Equivalent.
- B. Pre-bid approval must be obtained for other booster pump station manufacturers. The following information shall be submitted 10 working days before the bid opening:
  - 1. Demonstration and history of successful manufacture and operation of equipment of equivalent size, configuration and performance capabilities.
  - 2. A set of mechanical drawings showing all aspects of the proposed installation including equipment and piping layouts, dimensional requirements, and foundation plans, etc.
  - 3. Engineering data on all proposed equipment including but not limited to pumps, valves, HVAC equipment, flow meters, etc.
  - 4. Electrical schematics showing the power and the instrumentation schematics of the proposed equipment.
  - 5. A list of five installations similar in size and type, complete with the name, address and phone number for the owner / operator responsible for the operation and maintenance of the equipment.

### 1.4 BUILT IN PLACE STATION QUALIFICATIONS AND REQUIREMENTS

- A. Contractor shall have 10 plus years experience in the construction of similar size built in place water booster pump stations that consist of split face CMU walls, gabled roof and trusses, standing seam metal roof, DI flanged piping, end suction pumps, HVAC equipment, lighting, and electrical.
- B. Contractor shall list five (5) built in place water pump station projects of similar size completed in last 5 years and provide contact information as outlined under Section 00440, Schedule A.
- C. Contractor shall indicate whether he/she will self perform or subcontract for the following work areas: concrete foundation and flatwork, framing and roof installation, masonry, process mechanical (piping/pumps/valves), HVAC and plumbing and electrical and instrumentation. For subcontracted work the Contractor must have previous work experience with the subcontractor and have worked together on at least 3 water pump station projects in the last 5 years. Contractor shall provide this information with the supplements to Section 00440.
- D. Submittal of Drawings, Wiring Diagrams and Details
  - 1. The following drawings (to scale) and details will be required as a submittal for review and approval by the Owner and Engineer along with any other shop drawings required by these specifications:
    - a. Architectural /Structural- Floor Plan, Roof Plan, South and West Elevation View, Building Section, Wall Section(s), and Details for Ridge, Roof Eave and Door Frame/Jamb
    - b. Foundation Plan
    - c. Process Mechanical - Pump Station and Piping Plan, Section View, Profile View Suction and Discharge Piping
    - d. Building Mechanical - HVAC and Plumbing Floor Plan, Schedule of Equipment
    - e. Electrical – Power and Lighting Plan, P&ID, Wiring Diagrams



## 1.5 QUALITY ASSURANCE

- A. The equipment and materials covered by these specifications are intended to be standard equipment of proven reliability and as manufactured by reputable manufacturers having experience in the production of such equipment. The equipment furnished shall be designed, constructed and installed in accordance with the best practices and methods and shall operate satisfactorily when installed as shown on the contract drawings and operated in accordance with the manufacturer's recommendations.
- B. The manufacturer of the selected equipment shall be regularly engaged in the manufacture, assembly, construction, start-up and maintenance of water distribution equipment of the type required for this project.
- C. The manufacturer shall have at least ten years of successful experience in providing stations of the type, design, function and quality as required for this project.
- D. The pump station manufacturer shall be required to affix an Underwriters Laboratories (UL) label attesting to its compliance with the UL-QCZJ standard for packaged pumping systems.
- E. The station manufacturer shall warrant the station against defects in quality and workmanship for a period of at least one year from the date of owner acceptance, but not to exceed eighteen months from the original ship date.
- F. The station manufacturer shall have quality management and environmental policies in place and they shall be ISO 9000:2000 and ISO 14001:2004 certified.

## 1.6 SUBMITTALS

- A. Submittals shall be bound and in accordance with Section 01300 and this section. The Owner will retain four (4) copies.
- B. Each copy of the submittal shall contain a full size 11" x 17" mechanical drawing. The mechanical drawing shall be specific to this project and provide at least three different views. The drawing shall illustrate the National Electrical Code (NEC) clearances per Section 110-26 of the code. The submittal booklets will be complete with data sheets covering all individual components that make up the booster pump station and the UL file number under which the manufacturer is listed.
- C. Booster pumps station manufacturer's warranty.
- D. Detailed sequence of operation.
- E. Complete set of wiring schematics and drawing of control panel layout.
- F. Submittals for the Built In Place shall include the scaled drawings outlined in Article 1.4.

## 1.7 BOOSTER PUMPING STATION DESIGN CRITERIA

- A. The station shall be duplex pump arrangement and shall be capable of delivering up to 1,100 gallons per minute of water against a total dynamic head of 90 feet.
- B. Building Codes and Standards
  - 1. The structure design and manufacture shall, as a minimum conform to ASCE current edition of "Minimum Design Loads for Buildings and Other Structures" and to the MBMA (Metal Building Manufacturers Association) Recommended Design Practices Manual. Building shall be manufactured and built to satisfy current editions of the Kentucky Building Code (KBC), International Building Code, and National Electrical Code (NEC).

- 2. Loading – The building shall be designed to support the following loads:
  - a. Roof Load – 50 psf (40# live and 10# dead)
  - b. Ceiling Load – 10 psf
  - c. Wall Load – 120 mph, plus wall mounted equipment
  - d. Seismic Zone – Per UBC for site location.

## PART 2 - PRODUCTS

### 2.1 PUMP BUILDING

- A. A modular structure with minimum exterior dimensions as shown on the drawings shall be provided to protect the equipment, controls and operating equipment from the environment. The station building enclosure shall be a fully assembled, modular structure with wood framework attached to the pump station base structure requiring no additional assembly at the job site. The dimensions shown on the drawings for the building enclosure are a minimum. The building shall be fabricated on the pump station steel base. Buildings manufactured at a remote facility requiring transportation to the booster station manufacturer’s facility will not be considered. The building shall be constructed directly on the fabricated steel base and shipped to the project site or nearest passable road as one complete unit, requiring only unloading, placement on an approved concrete slab, connecting the underground piping and electrical service to finish the installation.
- B. Wall framing will be 2x6 standard wood studs. The wood roof joists shall be a minimum of 2” x 6”. The size and placement and spacing of studs and joist shall be in accordance with material standards listed below and building design criteria. At a minimum, the wall stud grade shall be SPF and shall be installed on 16” centers. The walls will include a single bottom plate and a double top plate. Metal studs and trusses will not be considered an acceptable alternate. Modular steel panel buildings are not an acceptable alternate. Metal studs and roof trusses are not an acceptable alternate.
- C. All openings in the side walls shall be fully framed out and supported using framing members sufficient to support and fasten the equipment requiring a framed opening.
- D. The building design and construction shall withstand 120 mph wind loads, to support 50 pfs live roof load, and be designed for seismic zones for the appropriate area of installation.
- E. The exterior wall sheathing will be ½” CDX grade plywood. The exterior roof sheathing shall be 5/8” CDX grade plywood. The interior wall and roof sheathing will be 5/8” CDX grade plywood. OSB or particle board sheathing is not acceptable. The walls will be insulated with spray polyurethane closed cell foam to create an R-28 insulation value and the roof shall be sprayed to create an R-30 insulation value.

The insulation shall be applied to the walls and ceiling in 3/4" to 1 1/2" passes to create a thickness with an R-28 value minimum.

The physical properties shall meet or exceed the following tests and standards:

Density, (core)(pct)	ASTM D-1622	1.70-1.95
Tensile Strength (psi)	ASTM D1-623 (Type C)	57-65
Water Absorption, lb/sq ft	ASTM D-2842	0.02-0.05
Closed Cell, Content, %	ASTM D-2856	85-95
K-Factor, Initial Btu In/Hr	ASTM C-518	0.135-0.142

- F. The roof shall be gabled with a center ridge line running the long dimension of the building. The roof system shall include a 3:12 minimum roof pitch with 12” overhang on all sides. The wood roof system shall include wood trusses placed 16” on center, covered with 5/8” CDX plywood. The plywood shall be

covered with 30 year asphalt shingles. Manufactured foam shall be installed under the raised rib. The soffits and fascia shall be manufactured of aluminum.

- G. All interior surfaces will be covered with Fiberglass Reinforced Plastic (FRP) utilizing corner moldings and seam moldings. The FRP sheeting shall include a pebble grain gloss white finish. FRP panel will be applied with the appropriate glues and adhesive. Corner moldings of like FRP material shall be installed and finished in a workmanlike manner.
- H. The exterior architectural wall panels shall be manufactured horizontal smart siding. Color selected by the owner.
- I. The exterior walls of the building shall be wrapped with Tyvek or equal building wrap. The exterior architectural wall shall include horizontal steel or hardy board siding. A color sample shall be supplied to the owner.
- J. Doors shall be single and sized per the plan sheet. The doors shall be flush design manufactured of 18 gauge, grade III, extra heavy duty steel panels with flush top channel and inverted bottom channel with internal insulation to exceed R-15. The door frame shall be a full CF frame of 16 gauge cold formed steel and being securely fastened to the framed opening. The door shall include a door closer.
- K. The building shall be firmly and securely attached to the steel base structure with 3/8" lag bolts welded to the station base. This lag bolt shall be secured with a washer and nut on the center of the bottom wall plate. The space between the building frame and the steel base shall be sealed to prevent wind and water leakage.

## 2.2 STRUCTURAL STEEL BASE

- A. Structural steel base shall support the modular building, and the internal equipment. The base shall consist of a minimum 3/8" steel floor plate and 8" reinforcing beam / channels as required. All steel members shall be joined by electric arc welding, with welds of adequate section for the joint involved. Where possible, all joints shall be welded on both sides of the base. These welds shall be continuous and watertight. Reinforcing members may be chain welded in an approved manner.
- B. The steel base shall include a welded 3/16" x 2" x 1 1/2" angle frame. This angle frame shall be used to anchor the building using #14x1 1/2" lag bolts. The number and location of the lag bolts shall be determined by the manufacturer and shall provide as to maintain the life load and wind load and to resist sheering and tearing.

## 2.3 CORROSION PROTECTION

- A. After all welding has been completed, all surfaces of the structure shall be factory blasted to remove all rust, mill scales and weld slag. All weld spatter and surface roughness shall be removed by grinding. Surface preparation will comply with SSPC-SP10 specifications. The blast profile on the steel should be 1.5 to 2.5 mils in depth and be of a sharp, jagged nature. Surfaces must be free of grit dust.
- B. Following the cleaning, all weld areas shall coated by hand brushing using Devoe High Performance Coatings Bar-Rust 235 multi-purpose epoxy coating. Following the hand coating, the balance of the structure shall be coated per the attached specification.
- C. The structure and other exposed metal shall receive a 4-8 mils dry or 5.9 to 11.7 mils wet coating of Devoe High Performance Coatings Bar-Rust 235 multi-purpose epoxy coating. The high solids coating shall be an advanced technology epoxy and have exceptional corrosion protection. The coating shall be suitable for salt and fresh water immersion. Solids by volume shall be 68% +/- 2%.
- D. A touch-up kit containing epoxy coatings, as specified above, shall be provided for the coating of all field welds and for repair of any scratches or abrasions that have occurred during shipment or installation.
- E. The walkway area shall be covered with industrial, rubber safety matting. The mat shall be a heavy duty, 1/2" minimum thickness compounded of open slot design with a safety patten to promote sure footing. The

underside of the mat shall include a pattern to permit aeration and drainage. The floor mat shall not be glued to the floor.

