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ENGINEERING

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2011-00217

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RECEIVED
JUN 06 2014
GENERAL COUNSEL

RECEIVED
JUN 6 2014
PUBLIC SERVICE
COMMISSION

June 2, 2014

Ms. Ann Ramser, Staff Attorney
KY Public Service Commission
Office of General Counsel
211 Sower Blvd.
Frankfort, KY 40601

RE: Cannonsburg Water District
Surcharge Spending Plan

Dear Ms. Ramser:

Please accept this as a status report to our March 25, 2014 meeting in your offices and your subsequent email (attached).

We have completed plans/specs for this project and the Water District has advertised the project for bids. Bids will be opened during their regular meeting on June 25, 2014.

We will tabulate the bids and provide the info requested in the email on/before the July 1st deadline that was discussed.

Until then, the attached plans should take care of Item 1 in your email:

1. Map showing the 9 zones, including placement of the 9 master meters, placement of the 12 bypass meters and two saddles per bypass meter, and the size of the pipe where the meters are being placed.

Should there be questions, please contact me.

Sincerely,

E.L. Robinson Engineering

Paul Amburgey, P.E.

Cc: Danny Clarkston- General Manager Cannonsburg Water District
Gary Larimore- KY Rural Water Association (via fax)

CASE NO: 2011-00217

CONTAINS

LARGE OR OVERSIZED

MAP(S)

RECEIVED ON: June 6, 2014

Paul Amburgey

From: Ramser, Ann (PSC) <Ann.Ramser@ky.gov>
Sent: Wednesday, March 26, 2014 9:10 AM
To: 'sharon'; Paul Amburgey; 'g.larimore@krwa.org'
Cc: Cole, Aaron Ann (PSC); Reid, Sam H (PSC); Wakim, George W (PSC); Frost, Mark C (PSC)
Subject: RE: Surcharge Spending Plan

As discussed during our meeting yesterday, the plan to spend the money currently on hand needs to include the following items:

1. Map showing the 9 zones, including placement of the 9 master meters, placement of the 12 bypass meters and two saddles per bypass meter, and the size of the pipe where the meters are being placed.
2. Bids identifying materials, meters, and labor for the 9 zones and the 12 bypass meters. Bids should indicate expiration dates.
3. A breakdown of the detailed construction costs for each of the 9 zones. This total cost should be equal to the bid that is accepted.
4. Time line for installation of all materials and meters.
5. Once materials and meters are installed in each zone, time line for determining sources of unaccounted for water loss and amount of water loss from each source.
6. General statement indicating how the results will be used to eliminate the sources of unaccounted-for water loss (ie the zone with the most water loss will be resolved first).

Please let me know if you have any questions.

Ann Ramser
Staff Attorney
Office of General Counsel
Public Service Commission
211 Sower Boulevard
Frankfort, KY 40601
(502) 782-2585

2011-00217



E.L. ROBINSON
ENGINEERING

Public Water &
Wastewater Systems Development

Bridge & Structural Engineering

Oil & Natural Gas Systems
Development

Transportation Engineering

Construction Management

Geotechnical Engineering

Surveying & Technology

Mine Engineering

Land Planning & Landscape
Architecture

Site Development

KY PSC Surcharge Funded Water System Improvements-

**Monitor and Bypass Meter Installations for
Water Loss Prevention
and Leak Detection, Control**

**CONTRACT 1- FURNISH MATERIALS
CONTRACT 2- LABOR/INSTALLATION
Prepared for:**

***Cannonsburg Water District,
Ashland/Boyd Co. KY***

May 2014

**E. L. Robinson Engineering
3145 Greenup Avenue
Ashland, KY 41101
Ph: (606) 571-1849
Fax: (606) 326-1890**

RECEIVED

JUN 6 2014

PUBLIC SERVICE
COMMISSION

T: 606.326.1890

elrobjnsoneengineering.com



INFORMATION ON PROJECT

DATE: June 3, 2014

PROJECT Cannonsburg Water District – KY PSC Funded Water System Improvements
Monitor and Bypass Meter Installations for Water Loss Prevention and Leak Detection

LOCATION Boyd County, Kentucky

OWNER/ADDRESS 1606 Cannonsburg Road, Ashland, Kentucky 41102

PHONE (606) 928-9808

ESTIMATED COST RANGE Contract 1- Furnish Materials (\$ 120,000 - \$ 130,000);
Contract 2- Labor/Installation (\$ 65,000 - \$ 85,000)

DESCRIPTION/QUANTITIES Contract 1- Contractor Labor for installation of (14) – 1”
Bypass Meter settings, and (10) – 6” Monitor Meter settings . Contract 2- Furnishing and
delivery of materials for installation under Contract 1. State Prevailing Wage Rates are not
applicable as estimated construction cost is below State threshold level.

PROJECT STATUS Bid opening has been scheduled for June 25, 2014. Bids to be opened
at 11:00 A.M., Cannonsburg Water District Office, 1606 Cannonsburg Road, Ashland,
Kentucky 41102

PLAN AVAILABILITY June 4, 2014 from Engineer, (\$75.00 Deposit)

BOND REQUIRED: BID 5% PERFORMANCE/PAYMENT 100%

Bid/Performance/Payment Bonds required on Contract 1 only.

COMMENTS Plan deposit charge is non-refundable

BY Paul Amburgey P.E.
PROJECT MANAGER

**SPECIFICATIONS
AND
CONTRACT DOCUMENTS
FOR THE
CANNONSBURG, KY WATER DISTRICT
KYPSFC FUNDED WATER SYSTEM IMPROVEMENTS**

**Monitor and Bypass Meter Installations for
Water Loss Prevention
and Leak Detection, Control**

**CONTRACT 1- FURNISH MATERIALS
CONTRACT 2- LABOR/INSTALLATION**

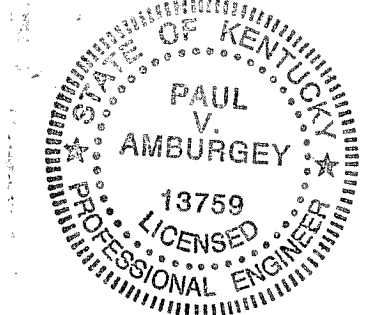
BOYD COUNTY, KENTUCKY

MAY 2014

PREPARED BY:

E.L. ROBINSON ENGINEERING OF KY

**3145 GREENUP AVENUE
ASHLAND, KY 41101**



PAUL V. AMBURGEY, P.E.

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SECTION 1
ADVERTISEMENT FOR BIDS

**ADVERTISEMENT FOR BIDS
CANNONSBURG WATER DISTRICT
BOYD COUNTY, KENTUCKY
KY PSC FUNDED WATER SYSTEM IMPROVEMENTS**

Sealed bids for the construction of the KY PSC Funded Water System Improvements-
Contract 1- Contractor labor for installation of (14) Each – 1” Bypass Meter settings,
and (10) Each – 6” Monitor Meter settings , **Contract 2-** Furnishing and delivery of
materials for installation under Contract 1 for the Cannonsburg Water District. Bids will be received by the Owner until June 25, 2014. Bids will be opened at 11:00 AM Local Time at the office of the Owner located at 1606 Cannonsburg Road, Ashland, Kentucky 41102. Bids received after the scheduled closing time for the reception of bids will be returned unopened to the Bidder.

The contract completion time is ninety (90) consecutive calendar days for each Contract from the Notice to Proceed date specified in the contract documents.

The Bidding Documents, consisting of Plans, Specifications, and Contract Documents may be examined at the following places:

Cannonsburg Water District	E.L. Robinson Engineering
1606 Cannonsburg Road	3145 Greenup Avenue
Ashland, Kentucky 41102	Ashland, KY 41101
Phone: 606-928-9808	Phone: 606-571-1849
Contact: Danny Clarkston	Contact: Paul Amburgey P.E.
General Manager	Director of Engineering KY

Bidding Documents may be purchased/obtained from E.L. Robinson Engineering, 3145 Greenup Avenue, Ashland, KY 41101 upon payment of seventy-five dollars (\$75.00) per set, which is not subject to refund.

The sealed envelope containing the Bidder Information and Form of Proposal must have the following information clearly printed or typed on the front lower left hand corner:

“Bid for KY PSC Funded Water System Improvements for the Cannonsburg Water District:
Contract 1 or 2 Submitted by: (insert name & address of bidder).”

All required information must be included in the envelope for the bid to be considered responsive.

No bidder may withdraw their bid for a period of 45 days following date of receipt of bids. The Owner reserves the right to reject any and all bids, to waive informalities, and to reduce the scope of the project units if necessary so the accepted bid (s) are within budgeted funds.

Contract 1 Bids shall be accompanied by a certified check or bid bond payable to the Cannonsburg Water District in an amount not less than five percent (5%) of the base bid.

A Performance and Payment Bond each in the amount of 100 percent of the Contract Price issued by responsible surety will be required of the successful Bidder for Contract 1.

Bid/Performance/Payment Bonds are not required for Contract 2.

Any contract or contracts awarded under this Invitation for Bids are expected to be funded by funds collected by the Water District under supervision of KY PSC.

CANNONSBURG WATER DISTRICT

By: Robert McGuire, Chairman

Published: ASHLAND DAILY INDEPENDENT JUNE 4, 2014

SECTION 2
INFORMATION FOR BIDDERS

INFORMATION FOR BIDDERS

BIDS will be received by Cannonsburg Water District

(herein called the "OWNER"), at the Water District Office on 1606 Cannonsburg Road

until June 25, 2014 at 11:00 AM and then at said office publicly opened and read aloud.

Each BID shall be submitted in a sealed envelope, addressed to the Cannonsburg Water District, 1606 Cannonsburg Road at Ashland, Kentucky, 41102. Each sealed envelope containing a BID shall be plainly marked on the outside as "BID" for KY PSC Funded Water System Improvements- **Contract 1**- Contractor labor for installation of (14) Each – 1” Bypass Meter settings, and (10) Each – 6” Monitor Meter settings , **Contract 2**- Furnishing and delivery of materials for installation under Contract 1 . The enveloped should bear on the outside the BIDDER'S name, address, and license number if applicable and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at 1606 Cannonsburg Road, Ashland, Kentucky 41102 .

All BIDS shall be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any or all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 45 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each BID shall be accompanied by a BID bond payable to the OWNER for five percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS shall be returned. The BID BOND of the successful BIDDER will be retained until the PAYMENT BOND and PERFORMANCE BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A PERFORMANCE BOND and a PAYMENT BOND each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or PAYMENT BONDS and PERFORMANCE BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the PERFORMANCE BOND and PAYMENT BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER AND CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

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

A conditional, unbalanced or, qualified BID shall not be accepted.

Award shall be made to the lowest responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to its BID.

Further, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the SUPPLEMENTAL GENERAL CONDITIONS.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

The ENGINEER is E.L. Robinson Engineering The ENGINEER'S ADDRESS IS 3145 Greenup Avenue, Ashland, KY 41101.
The Amounts retained under provisions of the CONTRACT DOCUMENTS shall not be placed in escrow account nor invested for the benefit of the contractor.

Note: The following information must be included with the BID package: 1) BID Form, BID BOND, BIDDER Questionnaire.

SECTION 3
GENERAL CONDITIONS
&
SUPPLEMENTAL GENERAL CONDITIONS

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
 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. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *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.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F 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 Paragraph 9.09 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 14.04 or 14.05).

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. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. 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 Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *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 Agreement 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 Agreement. 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 Agreement, whichever date is earlier.

2.04 *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 the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
 - 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.

2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *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 2.05.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 component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, 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 Contract Documents. 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 Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier 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
 2. 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.
- 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.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- 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 the Work is to be performed 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.

4.02 *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 contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited 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. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed 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 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
 - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous 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 shall not be responsible for 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 such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

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

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *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.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited 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. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. 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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which 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:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. 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; and
 6. 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and 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;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full 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 interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 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, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee 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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- 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.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "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 specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "*Or-Equal*" Items: If in Engineer's sole discretion 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, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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; and
 - 3) it has a proven record of performance and availability of responsive service.
- 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.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. 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:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) 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

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.
- C. 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. 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 moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. 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.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *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 knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. 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 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 by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other 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 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 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 property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- 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 6.13.A.2 or 6.13.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 (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 for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *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.

6.15 *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.

6.16 *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.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.
 - 1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - 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 6.17.D.
 - 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. 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 6.17.D.
- B. 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. *Submittal Procedures:*
 - 1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - 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 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 and approval of that 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 both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval 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 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

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.

6.18 *Continuing the Work*

- A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *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 representation of 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 or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. 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 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 6.20.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 6.20.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.

6.21 *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 law.
- 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, Shop Drawings 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 6.21, 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 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

7.02 Coordination

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.

- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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.

8.12 *Compliance with Safety Program*

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 pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. 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.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with 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, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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 Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. 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; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *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.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;
 - 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs 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 11.01.B, 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, 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 11.01.
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 5.06.D), 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.

B. *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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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 Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work 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 or when a Claim for an 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 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
 1. Contractor agrees that:
 - a. 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
 - b. 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:*
 1. 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.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- 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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor 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 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

- C. *Contractor's Fee*: 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is 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 described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests 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.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. 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.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.

- C. If it is found that the uncovered Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *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, 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.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *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 land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 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 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. 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) will be paid by Contractor.
- 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 13.07, 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 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *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 in accordance with Paragraph 13.06.A, 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, 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 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. 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 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

14.02 *Progress Payments*

A. *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 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.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. 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;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
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 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 tentative list.

14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. 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. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. 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
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.

- 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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. 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.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SUPPLEMENTARY CONDITIONS

Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract Funding Agency Edition (No. 1910-8-FA, 1997 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

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

A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement.

SC-2.03. There are no other reports and drawings itemized that are not included with Bidding Documents.

SC-4.06. There are no other reports and drawings itemized that are not included with Bidding Documents.

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

C. The limits of liability for insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

I. Workers' Compensation, and related coverages under paragraphs 5.04.A.1 and A.2 of the General Conditions:

- | | |
|--|------------|
| a. State: | Statutory |
| b. Applicable Federal (e.g., Longshoremen's) | Statutory |
| c. Employer's Liability | \$ 500,000 |

2. Contractor's General Liability under paragraphs 5.04.A.3 and A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of the Contractor:

- | | |
|--|-------------|
| a. General Aggregate | \$1,000,000 |
| b. Products - Completed Operations Aggregate | \$500,000 |
| c. Personal and Advertising Injury | \$500,000 |
| d. Each Occurrence (Bodily Injury and Property Damage) | \$500,000 |
| e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable. | |
| f. Excess or Umbrella Liability | |
| 1) General Aggregate | \$1,000,000 |
| 2) Each Occurrence | \$500,000 |

3. Automobile Liability under paragraph 5.40.A.6 of the General Conditions:

- | | |
|-----------------------------|-----------|
| a. Combined Single Limit of | \$500,000 |
|-----------------------------|-----------|

4. The Contractual Liability coverage required by paragraph 5.04.B.4 of the General Conditions shall be provided by the CONTRACTOR as part of the CONTRACTOR'S General Liability coverage.

