

**GREENCASTLE AREA, FRANKLIN
COUNTY WATER AUTHORITY**

FRANKLIN COUNTY

PROJECT MANUAL

FOR

**SOUTH WASHINGTON STREET WATER
MAIN REPLACEMENT**

Engineer's Project No. 10814.12

January 2025

ARRO Consulting, Inc.
186 Thomas Johnson Drive, Suite 204
Frederick, MD 21702

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SPECIFICATIONS

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BIDDING REQUIREMENTS

DOCUMENT 00010

INVITATION TO BID

Project: **SOUTH WASHINGTON STREET WATER MAIN REPLACEMENT:**
The project generally consists of furnishing and installing approximately 640 L.F of 8-inch water main, two gate valves, two fire hydrant assemblies, five new water services, two water service reconnections, and restoration of areas disturbed by construction.

The Work will be performed under one Contract as follows:

GENERAL CONSTRUCTION

Owner: **GREENCASTLE AREA, FRANKLIN COUNTY WATER AUTHORITY**
60 North Washington Street
Greencastle, PA 17225

Engineer: **ARRO CONSULTING, INC.**
186 Thomas Johnson Drive, Suite 204
Frederick, MD 21702

Sealed Bids will be accepted at the office of the Owner, until 10:00 A.M., prevailing time, on March 11, 2025, at which time they will be publicly opened and read aloud.

The Authority will meet at 5:30 P.M., prevailing time, on March 17, 2025, to accept bids, award, or reject bids.

Bidding Documents and solicitation details are available online at the Borough of Greencastle website (<http://greencastlepa.gov>).

A pre-bid meeting will be held at 10:00 A.M., prevailing time, on February 11, 2025, at the office of the Owner.

Attendance at the pre-bid meeting is not mandatory but recommended.

Questions will be accepted until 4:00 P.M., prevailing time, on March 4, 2025; All questions must be submitted by email to bethany.stoll@arroconsulting.com.

Reproduction of the Bidding Documents, or their placement on websites of prospective bidders and other entities, is not permitted.

Bids may be modified or withdrawn at any time prior to the opening of Bids.

After the Bid opening, Bids may be withdrawn only by complying with Commonwealth of Pennsylvania laws and regulations. A summary of such laws and regulations is given in the Instructions to Bidders (Document 00100).

Bids shall remain open for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, utility, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. See Instructions to Bidders for other provisions on the time available for acceptance of Bids.

The Contract will be subject to the Prevailing Minimum Wage Determination established by the Commonwealth of Pennsylvania, Department of Labor and Industry.

Each Bid must be accompanied by Bid security in the form of a certified check, bank check, irrevocable letter of credit, or Bid bond (on the form included with the Bidding Documents) for (10) percent of the Bid total.

It is a requirement of this Contract that at least 50% of the Work be performed by Prime Bidder's own workforce, not by subcontractor(s).

It is a requirement of this Contract that Bidder shall have a minimum (5) year, (5) project documented experience in the type of Work required by this Project.

Bidders, subcontractors, their workers and any persons providing labor and products to the Project shall be persons lawfully permitted to work in the United States and the Commonwealth of Pennsylvania.

As a precondition of being awarded a Contract, Successful Bidder, and its subcontractor(s) are required, to provide confirmation of compliance with Act 141 of 2022, the "Public Works Employment Verification Act".

The **OWNER** hereby reserves the right, which is understood and agreed to by all Bidders, to reject any or all Bids and to waive any omissions, errors, or irregularities in any Bid.

**GREENCASTLE AREA, FRANKLIN COUNTY WATER AUTHORITY
EMILEE LITTLE, MANAGER**

DOCUMENT 00100

INSTRUCTIONS TO BIDDERS

Article 1 - Defined Terms

1.01 Terms used in these *Instructions to Bidders*, which are defined in the Standard General Conditions of the Construction Contract, as prepared by the Engineer's Joint Contract Documents Committee (Document EJCDC C – 700, 2007 Edition), have the meanings assigned to them in the General Conditions. Additional terms used in these *Instructions to Bidders* have meanings indicated below, which are applicable to both the singular and plural thereof.

- A. Issuing Office – The office from which the Bidding Documents are to be issued and made available for sale, and where the bidding procedures are to be administered.
 - 1. Issuing Office is the office of the Engineer whose name and address are listed in the Invitation to Bid.
- B. Successful Bidder – The lowest, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

Article 2 - Copies of Bidding Documents

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Invitation to Bid may only be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents, or Bidding Documents purchased from sources other than the issuing office.