## 2.4 PUMPS

- A. Two horizontal end-suction centrifugal water pumps shall be installed in the booster station.
- B. Each pump shall be capable of delivering 1100 gallons per minute of water against a total dynamic head of 90 feet. The pumps shall have a maximum allowable speed of 1800 R.P.M., and the minimum rated horsepower of each motor shall be 40. Minimum pump efficiency shall be 80%, and the maximum net positive suction head required (NPSHR) shall be 13 feet. The pumps shall operate at the above condition with a minimum suction pressure of 85 psi.
- C. Furnish and install close coupled end suction pumps as per plans and above design conditions. The pump and electric motor shall be factory assembled at the pump manufacturer's facility. The pump manufacturer shall have complete unit responsibility.
- D. The pumps shall be close coupled, single stage, end suction top discharge design, cast iron stainless steel fitted construction. All pumps shall be of the back pull-out design so that the rotating element can be removed from the casing without disconnecting the suction or discharge piping. The casing material shall be close-grained cast iron ASTM A48 - Class 30 with a minimum tensile strength of 30,000 P.S.I. Volute shall have integrally cast suction and discharge connections, gauge ports at nozzles, and vent and drain ports. Pumps with specific speed greater than 1600 shall have double volute casing. Pumps with discharge size 3" and larger shall have suction splitter to reduce pre-rotation and improve efficiency. Casings shall be designed for scheduled working pressure and can withstand hydrostatic test at 150% of the maximum working pressure under which the pump could operate at design speed. Pumps with impeller diameter larger than 5" shall be fitted with bronze renewable case wear rings. Pumps with discharge size 2.5" and larger shall have full flanged connections on both suction and discharge. Suction and discharge flanges shall be drilled to ANSI Class 125# standards and be machined flat face. Pumps with discharge sizes 2" and below shall have NPT threaded connection. The motor shaft shall be of cold rolled steel AISI 1024 with bronze sleeves covering the wetted area of the shaft. Motors with 56J frame shall have a motor shaft of stainless steel AISI 416. The pump manufacturer shall recommend the proper mechanical seal based on the pressure, temperature and liquid outlined on the equipment schedule. Mechanical seals, at a minimum, shall have ceramic stationary seats, carbon rotating rings, buna elastomers and stainless steel hardware. Application of a mechanical seal shall be internally flushed type, without requiring external flushing lines. Seals shall be capable of being inspected and easily replaced without removing the piping or volute. Impeller shall be of the enclosed francis vane type, single suction design, made of Stainless Steel 304 (UNS S30400), both hydraulically and dynamically balanced to ISO 1940-1:2003 balance grade G6.3 and keyed to the shaft. The impeller shall be trimmed to meet the specific hydraulic requirements. Pump Construction shall include a volute of cast iron ASTM A48 - Class 30, case wear ring of tin bronze ASTM B584-90500, an impeller of stainless steel 304 (UNS S30400), a shaft of cold roll steel AISI 1024, a shaft sleeve of bronze III932 C89835, and mechanical Seals of carbon – ceramic with Buna elastomers and stainless steel hardware. Pump rotation shall be clockwise as viewed from the motor end. Cast iron base with integrally cast drip lip, grouting holes and tapped drain outlet shall be provided upon requirement. Pump shall be of a maintainable design for ease of maintenance and should use machine fit parts that are easily disassembled. Each pump shall be painted with one coat of high quality factory approved paint and name-plated before shipment from the factory. The pump shall also be NSF-50 or NSF-61 certified. Pumps shall be manufactured and assembled in an ISO-9001 certified facility.
- E. Each pump shall be close-coupled to a 40 HP, 1800 RPM, 3 phase, 60 hertz, 230/460 volt ball-bearing, open drip proof, standard horizontal electric motor, with a service factor of 1.15. Motor shall be of such size that it will operate continuously without exceeding its horsepower rating, exclusive of its service factor, at the design conditions. Motors shall be suitably sized per ISO5199 and shall meet NEMA specifications and conform to the standards outlined in EISA 2007. The motors shall be premium efficient for use with variable speed drives.

## 2.5 CONTROL SYSTEM

- A. Variable frequency drives/pump controls will be provided by Owner.
- B. RTU/SCADA cabinet and all programming will be provided by Owner.
- C. Pressure gauges, instrumentation, control and signal wiring, electric and conduit and termination in the SCADA/RTU Cabinet will be provided and installed by the Owner.
- D. The control panel shall conform to the National Electrical Code specifications and shall be UL listed and labeled in accordance with UL standards No. 508 for Industrial Control Panels. In accordance with U.L. procedures, a U.L. label shall be affixed to the control panel.
- E. Low Voltage Panelboard - The station shall be supplied with a single phase load center, UL listed and be suitable for use as service entrance equipment when installed in accordance with the national electrical code. The panel shall include a 60C/75C conductor rating, single phase 40-225A, 4-42 circuits, main breaker 22kaAIC standard, top or bottom feed, copper bus as a standard, split neutrals extend the full length of the interior, a combination surface/flush front with spring reinforced pan, front packed in inner carton, and straight through main wiring. The enclosure shall maintain optimum wire-bend spacing. The panel shall be supplied with the appropriate size and number of breakers.
- F. Power Distribution Panel - The station shall be supplied with a power distribution panel. The panel and breakers shall meet or exceed UL 50 cabinets and boxes, UL 67 panel boards, UL 489 circuit breakers, NEMA AB-1 circuit breakers, NEMA PB-1 and PB-1.1 panelboards, US federal spec W-P115B panelboards and US federal spec W-C375B general circuit breakers. The enclosure box shall be galvanized steel with a front finished in ANSI-61 grey polyester powder coat paint. The panel front shall be equipped with a corrosion resistant Valox combination catch and lock door latch(s), and the box shall be furnished with provisions for ground bus as a standard. The panel shall include dead front construction, factory assembled on rigid steel frames, solderless, anti-turn main lugs suitable for copper or aluminum wires that are front removable and branch straps that are silver plated copper full rated at 200 AMPS, main bus shall be aluminum with copper branch connections, and interior base assemblies that are Noryl and provided breaker mounting and busbar insulation.
- G. Properly sized, heavy duty, molded case thermal-magnetic air circuit breakers shall be provided for branch circuit disconnect service and for over-current protection of all control, motor and auxiliary circuits.
- H. HMI Display/Touch Screens (Provided by Owner)
  - a. Display shall include but is not limited to: Pressures, Flows, Alarms, Pump Status, Run Times and Setpoints.
- I. Variable Speed Drives (Provided by Owner)
  - a. This specification describes an AC Adjustable Speed Drive (ASD) used to control the speed/torque of a NEMA Design B induction motor. The Drive must provide a V/Hz, Sensorless Vector and Flux Vector mode of operation. The Drive shall be manufactured by a firm with at least ten (10) years experience in the production of this type of equipment. The variable speed drive(s) shall be ABB ASC550 or pre-approved equal. ACH drives manufactured for the HVAC industry are not acceptable.
  - b. The Drive manufacturing facility shall be ISO 9001:2000, ISO 14001: 2004 and OSHAS 18001: 1999 certified. The ASD shall be UL listed. The Drive shall be subjected to a preliminary functional test, minimum one (1) hour burn-in and computerized final test. The burn-in shall be at 104°F (40°C), at full rated load, or cycled load. Drive input power shall be continuously cycled for maximum stress and thermal variation.
  - c. The Drive shall utilize efficient IGBT technology throughout the entire Drive manufacturer's Power and Voltage range. The Drive shall utilize the same communications architecture for high-speed connectivity throughout the entire Drive manufacturer's Power range.

- d. The Drive shall be solid state, with a Pulse Width Modulated (PWM) output. The Drive shall be a Sensorless Vector AC to AC converter utilizing the latest insulated gate bipolar transistor (IGBT) technology. The Drive shall employ a Sensorless Vector inner loop torque control strategy that mathematically determines motor torque and flux. The Drive must also provide an optional operational mode for V/Hz or closed loop Flux Vector Operation.
- e. The Drive shall be rated to operate from 3-phase power at 208VAC to 600VAC, +10% /-15%, 48Hz to 63Hz. The Drive shall employ a full wave rectifier to prevent input line notching and operate at a fundamental (displacement) input power factor of 0.98 at all speeds and nominal load. The Drive efficiency shall be 98% or better at full speed and load. An internally mounted AC line reactor or DC choke shall be provided to reduce input current harmonic content, provide protection from power line transients such as utility power factor correction capacitor switching transients and reduce RFI emissions. When a DC choke is utilized it shall be of swinging choke design to mitigate harmonics substantially more than conventional choke designs and shall provide equivalent to a 5% impedance. The overvoltage trip level shall be a minimum of 30% over nominal, and the undervoltage trip level shall be a minimum 35% under the nominal voltage. Output voltage and current ratings shall match the adjustable frequency operating requirements of standard 200-575VAC, 3ph, 60Hz, NEMA Design B motors. The short term normal duty overload current capacity shall be 110% of rated current for one (1) minute out of ten (10) minutes. The short term heavy duty overload current capacity shall be 150% of rated current for one (1) minute out of ten (10) minutes and peak overload capacity shall be 180% for two (2) seconds out of each minute with an instantaneous overcurrent trip at 350% or higher. Output frequency shall be adjustable between 0Hz and 500Hz. Operation above motor nameplate shall require programming changes to prevent inadvertent high-speed operation. The Drive shall be furnished in a UL Type 1 (NEMA 1) listed enclosure rated for operation at ambient temperatures between -15° and 40°C at an altitude not exceeding 3300 feet, with relative humidity less than 95% and no condensation allowed. The Drive shall be protected from atmospheric contamination by Chemical gasses and Solid particles per IEC 60721-3-3; Chemical gasses Class 3C2 and Solid particles Class 3S2. The Drive shall be protected from vibration per IEC 60721-3-3, Class 3M4 (sinusoidal displacement 3.0 mm (0.12 in.), 2Hz to 9Hz; acceleration 10 m/s<sup>2</sup> (33 ft/s<sup>2</sup>), 9Hz to 200Hz).
- J. Start-up data entries shall include motor nameplate power, speed, voltage, frequency and current. A motor parameter ID function shall automatically define the motor equivalent circuit used by the sensorless vector torque controller. Two independent PID speed/torque loop regulators shall be provided with an autotune function as well as manual adjustments. A dynamic braking chopper shall be provided on all models rated up to 15 horsepower 600V and up to 10 horsepower 240V. A selection of eight (8) preprogrammed application macro parameter sets shall be provided to minimize the number of different parameters to be set during start-up. Macros included as standard are as follows: ABB Standard, 3-Wire, Alternate, Motor Potentiometer, Hand/Auto, PID Control, Pump & Fan Control (PFC), and Torque Control. A selection of two (2) User Defined Parameter Sets shall also be available. Carrier frequency shall be adjustable between 1 and 12 kHz up to 200 HP 480V or 150 HP 600V and between 1 and 4 kHz from 250 through 550 HP 480V. The ASD shall automatically adjust the carrier frequency dependent upon Drive temperature and load. Increased temperatures result in automatically decreased switching frequency to ensure continuous operation of the Drive. Start/Stop control functions shall include two (2) or three-(3) wire start/stop, coast/ramp stop selections, optional dynamic braking and flux braking. The ASD shall be capable of starting into a rotating load (forward or reverse) and accelerate or decelerate to reference without safety tripping or component damage (flying start). The ASD shall also be capable of flux braking at start to stop a reverse spinning motor prior to ramp. The ASD shall have the ability to automatically restart after an overcurrent, overvoltage, undervoltage, or loss of input signal protective trip. The number of restart attempts, trial time, and time between reset attempts shall be programmable. Accel/Decel control functions shall include two (2) sets of ramp time adjustments with linear and two (2) s-curve ramp selections. Speed/Torque control functions shall include: (a) Adjustable min./max. speed and/or torque limits; (b) Selection of up to seven (7) preset speed settings or external speed control; (c) Two (2) independent built-in PID controllers to control a process variable such as pressure, flow or fluid level. (d) Two (2) analog inputs

shall be programmable to form a reference by addition, subtraction, multiplication, minimum selection or maximum selection.