SC-6.05.C. Amend the paragraph by making two subparagraphs under the title C. Engineer's Evaluation. The paragraph text is retitled, 6.05.C.2 After Effective Date of Agreement. A new paragraph is added before this paragraph to read as follows:

I. During Bidding. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or "or-equal" materials and equipment as defined in paragraph 6.05 of the General Conditions, or those substitute or materials and equipment approved by the

SECTION 5
TECHNICAL SPECIFICATIONS

**CANNONSBURG WATER DISTRICT
WATER SYSTEM IMPROVEMENTS
DETAILED SPECIFICATIONS**

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GENERAL

Section 00001

GENERAL INFORMATION

Project Title

Section 1. KY PSC Funded Water System Improvements for the Cannonsburg Water District.

Scope of Work

Section 2. The work to be performed consists of furnishing all materials, labor equipment and the execution of all operations necessary for the completion of the mentioned contract for the Cannonsburg Water District.

The Major items of work include:

1. **Contract 1-** Contractor labor for installation of (14) Each – 1” Bypass Meter settings, and (10) Each – 6” Monitor Meter settings , **Contract 2-** Furnishing and delivery of materials for installation under Contract 1
2. All miscellaneous items of work shown by the drawings and/or described in the specifications (Contracts 1 and 2).

Scheduling of Work

Section 3. The work shall be scheduled so the water lines can be put into service by phases and at the earliest possible date.

The Contractor shall coordinate all required shut-downs of water lines in use with the Cannonsburg Water District; so as to cause the least inconvenience to existing users thereof.

All work shall be completed within time limit established in other portions of the Contract Documents.

Traffic Maintenance

Section 4. All traffic must be maintained at all times on public streets and roadways. No road or street shall be closed without special written permission from the Owner.

Traffic must be maintained on Boyd County Fiscal Court maintained roads in accordance with the Standard Drawings.

GENERAL

Section 01000

Standards

Section 1. All material furnished by the Contractor to be installed on the Project shall conform to the minimum requirements of the latest revisions in effect on the date of the standard specification published by the described organizations, unless other requirements are stated in these specifications. The standard specifications are combined under a single caption, for the sake of brevity, whenever referred to in the specifications as follows:

American Society of Testing Materials	ASTM
American Standards Association	ASA
American Water Works Association	AWWA
American Concrete Institute	ACI
American Association of the State Highway Officials	AASHO
Standard Specifications for Road and Bridge Construction, Kentucky Department of Highways	KDOH
Federal Specifications	FED
American Railway Engineering Association	AREA
Occupational Safety and Health Administration	OSHA
National Electric Code	NECK
Steel Structures Painting Council	SSPC
Fiberglass Reinforced Pipe Institute	FRPI
Kentucky Basic Building Code	KBBC

The standards referred to, except as modified in these specifications, shall have the same force and effect as though printed herein. These standards are not furnished to bidders because contractors, manufacturers, and trades involved are generally assumed to be familiar with their requirements. The Consulting Engineer will furnish, upon request, information as to how copies of and standards, included by reference only, may be obtained.

Inspection and Testing

Section 2. The manufacturer of the specific materials shall establish the necessary quality control and inspection practice to assure compliance with the individual specification outlined above for the particular material.

Construction Site

Section 3. The construction area shall be confined to the limits of the public right-of-way in streets, the limits of the construction easements on private property as set forth by the Owner or to the property belonging to the Owner. The limits for the construction area are shown on the detailed construction drawings.

Samples

Section 4. Samples of materials or equipment submitted for review and contract compliance shall have a label indicating the material represented, its place of origin, and the name of the producer, the Contractor expecting to use the equipment, and the work for which the material will be used. Samples of finished materials shall be marked to indicate where they are required by the drawings and specifications.

Each delivery of samples shall be accompanied under separate cover by letter in duplicate from the Contractor containing a list of the samples, as indication of where the materials are intended to be used and the brands of materials and names of the manufacturers.

Acceptance of any samples shall not be taken in itself to change or modify any contract requirements, for acceptance shall be only for the characteristics or for the use of the material. The Project Manager, whenever he may deem it necessary, may take test samples from the various materials or equipment delivered to the site of the work by the Contractor. If any such test samples fails to meet the specification requirements, any previous approvals will be withdrawn and such material or equipment shall be subject to removal and replacement by the Contractor with material or equipment meeting the specification requirements; or, at the discretion of the Project Manager, the defective materials and equipment may be permitted to remain in place subject to a satisfactory adjustment of the contract.

Climatic Conditions

Section 5. All work which will be affected by climatic conditions, (wind, rain, frost, freezing or any other environmental conditions) shall be suspended unless permission is given by the Project Manager to proceed. Whenever work proceeds under any such conditions, the Contractor shall provide approved facilities for protecting all the materials and the finished work. This will include heating of materials if required for their proper installation.

END OF SECTION

SECTION 01060

APPLICABLE CODES

PART 1 - GENERAL

1.01 SCOPE

- A. All materials, products and construction procedures used during the execution of this Contract or incorporated in the Work shall comply with the latest provisions of applicable codes, regulations, and standards. A partial listing includes the following:
1. State Building Code.
 2. National Fire Codes.
 3. Regulations and Standards of the Occupational Safety and Health Act (OSHA), of the U.S. Department of Labor, and of the State.
 4. National Electrical Code.
 5. National Electric Safety Code (NESC).
 6. Underwriter's Laboratories, Inc.
 7. National Electrical Manufacturer's Association
 8. American National Standards Institute.
 9. American Society for Testing Materials.
 10. American Society of Heating, Refrigerating and Air Conditioning Engineers.
 11. Institute of Electrical and Electronics Engineers.
 12. All other applicable codes, regulations listed in the Specifications, and standards of utility companies.
- B. Specific provisions of codes, regulations and standards may be referenced in the Specifications to assist the Contractor and identify options selected by the Engineer. Such references do not relieve the Contractor from compliance with other applicable provisions of the codes, regulations and standards not specifically referenced.
- C. Should any change in the Work be required to comply with applicable codes, regulations, or standards, the Contractor shall refer same to the Owner.
- D. Should any change in the Work be required to comply with local regulations, field conditions, or the request of other parties, the Contractor shall refer same to the Owner for approval before any Work which deviates from the Original requirements and/or intent of the Drawings and Specifications is started. In the event of disagreement as to the necessity of such changes, the decision of the owner will be final and binding.

END OF SECTIONS

SECTION 01301

SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submittal Procedures.
- B. Construction Progress Schedules.
- C. Proposed products List.
- D. Shop Drawings.
- E. Product Data.
- F. Samples.
- G. Manufacturers' Instruction.
- H. Manufacturers' Certificates.
- I. Resubmittals.

1.02 RELATED SECTIONS

- A. Section 01400, Quality Control: Manufacturers' Field Services and Reports.
- B. Section 01700, Contract Closeout: Contract Warranty and Manufacturer's Certificates Closeout Submittals.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Form G810 or Engineer accepted form.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or Supplier; pertinent Drawing sheet and detail number(s), and Specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialled certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Make all submittals far enough in advance of Schedule dates of installation to provide all required time for review, for securing necessary reviews by others, for possible revision and resubmittal, for placing orders and securing delivery. Deliver, postage prepaid. Schedule submittals to expedite the Project, and deliver to the Engineer at business address. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.

- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- J. In scheduling, allow at least ten (10) full working days (Monday through Friday, less legal holidays) for the Engineer's review and approval. Following his receipt of the submittal the Engineer will return via first class mail. The Engineer is required by the Owner to provide prompt disposition of all submittals, and will transmit the submittal, request for additional information, or a notification that additional time will be required for review and approval due to the complexity of the submittal, within the ten (10) working day period. Regardless of the size and complexity of the submittal, review and approval shall be complete within thirty (30) working days.

1.04 PROPOSED PRODUCTS LIST

- A. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.05 SHOP DRAWINGS

- A. Submit in the form of one reproducible transparency and one opaque reproduction, or, submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer.

1.06 PRODUCT DATA

- A. Submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Mark out inapplicable areas. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.07 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Engineer's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number of samples specified in individual Specification Sections; one of which will be retained by the Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual Specification Sections.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual Specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual Specification Sections, submit manufacturers' certificate to the Engineer for review, in quantities specified for Project Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to the Engineer.

1.10 RESUBMITTALS

- A. The Owner may request a fee to be paid by the Contractor for submittals which are being reviewed by the Engineer for the third time or more. Each claim by the Owner will be substantiated on a time and material basis.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Field samples.
- D. Mock-up.
- E. Inspection and testing laboratory services.
- F. Manufacturers' field services and reports.

1.02 RELATED SECTIONS

- A. Section 01060, Applicable Codes.
- B. Section 01090, Reference Standards.
- C. Part 3, General Conditions, Section 41: Shop Drawings and Samples.
- D. Section 01600, Material and Equipment: Requirements for Material and Product Quality.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.

1.05 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications Sections for review.
- B. Acceptable samples represent a quality level for the Work.

- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by the Engineer.

1.06 MOCK-UP

- A. Tests will be performed under provisions identified in this Section.
- B. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by the Engineer.

1.07 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual Specification Sections, require material or product suppliers, or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment and lubrication as applicable, and to initiate instructions when necessary.
- B. Manufacturer's personnel are to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report in duplicate within 10 days of observation to the Engineer for review.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Section and payment.
- B. Contractor submittals.
- C. Laboratory responsibilities.
- D. Laboratory reports.
- E. Limits on testing laboratory authority.
- F. Contractor responsibilities.
- G. Schedule of inspections and tests.

1.02 RELATED SECTIONS

- A. Part 3, General Conditions.
- B. Section 01650, Starting of Systems: Testing, Adjusting, and Balancing of Systems.
- C. Section 01700, Contract Closeout: Project Record Documents.
- D. Individual Specification Sections: Inspections and Tests Required, and Standards for Testing.

1.03 REFERENCES

- A. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.04 SELECTION AND PAYMENT

- A. Contractor shall employ and pay for services of an independent testing laboratory to perform specified inspection and testing.
- B. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.05 QUALITY ASSURANCE

- A. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.
- B. Laboratory: Authorized to operate in State in which Project is located.
- C. Laboratory Staff: Maintain a full time State registered Engineer on staff to review services.

- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.06 CONTRACTOR SUBMITTALS.

- A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.
- B. Submit copy of report of Laboratory Facilities Inspection made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.07 LABORATORY RESPONSIBILITIES

- A. Test samples of mixes submitted by Contractor.
- B. Provide qualified personnel at site. Cooperate with the Engineer and Contractor in performance of services.
- C. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.
- D. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- E. Promptly notify the Engineer and Contractor of observed irregularities or non-conformance of work or products.
- F. Perform additional inspections and tests required by the Engineer.

1.08 LABORATORY REPORTS

- A. After each inspection and tests, promptly submit two copies of laboratory report to the Engineer, and to Contractor.
- B. Include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and Specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- C. When requested by the Engineer, provide interpretation of test results.

1.09 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of the Work.
- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of Products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Notify the Engineer and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- E. Where excavated material available for compacting proves to be unsuitable or the Contractor finds it impractical to use the excavated material to meet the requirements, the Contractor shall, at not extra cost compensation, procure suitable backfill material elsewhere and dispose of the unsuitable material.

1.11 SCHEDULE OF INSPECTIONS AND TESTS

- A. Inspection and tests for soil and rock shall be in accordance with Division 2 and ASTM D3470.
- B. Inspections and tests for concrete shall be in accordance with Division 3.
- C. Owner will provide testing lab services for soil to determine acceptability of the fill or material solely for the Owner's own benefit. Additional tests and inspections desired by the Contractor to meet compaction limits shall be provided by the Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

- A. The Contractor shall provide all temporary utility services, all temporary controls, and all construction facilities for the proper execution and completion of this project. Contractor shall obtain and pay for his own telephone service, construction field office, sheds and storage trailers.
- B. No additional payment will be made for provision or use of the temporary utilities service.
- C. Temporary utilities will remain in service until Project completion.

1.01 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, gas, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings.

1.02 RELATED SECTIONS

- A. Section 01550, Access Roads and Parking Areas.
- B. Section 01560, Temporary Controls.
- C. Section 01700, Contract Closeout: Final Cleaning.

1.03 TEMPORARY ELECTRICITY

- A. Provide temporary electrical service for construction needs throughout construction period.
- B. Service shall be adequate for construction use by all trades during construction period.
- C. The Contractor shall make all necessary arrangements with the power company to obtain this service. He shall furnish, erect, and maintain the service pole, wires, main switch, panelboards, outlets, lights and metering facilities as required by the Power Company and as necessary to provide electrical service throughout the construction site.
- D. The Contractor shall be responsible for payment of all monthly billing charges for temporary electric power. Contractor shall pay costs of equipment, materials, furnishing, installing, maintenance and removal of temporary electric service facilities.
- E. Maintenance of temporary electric service shall be the sole responsibility of the Contractor.

1.04 TEMPORARY LIGHTING

- A. Furnish and install temporary lighting required for:
 - 1. Construction needs.
 - 2. Safe and adequate working conditions.
 - 3. Public Safety.

4. Security lighting.
 5. Temporary office and storage area lighting.
- B. Service periods:
1. Security Lighting: All hours of darkness.
 2. Safety Lighting:
 - a. Within Construction Area: All times that authorized personnel are present.
 - b. Public Areas: At all times.
- C. Costs of installation and operation:
1. Contractor shall pay all installation, maintenance and removal costs of temporary lighting.
- D. Maintenance of temporary lighting service (replacement of bulbs, etc.) shall be the sole responsibility of the Contractor.