2.03 Bids from prospective Bidders who have not obtained the Bidding Documents from the issuing office and who have not obtained complete sets of Bidding Documents will not be accepted.

2.04 Copies of Bidding Documents are made available on the above terms only for the purpose of obtaining Bids on the Work and not to confer a license or grant for any other use.

2.05 Digitizing and posting Bidding Documents on the Internet or on websites of prospective Bidders and other parties, or reproduction of Bidding Documents by others, is not permitted without Engineer's approval.

Article 3 - Qualifications of Bidders

3.01 To demonstrate qualifications to perform the Work, Bidder shall submit with the Bid the qualification data indicated in the Invitation to Bid, the following Paragraph(s) of Article 3, and the Bid Form. Bidders shall also be prepared to submit, within five calendar days after the Bid opening date, upon Owner's request, such additional data as may be pertinent to the Project.

3.02 The Bid of out-of-State Bidders and their Subbidder(s), if any, shall contain evidence of qualification to do business in the Commonwealth of Pennsylvania or covenant to obtain such qualification prior to and as a condition of award of a Contract.

3.03 To obtain information concerning qualifications of a Bidder, the Owner requires that a completed Experience Questionnaire be submitted on the form included in the Bidding Documents. Bidder shall include the completed Experience Questionnaire with the Bid.

3.04 It is a requirement of this Contract that successful Bidder provides confirmation of compliance with Act 141 of 2022, by submitting a “Public Works Employment Verification Form“ (Document 00511) as a pre-condition to being awarded a contract for this Project.

3.05 Submission of financial information is not required with the Bid, but the Owner reserves the right to request such information as part of the Bid evaluation process.

3.06 It is a requirement of the Contract that Bidders shall have a minimum (5) year, (5) project documented experience in the type of Work required by this Project. Submit required documentation with the Bid.

3.07 Failure, or refusal, to submit documentation required by the Invitation to Bid, this Article 3, and the Bid Form will be reason for rejection of the Bid. Following are additional reasons for rejection of the Bid:

- A. Failure to submit the Bid and other Bidding Documents, on the forms included in the Project Manual.
- B. Failure to sign the Bid Form or any of the required affidavits and other documents attached to it.
- C. Failure to furnish the required Bid Security.
- D. Failure to include a unit/lump sum price for each item on the Bid Form, including Alternates.
- E. The inclusion by Bidder of conditions or qualifications not provided for in the Bidding Requirements and Bidding Documents.
- F. Submission of incomplete Bid Form or other required documents.
- G. If the Bid Form contains any omissions, erasures, alterations, additions not called for, or irregularities of any other kind.
- H. If any bid prices are obviously unbalanced.
- I. When applicable, non-attendance at a mandatory pre-bid meeting and if applicable, site visit.
- J. Debarment by a Commonwealth agency, political subdivision, or Federal agency.

- K. Having been declared in default on prior projects.

Article 4 - Examination of Contract Documents and Site

4.01 It is the responsibility of each Bidder before submitting a Bid:

- A. To examine thoroughly the Bidding Documents;
- B. To visit the site and become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;
- C. To consider federal, state, and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
- D. To study and carefully correlate Bidder's knowledge and observations with the Bidding Documents and such other related data; and
- E. To promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Bidding Documents.
- F. Obtain such additional or supplementary examinations, investigations, explorations, tests studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.
 - 1. Bidder shall be responsible for restoration of areas disturbed due to supplementary examinations, investigations, explorations, and tests concerning existing aboveground and underground conditions at, or contiguous to the Site.

4.02 Refer to the Supplementary Conditions for identification of:

- A. Those reports of explorations and tests of subsurface conditions at or contiguous to the site.
- B. Those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site.
- C. To the extent provided in the Supplementary Conditions, Owner will make copies of such data available to any Bidder requesting them. These data are for information only and are not part of the Bidding Documents.

4.03 Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract Documents due to differing or unanticipated conditions appear in Article 4, Paragraphs 4.02, 4.03, and 4.04 of the General Conditions, as amended by the Supplementary Conditions.

4.05 Refer to Paragraph SC-6.13.C of the Supplementary Conditions for information on Safety and Protection at the site, as it relates to Owner's safety programs, if any.

4.06 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer is acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

4.07 The provisions of this Article 4 do not apply to Hazardous Environmental Conditions at the site; provisions concerning these conditions appear in Article 4, Paragraph 4.06 of the General Conditions.