- K. Output control functions shall include: (a) Current and torque limit adjustments to limit the maximum Drive output current and the maximum torque produced by the motor. These limits shall govern the inner loop torque regulator to provide tight conformance with the limits with minimum overshoot; (b) A torque regulated operating mode with adjustable torque ramp up/down and speed/torque limits. The ASD shall be capable of sensing a loss of load (broken belt / broken coupling) and signal the loss of load condition. The Drive shall have user adjustable load curves (motor torque as a function of frequency) defined by five (5) points to signal this condition via a keypad warning, relay output and/or over the serial communications bus. Relay output shall include programmable time delays that will allow for Drive acceleration from zero speed without signaling a false underload condition. The Drive shall have programmable "Sleep" and "Wake up" functions to allow the Drive to be started and stopped from the level of a process feedback signal. Three (3) programmable critical frequency lockout ranges to prevent the ASD from operating the load continuously at an unstable speed.
- L. Open loop static speed regulation shall be 0.5 % to 1% of rated motor speed. When motor speed feedback is provided from a suitable encoder, closed loop speed regulation shall be 0.1% of motor nominal speed. Dynamic speed accuracy shall be less than 1%-sec with 100% torque step open loop and 0.5%-sec closed loop with 100% torque step. Torque control response time shall be less than 10 ms with nominal torque. In the torque regulating mode, torque regulating accuracy open loop shall be +/- 5%; torque regulating accuracy closed loop shall be +/- 2%.
- M. Each ASD shall be equipped with a front mounted operator control panel (keypad) consisting of a backlit, alphanumeric, graphic display and a keypad with keys for Start/Stop, Local/Remote, Up/Down and Help. Two (2) Softkeys will be provided which change functionality depending upon the position within the parameter hierarchy or state of panel. The Display shall have contrast adjustment provisions to optimize viewing at any angle. The control panel shall provide a real time clock for time stamping events and fault conditions. The control panel shall include a feature for uploading parameter settings to control panel memory and downloading from the control panel to the same Drive or to another Drive. All Drives throughout the entire power range shall have the same customer interface, including digital display, and keypad, regardless of horsepower rating. The keypad is to be used for local control, for setting all parameters, and for stepping through the displays and menus. The keypad shall be removable and insertable under Drive power, capable of remote mounting, and shall have its own non-volatile memory. The standard operator panel shall provide a start-up, maintenance and diagnostic assistants that guides a new user through initial start-up and commissioning of the Drive as well as provide indications for maintenance and help to diagnose a fault. In addition, a PID assistant, Real-time Clock assistant, Serial Communications assistant, and Drive Optimizer assistant shall be included. A Drive Optimizer assistant permits the user to choose Drive set-up for low nose, drive & motor efficiency or motor control accuracy. During normal operation, one (1) line of the control panel shall display the speed reference, and run/stop forward/reverse and local/remote status. The remaining three (3) lines of the display shall be programmable to display the values of any three (3) operating parameters. At least twenty-six (26) selections shall be available including the following: (a) Speed/torque in percent (%), RPM or user-scaled units; (b) Output frequency, voltage, current and torque; (c) Output voltage, power and kilowatt hours; (d) Heatsink temperature and DC bus voltage; (e) Status of discrete inputs and outputs; (f) Values of analog input and output signals; (g) Values of PID controller reference, feedback and error signals; (h) Control interface inputs and outputs shall include: (1) Six (6) digital inputs 12 to 24VDC PNP and NPN, all independently programmable with at least twenty-five (25) input function selections. Inputs shall be designed for "dry contact" inputs used with either an internal or external 24 VDC source; (2) Three (3) form C relay contact digital outputs, all independently programmable with at least thirty (30) output function selections. Relay contacts shall be rated to switch a maximum two (2) Amps rms continuous current at a maximum switching voltage of 30VDC or 250VAC. Function selections shall include indications that the Drive is ready, running, reversed and at set speed/torque. General and specific warning and fault indications shall be available. Adjustable supervision limit indications shall be available to indicate programmed values of operating speed, speed reference, current, torque and PID feedback. An

optional relay expansion card shall be available to provide three (3) additional relay outputs. This option card shall be integrally mounted; (3) Two (2) analog inputs, each selectable for 0VAC - 10VAC or 4mA - 20mA, and independently programmable with at least ten (10) input function selections. Analog input signal processing functions shall include scaling adjustments, adjustable filtering and signal inversion. If the input reference (4-20mA or 0-10V) is lost, the ASD shall give the user the option of the following: (1) stopping and displaying a fault, (2) running at a programmable preset speed, (3) hold the ASD speed based on the last good reference received, or (4) cause a warning to be issued, as selected by the user. The Drive shall be programmable to signal this condition via a keypad warning, relay output and/or over the serial communications bus; (4) Two (2) analog outputs providing 0 (4) to 20mA signals. Outputs shall be independently programmable to provide signals proportional to at least twelve (12) output function selections including output speed, frequency, voltage, current and power.

- N. Serial communication interface modules are available for a wide selection of communication protocols. Available adapters are as follows: EtherNet/IP, Modbus/TCP, DeviceNet, Profibus DP, CANopen, ControlNet and PROFINET IO. Communications modules shall be internally mountable. I/O shall be accessible through the serial communications adapter. The ASD shall have an RS-485 port as standard. The standard embedded protocol shall be Modbus RTU. Serial communication capabilities shall include, but not be limited to, run-stop control; speed set adjustment, proportional/integral/derivative PID control adjustments, current limit, and accel/decel time adjustments. The Drive shall have the capability of monitoring feedback such as process variable feedback, output speed/frequency, current (in amps), % torque, power (kW), kilowatt hours (resettable), operating hours (resettable), relay outputs, and diagnostic warning and fault information. Additionally, remote Local Area Network (LAN) ASD fault reset shall be possible. A minimum of fifteen (15) field parameters shall be capable of being monitored. The DDC system shall be able to monitor if the motor is running in the ASD mode or bypass mode (if bypass is specified) over serial communications. The ASD shall allow the DDC to control the Drive's digital and analog outputs via the serial interface. The serial communications interface shall allow for Digital Output (DO) (relay) control and Analog Output (AO) control. This control shall be independent of any ASD function. Examples of possible DO usage are as follows: Opening check valves, opening discharge valves, starting auxiliary equipment, etc. In addition, status of DO's are available over the communications link. Examples of possible AO usage are as follows: Controlling a bypass valve position, throttling valve position, etc. In addition, status of AO's are available over the communications link. The operator panel port shall be connectable to a personal computer interface. Microsoft© Windows based software shall be available for Drive setup, diagnostic analysis, maintenance, monitoring and control. The software shall follow trends and provide real time graphical displays of Drive performance. An additional user interface shall be offered as a palm sized portable, battery operated tool for fast, safe and easy parameter selecting, setting, downloading and uploading to a nonpowered drive. It also allows for hiding selected parameters to protect the application.
- O. For each programmed warning and fault protection function, the Drive shall display a message in complete English words or Standard English abbreviations. The three (3) most recent fault messages along with time, current, speed, voltage, frequency and DI Status shall be stored in the Drive's fault history. The last ten (10) fault names shall be stored in Drive memory. The Drive shall include internal MOV's for phase to phase and phase to ground line voltage transient protection. Output short circuit withstand rating and ground fault protection rated for 100,000 AIC shall be provided per UL508C without relying on line fuses. Motor phase loss protection shall be provided. The Drive shall provide electronic motor overload protection qualified per UL508C. Protection shall be provided for AC line or DC bus overvoltage at 130% of max. rated or undervoltage at 65% of min. rated and input phase loss. A power loss ride through feature will allow the Drive to remain fully operational after losing power as long as kinetic energy can be recovered from the rotating mass of the motor and load. Stall protection shall be programmable to provide a warning or stop the Drive after the motor has operated above a programmed torque level for a programmed time limit. Underload protection shall be programmable to provide a warning or stop the Drive after the motor has operated below a selected underload curve for a programmed time limit. Over-temperature protection shall provide a warning if the power module temperature is less than 5°C below the over-temperature trip level. Input terminals shall be provided for connecting a motor thermister (PTC type)



to the Drive's protective monitoring circuitry. An input shall also be programmable to monitor an external relay or switch contact (klixon).

- P. To protect the motors from single phasing, low voltage, voltage unbalance and reverse phasing, a phase monitor shall be supplied with the pump station controls. The phase monitors voltage and phase sensing circuit shall constantly monitor the three phase line voltages and detect harmful power line conditions. When any of the conditions occur, and output relay shall be deactivated until power line conditions return to an acceptable level. Trip and reset delays shall be provided to prevent nuisance tripping due to rapid power fluctuations.
- Q. To protect the electrical system and equipment from damage due to excessive line surges caused by lightning or other circuit disturbances, a secondary surge arrester shall be supplied with the pump station controls. The arrester shall comply with ANSI standard C62.11-1987. The arrester shall be available in a one-pole, two-pole or three-pole version, and be suitable for both indoor and outdoor use. The arrester shall be permanently sealed in a LEXAN housing. The arrester shall have a maximum continuous operating voltage rating of 650 volts rms. The permissible line-to-line voltage of the system to which the arrester is applied depends on the circuit configuration, grounding, and voltage regulation. The secondary surge arrester shall be a Sq D SDSA3650 for three phase and SDSA1175 for single phase applications.
- R. The modular building shall be provided with a water on the floor indication sensor. The sensor shall work by forming a conductive bridge between two electrical contacts. The sensor shall not alarm due to high humidity or condensation. The sensor shall work on 12V or 24V AC or DC. The sensor output shall be 1 Amp @ 24Vac. The sensor shall be provided with a 12VDC power supply.
- S. The package station shall be supplied with a low voltage temperature thermostat. The thermostat voltage rating shall be 120/240 VAC. The contact current rating resistive @ 120VAC 22 Amps, the contact current rating resistive @ 240 VAC 22 Amps, the Inductive rating @ 120 VAC 13.8 Amps, and the inductive rating @ 240 VAC 10 Amps. The sensor type shall be bimetal. The switch type shall be SPDT. The control range shall be -10 to 100 degrees F. The temperature differential shall be 3 ½ degrees F. The switch action shall be open/close on rise.
- T. Pressure Transmitters (Provided by Owner) - The pump station shall be supplied with two separately mounted pressure transmitters to monitor the suction pressure and discharge pressure. Each pressure transmitter shall sense gauge pressure of a predetermined span and transmit a 4-20 mA signal to the programmable logic controller. The accuracy of the transmitters shall be ±0.25% full scale with a 0 to 200 degree F temperature limit. The transmitter case shall be manufactured of 316 stainless steel. The transmitter shall be in NEMA 4X housing. The pressure transmitters shall be supplied with a 24 VDC power supply. Input voltage shall be 120 VAC, 60 Hz. Output voltage shall be 24 VDC.
- U. Hand-Off-Automatic switches shall be oil tight, 2 or 3 position, and grouped conveniently with oil tight, full voltage indicating lights, on the panel door. Indicating lights shall identify the following functions:
  1. Red - Low suction pressure.
  2. Red - High discharge pressure.
  3. Green - Pump #1 running.
  4. Green - Pump #2 running.