1.05 TEMPORARY HEAT AND VENTILATING

- A. Furnish and install temporary heat and ventilation in enclosed areas throughout construction period required to:
1. Facilitate progress of work.
 2. Protect work and products against dampness and cold.
 3. Prevent moisture condensation on surfaces.
 4. Provide suitable ambient temperatures and humidity levels for installation and curing of materials.
 5. Provide adequate ventilation to meet health regulations for safe working environment.
 6. Heat and ventilate temporary field offices for Contractor and for Engineer, and the storage and construction buildings.
 7. Allow beneficial occupancy of project, or portion of project, prior to final completion, including air conditioning.
- B. Temperatures Required in Buildings:
1. Generally 24 Hours a Day: Minimum 40 degrees F. (4.5°C).
 2. 24 Hours a Day During Placing, Setting and Curing of Cementitious Materials: As required by Specifications Section for each product.
 3. 24 Hours a Day, Seven Days Prior to, and During, Placing of Interior Finishes; Woodwork, Flooring, Painting and Finishing: As required by Specification Section for each product.
 4. 24 Hours a Day After Application of Finishes, and until Substantial Completion: Minimum 70 degrees F. (21°C.).
 5. Storage Areas: As required by Specification Section for each product.
- C. Ventilation Required.
1. General: Prevent hazardous accumulations of dusts, fumes, mists, vapors or gases in areas occupied during construction.
 - a. Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into atmosphere of occupied areas.
 - b. Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - c. Ventilate storage spaces containing hazardous or volatile materials.
 2. Provide adequate ventilation for:
 - a. Curing installed materials.
 - b. Dispersal of humidity.
 - c. Ventilation of temporary sanitary facilities.
 3. Duration of operation:

- a. For personnel:
 - 1. At all times personnel occupies an area subject to hazardous accumulations of harmful elements.
 - 2. Continue operation of ventilation and system for time after cessation of work process to assure removal of harmful elements.
 - b. For Curing Installed Materials: As required by Specifications Section for respective materials.
 - c. For Humidity Dispersal: As needed to provide suitable ambient conditions for work.
- D. Pay costs of installation, operation, maintenance and removal of temporary heat and ventilation.

1.06 TEMPORARY TELEPHONE SERVICE

- A. Furnish and install temporary telephone service for construction needs throughout construction periods. Contractor shall supply telephone service for Engineer field office.
- B. Pay costs for temporary telephone service, including installation, maintenance, and removal.
- C. Pay service costs for all local telephone service.

1.07 PROTECTION AND SECURITY

- A. Provide barricades, lanterns and other such signs and signals as may be necessary to warn of the dangers in connection with open excavation and obstructions.
- B. Provide an adequate and approved system to secure the project area at all times, especially during non-construction periods; Contractor shall be solely responsible for taking proper security measures.
- C. Contractor shall pay all costs for protection and security systems.

1.08 REMOVAL

- A. Completely remove temporary materials, equipment, and offices upon completion of construction.
- B. Repair damage caused by installation, and restore to specified or original condition.

1.09 SANITARY FACILITIES

- A. The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, enclosed temporary toilets, in sufficient number, shall be placed as directed by the Engineer. Permanent toilets installed under this Contract shall not be used during construction. Drinking water shall be provided from a proven safe source so piped or transported as to be kept clean and fresh and served from single service containers of satisfactory types.

1.10 TEMPORARY PROTECTION

- A. Furnish and install temporary enclosures at doorways, windows and other openings in exterior walls, as necessitated by weather and other conditions, and when required for the progress of the work. Temporary doors shall be substantially built and hung, equipped with proper hinges, locks and other necessary hardware and shall be removed and reset whenever required to accommodate the work of other trades requiring their removal. All

enclosures shall be maintained in good repair and removed when no longer needed. Door and window frames and sills shall be protected as necessary to prevent damage to items during construction.

- B. Temporary Covering: Provide substantial temporary wood covering over all floor openings for ducts, shafts, equipment, etc., using rough planking at least two (2) inches thick, cleated together and made sufficiently strong and put in place wherever required.
- C. Temporary Railings; Temporary railing shall be provide on stairs and around wells, pits and other locations where needed, to prevent accidents or injury to persons.

1.11 UTILITY CHARGES

- A. Electricity: The Contractor shall be responsible for payment of temporary electric power charges until such time that all treatment processes are placed in satisfactory continuous operation, 24 hours per day, 7 days per week, and having operated successfully for a period of 30 days (Substantial Completion), at which time electricity billing shall be transferred to the Owner.

1.12 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.13 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection or in a time period approved by the Engineer.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01560

TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Water Control.
- B. Dust Control.
- C. Erosion and Sediment Control.
- D. Noise Control.
- E. Pest Control.
- F. Pollution Control.

1.02 RELATED SECTIONS

- A. NOT APPLICABLE.

1.03 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.04 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.05 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- F. Include such temporary measures as straw bale barrier, sediment basin, silt fence, storm drains inlet protection, temporary seeding per Soil Conservation Service, "Water Management and Sediment Control for Urbanizing Areas" publication.

1.06 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Substitutions.
- E. Prequalification.

1.02 RELATED SECTIONS

- A. Section 01400 - Quality Control: Product quality

1.03 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.
- D. Brand Name Products Specified: The use of brand names in the contract Documents shall in each instance be understood to mean that: (a) a standard for comparison of equality has been established by the Engineer to identify his design objectives in easily recognized terms; (b) the name(s) identified are an effort on the part of the Engineer to assist all prospective Bidders to locate, with ease, source(s) for equipment and/or materials that can conform to Specification requirements; and (c) although the Engineer recognizes the fact that brands other than those names may be generally available and purported to be capable of achieving the same result, and may be submitted by a Contractor as substitutes for those named, the burden of proof of equality shall rest entirely upon the Contractor.

Under no circumstances shall the appearance in the Contract Documents of a particular brand, model, or type designation for equipment or material be inferred as automatic basis for acceptance of equipment or material bearing that designation, merely because the designation appears in these Documents. Acceptance of all items proposed, whether named or not, will be judged solely upon demonstration by the Contractor that each item meets all performance requirements specified.

1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.05 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated Products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of Products to permit access for inspection. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.

1.06 SUBSTITUTIONS

- A. Engineer will consider requests for Base Equipment Substitutions (Alternate Equipment) proposed by the Contractor in the BID after the "Notice to Proceed" is issued for equipment which is not prequalified for the Base Bid Equipment Schedule. See Part 1.07 for Equipment which is not prequalified for the Base Bid Equipment Schedule. See Part 1.07 for Equipment Prequalifications.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Project.
 - 3. Will coordinate installation and make changes to other work which may be required for the work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently

5. become apparent.
Will reimburse Owner for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitution Submittal Procedure:
1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 2. Submit Shop Drawings, Product data, and certified test results attesting to the proposed Product equivalence.
 3. The Engineer will notify Contractor, in writing, of decision to accept or reject request.

1.07 EQUIPMENT PREQUALIFICATION

- A. Equipment shall be provided by a manufacturer/supplier experienced in the design and production of similar type, size and capacity equipment.
- B. Within 10 days prior to the Bid Opening, manufacturer/suppliers who are not currently listed in the Base Bid Equipment Schedule must obtain pre-bid qualification, from the Engineer, of the equipment specified to be able to quote to Bidders on the Base Bid.
- C. Manufacturer/Supplier shall submit to the Engineer all necessary information specified and any other pertinent information requested by the Engineer after review of the prequalification submittal. This submittal shall constitute a representation that the manufacturer/supplier:
1. Has determined that it meets or exceeds the quality and capacity levels of the specified products.
 2. Will provide a warranty as specified in Section 01740.
 3. Will coordinate installation and start-up and make changes to other Work which may be required for the work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extensions which may subsequently become apparent.
 5. Will reimburse Owner for review or redesign services associated with approval.
 6. Submittal must be signed and sealed by a Registered Professional Engineer who may be an employee of the manufacturer.
- D. Manufacturer/Supplier may request a prequalification submittal conference with the Engineer if submittal is rejected by Engineer.
- E. Manufacturer/Supplier shall allow five (5) working days review time by the Engineer for prequalification submittal.

- F. Bidder must make certain that equipment is prequalified before including the proposed equipment in their Base Bid.
- G. Contractors may review pre-bid qualified equipment (Alternate Equipment) Shop Drawings by appointment with the Engineer or by contacting the manufacturer/supplier directly. The Engineer shall not deliver Shop Drawings to any Plan Holder.
- H. Selection of Alternate Equipment by Contractor constitutes a representation that:
 - 1. Proposed product meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the Alternate as for the specified product.
 - 3. Will coordinate installation and make changes to other work which may be required for the work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.

1.08 PATENT INFRINGEMENT

- A. The Contractor, at his own expense, will defend, save harmless, settle or otherwise dispose of any suit brought against the Owner or its representatives which is based on a claim that the equipment proposed and offered by the Contractor, and the operation thereof in accordance with the methods specified by the Contractor constitutes an infringement on any United States patent or patents prior to the dates of the proposal and acceptance of the equipment, and will pay all damages and costs awarded therein against the Owner, or any amounts agreed upon in any settlement or disposal thereof with the Contractor's consent, if such Contractor is duly notified in writing of such suit and given authority, information and assistance (at the expense of the Contractor) for the defense of same, provided that the Contractor will not be liable for any claim or infringement based upon the operation of the equipment proposed by the Contractor not substantially conforming to the methods specified by the Contractor's written operation instruction, or on any modifications of the equipment not approved by the Contractor in writing, or on the use of the equipment proposed (or any part thereof) in connection with a patented process over which the Contractor has no control.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01650

STARTING OF SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Starting Systems.
- B. Demonstration and instructions.
- C. Testing, adjusting, and instructions.

1.02 RELATED SECTIONS

- A. Section 01400, Quality Control: Manufacturers Field Reports
- B. Section 01700, Contract Closeout: System Operation and Maintenance Data and Extra Materials.

1.03 STARTING SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer seven (7) days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual Specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

1.04 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment location.
- E. Prepare and insert additional data in Operations and Maintenance Manuals when need for additional data becomes apparent during instruction.
- F. The amount of time required for instruction on each item of equipment and system is that specified in individual Sections.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Closeout Procedures.
- B. Substantial Completion.
- C. Final Cleaning.
- D. Adjusting.
- E. Project Record Documents.
- F. Operation and Maintenance Data.
- G. Warranties.
- H. Spare Parts and Maintenance Materials.

1.02 RELATED SECTIONS

- A. Section 01500, Construction Facilities and Temporary Controls: Progress Cleaning.
- B. Section 01650, Starting of Systems: System Start-Up, Testing, Adjusting, and Balancing.
- C. Section 01730, Operation and Maintenance Data.
- D. Section 01740, Warranties and Bonds.

1.03 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide submittal to Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.04 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 (7) days after receipt of certification, together with Owner's representative.
- C. Should Engineer consider that Work is substantially complete:

1. Contractor shall prepare, and submit to Engineer, a list of items to be completed or corrected, as determined by the inspection.
 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. Owner occupancy of Project or Designated Portion of Project:
 - a. Contractor shall:
 1. Obtain Certificate of Occupancy.
 2. Perform final cleaning in accordance with Section 01710.
 - b. Owner will occupy Project, under provisions stated in Certificate of Substantial Completion.
 4. Contractor: Complete Work listed for completion or correction, within designated time.
- D. Should Engineer consider that Work is not substantially complete:
1. Engineer 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-inspect Work.

1.05 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Clean filters of operating equipment.
- E. Clean debris from roofs, gutters, downspout, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.

- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.06 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.07 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following Record Documents; record actual revisions to the Work:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed Shop Drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- B. Specifications: Legibly mark and record at each product Section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilize.
 - 3. Changes made by Addenda and Modifications.
- C. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measure depths of foundations in relation to finish first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- F. Submit documents to Engineer with claim for final Application for Payment.

1.08 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual Specifications Sections.
- B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.
- C. All spares shall be coated or packed in an approved fashion to prevent corrosion or deterioration during long time storage. Packaging shall be marked in an approved fashion to identify each spare part.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Related Requirements:
 - 1. Project Closeout: Section 01700.
 - 2. Cleaning for Specific Products or Work: Specification Section for that work.
- B. Maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.
- C. 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.

1.02 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.
 - 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 - PRODUCTS

2.01 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

3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals during progress of work, clean site and public properties, and dispose of waste materials, debris and rubbish.
- D. Provide on-site containers for collection of waste materials, debris and rubbish.

- E. Remove waste materials, debris and rubbish from site and generally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handling as possible; do not drop or throw materials from heights.
- G. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

3.02 FINAL CLEANING

- A. Refer to Section 01700.

END OF SECTION

SECTION 01730

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Format and content of Manuals.
- B. Instruction of Owner's personnel.
- C. Schedule of submittals.

1.02 RELATED SECTIONS

- A. Section 01400, Quality Control: Manufacturer's Instructions.
- B. Section 01600, Material and Equipment: Systems Demonstration.
- C. Section 01700, Contract Closeout: Contract Closeout Procedures.
- D. Section 01740, Warranties and Bonds.
- E. Individual Specifications Sections: Specific requirements for Operation and Maintenance data.

1.03 QUALITY ASSURANCE

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.04 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8-1/2 x 11 inch three-ring binders with hardback, cleanable, plastic covers; one inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project and identify subject matter of contents.
- D. Arrange content by systems under Section numbers and sequence of Table of Contents of this Project Manual.
- E. Provide tabbed fly leaf for each separate project and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.05 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Engineer, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- E. Type Text: As required to supplement product data.
- F. Warranties and Bonds: Bind in copy of each.

1.06 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured Products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual product Specifications Sections.

1.07 MANUAL FOR EQUIPMENT SYSTEMS

- A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls and communications.
- C. Include color coded wiring diagrams as installed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instruction.

- E. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instruction; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrications schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.
- K. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- L. Include test and balancing reports as specified in Section 01400.
- M. Additional Requirements: As specified in individual product Specification Sections.

1.08 INSTRUCTION OF OWNER PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. For equipment requiring seasonal operation, perform instructions for other seasons within six months.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in Operation and Maintenance Manual when needed for such data becomes apparent during instruction.

1.09 SUBMITTALS

- A. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- B. Submit one copy of completed volumes in final form 15 days prior to final inspection. Copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final inspection.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Preparation and submittal.
- B. Time and schedule of submittals.

1.02 RELATED SECTIONS

- A. Part 3, General Conditions, Section 32: Guarantee of Work.
- B. Section 01700, Contract Closeout: Contract Closeout Procedures.
- C. Section 01730, Operation and Maintenance Data.

1.03 FORM OF SUBMITTALS

- A. Bind in commercial quality, 8-1/2 x 11 inch binders with hardback, cleanable, plastic covers.
- B. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible principal.
- C. Table of Content: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the Specification Section in which specified, and the name of the project or work item.
- D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.04 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item or work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

1.05 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
- B. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
- C. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

1.06 WARRANTIES

- A. Except as otherwise specifically provided in the Contract Documents, all warranties on equipment and systems shall extend for one calendar year from the date of the particular equipment or system. During the warranty period, the contractor is responsible for repair or replacement of all failures and defects, exclusive of ordinary and routine maintenance and failure traceable to the lack thereof. This requirement shall be thoroughly explained by the Contractor to all prospective equipment suppliers. The provisions of any usual warranty, terms of sale, etc. by supplier shall not be substituted for this requirement, except where such substitution provides an extended warranty beyond the requirements of this paragraph. These warranty requirements are of the essence of the Contract between the Contractor and Owner.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SITWORK

Section 02200

Excavation and Backfill

General

Section 1. The work covered under this section consists of furnishing all labor, materials, and equipment for excavation, backfilling, compacting, rough and final grading, required to complete the construction as shown and specified in the Contract Documents.