Article 5 - Availability of Lands for Work

5.01 The lands upon which the Work is to be performed, rights-of-way and easements for temporary or permanent access, and other lands designated for use by Contractor in performing the Work are identified in the Bidding Documents. All additional lands and access required for temporary construction facilities, or storage of construction equipment and of Products to be incorporated in the Work shall be obtained and paid for by Contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by Owner, unless otherwise provided in the Bidding Documents.

Article 6 - Interpretations and Addenda

6.01 All questions about the meaning or intent of the Bidding Documents shall be directed in written form, by fax or e-mail, to the Engineer. Interpretations, or clarifications, considered necessary by Engineer in response to such questions, will be issued by Addenda, mailed or faxed to all parties recorded by Engineer as having purchased the Bidding Documents and, if applicable, been present at the pre-bid meeting and site visit. Questions received later than ten

calendar days prior to the date for opening of Bids, or the deadline, if any, indicated on the Invitation to Bid, may not be answered. Only questions answered by formal written Addenda will be binding. Oral statements, interpretations, or clarifications will not be binding, or legally effective.

6.02 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

Article 7 - Bid Security

7.01 Each Bid shall be accompanied by Bid security made payable to Owner in an amount of ten (10) percent of Bidder's maximum Bid price and in the form of a certified or bank check, an irrevocable letter of credit, or a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraphs 5.01, 5.02, and 5.03 of the General Conditions.

- A. All instruments of Bid security shall be valid and remain in effect for at least 120 days from the date of the bid opening.
- B. Substitute Bid Bond forms are not acceptable.
- C. An electronic copy of the Bid security must be submitted with the Bid.
- D. If a Bid Bond is used, it shall be mandatory that the power of attorney accompanying the Bid Bond evidencing the authority of the person signing on behalf of the surety company to sign the Bid Bond shall be dated the same date as the Bid Bond. Further, it shall be mandatory that the Bid Bond itself be dated the same date as the Bid, as well as signed by the principal Bidder and the surety company through its authorized representative. Failure to comply with any of the aforesaid shall result in the disqualification of the Bid, which Bid shall not thereafter be considered.

7.02 The Bid security and financial information, if any, of the three apparent lowest responsive and responsible Bidders will be retained until the Successful Bidder has furnished the required Performance and Payment Bonds, and Insurance Certificate, and Successful Bidder and Owner have executed the Agreement.

7.03 Owner may annul the Notice of Intent to Award, if the apparent Successful Bidder fails or refuses to execute and deliver to the Owner the Agreement, together with the required Performance and Payment Bonds or other forms of security, and Insurance Certificate, within the number of calendar days specified in the Notice of Intent to Award. Bidder shall be considered in Default, and the full amount of its Bid Security shall be forfeited.

Article 8 - Contract Time

8.01 The number of calendar days within which, or the date by which the Work shall be substantially completed (the Contract Time) are set forth in the Agreement.

Article 9 - Liquidated and Other Damages

9.01 Provisions for liquidated and other damages, if any, are set forth in the Agreement.

Article 10 - Substitutions and “Or Equal” Items

10.01 Bids shall be based on Products and methods covered in the Specifications and shown on the Drawings. When a Product specification includes the name or names of manufacturer(s), Bids shall be based on a Product which: (1) meets all Specification requirements; and (2) is produced by one of the manufacturers specifically named in the Specifications for that particular Product.

- A. Requests for substitutions, “or Equal” for Products or methods other than those specified in the Project Manual, will not be considered prior to the Bid opening date. Refer to Supplementary Conditions Paragraphs SC-6.05.A through SC-6.05.L for procedures to be used in making, and costs to Contractor associated with, such requests after award of the Contract.

Article 11 - Subcontractors

11.01 Article 6, Paragraph 6.06.B of the General Conditions, as amended by Paragraph SC-6.06.B.1 of the Supplementary Conditions, sets forth requirements as to the approval of Subcontractors.

11.02 The Bidder shall submit, with the Bid, a list of proposed Subcontractors on the form supplied with the Bidding Documents.

11.03 Each subcontractor is required to provide confirmation of compliance with Act 141 of 2022, by submitting to the Successful Bidder, a “Public Works Employment Verification Form” (Document 00511) as a pre-condition to being awarded a subcontract for this Project.