## 2.6 WIRING

- A. Power service to the water booster station shall be 3 phase, 60 hertz, 460 volt. Wiring of the station shall be in accordance with the National Electrical Code. All internal wiring shall be installed in conduit. The station shall be completely wired at the factory, except for power feed lines.
- B. 10 KVA dry type single-phase power transformer shall be provided to supply power to the station single-phase loads. The transformer shall have a dust tight enclosure and shall be suitable for wall mounting. The transformer shall have Class H insulation and shall be UL approved for indoor applications.

- C. The heater, exhaust fan, and all 115-volt accessory items shall be supplied with suitable lengths of 660 volt, 14-3 rubber covered power cord. These items shall plug directly into outlets, which are identified by engraved, laminated plastic nameplates.
- D. All wiring in the control panel shall be color-coded. All wiring from the control panel to the junction boxes adjacent to equipment served shall be in conduit. Short leads of flexible, polyvinyl covered steel conduit, with compatible grounding fittings, shall be used at the pump motors to enable the motors to be removed and laid down on the station floor. All conduit and wires shall be adequately sized for the maximum anticipated load. All conduits shall be neatly arranged and securely clamped to the structure.

## 2.7 LIGHT

- A. The package shall have minimum of four (4) LED, 5,000 Lumen, enclosed and gasketed (high-pressure hose down), forty-eight (48) inch minimum length LED light fixtures installed in the building.
- B. One (1) light fixture shall be located directly over the main control panel.
- C. The light switch shall be of the night glow type and be located near the entrance door.
- D. Open fluorescent or incandescent fixtures will not be accepted.
- E. FHE LED 5L 120 by Lithonia Lighting or approved equal.

## 2.8 HEATER

A 3000-watt electric space heater with a minimum capacity of 10,240 BtuH and controlled by an adjustable thermostat shall be provided to regulate the temperature in the pump station. The heater shall have a fan to provide even heat distribution throughout the building. This heater is a back-up heat source to the HVAC unit.

## 2.9 HVAC UNIT

The booster station shall be supplied with a wall mounted, factory assembled, pre-charged and wired HVAC unit. The unit performance shall be certified in accordance with Air Conditioning and Refrigeration Institute Standard for Unitary Air Source air conditions or latest standard. The unit shall have a limited five year warranty on parts and compressor. The unit shall be exterior wall mounted and wired as shown on the drawings. The unit shall be supplied with a weatherproof housing, one washable filter and include a remote adjustable thermostat. The cooling capacity in tons shall be three. The supplemental heater shall be a 3 Kw. The unit shall include twin indoor blowers.

## 2.10 PIPING AND VALVES

- A. Piping shall be cement lined, Class 350 ductile iron flanged piping. Steel pipe IS NOT acceptable.
- B. The ductile iron piping in the station shall be supported by rectangular, 3/8" (minimum) flat, or round tubing that shall be fully welded to the steel floor and bolted to flanged joints in the piping system. The size of the welded pipe supports shall be determined by the station manufacturer. The welded / flanged joint connection shall allow for lateral and transverse pipe support while allowing for necessary restraint and ease of removal. Kick bracing shall be provided as necessary.
- C. After the station piping and valves have been manufactured, the station piping system, including pumps, piping, fittings and all valves that make up the entire station piping shall be first tested with high-pressure air to test for leaks. High-pressure air shall be pumped into the piping system and a soap solution shall then be sprayed on any welded joints for leak indication. After final assembly of the pumps, piping and valves, the entire system shall be hydrostatically tested to test for leaks at all joints, connections and weld seams. Any deficiencies found during the air test or the hydrostatic test shall be repaired and the system shall be retested.

- D. A single, right angle outlet, smooth nose, brass sample tap shall be supplied for each suction and discharge header pipe. A standard hose bib with valve and vacuum breaker shall be provided on the pump station suction header piping.
- E. Isolation valves used inside the station shall be lug style butterfly valves with cast iron ASTM A-126 Class B bodies and aluminum bronze discs. Valve stems shall be 416 stainless steel. Molded-in resilient seats shall provided bubble-tight shutoff to 250 psi. Round, polished disc and hub edges shall provide 360 degree concentric seating, minimum flow restriction, lower torques and longer seat life. The molded-in liner shall be EPDM. The upper busings shall be polyester. The Upper and lower inboard bearings shall be bronze. Each valve shall be factory tested to 110 percent of specified pressure rating. Valves 6" and smaller shall be provided with 10 position lever lock handles with throttle plates incorporating an infinite position stop, a memory stop, and a padlocking device for either fully open or fully closed position. Valves 8" and larger shall be provided with gear operators, complete with crank handles and position indicators. The butterfly valves shall be model 222 manufactured by Keystone.
- F. The check valves shall be of the silent operating type that begins to close as the forward flow diminishes and fully closes at zero velocity preventing flow reversal and resultant water hammer. The valve shall be certified to NSF/ANSI 61 and be certified to be lead-free in accordance with NSF/ANSI 372. Wafer style check valves shall be provided in sizes 2" through 10" for installation between Class 125 or Class 250 flanges. The valve design shall incorporate a center guided, spring loaded disc while having a short linear stroke that generates a flow area equal to the nominal valve size. The valve shall be capable of operating in the horizontal or vertical positions. The valve shall be provided with a replicable guide bushing held in position by the spring. The spring shall be designed to withstand 100,000 cycles without failure and provide a cracking pressure of .05 psi. The disc shall be concaved to the flow providing for disc stabilization, maximum strength and a minimum flow velocity to open the valve. The valve disc and seat shall have a seating surface of 16 micro-inch or better. Valve seats shall be fully retained with full size threads and sealed with an O-ring. The valve body shall be constructed of ASTM A126 Class B cast iron. Valve seat and disc shall be ASTM B584 Alloy C83600 cast bronze or ASTM B148 Alloy C95200 aluminum bronze. The compression spring shall be ASTM A313 Type 316 stainless steel with ground ends. The valve interior and exterior shall be coated with a NSF/ANSI 61 fusion bonded epoxy coating. The valve shall be Valmatic 1400-BN.

## 2.11 MAGNETIC METER

- A. Will be furnished by the Owner and shipped to pump station supplier for installation.

## 2.12 MISCELLANEOUS VALVES

- A. The pump station shall be supplied with an air release valve. The air valve shall be of the simple lever type and shall be capable of automatically releasing accumulated air from a fluid system while that system is in operation under pressure. To assure drop tight shut-off, a viton orifice button shall be used to seal the valve discharge orifice when the valve is in a closed position. The orifice diameter will be sized for use within a given operating pressure range to insure maximum discharge capacity. The body and cover shall be of cast iron. With the exception of the viton orifice button, the leverage mechanism, float and all other internal trim shall be of stainless steel. The stainless steel float shall be designed to and capable of withstanding a pressure in excess of 1,000 psi.
- B. The package station shall be supplied with one pressure relief valve. The valve shall be a Singer Valve model 106 -RPS, globe or angle (see the drawing) style valve. The Model 81-RP Pressure Relief Pilot (Normally Closed Pilot) spring range shall be preset. The valve shall remain closed until inlet pressure exceeds a pre-determined set- point at which time the valve opens quickly and modulates to limit the upstream pressure to the pre-determined set point. The main valve shall be a hydraulically operated valve. The inner valve assembly shall be top and bottom guided by means of easily replaceable bearing bushings. The inner valve assembly shall be the only moving part and shall be securely mounted on a 316 stainless steel stem. The stainless steel stem shall be provided with wrench flats on all valves 1" to 16", for ease of assembly and maintenance. All pressure containing components shall be constructed of ASTM A536-

65/45/12 ductile iron. The flanges shall be designed to ANSI Class 150 or Class 300 standards. Valve shall have a protective fusion bonded epoxy coating internally and externally. The protective fusion bonded epoxy coating shall conform to the ANSI/AWWA C116/A21.16 (current version) specification. Valve 8" and smaller shall provide smooth "frictionless" motion with actuation being achieved by the use of a flat style EPDM diaphragm. They shall be constructed of nylon fabric bonded with synthetic rubber. The diaphragms shall not be used as a seating surface. No lip seals or packing may be used to seal the actuator. Valve 6" and larger shall provide smooth "frictionless" motion and maximum low flow stability with actuation being achieved by the use of the Singer rolling diaphragm technology. The diaphragms shall not be used as a seating surface. No lip seals or packing may be used to seal the actuator. The valve cover shall have a separate stem cap giving access to the stem for alignment check, spring installation and ease of assembly. The valve bonnets shall be accurately located to bodies utilizing locating pins. Locating pins shall eliminate corrosion resulting from the use of uncoated ductile iron to ductile iron surfaces. Valve 3" and larger shall have the 316 stainless steel seat, bolted in place, utilizing "Spiralock" thread tapping technology. The 316 stainless steel seat ring shall be easily replaceable without special tools. The valve shall form a drip tight seal between the stationary stainless steel seat ring and the resilient disc, which has a rectangular cross-section and is retained by clamping on three and one half sides. The resilient disc shall be constructed of Buna or EPDM for normal service conditions. All external fasteners shall be 18-8 stainless steel with 18-8 washers. All repairs and maintenance shall be possible without removing the valve from the line. To facilitate easy removal and replacement of the inner valve assembly and to reduce unnecessary wear on the guide, the stem shall be vertical when the valve is mounted in a horizontal line. Each valve shall be tested prior to shipment. The standard test shall include a pressure test and a full functional, operational test when pilots and accessories are fitted to suit a particular application. The valve shall be covered by a minimum three year warranty against defects in materials and workmanship. The stainless steel seat ring shall be covered by a lifetime replacement warranty. The valve shall be a Singer Model.... Refer to other Catalog Sections for further details. The pilot shall be Singer Model 81-RP, with the spring range specified. The normally closed pilot shall be of brass and bronze construction with a spring to adjust the opening pressure. The inner valve shall be of stainless steel 316 construction and the inner valve shall have EPDM resilient compound for seating. The EPDM compound must be bonded permanently to the inner valve and be ground flat and square to assure maximum performance. The pilot shall be self-cleaning by locating the inlet directly into the seat area through the bottom of the pilot and the outlet ninety degrees to the inlet. A separate port will sense pressure either upstream or downstream (subject to application) to open the pilot and therefore the main valve when system pressure exceeds the pilot set point. Maximum Working Temperature: 180 degree F (82 degree C). Maximum Working Pressure: 400 psi (27.6 bar). The valve shall be a Singer Valve model 106-RPS-8700. The Model 81-RP Pressure Relief Pilot (Normally Closed Pilot) spring range shall be preset. The valve shall remain closed until inlet pressure exceeds a pre-determined set- point at which time the valve opens quickly and modulates to limit the upstream pressure to the pre-determined set point. Prior to shipment, testing shall include UL & FM approved hydrostatic pressure tests and a Singer full function and operation test.