Sheeting and Shoring

Section 2. The Contractor shall furnish, put in place, and maintain such piling, sheeting, bracing, etc., as is required by OSHA regulations and the "Safety & Health Regulations for Construction", Title 29, Chapter XVII, CFR, Part 1926, formerly Title 29, Chapter XIII, CFR, Part 1518.

Such piling, sheeting, bracing, etc., shall be furnished, put in place, and maintained as may be required to support the sides of all excavation to prevent any movement which could cause injury to persons, structures, utilities or property, either public or private or any portion of the work being performed under this Contract.

Sheeting, if required, shall remain in place until the pipe or structure has been laid or constructed, tested for defects and repaired if necessary, and the backfill placed and compacted. Sheeting may be pulled concurrently with the placing of backfill if directed by the Project Manager.

The Contractor shall leave in place any and all sheeting, bracing, etc., which the Project Manager may direct him, in writing, to leave in place at any time during the progress of the work for the purpose of preventing injury to structures, utilities or property, either public or private.

Removal of Water

Section 3. The Contractor shall provide at all times during the construction, proper and approved equipment including pumps and well points of sufficient capacity to meet the maximum requirements for the removal of water and like wastes from all excavations. The disposal of the water and wastes shall be in such a manner as not to interfere with the proper construction of pipe lines or masonry. This disposal shall not withdraw sand or cement from concrete work or affect the prosecution of work under his own or adjacent contracts.

The Contractor shall not dispose of ground and/or surface water into newly constructed sanitary sewers or existing sanitary sewers.

Pumping sumps shall be excavated outside the trench or structure excavation lines and be of sufficient size to meet the requirements of the location. The Contractor shall pump out or otherwise remove and dispose of, as fast as it may collect, any water or like wastes which may be found or may accumulate in the excavations. Underdrains, if required to keep the excavations dry, shall lead to pumping sumps.

All excavations must be kept dry as specified for laying pipe or for placing concrete.

Rock Excavation

Section 4. All costs incurred for rock excavation shall be included in the lump sum bid for this project. There shall not be a separate pay item for rock excavations. No excavated rock shall be used for backfill.

Rock excavation is defined as material which is either solid or stratified and which cannot be removed by recognized standard excavating methods. This material will require drilling, blasting, or some other mechanical means of shattering. Boulders one (1) cubic yard and over in volume required to be removed are classified as rock excavation even though portions of it may be stratified or laminated, or may be as hard as portions of sandstone or limestone.

The Contractor shall exercise all possible care in any blasting to avoid injury to persons and adjacent property. The rock shall be well covered and sufficient warning shall be given to all persons in the vicinity of the work before blasting. Proper care shall be exercised to avoid injury to water pipes or other structures either below or above ground. Caps or other exploders shall not be kept in the same place in which dynamite or other explosives are stored. All Federal, State or local regulations covering the use of explosives shall be strictly observed; and in addition, the Contractor shall conform to any further regulations which the Project Manager may deem necessary in this respect.

The Contractor shall remove all rock that is shattered below grade due to a too deep drill hole, a too heavy charge of explosives or for any other reason, and refill the excavation to the required grade with compacted gravel or other suitable material at his expense.

All structures, pipelines, water mains, conduits, etc., below and above ground that are damaged due to blasting of rock are to be replaced or repaired by the Contractor at his expense and to the satisfaction of the Project Manager.

Rock excavation shall be to the depth required to provide a minimum of four (4) inches of clearance below all parts of pipes, valves, or fittings.

The Contractor shall provide crushed aggregate pipe bedding to the specified grade. Trench widths in rock excavations shall be eight (8) inches wider than the outside diameter of the bell of the pipe. Any excavations and backfill beyond these limits will be at the expense of the Contractor.

Buried Pipe Lines

Section 5. Pipe line trenches shall be excavated so that the pipes and appurtenances can be installed to the alignments and grades required. Pipe line trenches in all types of traveled streets, roadways, drives and parking areas to a distance of five (5) feet behind curbs and all road shoulders shall be backfilled with granular material.

If, in the opinion of the Project Manager, the material at or below the normal grade of the bottom of the trench, or other excavation is unsuitable for foundation, it shall be removed to such depths and widths as he may direct and be replaced by the Contractor with gravel, crushed stone or other acceptable materials. Payment for this work will be made as provided in "Changes in Work" in the General Provisions.

If the bottom of any excavation is removed beyond the limits shown on the drawings or described in these specifications without authorization of the Project Manager, it shall be refilled at the Contractor's expense with gravel, crushed stone, or other acceptable material.

Mechanized equipment, such as bulldozers, front end loaders, etc., shall under no conditions, be used to push excavated material directly into the open trench as backfill between the bottom of the trench and one (1) foot above the pipe.

Where gravel backfill is specified, the backfill material from one (1) foot above the pipe to the street or shoulder grade (or subgrade of pavement), shall consist of approved gravel that shall be puddled with hoe and pipe nozzle after the trench is backfilled. The Contractor shall furnish the necessary tank trucks, water, pumps, and all equipment required to settle the gravel backfill by the puddling method.

When the type of trench backfill material is not indicated on the drawings or specified, the Contractor may backfill the trench from one (1) foot above the top of the pipe to the top of the trench with excavated material provided that such material consists of loam, clay, sand, gravel, or other materials that, in the opinion of the Project Manager, are suitable for backfilling. Care shall be taken to carry the backfill up evenly in the trench.

The Project Manager reserves the right to condemn any portion of the work during the term of this Contract, should any gravel backfilled trench settle or there is any other evidence to indicate that the backfill has been improperly placed. The Contractor will be ordered to reopen the trench at those locations and replace the backfill in the proper manner without additional compensation.

Gravel Backfill

Section 6. Gravel used for backfill shall consist of natural bank gravel having durable particles graded from fine to coarse in a reasonably uniform combination with no boulders or stones larger than two (2) inches in size. It shall be free from slag, cinders, ashes, refuse, or other deleterious or objectionable materials. It shall not contain excessive amounts of loam and clay and shall not be lumpy or frozen. No more than fifteen percent (15%) shall pass a No. 200 sieve. All such materials shall be approved by the Project Manager.

Subsurface Conditions

Section 7. The Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or sub-surface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

Site Preparation

Section 8. All trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed.

All cut and fill areas shall be properly stripped. Topsoil shall be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be disposed of off the site, or as directed by the Project Manager if on-site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing by the Project Manager.

Prior to the addition of fill, the original ground shall be compacted to meet the requirements of the specification. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or ground water seepage is found, corrective measures must be taken before the placement of fill.

Demolition

Section 9. The Contractor shall submit a schedule for the demolition of the structures.

The Contractor shall provide all materials and equipment required to meet the goals of demolition as set forth on the construction drawings.

The Contractor shall notify the Project Manager 30 days prior to the demolition of any structure.

END OF SECTION

SITWORK

Section 02202

Excavation and Backfill - Pressure Pipelines

Trench Excavation

Section 1. Trenches for buried pressure pipelines shall be so excavated that the pipes and appurtenances may be installed to the alignments and grades specified or required.

Trenches shall be excavated to a depth that will provide for a minimum of three feet (3'-0") of cover over the pipe as measured from the proposed or final grade to the extreme outside limits of the pipe. Greater depths may be required by the plans or job conditions.

Rock, if encountered in the bottom of the trench, shall be excavated to a depth to provide a minimum of four (4) inches clearance below the extreme outermost limits of the pipe. Backfill shall be coarse aggregate, or bank run sand. Shattered materials below the above limits shall be removed and similarly backfilled.

When soft or otherwise unsuitable material is encountered, it shall be removed to such depths and widths as determined by the Project Manager and backfilled with crushed stone or gravel as approved by him.

Except as noted above, trenches shall be so excavated that they will provide a uniform and continuous bearing and support for the barrel of the pipe on solid and undisturbed ground at every point between bellholes except for that area near the mid-section of the pipe disturbed by the withdrawal of pipe slings or other lifting tackle. Bellholes shall be provided at each and every joint.

Pipe Bedding

Section 2. Pipes shall be placed on a minimum depth of four (4) inches of bedding, as measured from the extreme outermost dimension of the pipe. The bedding material shall extend laterally to the outermost limits of the trench.

Bedding material shall be coarse aggregate or bank run sand.

The bedding material shall be placed to grade and in such a manner as to completely support the pipe for its entire length and shall be thoroughly compacted by hand tamping.

Immediately after the joint has been made, the balance of the bedding material shall be brought up to the spring line of the pipe. The material shall be placed in uniform lifts of three (3) inch layers on each side of the pipe, and thoroughly compacted by hand spading and tamping. Care shall be taken to ensure that the material is thoroughly consolidated under the haunches of the pipe.

Initial Backfilling

Section 3. Backfill material as hereinafter specified shall be placed by hand from the bottom of the trench to the springline of the pipe in three (3) inch layers. The material shall be sliced and rammed under the haunches of the pipe and thoroughly compacted by tamping and in a manner that will not disturb the alignment of the pipe or fittings. Each individual length of installed pipe shall be bedded in this manner prior to the connection thereto of an additional length of pipe.

Specified backfill material shall be placed from the springline of the pipe to a plane twelve (12) inches above the extreme outermost limits of the pipe by hand or approved mechanical methods. Under no

circumstances shall material be shoveled, dumped or pushed from the top of the trench onto the pipe. Special care shall be exercised with this portion of the backfill so as to avoid injuring or displacing the pipeline.

Initial backfill material shall be as follows:

- A. When gravel trench backfill is specified or required, initial backfill shall be of the same material except that all stones larger than two (2) inches in diameter shall be removed from the immediate vicinity of the pipe.
- B. When gravel trench backfill is not specified, initial backfill material may be of finely divided selected excavated material free from stones, lumps and clumps of clay, organic material and similar undesirable materials.

Balance of Backfill

Section 4. The balance of the backfill from a plane twelve (12) inches above the top of the pipe shall be as follows:

- A. Trenches within roadways and parking areas or immediately adjacent thereto shall be backfilled with coarse aggregate or bank run sand.
- B. Trenches in other areas may be backfilled with excavated material provided such material is free from rock, boulders, large stones, sticks, clumps and lumps of clay, organic material and other similar undesirable materials.

Trenches backfilled with gravel shall be brought up evenly in the trench to the elevation of the subgrade and thoroughly compacted or consolidated by suitable equipment and means approved by the Project Manager.

Trenches backfilled with excavated material shall be brought up evenly in the trench to grade as required by conditions. When the top of the trench is at a proposed grade the material shall be neatly rounded over the top of the trench to allow for settlement. In areas of sodding or seeding, the last six (6) inches of backfill material shall be topsoil.

END OF SECTION

SITWORK

Section 02500

Entrance Roads, Drives and Parking Areas

Work Included

Section 1. This work shall include the construction of the entrance road, drives and/or parking areas where shown and as installed on the construction drawings.

Roadways

Section 2. Scope of the work. This contract shall include the furnishing of all the labor, materials and equipment required to construct the roadways, curbs and miscellaneous improvements as shown on the drawings and as provided in these specifications.

The work includes the following principal items:

- a. Excavations and preparation of the subgrade.
- b. Construction of aggregate wearing surface.

Equipment

Section 3. Vibratory compactors used for compacting subgrade and paving shall weigh not less than ten (10) tons.

Excavations and Subgrade Preparations

Section 4. This work shall consist of excavation for the roadways, including furnishing and incorporating all water required for compacting the subgrade, disposing of unsuitable and surplus material, preparing the subgrade, finishing shoulders, slopes, and ditches, all in accordance and in reasonably close conformity with the lines, grades, thicknesses and cross sections shown on the plans, or as directed by the Engineer and/or Owner.

Access Road and Parking Area Construction

Section 5. This work shall consist of furnishing and placing an aggregate wearing course on the completed and accepted subgrade, all in accordance with and in reasonably close conformity with the lines, grades, and typical cross section specified.

END OF SECTION

SITWORK

Section 02512

Restoration of Pavement and Curbs

Work Included

Section 1. This work shall include the construction of roadway and curbs where such items have been removed in the course of the work of this project.

Roadways

Section 2. Scope of the work. This contract shall include the furnishing of all the labor, materials and equipment required to construct the roadways and curbs as provided in these specifications.

The work includes the following principal items:

- a. Preparation of the subgrade; placing and rolling the sub-base.
- b. Construction of base course pavement.
- c. Construction of curbs.
- d. Asphalt concrete pavement.
- e. Concrete pavement.

Equipment

Section 3. Vibratory compactors used for compacting subgrade and paving shall weigh not less than ten (10) tons.

Excavations and Subgrade Preparations

Section 4. Excavations for the paving shall be made to lines and grades required to accommodate the specified paving after which the areas shall be compacted to a firm foundation with a compactor. The subgrade may be brought up to final elevation by the use of suitable excavated materials; however, should soft spots develop in the compacting operations, the soft materials shall be removed and backfilled with the material specified for use as sub- base. Compaction operations shall be continued until the fill is compacted to not less than 95% of the maximum density as determined in accordance with ASTM-D1557-70 (Modified).

The subgrade preparation shall be limited to the May through October construction season.

Base Course

Section 5. All areas to be paved shall have a minimum of eight (8) inches of aggregate meeting KDOH Item 303. All compacting operations shall include berms to a minimum width of two (2) feet on each side of the paved area. The base materials shall be evenly spread on the subgrade and shall be thoroughly compacted with equipment the compacted thickness specified.

Asphalt Concrete Pavement

Section 6. The asphalt concrete pavement shall consist of two (2) courses of asphalt concrete, 1-1/2 inches thick, conforming to materials and construction methods of Item 402 of the "Standard Specifications for Road and Bridge Construction" of the State of Kentucky, Department of Highways. If required by the

Project Director Item 407, tack coat, shall be applied at 0.10 gallons per square yard over either the base course, or over the first lift of asphalt concrete, or both. Tack coat materials and construction methods shall conform to Item 407 of the "Standard Specifications for Road and Bridge Construction" of the State of Kentucky, Department of Highways.

Variation to the surface tolerances shall be corrected in a manner satisfactory to the Project Manager.

All old to new asphalt concrete joints shall be sealed with a joint sealer conforming to Item 807.02.

Concrete Pavement

Section 7. The concrete pavement shall consist of a single course of concrete to the depth required to match existing pavement and shall have a minimum twenty-eight (28) day compressive strength of 3500 psi. Forms shall be used on open sides so that the completed pavement has its original shape.

Concrete Curbs

Section 8. Concrete curbs shall be constructed of Class "A" concrete in accordance with Section 601 of the KDOH specifications. Curb cross section shall match that of existing curb.

One-half inch KDOH 807.03 preformed joint filler shall be placed at all curb returns, to either side of inlets and catch basins, where new curb abuts existing concrete and at such other locations as directed by the Project Manager.