Article 12 - Bid Form

12.01 The Bid Form and other required Bidding Documents are contained within the Project Manual. Bids must be submitted on forms bound in these documents, or on duplicates provided by the Engineer (or Issuing Office); substitute Documents are not acceptable. If the forms bound within the Project Manual are used for the originals, they must be removed from the Project Manual for enclosing in the Bid envelope.

- A. All blank spaces for Bid prices must be completed in ink or by typewriter and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. The Bid price of each item on the Bid Form must be stated in numerals and in words. Subject to the Owner's right to correct a Bidder's mathematical totals, a discrepancy between the word and numeral for a particular item will be resolved in favor of the word; corrections to the mathematical totals shall be signed and dated by the person making the correction. When Owner

corrects mathematical errors, it shall strike the wrong total with a RED line, so that the original total remains visible.

12.02 The Bid of an individual must be signed by the individual personally; the individual's signature must be witnessed; and the individual's business address and any business trade name must be stated. The Bid of a partnership must state the names and addresses of all partners, and the partnership business name and address; and it must be signed by all general partners, with the signatures witnessed. The Bid of a corporation must show the State of incorporation and the principal office address, and must be signed by the President or Vice President, with the corporate seal affixed, attested by the Secretary or Assistant Secretary. Bids by limited liability companies must be executed in the limited liability company name and signed by all members. The state of formation and official address of the limited liability company must be shown below the signature lines.

12.03 All names must be typed or printed below the signature.

12.04 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers and dates of which must be filled in on the Bid Form).

12.05 The address, e-mail, telephone number, and fax number of Bidder, and the name, e-mail, and telephone number of the individual to whom communications regarding the Bid are to be directed, must be shown.

12.06 The Bid Form may call for lump sum prices, unit prices, or a combination of both.

- A. If the Bid form calls for lump sum prices, the Bidder shall state a single lump sum price for the entire Work, or single lump sum prices for each portion of the Work, subject to a lump sum price as set forth in the Bid form, as applicable. Any such lump sum price or prices shall include all the work described in the Contract Documents as being part of the Work.
- B. If the Bid Form calls for unit prices, the Bidder shall state a single unit price for each item to be furnished or work to be done as set forth in the Bid Form. The Bid Form indicates, opposite each item for which a unit price is required, the Engineer's estimated quantity of units of such items which will be required in the prosecution of the Work; and the Bidder shall state in the space provided in the Bid Form the total price for such items, as computed by multiplying such estimated quantity of units of such item by the unit price bid.

12.08 Bid prices shall be all inclusive and shall include, if applicable, all taxes of whatever nature applicable to the Work.

12.07 Owner may be exempt from sales and use taxes for certain items to be incorporated into the Work. Each Bidder shall obtain legal advice to determine how and to what extent the Contractor may utilize the Owner's tax exemption. Owner will provide, at the Contractor's request, documentation required to obtain applicable tax exemptions.

12.08 Submission of prices for all Alternates, if any, is mandatory.

12.09 The documents listed under Paragraph 6 of the Bid Form shall be provided as a single file.

Article 13 –Submission of Bids

13.01 Bids shall be submitted no later than the date and time, and at the place indicated in the Invitation to Bid, and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, when applicable, the designated construction contract for which the Bid is submitted), the name and address of the Bidder, and accompanied by the Bid security and other required documents. If submission of financial information is required with the Bid, seal documents within a separate envelope (bearing the Bidder's name), marked "FINANCIAL INFORMATION – CONFIDENTIAL," and enclose within the Bid envelope. If the Bid is sent through the mail or other delivery system, the sealed Bid envelope shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face of it. **Bids submitted by means of telegraph, e-mail or facsimile machine will not be accepted.**

13.02 Documents to be submitted along with the Bid are specified on the Bid Form. Use loose forms included with the Project Manual or duplicate copies provided by the Engineer. If the forms bound within the Project Manual are used, the forms must be removed from the documents for enclosing in the Bid envelope.

13.03 The Bidder is solely responsible for delivering the Bid to the Owner at the location, and by the time of the Bid opening, designated in the Invitation to Bid. Owner, or Owner's authorized representative, will be available for the purpose of receiving Bids, at said location, immediately prior to the designated time of the Bid opening. No officer, employee, or agent of the Owner is authorized to accept receipt of a Bid on behalf of the Owner at any other time or place and the Owner shall have no responsibility for the receipt of mailed Bids or Bids delivered otherwise than to the Bid opening location as mentioned previously.