- C. The suction side of each pump shall include a flexible pump connection/expansion joint to reduce control pulsation shocks and noise transmission. The elastomer connector shall be constructed of neoprene and nylon with bias-ply tire cord. Solid plate steel flanges grip the sealing area and provide a fluid tight connection without the use of gaskets. The flanges shall be drilled and tapped to mate with the companion flanges. The single sphere arch shall be self-cleaning.
- D. Compression type couplings shall be used in each pump discharge pipe run, and as required, to enable easy dismantling of station pumps and piping for maintenance and service. Couplings shall consist of two steel follower rings, two resilient gaskets, one steel middle ring, and a set of steel follower trackhead bolts.
- E. PRESSURE GAUGES: Will be furnished by the Owner.

### 2.13 FACTORY TEST

Upon completion of manufacturing and prior to shipment, the package pump station equipment shall be tested within the manufacturer's facility. Equipment shall be plumbed to a minimum 10,000 gallon reservoir and operated in a loop cycle.

The flow operation test shall be simulated to project specific pumping conditions, or as near as allowed by the test facility. Flow shall be recorded from a Magnetic Flow Meter at the entrance to the reservoir. Suction and discharge pressures shall be accurately recorded from the suction and discharge manifolds within the equipment. The test facility shall provide suction head pressure greater than zero feet.

The test shall allow for all components to be operational and checked prior to shipment of the pumping equipment. The engineer, at his/her choice, shall be invited to witness the factory testing. All travel expenses associated for this testing would be by the engineer and/or owner.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION AND SERVICE INSTRUCTIONS**

- A. Installation of the water booster station shall be in accordance with the written instructions furnished by the manufacturer, and as recommend by the Engineer. In addition to the installation instructions, the manufacturer shall furnish six complete and detailed Operating Instructions, Service and Repair Sheets in a bound manual. This manual shall cover the initial start-up, operating procedures, maintenance and servicing procedures on the major component parts provided in the pump station. One manual shall be shipped in the station, the rest shall be sent direct to the contractor.

### **3.2 START-UP**

- A. The manufacturer shall provide the services of a factory-trained representative for a maximum period of one day, to assist the contractor with the initial start-up of the pump station. It shall be the responsibility of the contractor to inform all parties of this initial start-up, and to insure their attendance. The manufacturer's representative shall instruct all personnel attending the start-up in the correct and required operation, maintenance and service procedures for the water booster station.

### **3.3 GUARANTEE**

The manufacturer shall guarantee the booster station to be free from defects in materials and workmanship for a period of one year from the date of start-up or for a period of fifteen months from the date of shipment. All consumable parts such as pump seals, filters, light bulbs, oil, grease, etc., shall be considered part of routine maintenance and shall not be covered under the terms of the manufacturer's warranty.

**END OF SECTION**



**SECTION 16050**  
**ELECTRICAL WORK AND SERVICE FOR BOOSTER PUMPING STATION**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. This section includes the site work for providing electrical service to the booster pump station.
- B. The work for this project includes all labor, tools, equipment, and materials necessary to install, test, place in service and deliver to the Owner factory built pump station (piping, pumps, valves per Section 11213) electrical service entrance and service rated automatic transfer switch. In accordance with these specifications and associated drawings.
- C. The electrical subcontractor must be a licensed electrical contractor in the Commonwealth of Kentucky.

**1.2 PROJECT SUMMARY**

- A. Provide 480 Volt, 3 phase, 4 wire, 200 amp electrical service to the booster pump station. This shall include installation of a steel utility pole, conduit, wire, circuit breakers, meter socket, grounding, and associated devices. The Contractor shall route the service conductors from the service pole via schedule 80 PVC conduit to the new station service rated automatic transfer switch. Refer to the contract drawings for details.
- B. The Contractor shall coordinate with Electric Utility (Meade County RECC). The Owner will pay for electrical equipment to be provided by Meade County RECC. The Contractor shall pay for and provide any labor associated with the service installation.
- C. Obtain electrical permit and inspection.
- D. Provide "as built" mark ups of electrical drawings.

**1.3 RELATED WORK**

- A. Packaged Water Booster Pumping Station – Section 11213

**1.4 GENERAL**

- A. All materials and equipment installed shall be new and unused and shall be of the latest design of manufacturers regularly engaged in the manufacture of such products that conform with the requirements of the Contract Drawings and Specifications.
- B. These Specifications, the associated Drawings, and other Contract Documents have been prepared with intention of their yielding, through construction, electrical installations that are fully operable, safe, complete and in full compliance with the latest editions of the National Electrical Code, local codes and ordinances, and any other authority having jurisdiction over the Work. The omission of miscellaneous electrical items or accessories not specifically called for in these Contract Documents which would detract from this intention shall not relieve the Contractor of the responsibility of furnishing and installing these items and accessories.

**1.5 SUBMITTALS**

- A. Shop Drawings, clearly marked to show only items applicable to this specific contract, shall be submitted for review and shall include complete sizing of components.
- B. Any items substituted by the Contractor without the approval of the Project Manager shall be subject to replacement by the Contractor at no cost to the Owner and at no impact on the project schedule.

## **1.6 DIMENSION VERIFICATION AND DOCUMENTATION**

- A. Scale dimensions as shown on the Drawings shall be considered as approximate. The Contractor shall be responsible for making field verifications. Specific attention shall be given to the exact location of any underground lines installed under this Contract. These lines shall be dimensioned to easily identifiable points on permanent building structures for location and elevation and these dimensions shall be entered and shown on the Record Drawings.

## **1.7 CODES AND STANDARDS**

- A. All electrical equipment and details of installations shall comply with the requirements of the latest editions of the National Electrical Code (NFPA-70), the National Electrical Safety Code (ANSI C2), OSHA and all applicable codes.

## **1.8 APPROVAL AND MARKING OF EQUIPMENT**

- A. Electrical devices and materials shall be listed and/or labeled by the Underwriters' Laboratories, Inc.

## **1.9 EQUIPMENT SPECIFIED ELSEWHERE**

- A. Certain items of control and other equipment are indicated on the electrical drawings for connection, but are specified in other Sections of these Documents. Such items are not furnished as part of the electrical work.

## **1.10 PROTECTION OF ELECTRICAL EQUIPMENT**

- A. Electrical equipment shall be protected from the weather, especially from water dripping or splashing upon it, at all times during shipment, storage, and construction. Equipment shall not be stored outdoors even if its enclosure is rated as weatherproof, watertight, etc. Where equipment is installed or stored in moist areas, such as an unheated building, etc., it shall be provided with an acceptable means of preventing moisture damage such as a uniformly distributed source of heat to prevent condensation.

## **1.11 DEFECTIVE OR DAMAGED EQUIPMENT**

- A. Should it be determined by the Contractor, Owner or Engineer that any equipment or material has been subjected to possible damage by water, it shall be thoroughly dried and put through a dielectric test as directed by the manufacturer, at the expense of the Contractor or shall be replaced by the Contractor without change in contract price. Any equipment found to be marginal or that fails to meet manufacturer's standards shall be replaced at no additional charge to the Owner or Engineer.
- B. Any equipment damaged during shipment, while stored, or during construction shall be replaced at the Contractor's expense. Minor scratches on equipment cabinets, etc., may be repaired on site. Any current carrying parts, switch blades, operators, coils, contacts, etc., which are damaged, shall be replaced at no cost to the Owner or Engineer.

## **1.12 PERMITS AND APPROVALS**

- A. The Contractor shall obtain all permits necessary. The Contractor shall furnish inspection by an agency licensed or otherwise qualified to perform electrical inspections in the Commonwealth of Kentucky.
- B. The Contractor shall notify the electrical inspector, in writing, immediately upon the start of the Work and a copy of the notice shall be sent to the Engineer.
- C. All costs incidental to the electrical inspection shall be borne by the Contractor.
- D. The Contractor shall furnish certificates of final approval by the electrical inspector and final payment will be withheld until he has presented the Engineer with the aforementioned certificate of approval.



### **1.13 CIRCUIT LOADS**

- A. The Contractor shall verify the total load to be placed on the circuits as well as voltage, phase, frequency and connections required for equipment before rough-in, and if they differ from the Drawings and Specifications, he shall contact the Engineer immediately for further instructions before the Work commences.

### **1.14 REFERENCES**

- A. American National Standards Institute (ANSI)
- B. Kentucky and Local Building Codes
- C. National Electrical Code (NEC)
- D. National Electrical Manufacturers Association (NEMA)
- E. National Electric Safety Code (NESC)
- F. National Fire Protection Code (NFPA)
- G. Underwriter's Laboratories Inc (UL)

### **1.15 ELECTRICAL SERVICE**

- A. The Contractor shall obtain and install a complete electrical service with new service equipment.
- B. The new equipment, connections, and conduit shall be sized for the application and the service shall meet the requirements of the National Electrical Code (NEC) and the local utility company.
- C. Meade County RECC Contact:
  - Mike French, P.E.
  - System Engineer
  - Meade County RECC
  - [mfrench@mcreece.com](mailto:mfrench@mcreece.com)
  - (270) 422-2911 ext. 3169

## **PART 2 – PRODUCTS**

### **2.1 GENERAL**

- A. The Contractor shall furnish and install the items listed.
- B. Note that the manufacturers and part numbers provided are considered minimum design requirements and are not meant to inhibit the Contractor from providing components of equal or better quality. However, the Contractor shall receive written approval from the Project Manager for any component substituted. The materials used shall be new, unused and as hereinafter specified.

### **2.2 CONDUIT**

- A. No conduit smaller than 3/4-inch shall be used.
- B. Rigid Conduit: Rigid conduit shall be standard weight, mild steel pipe. The conduit shall receive a protective zinc coating both inside and outside by means of hot-dip galvanizing. Threads shall not have any coating which will reduce the conductivity of the joint. Coupling, bends, elbows, fittings, etc., shall be subject to the same requirements as for the straight lengths. All conduit and fittings shall be UL approved. Rigid conduit shall be delivered with plastic protectors on the threads.
- C. No electrical metallic tubing (EMT) will be allowed on this project.
- D. Liquid tight flexible metallic conduit shall be constructed of flexible or spirally wound galvanized steel enclosed in light gray colored PVC outer jacket. Liquid tight flexible metallic conduit shall be

equivalent to American Brass "Sealtite" Type UA. Connectors shall be equivalent to Midwest Type LT.

- E. Plastic conduit shall be schedule 80, PVC, rated for use with 90 degrees Celsius conductors and for use in direct sunlight, with chemical weld joints. The Contractor shall provide all fittings, adapters, etc., required for a complete installation as shown on the Drawings.

### **2.3 WIRE AND CABLE**

- A. Conductors shall be rated for 600 Volts with XHHW, 90d insulation.
- B. No conductors smaller than AWG No. 12 shall be used except for signal or control systems, or where otherwise indicated.
- C. All conductors shall be soft drawn, 98 percent conductivity copper conforming to the latest ASTM Specifications and the requirements of the National Electrical Code.

### **2.4 GROUNDING**

- A. The resistance value of the main grounding conductor measured between the main switchgear and a good earth ground shall not exceed five (5) ohms.
- B. Ground Rods: Ground Rods shall be the copper clad steel type and shall be a minimum of 10 feet in length, 3/4-inch in diameter. Ground rods shall be equivalent to those as manufactured by Copperweld Steel Company.
- C. Grounding electrode conductors shall be bare copper. Equipment grounding conductor shall be copper, XHHW insulated, green (or green with yellow tracer) in color, and rated at 600 volts.
- D. Ground clamps for use on metallic pipes shall be of copper, brass or silicon bronze with a rigid metal base providing good contact by proper seating on the pipe. Strap type clamps shall not be used.