Measurement & Payment

Section 9. All costs for restoration of asphalt or concrete pavement, or concrete/asphalt curbs disturbed as part of new construction shall be included with the unit price bid.

END OF SECTION

SITWORK

Section 02720

Pressure Pipelines

Work Included

Section 1. The Contractor shall complete all excavations; shall protect all existing structures, utilities, and services; shall furnish all suitable tools and appliances for the safe and convenient handling of all materials to be used on the work; shall lay the pipelines, including valves, valve boxes, fire hydrants, and all other appurtenances thereto; shall install or replace any or all house service connections if specified; shall test the lines; shall disinfect water lines; shall replace all walks, driveways, grass plots, or paving; shall remove all surplus materials of every kind; and leave the entire site of the work in a presentable and satisfactory condition; all as specified herein under the various sections.

Handling and Storage of Materials

Section 2. Pressure main pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

Pipe shall be so handled that the coating and lining will not be damaged. If however, any part of the coating or lining is damaged the repair shall be made by the Contractor at his expense in a manner satisfactory to the Project Manager.

The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

Inspection and Responsibility for Material

Section 3. All pipeline materials shall be carefully inspected for cracks and other defects prior to installation. All material found during the progress of the work to have cracks, flaws, or other defects, shall be rejected by the Project Manager. All defective materials furnished by the Contractor shall be promptly removed by him from the site of the project.

The Contractor shall be responsible for all materials furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

Installation of Pressure Pipelines

Section 4. Pressure mains shall be laid and maintained to the required lines and grades with fittings, valves, and hydrants at the required locations; spigots centered in bells; and all valve and hydrant stems plumb.

Proper implements, tools, and facilities shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, or other suitable tools or equipment in such a manner

as to prevent damage to pipe main materials and protective coatings and linings. Under no circumstances shall pipe main materials be dropped or dumped into the trench.

All pipe and fittings shall be carefully examined for cracks and other defects while suspended above the trench immediately before installation in final position. Spigot ends shall be examined with particular care. Defective pipe or fittings shall be laid aside as previously specified.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into it, the Project Manager may require that before lowering the pipe into the trench, a heavy, tightly woven canvas bag of suitable size shall be placed over each end and left there until the connection is to be made to the adjacent pipe. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space.

At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Project Manager. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining so as to leave a smooth end at right angles to the axis of the pipe.

Pipe shall be laid with bell ends facing in the direction of laying, unless directed otherwise by the Project Manager. Where pipe is laid on a grade of ten (10) percent or greater, the laying shall start at the bottom and shall proceed upward with the ball ends of the pipe upgrade.

Placing Pipeline Fittings

Section 5. Pipeline fittings, plugs and caps shall be furnished and installed of the type indicated and at the location shown on the construction drawings or as directed by the Project Manager. It will be the responsibility of the Contractor to furnish and install all proper size pipe bends for both horizontal and vertical deflections that are required to construct the pressure main to the line and grade as shown on the construction drawings or as set by the Project Manager. The fittings, plugs, and caps shall be set and joined to the pipe in the manner heretofore specified for installation.

Anchorage

Section 6. The Contractor shall provide pipeline restraint at all locations shown on the construction drawings. Anchorage shall be in the form of harnessed or restrained joints for the lengths of pipe and fittings shown.

Testing Pressure Mains

Section 7. The Contractor shall subject the completed pressure pipelines to a leakage test. The test

shall be performed on all newly laid pipe in lengths not to exceed 2,000 feet or any valved section thereof. The length of the test section shall exceed the specified maximum limit only with the explicit approval of the Project Manager. The test may be conducted after the trench has been backfilled but must be completed before replacement of pavements and final restoration. All testing shall be done in the presence of the Project Manager.

The Contractor shall furnish the pump, pipe connection, temporary testing plugs and caps, if required, all necessary apparatus including the pressure gauges and meters and a supply of approved water. The Contractor shall make all necessary taps into the lines. The Contractor shall be responsible for all labor and equipment necessary to conduct the tests, including excavating and backfilling the test pit at the locations selected by the Project Manager.

The pipe shall first be completely flushed out. Then each valved section shall be slowly filled with water. All air shall be expelled from the pipe at high points by means of test plugs in valve bonnets, fire hydrants or through corporation stops installed by the Contractor for this purpose. After all the air has been expelled, the openings shall be closed and the test pressure applied by means of the test pump connected to the pipe in a manner satisfactory to the Project Manager.

The test pressure for the leakage test shall be fifty (50) percent above the normal operating pressure of the lowest point in the section of line under the test and corrected to the elevation of the test gauge. The duration of each leakage test shall be two (2) hours.

The exposed piping and/or the top of the trench shall be carefully inspected during the leakage test for any signs of leakage. Any cracked or defective pipe, fittings, valves or hydrants discovered in consequence of the leakage test shall be removed and replaced by the Contractor with sound material and the test shall be replaced until satisfactory results are obtained. The Contractor is responsible for locating, excavating and backfilling the pressure pipeline trench at no cost to the Owner, in addition to replacing the defective material if the leakage test is conducted on a backfilled pressure pipeline. The Contractor shall maintain the hydrostatic pressure at all times during the leakage test through his test pump.

Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain the specified leakage test pressure after the air has been expelled, the pipe has been filled with water, and the pressure initially applied.

No pipe installation will be accepted if the amount of leakage is greater than specified by the following equation:

$$L = \frac{ND}{7400} \sqrt{P}$$

Where

L = allowable leakage, gallons per hour.

N = Number of pipe joints being tested.

D = Nominal diameter of pipe, in.

P = Average test pressure, psig.

Disinfection of Water Mains

Section 8. All new water mains and repaired sections or extensions to existing water mains shall be

chlorinated before being placed in service so that a chlorine residual of not less than ten (10) ppm remains in the water in the test section after twenty-four (24) hours standing in the pipe. The procedures for disinfecting the water mains and the chemicals to be used shall be in accordance with the requirements of AWWA C601.

If liquid chlorine is used, a chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device; or, if approved by the Project Manager, the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solutions of the chlorine gas or the gas itself must provide means for preventing the backflow of water into the chlorine cylinder.

A mixture of water and a chlorine-bearing compound of known chlorine content may be substituted for liquid chlorine. Approved types are calcium hypochlorite or sodium hypochlorite. Commercial types of calcium hypochlorite are known as HTH, Perchlaron and Pittchlor. Sodium hypochlorite is known commercially as liquid laundry bleach.

High-test calcium hypochlorite or bleaching powder must be prepared as a water mixture for introduction into the water mains. The powder should first be made into a paste and then tinned to approximately a one (1) percent chlorine solution (10,000 ppm). The preparation of a one (1) percent chlorine solution requires the following proportions of powder to water:

<u>Product</u>	<u>Amount of compound</u>	<u>Quantity of Water Gallon</u>
High-test calcium hypochlorite (65-70% Cl)	lb.	7.50
Liquid laundry bleach (5.25%)	1 gal.	4.25

The chlorinating agent shall be injected into the beginning of the new pipeline extension or any valved section of it through a corporation stop inserted by the Contractor. The Contractor shall supply the proper type chemical pump, piping and make up water to inject the solution into the main. The application shall be the amount necessary to apply 25 ppm of chlorine to the test section. The amount of one (1) percent chlorine water solution required to give 25 ppm chlorine in 1,000 feet of various size water mains is as follows:

6" Diameter	4 Gallons
8"	8
10"	10
12"	15
16"	26
20"	40
24"	60
30"	90

Water from the existing distribution system shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the newly laid pipe shall produce at least ten (10) ppm, after twenty-four (24) hours standing. This may be expected with an application of twenty-five (25) ppm, although some conditions may require that more valves be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline

is filled with the chlorinating agent.

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water throughout its length shall, upon test, be proved comparable in quality to the water serving the public from the existing water supply system and approved by the public health authority having jurisdiction. This satisfactory quality of water delivered by the new main should continue for a period of at least two (2) full days as demonstrated by laboratory examination of samples taken from a tap located installed in such a way as to prevent outside contamination. Samples shall not be taken from an unsterilized hose or from a fire hydrant, because such samples will seldom meet bacteriological standards.

Should the initial treatment fail to result in the conditions specified, the original chlorination procedure shall be repeated until satisfactory results are obtained.

Pressure Pipelines Not Installed in Trench

Section 9. All applicable provisions of this item of work shall apply to the furnishing of materials and installation procedures for constructing pressure pipelines not installed in a trench condition.

END OF SECTION

SITWORK

Section 02940

Temporary Silt and Erosion Control

Scope

Section 1. This work shall consist of furnishing all labor, material, and equipment, and incidentals for the construction of silt control structures to reduce the amount of sediment delivered to waterways. Silt control structures shall be constructed as required to control silt runoff into streams at the locations directed by the Engineer or his designated Representative.

During the life of the contract, the silt control structures shall be maintained by the Contractor, and silt accumulations which threaten to damage the structures, or preclude their effective operation as determined by the Engineer, shall be removed.

Straw or Hay Bale Silt Check

Section 2. This silt check shall be constructed with straw or hay bales, staked to remain in place, as shown on the Standard Details.

The location of straw or hay bale silt checks shall be as shown on the Plan drawings, or as directed by the Engineer at the time of construction. When the usefulness of the silt checks has ended, they shall be removed, and surplus materials be disposed of.

Measurement and Payment

Section 3. Payment for installation and maintenance of the temporary silt and erosion control structures shall be considered an incidental expense to the construction. All costs for same shall be included in the unit prices bid for the several other items included with the project.

END OF SECTION

SITWORK

Section 02722

Ductile Iron Pipe

Pipe

Section 1. Ductile cast iron pipe shall conform to the American Standard for "Ductile Iron Pipe Centrifugally Cast in Metal Molds for Water or Other Liquids", AWWA C151.

The pipe shall be Pressure Class 350, unless otherwise noted.

Joints

Section 2. Mechanical joints, bell and spigot joints and flange joints for ductile iron pipe in sizes from 2-inches through 48-inches in diameter shall conform to all of the dimensions, shapes and requirements of AWWA C110, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids". The mechanical joint shall also conform in all respects to AWWA C111, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings".

Push-on joints shall be a single rubber gasket joint designed to be assembled by the positioning of a continuous, molded, rubber ring gasket in an annular recess in the pipe and forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and the annular recess shall be so designed and shaped that the gasket is locked in place against displacement as the joint is assembled. The push-on type joint shall conform to the requirements of AWWA C110 and AWWA C111 where applicable.

Where ductile iron pipe with ball and socket type joints are specified, they shall be of the mechanical gland type. Provisions shall be made for longitudinal expansion and contraction with a positive stop against disengagement of the joint. Up to fifteen (15) degrees angular deflection shall be accommodated without leakage and without decrease in full diameter of pipe.

Fittings

Section 3. Cast iron or ductile iron fittings in sizes 2-inches through 48-inches for mechanical joints, bell and spigot joints and flange joints shall conform to all the requirements of AWWA C110, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids", and to the requirements of AWWA C111, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings", for mechanical joints and push-on type joints. Push-on joints for cast iron fittings shall be as described in Section 2 of this item.

The cast iron or ductile iron fittings in sizes larger than 12-inch shall have a pressure rating of 150 psi unless the proposal sheets and/or the construction drawings stipulate that 250 psi cast iron fittings are required.

Unless specifically described on the proposal sheets and/or construction drawings, the cast iron fittings may be supplied in gray iron or ductile iron.

Ductile iron, compact body fittings are also acceptable.

Fittings shall be supplied with grip rings where called for,

Sitework

02722-1

Coatings for Ductile Iron Pipe & Fittings

Section 4. The ductile iron pipe and cast iron or ductile iron fittings for water service shall be furnished with cement mortar lining in accordance with AWWA C104, "Cement Mortar Lining for Cast Iron Pipe and Fittings". The lining will be 1/16-inch thick for pipe sizes 4-inches through 12-inches in diameter and 3/32-inch thick for sizes 14-inch through 24-inches in diameter. A bituminous seal coat shall be applied to the lining surface immediately following the lining operation to prevent loss of moisture and insure proper curing of the cement mortar. The outside of the iron pipe shall be furnished with a protective coating as outlined in Section 09900, "Protective Coatings and Painting".

All cast iron or ductile iron fittings and ductile iron pipe which will carry sewage shall be completely coated inside and outside with a hot coal-tar varnish, to which sufficient oil has been added to make a smooth coating, tough and tenacious, when cold. The coating process shall consist of preheating and then dipping the fitting or pipe into the hot coating material.

All ductile iron pipe and fittings not installed in a trench condition shall not be coated with a coal-tar pitch on the outside. The pipe and fitting shall be coated in accordance with the Section 09900, "Protective Coatings and Painting".

Miscellaneous Jointing Material

Section 5.

a. Victaulic couplings for ductile iron pipe shall consist of malleable iron housing-clamps in two (2) or more parts, a single C-shaped rubber gasket and two (2) or more track-head steel bolts as required to assemble the housing clamps. The coupling shall be of the proper type to encircle the outside diameter of the ductile iron pipe as specified. The malleable iron in the segmental casting shall conform to ASTM A47. The track-type oval neck bolts shall conform to ASTM A183. The rubber gasket shall be Grade "R" natural rubber.

Ductile iron pipe and fittings to be joined with victaulic couplings shall be furnished with shoulders to engage the entire inner circumference of the housing-clamp. The outside surface of the pipe between the shoulder and the pipe end must be smooth and free from deep pits or swells to provide a leaktight seal for the victaulic gasket.

b. Compression sleeve couplings for plain end ductile iron pipe shall consist of one cylindrical steel middle ring with a pipe stop, two (2) resilient wedge-shaped gaskets, two (2) steel follower rings and a set of high strength steel track-head bolts. The number of bolts furnished will depend on the diameter of the couplings.

Anchoring Assemblies

Section 6. Anchoring assemblies for setting valves, fire hydrants, and special bends shall consist of two (2) mechanical joint cast iron or ductile iron gland fittings cast integrally with the pipe nipple. The anchor assembly fittings shall have a laying length of fourteen (14) inches. Anchoring pipe shall be used where long lengths of pipe are required to anchor fire hydrants. Anchoring pipe may be furnished with regular anchoring glands cast with the pipe or with a ring gland which will allow free movement of the standard mechanical joint follower gland. A mechanical joint anchoring tee may be substituted for the mechanical joint tee and anchoring piece for fire hydrant installations where applicable.

Jointing Pipe

Section 7. Joints for buried cast iron or ductile iron pressure main shall be mechanical joint, rubber compression type (push-on joint), poured bell and spigot or victaulic. Cast iron or ductile iron joints within structures may also be flange type or compression sleeve type as shown on the construction drawings. The joints shall be made in the following manner.