### **2.5 SAFETY SWITCHES**

- A. Safety switches shall be service duty rated, heavy-duty, load break type with a quick-make, quick-break, switch mechanism, in a NEMA 4X enclosure. Ampere rating and number of poles shall be as noted on the Drawings. Padlocking capability shall be provided for locking the switch either in the closed (on) position or open (off) position. Fuse clips shall be rejection type. Switches shall be provided with a cover-blade interlock so that the cover cannot be opened when the switch blades are closed, nor can the switch blades be closed with the cover open. Interlock bypassing devices shall be included for use by authorized personnel. Switches shall be Square-D, Class 3110, or equivalent.

### **2.6 SERVICE POLE**

- A. The service pole shall steel 8-Inch diameter well casing, Solid top (capped), 30 feet tall buried 5 feet in the ground with 2 feet diameter of concrete around pole. Weld fins onto pole to prevent pole from turning in the concrete. Provide two or more holes in a line to accept 5/8 inch bolt (depending on runs of Quadraplex) first hole to be 9 inches from the top of the pole, additional holes to be 1 ft. apart. Coordinate with Meade County RECC on direction of holes.

### **2.7 SUPPORTING DEVICES**

- A. All mounting brackets and strut used outside shall be aluminum or stainless steel. Fasteners used to mount equipment outside shall be stainless steel.

### **2.8 SERVICE RATED AUTOMATIC TRANSFER SWITCH**

- A. 480V, 3-pole, 4-wire, 200Amp, 35KAIC
- B. Stainless Steel NEMA 4X with inner door for operator interface devices and deadfront, padlockable outer door

- C. Delayed transition operation
- D. Anti-condensate heater
- E. Microprocessor controller and keypad with display
- F. Test-Automatic-Bypass delay selector switch
- G. Switch position and source availability indicator lights
- H. 120VAC, dry contacts for the following SCADA signals:
  - 1. Normal Source Available
  - 2. Switch in Normal Position
  - 3. Switch in Emergency Position
- I. Manufactured by Russelectric, Cutler Hammer, or Approved Equal.

## **2.9 UTILITY METERING**

- A. Provide materials as required by Electric Utility for installation of metering equipment, service conductors, and mounting of utility equipment.

## **PART 3 - EXECUTION**

### **3.1 GENERAL CONSTRUCTION**

- A. Continuous Work
  - 1. The Contractor shall be aware that work on this project shall be continuous. Periods of intermittent work shall not be permitted.
- B. Workmanship
  - 1. All devices shall be mounted, fabricated and wired with the highest quality workmanship by builders and electricians with at least 3 years experience building and wiring controls and enclosures.
- C. Construction Coordination
  - 1. The Contractor shall be responsible for coordination with the utility company for termination of power conductors.
  - 2. Power shall be provided to pump station concurrently with the installation of the station.

### **3.2 INSTALLATION**

- A. Excavation, Backfilling and Grading:
  - 1. The Contractor shall perform all earth and rock excavation, backfilling and grading required for this part of the work. Rock excavation shall be made to a depth of 4 inches below pipe and filled to subgrade with dense graded aggregate limestone. After the Bid is submitted there will be no additional funds forthcoming for excavation work on this project. All excavation shall be Bid as unclassified.
  - 2. Trenches shall be maintained free of water until backfilling is completed.
  - 3. Backfilling material in earth excavation shall be clean earth to a line at least 12 inches above the top of the conduit. From this line upward, rock not more than 6 inches in diameter may be used provided it is spaced at least 12 inches apart. Filling between rock shall be of clean earth, thoroughly tamped in 6-inch layers to the finished grade. All surplus rock and earth shall be removed from the site as directed by the Engineer.
  - 4. Depth of bury for all conduit shall be a minimum of 24 inches below finished grade.
- B. Conduit:

1. Rigid steel conduit shall be used for emergence from underground, or from below slab-on-grade and where exposed. Schedule 80 PVC shall be used underground. Adapters shall be used and rigid steel extended above grade from PVC that is installed underground or below slab-on-grade. PVC shall be concrete encased where it passes under roadways or where otherwise shown on drawings. PVC shall not be used where exposed on the exterior nor where exposed to direct sunlight. Conduit shall be installed so as to insure against trouble from the collection of trapped condensation. This Contractor shall plan his work so that runs of conduit miss equipment by other trades. Conduit bushing shall have insulating material which has been permanently fastened to the fittings. Bushings for conduit 1-1/2 inches trade size and larger shall be complete with grounding lug and shall be bonded to the box by means of bare copper wire. All field bends shall be made with standard tools and bending equipment manufactured especially for this purpose. Bends in metallic conduit shall be made while cold and in no case shall the conduits be heated. Conduits shall not be bent through more than 90 degrees. Size of conduits shall not be less than that required by the National Electrical Code. The Contractor shall install larger size conduits than detailed where there is more than 100 feet of unbroken run or where the total of the angles through which the conduit has been bent during a single run exceeds 270 degrees.
2. All conduit installed on concrete surfaces shall be anchored with spacer type conduit clamps preventing contact between the conduit and the concrete surface. Conduits penetrating walls shall be grouted in place to form a seal.
3. All conduit shall be run continuous between devices with a minimum number of bends. Back-to-back 90 degree bends (180 degree change of direction) will not be acceptable. During construction, all new conduits shall be kept dry and free of moisture and debris. Before the wire is pulled in, all conduits shall be swabbed to clear all moisture and debris which may have unavoidably accumulated.

C. Wire and Cable:

1. Direct Burial Cable: No cable buried directly in the earth, not in raceway will be allowed on this project.
2. Wire shall not be installed until all work of any nature that may cause injury to the wire is completed. Mechanical means shall not be used in pulling in wires No. 8 or smaller. Approved wire pulling lubricant shall be used as required to prevent insulation damage and overstressing of the wire while pulling through conduit. In no case shall conductors be greased or coated with any substance injurious to the conductor insulation or sheath.
3. All wires connected to terminal boards, terminal blocks, or to other similar terminals shall terminate by means of pressure terminals. Where terminal boards, terminal blocks, etc. are designed and manufactured to accept bare wire and have a pressure plate on each side of the wire, no pressure terminals on the wire will be required. Where the wire would have to encircle the holding screw to make a proper connection, the wire terminals are required.
4. Where the wire is shown larger than that required for the load, it is done so for voltage drop or other purposes and must be installed as shown. Where the wire is stranded, the removal of strands in order to install the wire into a lug provided on any equipment will not be permitted. A larger lug shall be installed which will accept the wire size indicated.
5. Each wire shall be labeled at both termination points with an adhesive type label as manufactured by Panduit Corporation, or equivalent. All wiring shall be neatly bundled and supported.
6. Insulation on ungrounded conductors larger than AWG #10 and on grounded (neutral) and grounding (equipment ground) conductors larger than AWG #6 may be black with color coding accomplished with the use of colored plastic tape. Tape shall be installed on the conductors wherever they are visible and shall be wrapped at least three (3) turns around the conductor.

7. All wiring on this project, except control wiring, shall reflect the phase relationship of black, red and blue for ungrounded conductors, white for neutral conductors.

D. Grounding:

1. Ground rods shall be driven vertically into the earth to at least 1 foot below finished grade. Where rock is encountered at a depth of less than 4 feet, rods shall be buried in a trench at not less than 2 feet below finished grade.
2. Connections to ground rods and all other ground connections below grade shall have a minimum mechanical contact surface area between the conductor and the ground rod of not less than three square inches. All connections made below finished grade shall be exothermic. Installation of grounding conductors shall be such that they are not exposed to physical damage. All connections shall be firm and tight.
3. All metal electrical equipment cabinets shall be securely bonded to a grounding conductor running through any conduit terminating at the cabinet or enclosure by use of a grounding lug bushing and jumper wire to the enclosure wall. Junction boxes and other enclosures shall utilize an equipment ground bus or lug as required to securely bond the equipment grounding conductor to the enclosure. The grounding conductor shall be connected with pressure connectors at the main disconnect to the main grounding system. Where screw terminals or set screw lugs are used, sufficient lugs shall be provided such that not more than one conductor is installed into each lug or terminal.
4. No flexible conduit shall serve as a grounding conductor.
5. Where lightning arresters are furnished and installed either separately or with equipment and the grounding connections are not inherently provided, a suitable, separate, grounding conductor shall connect the lightning arrester with a separate ground rod. This rod shall be interconnected with any adjacent grounding system.

E. Pole-Mounted Equipment

1. Provide hot-dipped galvanized uni-strut and lag screw to mount any electrical equipment to wooden poles and posts.
2. Cap uni-strut ends.

### 3.3 CODE INSPECTION

- A. This installation shall in all respects conform to all local and state codes and to the latest edition of the National Electrical Code including use of hand tools and temporary services.
- B. All electrical work shall be inspected by the local Electrical Inspector.
- C. Any concealed work shall be inspected by the Electrical Inspector prior to concealment. If concealed work must be exposed for inspection, all additional costs shall be the responsibility of the Contractor.

### 3.3 SERVICE RATED AUTOMATIC TRANSFER SWITCH

- A. Install per manufacturer's recommendations.
- B. Configure for service voltage and source configuration.
- C. ATS to operate in manual mode until generator is added in the future by Owner.

### 3.4 ACCEPTANCE AND TESTING

- A. Inspection
  1. All equipment installed with this project shall be inspected and adjusted prior to placing installation in service.

2. It shall be the Contractor's responsibility to prove to the Project Manager that the electrical system provided complies with this specification and the contract documents.
  3. Proper connection of the anodes shall be verified on the test panels.
- B. Operation Testing
1. Electrical contractor must have an electrician at the pump station startup.
  2. At the pump station start-up, the pump motors provided with the pump station shall be checked for proper rotation. Do not electrically operate the pumps for any length of time without water service and proper lubrication.
  3. The single phase environmental equipment, lights, etc. that are provided by the pump station manufacturer shall also be checked for proper operation.
- C. As-Built Records
1. The Contractor shall maintain a clean set of neatly marked up drawings as an as-built record of the system.
  2. As-built drawings shall show all underground conduit run lengths and materials, and a north-south dimension (e.g. 50' South of C/L of Main Street) and east-west dimension for all starting points (e.g. pole), termination points (e.g. vault) and any horizontal bends.

## **END OF SPECIFICATION**

## **APPENDIX**

**Kentucky Division of Water Approval –  
Waterline Construction**

**Kentucky Transportation Cabinet – Encroachment  
Permit**





MATTHEW G. BEVIN  
GOVERNOR



CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**  
**DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

AARON B. KEATLEY  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

May 22, 2017

Mr. Joe Bartley  
Meade Co Water District  
1003 Armory Place  
Brandenburg, KY 40108

RE: Flaherty Water Transmission Main &  
Booster Pump Station  
Meade County, KY  
Meade Co Water District  
AI #: 34020, APE20170001  
PWSID #: 0820369-17-001

Dear Mr. Bartley:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 25,120 feet of 12-inch PVC, 1,325 feet of 12-inch DI, 150 feet 8-inch PVC and 410 feet of 6-inch PVC water main and a duplex booster pump station at 1,100 gpm with 90 feet TDH. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

If you have any questions concerning this project, please contact Mr. Mohammed Mohiuddin at 502-782-7020.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Humphries".