Mechanical Joint - The mechanical joint shall conform to the requirements of AWWA A21.11, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings". All surfaces that come in contact with the rubber gasket shall be brushed thoroughly with a wire brush just prior to assembly to remove all rust or foreign material. The clean surface and the rubber gasket shall then be brushed with soapy water. The iron gland shall then be placed on the spigot end with the lip extension facing the joint. The rubber gasket shall then be slipped on the pipe with the thick end toward the gland. The spigot end of the pipe shall then be pushed into the bell seat after which the rubber gasket shall be forced into its retaining space in the bell. Care shall be taken to assure an even seat all around the inner surface of the bell. The gland shall be moved into place for bolting; the bolts shall be inserted and the nuts made up tightly with the fingers only.

The normal range of bolt torques to be applied and length of wrench to produce that torque to the standard cast iron bolts in a joint are as follows:

<u>Size of Bolt</u> <u>Inches</u>	<u>Range of Torque</u> <u>Ft.-Lbs.</u>	<u>Length of Wrench</u> <u>Inches</u>
3/4	60 - 90	10
1	70 - 100	12
1-1/4	90 - 120	14

The gland shall be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket when tightening bolts. It shall be done by partially tightening the bottom bolt first, then the top bolt, next the bolts at either side, and last the remaining bolts. This process shall be repeated until all bolts are within the specified range of torque. If effective sealing is not attained at the maximum torque, the joint shall be disassembled and reassembled after thorough cleaning. The bolts shall not be overstressed to compensate for poor assembly.

Rubber Seal Type Joint (Push-On Joint) - The push-on type joint shall conform to the requirements of AWWA A21.11, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings". Before assembly of the rubber seal type joint, the inside of the bell and the rubber gasket shall be wiped clean with a cloth. The gasket should then be placed in the groove of the bell in the manner that forms to the contour of the bell. A thin film of special lubricant, of the type recommended by the manufacturer of the pipe, is then applied to the inside of the gasket by brush or hand.

The plain end of the pipe shall be wiped clean and placed in approximate alignment with the bell of the pipe. The joint is then made up by exerting sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket. Pipe eight (8) inches in diameter and larger shall be socketed by fork tools or jacks.

The spigot ends of field cut pipe shall be tapered back one-eighth (1/8) inch at an angle of about thirty (30) degrees to the barrel of the pipe with a coarse file or portable grinder. All sharp or rough edges that may injure the rubber gasket shall be removed in this operation.

Flanged Joints - The flanged joints shall conform to the requirements of AWWA A21.10, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids". Flanged joints shall be assembled with bolts and flat ring gaskets of the size and number as specified for "Cast Iron Pipe Flanges and Flanged Fittings". Stud or tap bolts shall be furnished when shown on the construction drawings, and when required to complete special assemblies. All exposed bolts, heads, and nuts shall be coated with two (2) coats of asphaltum or other approved metal coating after the joint has been completed.

Restrained Joints - Special anchorage shall include the use of mechanical joint anchoring fittings, couplings and pipe or positively restrained push-on type pipe and fittings which allow for deflection at the joint after assembly, the equal of "Super-Lock" manufactured by the Clow Corporation. No reduction in pipe wall thickness from that specified shall be permitted in connection with a restrained joint.

Deflection of Ductile Iron Pipe

Section 8. Whenever it is desirable to deflect mechanical-joint or push-on joint pipe in order to form a long radius curve, the amount of the deflection shall not exceed the maximum limits shown for the respective type pipe.

Table 1

Maximum Permissible Deflection in Laying Mechanical-Joint Pipe

Size Of Pipe In Inches	<u>Maximum Permissible Deflection Per Length - Inches</u>			
	<u>12-Ft. Length</u>	<u>16-Ft. Length</u>	<u>18-Ft. Length</u>	<u>20-Ft. Length</u>
6	18	24	27	30
8	13	18	20	22
10	13	18	20	22
12	13	18	20	22
16	9	12	13-1/2	15
20	7-1/2	10	11	12
24	6	8	9	10

Table 2

Maximum Permissible Deflection in Laying Mechanical-Joint Pipe

Size Of Pipe In Inches	<u>Maximum Permissible Deflection Per Length - Inches</u>			
	<u>12-Ft. Length</u>	<u>16-Ft. Length</u>	<u>18-Ft. Length</u>	<u>20-Ft. Length</u>
6	12	17	19	21
8	12	17	19	21
10	12	17	19	21
12	12	17	19	21

16	7-1/2	10	11	12
20	7-1/2	10	11	12
24	7-1/2	10	11	12

Section 9. The following section is applicable to ductile iron diffused air distribution piping. All buried air distribution piping shall be Class 50 or 51 unlined DIP, Mechanical or Bell Joint with gaskets capable of withstanding a continuous temperature of 225°F. All DIP air lines shall be exterior coated in conformance with Specification Section 02722 - paragraph Section 4.

Above ground air distribution piping shall meet the same conditions except same shall be furnished with flanged conditions and temperature resistant gaskets.

END OF SECTION

SITWORK

Section 02950

General Cleanup

General

Section 1. The Contractor shall be responsible for maintaining the site in a neat and safe manner during the period of construction. All trash and debris shall be removed or disposed.

Final Cleanup

Section 2. Upon completion of the construction, but prior to the final estimate, the Contractor shall check the entire site affected during construction and remove or dispose of all trash, debris, used building materials, etc. He shall also remove all construction equipment used for the project.

Finish Grading

Section 3. Upon removal of all debris and completion of rough grading operations all areas disturbed during construction shall be finish graded to provide for a smooth surface free of ruts, gullies or ponding areas. Large stones greater than 2 inches in size shall be removed from the site. The areas to be seeded shall then be fine raked to a smooth surface and the top 2-inches of soil loosened to form a seed bed.

Seeding

Section 4. Upon completion of finish grading operations the entire area shall be fertilized uniformly at a rate 20 pounds per 1,000 square feet with 12-12-12 composition fertilizer. The area shall then be seeded at a rate of 3 pounds per 1,000 square feet with a mix consisting of 40 percent Kentucky Bluegrass, 40 percent Creeping Red Fescue and 20 percent Annual Rye Grass, then lightly raked. Immediately after seeding the area shall be covered with straw evenly spread at a rate of 4 bales per 1,000 square feet. The seeded areas shall then be watered immediately and then watered on a daily basis until grass is established. Areas in which grass has not been established shall be re-fertilized, re-seeded and watered until grass has been established.

END OF SECTION

MECHANICAL

Section 15000

Valves and Gates

General

Section 1. Valves and gates of the sizes and types specified or shown on the construction drawings shall be provided for the proper completion of the work included under the project.

Operating nuts, handwheels, gaskets, bolts and nuts and all necessary appurtenances for a complete installation of the valves and gates shall be furnished with the valves.

All valves, not installed in the ground, shall be cleaned after installation and painted as specified under the Section 09900 - "Protective Coatings and Painting."

Complete details of all valves to be used on the project shall be submitted to the Consulting Engineer for review and contract compliance.

Type of Valve

Section 2. The construction drawings will state which type of valve is to be used.

Valve Boxes

Section 3. A valve box shall be provided for every operating nut of a buried valve with the operating mechanism fully protected with a cast iron grease case.

The valve box shall not transmit shock or stress to the valve. It shall be centered and plumb over the wrench nut of the valve. The box cover shall be flush with the finished pavement or at such other level as may be directed by the Project Manager.

The assembly shall consist of three (3) pieces and a cover. The valve box shall be screw type, cast iron with 5-1/4 inch shaft. A round base which will enclose the valve bonnet shall be furnished with six (6) inch and eight (8) inch valves. An oval base shall be supplied with valves larger than eight (8) inches.

The valve boxes for all buried valves shall be encased in concrete at least six (6) inches outside the diameter of the box at grade. The following information shall be carved into the concrete:

1. Type of service (water, sewage, etc.)
2. Number of turns to open the valve completely
3. The direction of opening the valve

A masonry valve pit shall be provided for every valve which has exposed gearing or operating mechanisms, if that type valve is specified. The details of such an enclosure is shown on the construction drawings.

Operating Nut Location

Section 4. All operating nuts for buried valves covered by valve boxes shall be located within eight (8) inches of the top of the box, and valve wrenches shall be four (4) feet long, sized for two (2) inch square nuts. Four (4) valve wrenches shall be furnished to the Owner by the Contractor.

Extension Stems

Section 5. Wherever extension stems are required for valve operation, the connection between the valve stem and extension stem shall be a pinned coupling to avoid possible disconnection.

Operating Nuts

Section 6. Valves for buried pipe lines shall be furnished with two (2) inch square wrench nuts. Nuts shall have a flanged base upon which shall be cast an arrow two (2) inches long showing the direction of opening, and the word, "OPEN" in one-half (1/2) inch or larger letters, shall be cast on the nut to indicate clearly the direction to turn the wrench when opening the valve.

Handwheels

Section 7. Handwheels may be specified for operating valves in exposed piping on the construction drawings. The handwheels shall have an arrow and the word "OPEN", cast thereon, to clearly indicate the direction the handwheel is to be turned to open the valve. The diameter of the handwheel shall conform to the following dimensions for the various size gate valves.

Size of Valve	Diameter of Handwheel
4"	10"
6"	12"
8"	14"
10" and 12"	18"
16" and 18"	22"
18" and 20"	24"
24" and 30"	30"

Direction of Opening

Section 8. All sewage valves shall open by turning the operator to the RIGHT (clockwise). All water valves shall open by turning the operator to the LEFT (counterclockwise), or as marked on the design plans.

Special Details

Section 9. The details of other valve requirements and valve appurtenances such as special ends and materials, position indicators, floor stands, cylinders, chain operators, and extension stems and guides are described on the construction drawings.

Chain Operators

Section 10. All valves six (6) feet or more above the floor surface shall be equipped with a stainless steel chain operator unless otherwise indicated on the construction drawings.

Valve Stem Packing

Section 11. All valve stem packing shall be die-cut to fit the valve. The material to be used shall be Chesterton Style 324 Super-Lon.

Start-Up Services

Section 12. All butterfly valves, control valves and plug valves, operators and appurtenances installed shall include a thorough two (2) day training program conducted by a factory service representative. This training shall include start-up, operation and maintenance of the valves prior to start-up of the plant.

END OF SECTION

MECHANICAL

Section 15020

Gate Valves

General

Section 1. Gate valves for buried pipelines shall be iron body, bronze mounted, resilient wedge gate valves with non-rising stems having either parallel or inclined seats in accordance with AWWA C509, "Resilient Wedge Gate Valves".

Mechanical joint bell ends will be used in buried pipelines of mechanical joint and rubber seal type joint cast iron. Bell and flange ends will be used in exposed cast iron piping at the locations shown on the construction drawings.

Operating Nuts

Section 2. Gate valves for buried pipelines shall be furnished with two (2) inch square wrench nuts. Nuts shall have a flanged base upon which shall be cast an arrow two (2) inches long showing the direction of opening, and the word "OPEN" in one-half (1/2) inch or larger letters, shall be cast on the nut to indicate clearly the direction to turn the wrench when opening the valve.

Handwheels

Section 3. Handwheels may be specified for operating valves in exposed piping on the construction drawings. The handwheels shall have an arrow and the word "OPEN", cast thereon, to clearly indicate the direction the handwheel is to be turned to open the valve. The diameter of the handwheel shall conform to the following dimensions for the various size gate valves.

Size of Valve	Dia. of Handwheel
4"	10"
6"	12"
8"	14"
10" and 12"	18"
16" and 18"	22"
24" and 30"	30"

Horizontal Mounting

Section 4. Gate valves in size sixteen (16) inches and larger may be installed in the horizontal position. Bronze tracks, rollers, and scrapers will be provided for valves to be installed in the horizontal position. Horizontal valves for pressure lines shall be furnished with beveled gear operators. The gear cases for buried service shall be totally enclosed, and the gear cases for exposed piping in a vault shall be of the extended type.

Bypass Valves

Section 5. Bypasses shall be furnished on valves when so specified on the proposal sheets or shown on the construction drawings. The bypass valve shall be furnished on the same type as the main line valve to which it is fitted. The size requirements of the bypass shall be as follows:

Valve Dia. - Inches	Bypass Dia. - Inches
16-20	3
24-30	4
26-42	6
48	8

Rising Stem Valves

Section 6. Outside screw and yoke rising stem valves shall conform to all of the requirements of AWWA C500 except for the rising stem mechanism. The OS and Y valves shall have a rugged cast iron yoke machined to provide accurate stem alignment. The OS and Y valves shall be furnished with handwheels. OS and Y valves shall only be installed where shown on the drawings.

Low and Medium Pressure valves

Section 7. Low pressure and medium pressure valves, if specified in the "Attention All Bidders" shall be the same design, workmanship, and materials as AWWA C500 valves except that they can be lighter in weight. Medium pressure and low pressure valves shall be tested for performance in operation, watertightness, and resistance to distortion under internal pressure in the manner described in AWWA C500, except that the minimum rated pressure and hydrostatic pressure shall be as follows:

Medium Pressure Valves

Valve Size	Hydrostatic Test	
	<u>Rated Pressure (p.s.i.)</u>	<u>Pressure (p.s.i.)</u>
4 through 24	100	200
30 through 36	80	150
42 through 54	60	120

Low Pressure Valves

Valve Size	Hydrostatic Test	
	<u>Rated Pressure (p.s.i.)</u>	<u>Pressure (p.s.i.)</u>
16 through 24	50	75
20 through 36	43	75
42 through 48	35	50

Underwriters Valves

Section 8. Gate valves for fire protection systems shall be manufactured in conformance to the requirements of the Underwriters Laboratories, Inc., and the Associated Factory Mutuals Laboratories. Gate valves which support an indicator post shall contain a flange of the indicator post base. Such valves are specified on the construction drawings and shall bear the inspection label of the Underwriters Laboratories, Inc.

Special Details

Section 9. The details of other valve requirements and valve appurtenances such as special ends and materials, position indicators, floor stands, cylinders, chain operators, and extension stems and guides are described on the construction drawings.

Setting Gate Valves

Section 10. Gate valves shall be installed of the size and at the location as shown on the construction drawings. Vertical valves shall be set plumb and horizontal valves installed so that the valve body is level. The valves shall be set to the new pipe in the manner specified for cleaning, laying, and jointing pipe. Mechanical joint, rubber compression seal, or bell and spigot shall be used for buried pipelines. Other types of joints for pipelines within structures will be shown on the construction drawings.

Chain Operators

Section 11. All gate valves six (6) feet or more above the floor surface shall be equipped with a chain operator unless otherwise indicated on the construction drawings.

END OF SECTION

MECHANICAL

Section 15080

Standard Services (for Bypass Meter Installations)

General

Section 1. The work to be performed under this section shall include all labor, materials, equipment, excavation, backfill and testing necessary for the proper installation of all service connections. Details of the service installation as shown in the Standard Details Section of these specifications.