Terry Humphries, P.E.  
Supervisor, Engineering Section  
Water Infrastructure Branch  
Division of Water

TH: MM  
Enclosures

C: HDR Engineering Inc.  
Meade County Health Department  
Division of Plumbing



## Distribution-Major Construction

Meade Co Water District

Facility Requirements

Activity ID No.:APE20170001

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**PORT0000000054 (Waterline Extension) 25,120 feet of 12-inch PVC; 1,325 feet of 12-inch DI; 150 feet 8-inch PVC and 410 feet of 6-inch PVC Water main:**

### Narrative Requirements:

Condition No.	Condition
T-1	Construction of this project shall not result in the water system's inability to supply consistent water service in compliance with 401 KAR 8:010 through 8:600. [401 KAR 8:100 Section 5]
T-2	The public water system shall not implement a change to the approved plans without the prior written approval of the cabinet. [401 KAR 8:100 Section 4(3)]
T-3	A proposed change to the approved plans affecting sanitary features of design shall be submitted to the cabinet for approval in accordance with Section 2 of this administrative regulation. [401 KAR 8:100 Section 4(2)]
T-4	During construction, a set of approved plans and specifications shall be available at the job site. Construction shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 3(1)]
T-5	Unless construction begins within two (2) years from the date of approval of the final plans and specifications, the approval shall expire. [401 KAR 8:100 Section 3(3)]
T-6	Upon completion of construction, a professional engineer shall certify in writing that the project has been completed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 4(1)]
T-7	The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. [Recommended Standards for Water Works 8.2.1, Drinking Water General Design Criteria IV.1.a]
T-8	Water lines should be hydraulically capable of a flow velocity of 2.5 ft/s while maintaining a pressure of at least 20 psi. [Drinking Water General Design Criteria IV.1.b]
T-9	The normal working pressure in the distribution system at the service connection shall not be less than 30 psi under peak demand flow conditions. Peak demand is defined as the maximum customer water usage rate, expressed in gallons per minute (gpm), in the pressure zone of interest during a 24 hour (diurnal) time period. [Drinking Water General Design Criteria IV.1.d]
T-10	When static pressure exceeds 150 psi, pressure reducing devices shall be provided on mains or as part of the meter setting on individual service lines in the distribution system. [Drinking Water General Design Criteria IV.1.c]
T-11	The minimum size of water main in the distribution system where fire protection is not to be provided should be a minimum of three (3) inch diameter. Any departure from minimum requirements shall be justified by hydraulic analysis and future water use, and can be considered only in special circumstances. [Recommended Standards for Water Works 8.2.2, Drinking Water General Design Criteria IV.2.b]

## Distribution-Major Construction

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**PORT0000000054 (Waterline Extension) 25,120 feet of 12-inch PVC; 1,325 feet of 12-inch DI; 150 feet 8-inch PVC and 410 feet of 6-inch PVC Water main:**

### Narrative Requirements:

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Condition No.	Condition
T-12	Water mains not designed to carry fire-flows shall not have fire hydrants connected to them. [Recommended Standards for Water Works 8.4.1.b]
T-13	Flushing devices should be sized to provide flows which will give a velocity of at least 2.5 feet per second in the water main being flushed. [Recommended Standards for Water Works 8.2.4.b, Recommended Standards for Water Works 8.4.1.b]
T-14	No flushing device shall be directly connected to any sewer. [Recommended Standards for Water Works 8.2.4.b, Recommended Standards for Water Works 8.4.1.b]
T-15	Pipe shall be constructed to a depth providing a minimum cover of 30 inches to top of pipe. [Drinking Water General Design Criteria IV.3.a]
T-16	Water mains shall be covered with sufficient earth or other insulation to prevent freezing. [Recommended Standards for Water Works 8.7]
T-17	A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a depth of at least six inches below the bottom of the pipe. [Recommended Standards for Water Works 8.7]
T-18	Water line installation shall incorporate the provisions of the AWWA standards and/or manufacturer's recommended installation procedures. [Recommended Standards for Water Works 8.7]
T-19	All materials used for the rehabilitation of water mains shall meet ANSI/NSF standards. [Recommended Standards for Water Works 8.1]
T-20	Packing and jointing materials used in the joints of pipe shall meet the standards of AWWA and the reviewing authority. [Recommended Standards for Water Works 8.1]
T-21	All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.7]
T-22	All materials including pipe, fittings, valves and fire hydrants shall conform to the latest standards issued by the ASTM, AWWA and ANSI/NSF, where such standards exist, and be acceptable to the Division of Water. [Recommended Standards for Water Works 8.1]
T-23	Water mains which have been used previously for conveying potable water may be reused provided they meet the above standards and have been restored practically to their original condition. [Recommended Standards for Water Works 8.1]

## Distribution-Major Construction

Meade Co Water District

Facility Requirements

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**PORT0000000054 (Waterline Extension) 25,120 feet of 12-inch PVC; 1,325 feet of 12-inch DI; 150 feet 8-inch PVC and 410 feet of 6-inch PVC Water main:**

### Narrative Requirements:

Condition No.	Condition
T-24	Manufacturer approved transition joints shall be used between dissimilar piping materials. [Recommended Standards for Water Works 8.1]
T-25	The minimum size of water main which provides for fire protection and serving fire hydrants shall be six-inch diameter. [Recommended Standards for Water Works 8.2, Drinking Water General Design Criteria IV.2.a]
T-26	Pipes and pipe fittings containing more than 8% lead shall not be used. All products shall comply with ANSI/NSF standards. [Recommended Standards for Water Works 8.1]
T-27	Gaskets containing lead shall not be used. Repairs to lead-joint pipe shall be made using alternative methods. [Recommended Standards for Water Works 8.1]
T-28	Pipe materials shall be selected to protect against both internal and external pipe corrosion. [Recommended Standards for Water Works 8.1]
T-29	Dead end mains shall be equipped with a means to provide adequate flushing. [Recommended Standards for Water Works 8.2]
T-30	The hydrant lead shall be a minimum of six inches in diameter. Auxiliary valves shall be installed on all hydrant leads. [Recommended Standards for Water Works 8.4.3]
T-31	A sufficient number of valves shall be provided on water mains to minimize inconvenience and sanitary hazards during repairs. [Recommended Standards for Water Works 8.3]
T-32	Wherever possible, chambers, pits or manholes containing valves, blow-offs, meters, or other such appurtenances to a distribution system, shall not be located in areas subject to flooding or in areas of high groundwater. Such chambers or pits should drain to the ground surface, or to absorption pits underground. The chambers, pits and manholes shall not connect directly to any storm drain or sanitary sewer. Blow-offs shall not connect directly to any storm drain or sanitary sewer. [Recommended Standards for Water Works 8.6]
T-33	At high points in water mains where air can accumulate provisions shall be made to remove the air by means of air relief valves. [Recommended Standards for Water Works 8.5.1]
T-34	Automatic air relief valves shall not be used in situations where flooding of the manhole or chamber may occur. [Recommended Standards for Water Works 8.5.1]

## Distribution-Major Construction

Meade Co Water District

Facility Requirements

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**PORT0000000054 (Waterline Extension) 25,120 feet of 12-inch PVC; 1,325 feet of 12-inch DI; 150 feet 8-inch PVC and 410 feet of 6-inch PVC Water main:**

### Narrative Requirements:

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Condition No.	Condition
T-35	The open end of an air relief pipe from automatic valves shall be extended to at least one foot above grade and provided with a screened, downward-facing elbow. [Recommended Standards for Water Works 8.5.2.c]
T-36	Discharge piping from air relief valves shall not connect directly to any storm drain, storm sewer, or sanitary sewer. [Recommended Standards for Water Works 8.5.2.d]
T-37	Water pipe shall be constructed with a lateral separation of 10 feet or more from any gravity sanitary or combined sewer measured edge to edge where practical. If not practical a variance may be requested to allow the water pipe to be installed closer to the gravity sanitary or combined sewer provided the water pipe is laid in a separate trench or undisturbed shelf located on one side of the sewer with the bottom of the pipe at least 18 inches above the top of the gravity sanitary or combined sewer pipe. [Drinking Water General Design Criteria IV.3.b]
T-38	Water lines crossing sanitary, combined or storm sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sanitary, combined or storm sewer with preference to the water main located above the sanitary, combined or storm sewer. [Drinking Water General Design Criteria IV.3.c]
T-39	At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. [Recommended Standards for Water Works 8.8.3.b]
T-40	There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system. [Recommended Standards for Water Works 8.10.1]
T-41	Water utilities shall have a cross connection program conforming to 401 KAR 8. [Recommended Standards for Water Works 8.10.1]
T-42	Installed pipe shall be pressure tested and leakage tested in accordance with the appropriate AWWA Standards. [Recommended Standards for Water Works 8.7.6]
T-43	New, cleaned and repaired water mains shall be disinfected in accordance with AWWA Standard C651. The specifications shall include detailed procedures for the adequate flushing, disinfection, and microbiological testing of all water mains. In an emergency or unusual situation, the disinfection procedure shall be discussed with the Division of Water. [Recommended Standards for Water Works 8.7.7]
T-44	A minimum cover of five feet shall be provided over pipe crossing underwater. [Recommended Standards for Water Works 8.9.2]

## Distribution-Major Construction

Meade Co Water District

Facility Requirements

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**PORT0000000054 (Waterline Extension) 25,120 feet of 12-inch PVC; 1,325 feet of 12-inch DI; 150 feet 8-inch PVC and 410 feet of 6-inch PVC Water main:**

### Narrative Requirements:

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Condition No.	Condition
T-45	Valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair; the valves shall be easily accessible, and not subject to flooding for pipes crossing underwater. [Recommended Standards for Water Works 8.9.2.b]
T-46	Permanent taps or other provisions to allow insertion of a small meter to determine leakage and obtain water samples on each side of the valve closest to the supply source for pipes crossing. [Recommended Standards for Water Works 8.9.2.c]

## Distribution-Major Construction

Meade Co Water District

Facility Requirements

Activity ID No.:APE20170001

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### PORT0000000055 (Duplex Booster Pump Station) a duplex Booster Pump Station with pumps at 1,100 gpm with 90 feet TDH:

#### Narrative Requirements:

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Condition No.	Condition
T-1	Construction of this project shall not result in the water system's inability to supply consistent water service in compliance with 401 KAR 8:010 through 8:600. [401 KAR 8:100 Section 5]
T-2	The public water system shall not implement a change to the approved plans without the prior written approval of the cabinet. [401 KAR 8:100 Section 4(3)]
T-3	A proposed change to the approved plans affecting sanitary features of design shall be submitted to the cabinet for approval in accordance with Section 2 of this administrative regulation. [401 KAR 8:100 Section 4(2)]
T-4	During construction, a set of approved plans and specifications shall be available at the job site. Construction shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 3(1)]
T-5	Unless construction begins within two (2) years from the date of approval of the final plans and specifications, the approval shall expire. [401 KAR 8:100 Section 3(3)]
T-6	Upon completion of construction, a professional engineer shall certify in writing that the project has been completed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 4(1)]
T-7	The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. [Recommended Standards for Water Works 8.2.1, Drinking Water General Design Criteria IV.1.a]
T-8	Pumping facilities shall be elevated to a minimum of three feet above the 100-year flood elevation, or three feet above the highest recorded flood elevation, whichever is higher, or protected to such elevations, [Recommended Standards for Water Works 6.1.1.a]
T-9	Pumping facilities shall be readily accessible at all times. [Recommended Standards for Water Works 6.1.1.b]
T-10	Pumping facilities shall be graded around the station so as to lead surface drainage away from the station. [Recommended Standards for Water Works 6.1.1.c]
T-11	Pumping facilities shall be protected to prevent vandalism and entrance by animals or unauthorized persons. [Recommended Standards for Water Works 6.1.1.d]
T-12	Raw and finished pump stations shall have adequate space for the installation of additional units if needed, and for the safe servicing of all equipment. [Recommended Standards for Water Works 6.2.a]
T-13	Raw and finished pump stations shall have floors that slope to a suitable drain. [Recommended Standards for Water Works 6.2.e]