No attempt was made to show precise meter setting locations on the plans and the Contractor shall not place any service connection without approval of the location and type by the Engineer. However, in general the meter setting shall be set inside the customer property line and off of State, County, or Township Road Right of Way.

The service shall include: A service clamp, corporation stop, service pipe, meter setting equipment, meter box and cover. If called for on the drawings or directed by the Engineer, a pressure reducing valve may be required. The water meter shall be furnished by a separate bid item.

Service Clamp

Section 2. All service clamps shall be brass, single-strap type, furnished with neoprene gaskets cemented in place. Clamps shall be of the proper size for the pipe with which they are to be used. Clamps shall have a Mueller or AWWA corporation stop thread, and shall be suitable for a minimum working water pressure of 200 PSIG. Clamps shall be as manufactured by the Mueller Company or equal as approved by the Engineer.

Corporation Stop

Section 3. All taps for service connections shall be made in the upper half of the main with equipment designed for this purpose. No tap shall be closer than one foot from any joint in the main. Corporation stops shall be of the appropriate size for the service for which they are to become a part. Unless noted otherwise, all services shall be 3/4 inch. Corporation stops shall have a male AWWA tapered thread inlet, and an outlet suitable for connection to the service pipe. Corporation stops shall be Ford Catalog No. F1000 compression type "Pack Joint", or equal, if Polyethylene CTS Service Pipe is specified. Insert stiffeners shall be provided with corporation stop if plastic pipe is used.

Service Pipe

Section 4. Service pipe shall be Class 200, copper tube size polyethylene N.S.F. approved or Type K copper as required in the bid proposal. Service pipe shall run from the corporation stop to the inlet of the meter setting equipment. Service pipe for standard services shall be jacked or drove under paved roads without benefit of steel casing. Open trenches will not be permitted. Should the Contractor chose to use steel casing, it shall be done at no additional cost to the Owner. The jacking, boring, or pushing of service lines under state, county, or private roads or driveways is not a pay item. The unit price bid for service pipe shall include costs for jacking, pushing or boring service pipe as an incidental expense.

Meter Box and Cover

Section 5. A meter box with cover shall be provided for each service and shall be as near the property line as possible and shall be located as directed by the Engineer. The meter box shall be 24" in

diameter by 30" deep, type shown on Standard Details unless otherwise specified or required by the meter size.

The meter box cover shall be a single piece cast iron lid w/24" x 18" adapter, and have "WATER METER" cast in the lid. A suitably sized hole shall be cast in the lid for the touch read meter transponder.

Meter boxes and covers shall be set with backfill neatly compacted in place. In yards and other maintained areas, the top of the meter box cover shall be 1/2 inch to 1 inch above original grade, otherwise 2 inches above original grade.

Meter Setting Equipment

Section 6. The meter setting equipment shall consist of a copper meter yoke, with an inlet and outlet suitable for connection to the service pipe specified. The meter yoke shall be provided with a plain stop. Unless otherwise specified or required for the service, the yoke shall accept a 1 inch meter as specified below.

Copper meter yokes shall be Ford, Mueller or equal as approved by the Engineer. An angle stop valve shall be provided on the each side of setter.

Meter yokes shall be supplied with two (2) end connections per meter setting. End connections shall be pack or Compression joint or equal as required based upon type of service pipe used. Insert stiffeners shall be furnished and installed for each inlet and outlet meter setting service pipe connection if required.

END OF SECTION

MECHANICAL

Section 15090

Displacement Type Domestic Water Meters (5/8" - 1" Size)

Type

Section 1. Magnetic Drive, Sealed Register, Positive Displacement Oscillating Piston Type Cold Water Meters.

Size and Length

Section 2. Unless specified otherwise on the drawings, meters shall be 5/8" X 3/4" and must conform to American Water Works Standard C-700 as most recently revised. A meter shall be furnished for each service and the required meter delivered to the Owner.

Furnish two (2) meter gaskets for each meter supplied.

Cases

Section 3. All Meters shall have a non-corrosive Water Works bronze outer case with a separate measuring chamber which can be easily removed from the case. All meters shall have cast on them, in raised characters, the size and direction of the flow through the meter. Bronze bottoms shall be provided on 5/8", 3/4" and 1". All maincases shall be guaranteed against defects in materials and workmanship for twenty-five (25) years for date of shipment.

All external bolts and washers shall be of corrosion resistant material and be easily removed from the maincase.

Registers - Hermetically Sealed

Section 4. The register must be of the straight reading type and have a large test or sweep hand. It shall read in cubic feet, gallons, or metric units of volume. All reduction gearing shall be contained in a permanently hermetically sealed, tamperproof enclosure made from a corrosion resistant material and will be secured to the upper maincase by means of a locking device located in the interior of the meter so the register cannot be removed externally. The sealed register shall be guaranteed against defects in materials and workmanship for fifteen (15) years from date of shipment.

Measuring Chamber

Section 5. The measuring chamber shall be of Water Works bronze or a suitable synthetic polymer and shall not be case as part of the maincase. All piston assemblies shall be interchangeable in all measuring chamber assemblies of the same size. The chamber's division plate shall be stainless steel with a bonded rubber coating. The chamber's bottom plate shall be held in place without the use of fasteners.

There shall be no stuffing box. The motion of the piston will be transmitted to the sealed register through the use of a direct magnetic drive without any intermediate mechanical coupling.

All meters must be provided with a corrosion resistant strainer which is easily removable from the meter without the meter itself being disconnected from the pipeline.

Change gears will not be allowed to calibrate the meter. All registers of a particular registration and meter size shall be identical and completely interchangeable.

Meters shall conform to current AWWA test flow and accuracy standards.

Meters shall operate up to a working pressure of 150 pounds per square inch, without leakage or damage to any parts. The accuracy shall not be affected when operating at this pressure due to possible distortion.

Guarantee

Section 6. Quotations shall be accepted only from those companies who are actively engaged in the manufacturing of all parts for their meter in the United States of America and who have a minimum of five years of satisfactory operating experience with their meter. All meters will be guaranteed against defects in materials and workmanship for a period of one (1) year from date of shipment.

Meters shall be Sensus SR II or equal.

END OF SECTION

MECHANICAL

Section 15100 Electromagnetic Type Domestic Water Meters (1-1/2" - 24" Size)

SCOPE

These specifications set forth the minimum acceptable design criteria and performance requirements for cold water meters (33° F – 149° F) including the following potential service applications and general considerations:

- Intended where a moderately wide flow range is anticipated
- Measurement of water usage for typical accountability and billing applications
- Measurement intended for typical commercial and industrial applications including potable and non potable applications
- Measurement of constant medium to extended high flow Usage

MEASURING ASSEMBLY

The meter consists of two basic assemblies; the measuring tube and the liner. The measuring tube consists of polyurethane coated steel housing and a non-magnetic alloy tube with an obstruction-less cross section and a homogenous magnetic field. The liner of the measuring tube is made of Rilsan® (3" – 12" meters) and hard rubber (14" – 24" meters) and is resistant to corrosion, aging and abrasion.

PERFORMANCE

The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands.

OPERATING CHARACTERISTICS

1-1/2" 0.3 gpm 0.7 gpm to 180 gpm 25% over speed capability
2" 0.4 gpm 1.2 gpm to 320 gpm 25% over speed capability
3" 0.7 gpm 2.8 gpm to 720 gpm 25% over speed capability
4" 1.3 gpm 5 gpm to 1,250 gpm 25% over speed capability
6" 3.0 gpm 11 gpm to 2,850 gpm 25% over speed capability
8" 5.5 gpm 19.5 gpm to 5,100 gpm 25% over speed capability
10" 8.4 gpm 31 gpm to 8,000 gpm 25% over speed capability
12" 12 gpm 44.5 gpm to 11,500 gpm 25% over speed capability
14" 49 gpm 182 gpm to 15,700 gpm 25% over speed capability
16" 64.5 gpm 237 gpm to 20,500 gpm 25% over speed capability
18" 82 gpm 300 gpm to 26,000 gpm 25% over speed capability
20" 101 gpm 370 gpm to 32,100 gpm 25% over speed capability
24" 105 gpm 385 gpm to 33,400 gpm 25% over speed capability

STRAIGHT PIPE REQUIREMENT

1-1/2" – 12" accuMAG: 0D inlet, 0D outlet
14" – 24" accuMAG: 5D inlet, 2D outlet.

MEASURING TECHNOLOGY

An electrically conductive fluid flows inside an electrically insulating pipe through a magnetic field. The magnetic field is generated by a current, flowing through a pair of field coils. Inside of the fluid, a voltage is generated. The signal voltage is picked off by electrodes and is proportional to the mean flow velocity and thus the flowrate. The signal voltage is very small. The register amplifies the signal voltage, filters it and converts it into signals for totalization, recording and output processing. A grounding electrode is provided on the 3" – 12" meters. An optional grounding ring is available on the 14" – 24" meters.

ELECTRONIC REGISTER

The meter's register is all-electronic and does not contain any mechanical gearing to display flow and accurate totalization. The electronic register includes the following partial list of features:

- AMR resolution units fully programmable
- Pulse output fully programmable
- Integral resettable accuracy testing feature
- Large, easy-to-read LCD display
- Replaceable battery

MAXIMUM OPERATING PRESSURE

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 175 pounds per square inch (psi).

CONNECTIONS

The meter assemblies shall have flanges of the Class 150 round type, raised faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

GUARANTEE PROGRAM

Meters shall be guaranteed against defects in material and workmanship for a period of one (1) year from date of shipment.

END OF SECTION

SECTION 6
BID DOCUMENTS

INDEX

SECTION 6 - BID & BID BOND FORMS

CANNONSBURG KY PSC WATER SYSTEM IMPROVEMENTS PROJECT

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BID BOND BB-1 THRU BB-2

EXPERIENCE STATEMENT ES-1 THRU ES-4

NOTICE TO CONTRACTORS

Forms presented in this Section 6 must be used. No substitutes will be allowed.

CONTRACT 1- LABOR/INSTALLATION BID
Installation of (14) – 1” Bypass Meter settings, and (10) – 6” Monitor Meter settings
CANNONSBURG WATER DISTRICT
KY PSC FUNDED WATER SYSTEM IMPROVEMENTS

Bid of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____*.
(a corporation, partnership, etc.)

To the Cannonsburg Water District_ (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of Water Distribution Improvements in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within 90 consecutive calendar days thereafter.

BIDDER further agrees to pay as liquidated damages, the sum of \$ 200.00 for each consecutive calendar day thereafter as provided in Section 15 of the General Conditions.

*Insert "a corporation", "a partnership", or "an individual" as applicable.

BASE BID SCHEDULE
CANNONSBURG WATER DISTRICT

BIDDER acknowledges receipt of the following ADDENDUM:

No. _____	Dated _____
No. _____	Dated _____
No. _____	Dated _____

BIDDER agrees to perform all the work described in the CONTRACT

DOCUMENTS for the following unit prices or lump sum.

- NOTE**
- 1) **The State Prevailing Wage Rates do not apply to this project.**
 - 2) **This BID schedule includes completing labor/installation only, except where otherwise noted. Materials furnished under separate contract.**

		Estimated :	: Total
Item :		Quantities:	: Amount
No. :	Description w/Unit Price in Words	(Units) :	Unit Price : of Bid

1. Labor/installation for standard "Bypass Meter" installation on existing 3" – 6" waterlines. Including, excavation, laying, backfilling, testing, clean-up, furnish stone meter box bedding for:

_____ Dollars	
_____ Cents	
Per Each	14 Each \$ _____ \$ _____

2. 1" CL. 200 Poly. Service Line installation (for Bypass Meters above), including, trenching, laying, backfilling, testing, clean-up, and sterilization for:

_____ Dollars	
_____ Cents	
Per Linear Foot	500 L.F. \$ _____ \$ _____

BASE BID SCHEDULE

CANNONSBURG WATER DISTRICT

Item No.	Description w/Unit Price in Words	Estimated Quantities (Units)	Unit Price	Total Amount of Bid
3.	Labor/installation for standard 6” “Monitor Meter” installation on existing 6” and 8” waterlines. Including, excavation, laying, backfilling, testing, clean-up, furnish stone for meter box bedding for: _____ Dollars _____ Cents Per Each	10	Each \$ _____	\$ _____
4.	6” SDR 21 PVC Labor/installation including excavation, laying, backfilling, testing, clean-up for Monitor Meter ties-ins: _____ Dollars _____ Cents Per Each	40 L.F	\$ _____	\$ _____
5.	8” SDR 21 PVC Labor/installation including excavation, laying, backfilling, testing, clean-up for Monitor Meter ties-ins: _____ Dollars _____ Cents Per Each	40 L.F	\$ _____	\$ _____

BASE BID SCHEDULE

CANNONSBURG WATER DISTRICT

Item No.	Description w/Unit Price in Words	Estimated Quantities (Units)	Unit Price	Total Amount of Bid
----------	-----------------------------------	------------------------------	------------	---------------------

TOTAL BASE BID IN NUMBERS (ITEMS 1 - 5) \$ _____

TOTAL BASE BID IN WORDS (ITEMS 1 - 5)

The above unit prices shall include all labor, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for. Bidder understands that the Owner reserves the right to reject any or all bids.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 45 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver a Surety Bond or bonds as required by the General Conditions. The bid security attached, in the sum of _____ is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

Name of Bidder

Address

(Seal - if bid is by a Corporation).

Signed by: _____

Type Written Name

Title

Date

Telephone Number

Cannonsburg Water District-2014 KY PSC Funded Water System Improvements
 Contract 2 – Materials Furnishing Bid

CONTRACT 2 - FURNISH MATERIALS BID SCHEDULE							
Ref.	Item Description	Estimated Quantities (A)	Units (B)	Unit Cost			Total Cost of Item D=A x C
					Materials (C)		
1.	Furnish materials for standard "Bypass Meter" installation on existing 3" – 6" waterlines. Including 1"corp. stops, saddles 1" outlet size per existing main size, 1" copper setter, 1" water meter, meter box, lid, 1 foot long section of ½" Sch. 40 PVC pike for support of meter setter	14	Each				
2.	1" CL 200 Polyethylene Service Line for Bypass meter installations	500	L.F.				
3.	Furnish materials for standard "Monitor Meter" installed on existing 6" and 8" existing waterlines. Including 6/4" DI MJ fittings w/grip rings, 3 feet long 6" CL 53-DI flanges x plain end spool pipes, 18 feet long section of 4" CL. 350 DIP, 6", Foster adapter, 6"/4" MJ w/grip ring gate valves (2-6", 1-4" per setting) w/valve boxes/lids, 6" electro- magnetic water meter, meter box, lid, 8"x6" DI MJ w/grip ring reducers (2 per setting for 8" exist. mains) or 6" restrained joint couplings (2 per setting for 6" exist. mains)	10	Each				
4.	6" SDR 21 PVC pipe for monitor meter tie ins	40	L.F.				
5.	8" SDR 21 PVC pipe for monitor meter tie ins	40	L.F.				