## Distribution-Major Construction

Meade Co Water District

Facility Requirements

Activity ID No.:APE20170001

Page 7 of 9

### PORT000000055 (Duplex Booster Pump Station) a duplex Booster Pump Station with pumps at 1,100 gpm with 90 feet TDH:

#### Narrative Requirements:

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Condition No.	Condition
T-14	Raw and finished pump stations shall provide a suitable outlet for drainage from pump glands without discharging onto the floor. [Recommended Standards for Water Works 6.2.f]
T-15	At least two pumping units shall be provided. With any pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping demand of the system. [Recommended Standards for Water Works 6.3]
T-16	Pumps shall have ample capacity to supply the peak demand against the required distribution system pressure without dangerous overloading, [Recommended Standards for Water Works 6.3.a]
T-17	Pumps shall be driven by prime movers able to meet the maximum horsepower condition of the pumps. [Recommended Standards for Water Works 6.3.b]
T-18	Pumps shall be provided with readily available spare parts and tools. [Recommended Standards for Water Works 6.3.c]
T-19	Pump stations shall have indicating, totalizing, and recording metering of the total water pumped. [Recommended Standards for Water Works 6.6.3]
T-20	Each pump shall have a standard pressure gauge on its discharge line. [Recommended Standards for Water Works 6.6.3.a]
T-21	Each pump shall have a compound gauge on its suction line. [Recommended Standards for Water Works 6.6.3.b]
T-22	Where two or more pumps are installed, provision shall be made for alternation. [Recommended Standards for Water Works 6.6.5]
T-23	Provisions shall be made to prevent energizing the pump motor in the event of a backspin cycle. [Recommended Standards for Water Works 6.6.5]
T-24	Electrical controls shall be located above grade. [Recommended Standards for Water Works 6.6.5]
T-25	Equipment shall be provided or other arrangements made to prevent surge pressures from activating controls which switch on pumps or activate other equipment outside the normal design cycle of operation. [Recommended Standards for Water Works 6.6.5]
T-26	Pump stations shall have a power supply provided from at least two independent sources or a standby or an auxiliary source. [Recommended Standards for Water Works 6.6.6]



## Distribution-Major Construction

Meade Co Water District

Facility Requirements

Activity ID No.:APE20170001

Page 8 of 9

### PORT0000000055 (Duplex Booster Pump Station) a duplex Booster Pump Station with pumps at 1,100 gpm with 90 feet TDH:

#### Narrative Requirements:

Condition No.	Condition
T-27	If standby power is provided by onsite generators or engines, the fuel storage and fuel line must be designed to protect the water supply from contamination. [Recommended Standards for Water Works 6.6.6]
T-28	All lubricants which come into contact with the potable water shall be certified for conformance to ANSI/NSF Standard 60. [Recommended Standards for Water Works 6.6.8]
T-29	Booster pumps stations shall have a bypass available. [Recommended Standards for Water Works 6.4.e]
T-30	Each booster pumping station shall contain not less than two pumps with capacities such that peak demand can be satisfied with the largest pump out of service. [Recommended Standards for Water Works 6.4.1]
T-31	All booster pumping stations shall be fitted with a flow rate indicating and totalizer meter. [Recommended Standards for Water Works 6.4.2]
T-32	Inline booster pumps shall be accessible for servicing and repairs. [Recommended Standards for Water Works 6.4.3]
T-33	Each pump must have an isolation valve on the intake and discharge side of the pump to permit satisfactory operation, maintenance and repair of the equipment. [Recommended Standards for Water Works 6.6.1]
T-34	Each pump shall have a positive?acting check valve on the discharge side between the pump and the shut?off valve. [Recommended Standards for Water Works 6.6.1]
T-35	Pump station piping shall be designed so that the friction losses will be minimized, not be subject to contamination, have watertight joints, be protected against surge or water hammer with suitable restraints when necessary, and be such that each pump has an individual suction line or the lines shall be manifolded that they will insure similar hydraulic and operating conditions. [Recommended Standards for Water Works 6.6.2]
T-36	Booster pumps taking suction from storage tanks shall be provided adequate net positive suction head. [Recommended Standards for Water Works 6.4.b]
T-37	Booster pumps shall controlled so that automatic shutoff or low pressure controllers maintain at least 20 psi in the suction line under all operating conditions. [Recommended Standards for Water Works 6.4.c]
T-38	Booster pumps taking suction from ground storage tanks shall be equipped with automatic shutoffs or low pressure controllers. [Recommended Standards for Water Works 6.4.c]

## Distribution-Major Construction

Meade Co Water District

Facility Requirements

Activity ID No.:APE20170001

Page 9 of 9

**PORT0000000055 (Duplex Booster Pump Station) a duplex Booster Pump Station with pumps at 1,100 gpm with 90 feet TDH:**

### Narrative Requirements:

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Condition No.	Condition
T-39	All automatic pump stations should be provided with automatic signaling apparatus which will report when the station is out of service. [Recommended Standards for Water Works 6.5]
T-40	All remote controlled stations shall be electrically operated and controlled and shall have signaling apparatus of proven performance. [Recommended Standards for Water Works 6.5]
T-41	Raw and finished pump stations shall have a floor elevation of at least six inches above finished grade. [Recommended Standards for Water Works 6.2.c]



**Matthew G. Bevin**  
Governor

**COMMONWEALTH OF KENTUCKY**  
**TRANSPORTATION CABINET**  
Department of Highways, District 4 Office  
634 East Dixie Highway  
Elizabethtown, Kentucky 42701  
(270) 766-5066  
[www.transportation.ky.gov/](http://www.transportation.ky.gov/)

**Greg Thomas**  
Secretary

April 26, 2017

Meade County Water District  
Joe Bartley  
1003 Armory Place  
Brandenburg, Kentucky 40108

Subject: Permit #: 04-2017-00093  
Permit Type: Utilities - Water  
Approval

Dear Applicant:

Attached is your permit approval and documentation for the subject permit.

Be advised that all work must be done in conformity with permit and application conditions. If you have any questions, please contact the Permits Section at this office.

Sincerely,

Kevin Blain  
D4 Permits - Supervisor

Attachments



An Equal Opportunity Employer M/F/D



Kentucky Transportation Cabinet  
 Department of Highways  
 Division of Maintenance  
 Permits Branch

**ENCROACHMENT PERMIT**

**KEPT No.:** 04-2017-00093  
 \_\_\_\_\_  
**Permittee:** Meade County Water District  
 \_\_\_\_\_  
**Permit Type / Subtype:** Utilities / Water  
 \_\_\_\_\_  
**Work Completion Date:** 1/1/2018  
 \_\_\_\_\_

INDEMNITIES		
Type	Amount Required	Tracking Number
Performance Bond	\$0.00	
Cash / Check	\$0.00	
Self-Insured	\$0.00	
Payment Bond	\$0.00	
Liability Insurance	\$0.00	

This permit has been: **APPROVED**  **DENIED**

Kevin Blain	D4 Permits - Supervisor	4/25/2017
<b>SIGNATURE</b>	<b>TITLE</b>	<b>DATE</b>

The TC 99-1(B), including the application TC-99 1(A) and all related and accompanying documents and drawings make up the permit. It is not a permit unless both the TC 99-1(A) and TC 99-1(B) are both present.

LOCATION(S)			
Description	County - Route	Latitude	Longitude
	Meade - KY 313	37.824888	-86.014847



Kentucky Transportation Cabinet  
 Department of Highways  
 Permits Branch

TC 99-1 (A)  
 1/2015  
 Page 1 of 4

APPLICATION FOR ENCROACHMENT PERMIT

<b>Permittee Information</b>				KYTC No.		
Name	Meade County Water District			<b>Permit Information</b>		
Address	1003 Armory Place			Address		
				City		
City	Brandenburg			State	Zip	
State	KY	Zip	40108	County	Meade	
Phone#	270-442-5006			Route No.	KY 313	Mile-Point 0.6 - <del>5.6</del> 5.6
Contact	Joe Bartley, Manager			Longitude (X)	-86.055533	
Phone	270-422-5006	Cell		Latitude (Y)	37.835950	
Email	mcwatjb@bbtel.com			<i>Information below to be filled out by KYTC</i>		
Contact				<input type="checkbox"/> Air Right	<input type="checkbox"/> Entrance	
Phone	Cell			<input type="checkbox"/> Utilities	<input type="checkbox"/> Other: _____	
Email						
				<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/> X-ing
				Access:	<input type="checkbox"/> Full	<input type="checkbox"/> Partial <input type="checkbox"/> by Permit

General Description of Work:

X

Installation of 12" PVC SDR 17 Waterline and related appurtenances within the ROW of KY 313 (Joe Prather Highway). Installation will be open trench except at road crossings. Road crossings will be installed by bore and jack method. Driveways will be free bored. Installation will be at a minimum depth of 42". All distrubed areas shall be seeded and restored to KYTC Standard Specifications. Woodlawn Road, which is a county road will be open cut due to topography. Surface will be restored with Concrete + Flowable Fill.

X

THE UNDERSIGNED PERMITTEE(s) (being duly authorized representative(s) or owner(s)) DO AGREE TO ALL TERMS AND CONDITIONS ON THE TC 99-1 (A).

Signature Joe Bartley Date 2-28-17

-86.014847  
37.824888

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be one year from the date the permittee submits their application.



**APPLICATION FOR ENCROACHMENT PERMIT**

<b>Permittee Information</b>		<b>KYTC No.</b>		
Name	Meade County Water District	<b>Permit Information</b>		
Address	1003 Armory Place	Address		
		City		
City	Brandenburg	State	Zip	
State	KY	Zip	40108	
County	Meade			
Phone#	270-442-5006	Route No.	KY 144	Mile-Point 28.6 & 31.0
Contact	Joe Bartley, Manager	Longitude (X)	-86.0464 & -86.0759	
Phone	270-422-5006	Latitude (Y)	37.8302 & 37.8509	
Cell	270-668-8215			
Email	mcwatjb@bbtel.com			
Contact	<i>Information below to be filled out by KYTC</i>			
Phone	Cell	<input type="checkbox"/> Air Right	<input type="checkbox"/> Entrance	
Email		<input type="checkbox"/> Utilities	<input type="checkbox"/> Other: _____	
		<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/> X-ing
		Access: <input type="checkbox"/> Full	<input type="checkbox"/> Partial	<input type="checkbox"/> by Permit

**General Description of Work:**

Installation of 12" PVC SDR 17 Waterline and related appurtenances within the ROW of KY 144. Installation will be open trench except at road crossings. Road crossings will be installed by bore and jack method or free bore. Installation will be at a minimum depth of 42". All disturbed areas shall be seeded and restored to KYTC Standard Specifications.

THE UNDERSIGNED PERMITTEE(s) (being duly authorized representative(s) or owner(s)) DO AGREE TO ALL TERMS AND CONDITIONS ON THE TC 99-1 (A).

Signature Joe Bartley Date 3-20-17

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be one year from the date the permittee submits their application.