Cannonsburg Water District-2014 KY PSC Funded Water System Improvements
Contract 2 – Materials Furnishing Bid

TOTAL AMOUNT OF BID IN NUMBERS: \$ _____

Bid Submitted by: _____ **Company Name**

Address

Legal Contact Person Signature

Phone No.

**Note: Material quotation prices to include FOB shipping cost and must be held for 45 days after bid date w/o increase to Owner.
Do not include KY Sales Tax as Owner is Tax Exempt. Bid Security/Bond not required for this Contract.**

BID BOND

BIDDER (Name and Address):

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

OWNER (Name and Address):

BID

BID DUE DATE: _____

PROJECT (Brief Description Including Location):

BOND

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____ (Words) _____ (Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)
Bidder's Name and Corporate Seal

(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
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 by 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 and 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 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 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 or 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.

EXPERIENCE STATEMENT

The undersigned guarantees the accuracy of all statements and answers herein contained. (Please print in ink or type).

1. How many years has your firm been in business as a General Contractor?

_____ Years

2. List up to three (3) projects of this nature that you have completed and give the name, address and telephone number of a reference from each. Also give the completed cost of each project listed.

3. List projects presently under construction by your firm, dollar volume of the contract, and the percent of completion.

4. Have you ever failed to complete work awarded to you?

If so, state where and why.

5. Have you or your authorized representative personally inspected the location of the proposed work and do you have a clear understanding of the requirements of the Plans, Specifications, and other Contract Documents?

6. Do you plan to sublet any part of this work? If so, give details.

7. What equipment do you own that is available for this work?

8. What equipment do you plan to rent or purchase for this work?

9. Have you ever performed similar work under the direction of a Consulting Engineer or Registered Architect? If so, list up to three such firms giving the name of the firm, its address, telephone number and the name of the project. (List most recent projects).

10. Give the name, address and telephone number of an individual who represents each of the following and who the owner may contact to investigate your financial responsibility:

A Surety _____

A Bank _____

A Major Material Supplier _____

11. Give a summary of your financial statement. (List assets and liabilities; use an insert sheet if necessary.)

Respectfully Submitted:

Signature

Title

SECTION 7
CONTRACT FORMS

INDEX

SECTION 7 - CONTRACT FORMS

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NOTICE TO CONTRACTORS

Forms presented in this Section 7 must be used. No substitutes will be acceptable.

NOTICE OF AWARD

To: _____

PROJECT Description: _____

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated _____, 20____ 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 Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and certificates of insurance within ten (10) calendar days from the date of receipt of this Notice.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days of receipt 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.

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

Dated this _____ day of _____, 20__.

Owner

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By _____

this the _____ day of _____, 20__

By _____

Title _____

END OF SECTION

AGREEMENT

This Agreement, made this ____ day of _____, 200, by and between _____,
(Name of Owner)
hereinafter called "OWNER" and _____
doing business as a corporation hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the furnishing of the _____
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the date of the NOTICE TO PROCEED and will complete the same within ____ calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \$ _____ as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
 - (A) Advertisement for BIDS
 - (B) Information for BIDDERS
 - (C) BID
 - (D) BID BOND
 - (E) Agreement
 - (F) General Conditions
 - (G) Payment BOND
 - (H) Performance BOND
 - (I) NOTICE OF AWARD
 - (J) NOTICE TO PROCEED
 - (K) CHANGE ORDER
 - (L) DRAWINGS prepared by _____
numbered _____ through _____, and _____ through _____, and _____
through _____, dated _____, 200.
 - (N) SPECIFICATIONS prepared or issued by _____
dated _____, 200.
 - (O) ADDENDA:

No. _____, Dated _____, 20____

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.
7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in (____copies____) each of which shall be deemed an original on the
(Number of Copies)
date first above written.

OWNER:

BY _____

Name _____
(Please Type)

ATTEST:

Name _____
(Please Type)

Title _____

CONTRACTOR:

BY _____

Name _____
(Please Type)

Address _____

ATTEST:

Name _____
(Please Type)

END OF SECTION

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of the City of _____, do hereby certify as follows:

I have examined the attached Contract(s) and Surety Bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid Agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said Agreements on behalf of the respective parties named thereon; and that the foregoing Agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Date: _____

END OF SECTION

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____ (Name of Contractor)

_____ (Address of Contractor)

a _____, hereinafter called **PRINCIPAL**, and
(Corporation, Partnership of Individual)

_____ (Name of Surety)

_____ (Address of Surety)

hereinafter called **SURETY**, are held and firmly bound unto _____

_____ (Name of Owner)

_____ (Address of Owner)

hereinafter called **OWNER**, in the penal sum of _____ Dollars (\$ _____)

In lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the **PRINCIPAL** entered into a certain contract with the **OWNER**, dated the _____ of _____, 20 ____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the **PRINCIPAL** shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the **OWNER**, with or without notice to the **SURETY** and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the **OWNER** from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the **OWNER** all outlay and expense which the **OWNER** may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect

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

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

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which
(Number)

shall be deemed an original, this the _____ day of _____, 20 _____.

ATTEST:

(PRINCIPAL) SECRETARY

PRINCIPAL

BY _____ (s)

(S E A L)

(WITNESS AS TO PRINCIPAL)

ADDRESS

ADDRESS

ADDRESS

ATTEST:

(SURETY) SECRETARY

SURETY

(S E A L)

(WITNESS AS TO SURETY)

BY _____ (s)
ATTORNEY-IN-FACT

ADDRESS

ADDRESS

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

If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

AIA DOCUMENT G705

This certificate is issued as a matter of information only and confers no rights upon the addressee. It does not amend, ex- or alter the coverage afforded by the policies listed below.

Name and Address of Insured Covering (Project Name and Location) Addressee: <input type="checkbox"/> (Owner) <div style="text-align: center;"> <input type="checkbox"/> </div>	COMPANIES AFFORDING COVERAGE A B C D E F
---	---

This is to certify that the following described policies, subject to their terms, conditions and exclusions, have been issued to the above named insured and are in force at this time.

TYPE OF INSURANCE	CO. CODE	POLICY NUMBER	EXPIRATION DATE	LIMITS OF LIABILITY IN THOUSANDS		
					EACH OCCURRENCE	AGGREGATE
1. (a) Workers' Compensation (b) Employer's Liability				Statutory		Each Accident
2. Comprehensive General Liability including: <input type="checkbox"/> Premises - Operations <input type="checkbox"/> Independent Contractors <input type="checkbox"/> Products and Completed Operations <input type="checkbox"/> Broad Form Property Damage <input type="checkbox"/> Contractual Liability <input type="checkbox"/> Explosion and Collapse Hazard <input type="checkbox"/> Underground Hazard <input type="checkbox"/> Personal Injury with Employment Exclusion Deleted				Bodily Injury	\$	\$
				Property Damage	\$	\$
				Bodily Injury and Property Damage Combined	\$	\$
				*Applies to Products and Completed Operations Hazard		\$ (Personal Injury)
3. Comprehensive Automobile Liability <input type="checkbox"/> Owned <input type="checkbox"/> Hired <input type="checkbox"/> Non-Owned				Bodily Injury (Each Person)	\$	
				Bodily Injury (Each Accident)	\$	
				Property Damage	\$	
				Bodily Injury and Property Damage Combined	\$	
4. Excess Liability <input type="checkbox"/> Umbrella Form <input type="checkbox"/> Other than Umbrella				Bodily Injury and Property Damage Combined	\$	\$
5. Other (Specify)						

- Products and Completed Operations coverage will be maintained for a minimum period of 1 2 year(s) after payment.
- Has each of the above listed policies been endorsed to reflect the company's obligation to notify the addressee in the of cancellation or non-renewal? Yes No

CERTIFICATION

I hereby certify that I am an authorized representative of each of the insurance companies listed above, and that the ages afforded under the policies listed above will not be cancelled or allowed to expire unless thirty (30) days written has been given to the addressee of this certificate.

Name of Issuing Agency

Signature of Authorized Representative

Address

Date of Issue

NOTICE TO PROCEED

To: _____

Date: _____
Project: _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____
20 0, on or before _____, 200, and you are to complete the WORK within _____ consecutive
calendar days thereafter. The date of completion of all WORK is therefore _____, 200.

Owner
By: _____
Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO
PROCEED is hereby acknowledged

By _____
this the _____ day
of _____, 200

By _____
Title _____

END OF SECTION

Title of Project:

Pay Request No.

Contractor:

Consultant:

Owner:

Original Contract Amount \$ _____
 C.O. # _____ thru _____ \$ _____
 Revised Contract Amount \$ _____
 Percent Contract Complete _____
 Original Completion Date _____
 Revised Completion Date _____
 Percent Contract Time Elapsed _____ %

The undersigned Contractor certifies that to the best of their knowledge, information and belief the work covered by the pay estimate has been completed in accordance with the contract documents, that all amounts have been paid by the contractor for work for which previous payment estimates was issued and payments received from the owner, and that current payment shown herein is now due.

CONTRACTOR:

BY: _____ DATE _____

The undersigned certifies that the work has been carefully inspected and to the best of their knowledge and belief, the quantities shown in this estimate are correct and the work has been performed in accordance with the contract documents.

Consultant:

BY: _____ DATE _____

Project Engineer

OWNER:

The review and acceptance of partial pay estimates does not constitute that the work is accepted.

BY: _____ DATE _____

ANALYSIS OF WORK PERFORMED:

Work Completed to Date \$ _____
 Less Amount Retained, % (Of 50%) \$ _____
 Net Amount Earned \$ _____
 *Plus Materials Stored, % \$ _____
 Total Earned & Amount Stored \$ _____
 Less Previous Payments \$ _____
 Due This Estimate \$ _____

*Includes 10% Retainage

**FORM OF WAIVER AND RELEASE OF LIEN
GENERAL CONTRACTOR**

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has performed or finished, is performing, or finishing, or will perform or furnish labor or material, fuel, equipment, tools, etc., in connection with the construction of * _____
_____ for *** _____
_____ at** _____
_____.

NOW, THEREFORE, THESE PRESENTS WITNESS, that the undersigned, for a good and valuable consideration to the undersigned well and truly paid at or before the signing and delivery hereof, the receipt whereof is hereby acknowledged, does hereby waive, release and relinquish any and all claims, liens and rights and claims of liens which the undersigned now has, or may hereafter have, on or against the said premises and the building, plant, equipment and machinery of their Owner, *** _____
_____, or on or against *** _____
_____, on account of labor performed or to be performed or material, fuel, equipment, tools, etc., furnished or to be furnished by the undersigned for use in or in connection with the construction and erection of said project; so that *** _____
_____, its successors and assigns, shall and may have, hold and enjoy the same freed and discharged from all liens, claims, and demands whatsoever which the undersigned now has or might or could have if these presents had not been made.

IN WITNESS WHEREOF, the undersigned has hereunto set his hand and seal this _____ day of _____, 20__.

NAME OF GENERAL CONTRACTOR

BY _____
SIGNATURE OF OFFICER OR PARTNER

TITLE OR OFFICER

WITNESS:

- _____
* Insert name of building project
** Insert address of building project
*** Insert name of Owner

NOTE – Contractor must submit this sheet executed, with each Pay Request Form.

**FORM OF WAIVER AND RELEASE OF LIEN
SUBCONTRACTOR**

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has performed or finished, is performing, or finishing, or will perform or furnish labor or material, fuel, equipment, tools, etc., in connection with the construction of * _____
_____ for *** _____
_____ at** _____
_____.

NOW, THEREFORE, THESE PRESENTS WITNESS, that the undersigned, for a good and valuable consideration to the undersigned well and truly paid at or before the signing and delivery hereof, the receipt whereof is hereby acknowledged, does hereby waive, release and relinquish any and all claims, liens and rights and claims of liens which the undersigned now has, or may hereafter have, on or against the said premises and the building, plant, equipment and machinery of their Owner, *** _____
_____, or on or against *** _____
_____, on account of labor performed or to be performed or material, fuel, equipment, tools, etc., furnished or to be furnished by the undersigned for use in or in connection with the construction and erection of said project; so that _____
_____, its successors and assigns, shall and may have, hold and enjoy the same freed and discharged from all liens, claims, and demands whatsoever which the undersigned now has or might or could have if these presents had not been made.

IN WITNESS WHEREOF, the undersigned has hereunto set his hand and seal this _____ day of _____, 20__.

NAME OF SUB-CONTRACTOR

BY _____
SIGNATURE OF OFFICER OR PARTNER

TITLE OR OFFICER

WITNESS:

- * Insert name of building project
- ** Insert address of building project
- *** Insert name of Owner

NOTE – Contractor must submit this sheet executed, with each Pay Request Form.

CONTRACT CHANGE ORDER

	ORDER NO.
	DATE
	STATE
CONTRACT FOR	COUNTY

OWNER

TO

(Contractor)

You are hereby requested to comply with the following changes from the contract plans and specifications:

Description of Changes (Supplemental Plans and Specifications Attached)	DECREASE in Contract Price	INCREASE in Contract Price
	\$	\$
TOTALS	\$	\$
NET CHANGE IN CONTRACT PRICE	\$	\$

JUSTIFICATION:

The amount of the Contract will be (Decreased) (Increased) By The Sum Of: _____).

The Contract Total Including this and previous Change Orders Will Be: _____

Dollars (\$

The Contract Period Provided for Completion Will Be (Increased) (Decreased) (Unchanged): _____ Days.

This document will become a supplement to the contract and all provisions will apply hereto.

Requested _____ (Owner) _____ (Date)

Recommended _____ Woolpert, Inc. _____ (Date)
(Architect/Engineer)

Accepted _____ (Contractor) _____ (Date)

TO: _____ OWNER

DATE OF SUBSTANTIAL COMPLETION:

PROJECT TITLE:

PROJECT OR SPECIFIED PART SHALL INCLUDE:

LOCATION:

OWNER:

CONTRACTOR:

CONTRACT FOR:

CONTRACT DATE:

The Work performed under this contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer-Architect, and the Project (or specified part of the Project, as indicated above) is hereby declared to substantially completed on the above date.

DEFINITION OF SUBSTANTIAL COMPLETION

That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

A tentative list of items to be completed is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the contract documents.

ENGINEER BY _____ AUTHORIZED REPRESENTATIVE DATE

The Contractor accepts the Certificate of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

CONTRACTOR BY _____ AUTHORIZED REPRESENTATIVE DATE

The Owner accepts the project or specified area of the project as substantially complete and will assume full possession of the project or specified area of the project at _____ (time), on _____ (date). The responsibility for heat, utilities, security, and insurance under the contract documents shall be set forth under "Remarks" below.

OWNER BY _____ AUTHORIZED REPRESENTATIVE DATE