Article 14 - Modification and Withdrawal of Bids

14.01 Bids may be modified or withdrawn at any time prior to the Bid opening.

14.02 After the Bid opening, Bidder may withdraw its Bid, without forfeiture of Bid security, if Bidder submits credible evidence that there is an error in its Bid and such error was a clerical mistake as opposed to a judgement mistake and was due to an unintentional arithmetical error or an unintentional omission of a substantial quantity of the Work; provided: (1) notice of claim of the right to withdraw Bid is made in writing to the Owner within two business days after opening of Bids; and (2) the withdrawal of the Bid will not result in the awarding of the Contract on another Bid of the same Bidder, Bidder's partner, or a corporation, or business venture owned by Bidder, or in which Bidder has a substantial interest. A Bidder which is permitted to withdraw a Bid shall not supply any Products or labor to, or perform any subcontract, or other work, for any entity awarded a Contract, or subcontract for performance of the Work for which the withdrawn Bid was submitted.

Article 15 - Opening of Bids

15.01 Bids will be opened and (unless obviously non-responsive) read aloud publicly at the time and place set forth in the Invitation to Bid.

15.02 An abstract of the amounts of Base Bids and major Alternates (if any) will be made available to Bidders after the opening of Bids.

Article 16 - Bids to Remain Subject to Acceptance

16.01 Bids shall remain open for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. The Owner will either award the Contract within the applicable time period or reject all Bids, returning the Bid security to the Bidders. The apparent Successful Bidder and the Owner may mutually agree in writing upon an extension of the time period for the accepting of Bids.

Article 17 - Award of Contract

17.01 Owner reserves the right, without limitation, to reject any or all Bids, which are nonconforming, nonresponsive, unbalanced or conditional, and to reject the Bid of any Bidder, if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bidder is unqualified or of doubtful financial ability, or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive all irregularities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

17.02 The Owner will correct discrepancies in Bidder's mathematical totals. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

17.03 In evaluating Bids, Owner will consider the qualifications of Bidders, if the Bids comply or do not comply with the prescribed requirements, and such Alternates, unit prices, and other data, as may be listed on the Bid Form, or as may be requested by Owner prior to the Notice of Intent to Award.

17.04 In evaluating Bids, Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work of which Owner, prior to Notice of Intent to Award, requests their identity. Owner also may consider, where applicable, the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data are required to be submitted prior to the Notice of Intent to Award.

17.05 In evaluating Bids, Owner may conduct such investigations, as Owner deems necessary, to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and

financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations, to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

17.06 If the Contract is to be awarded, it will be awarded to the lowest responsible, responsive Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

17.07 If the Contract is to be awarded, Owner will give the apparent Successful Bidder a Notice of Intent to Award within the time limits prescribed in Article 16.

17.08 Bidders may be required by Owner, prior to and as a condition of Contract award, to execute and sign documents related to financing of the Project.

17.09 More than one bid from an individual, partnership, corporation, or an association under the same name or different names will not be considered. Reasonable grounds for believing that the Bidder is interested in more than one Bid for the same Work will cause the rejection of all Bids in which such Bidder is interested. Any or all Bids will be rejected if there is any reason for believing that collusion exists among any of the Bidders; participants in such collusion will not be considered in future bidding.

17.10 Alternates, if any, will be considered and selected by Owner and the prices for the selected Alternates will be added to or deducted from the Base Bid price to arrive at an adjusted Bid price. Owner reserves the right to reject or select Alternates regardless of price attached to such Alternates. The adjusted Bid price will be used in comparing Bids and will be the basis for determining the "lowest" of all responsible, responsive Bidders.

17.11 Successful Bidder and its subcontractors shall submit Employment Verification Forms, in accordance with the PA “Public Works Employment Verification Act” (Act 141 of 2022), prior to and as a condition of award of a contract.

Article 18 - Contract Bonds and Insurance

18.01 Article 5 of the General Conditions sets forth Owner's requirements as to Performance and Payment Bonds to be provided by the Contractor. When the apparent Successful Bidder delivers the signed Agreement to Owner, it must be accompanied by the required Performance and Payment Bonds, each in the amount of one hundred percent (100%) of the Contract Price, on the forms provided in the Bidding Documents. **Substitute Bond forms are not acceptable.**

18.02 Article 5 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to insurance to be carried by the Contractor. When the apparent Successful Bidder delivers the signed Agreement to the Owner, it must be accompanied by the required insurance certificate on the latest version of the Acord 25 Certificate of Insurance form. All policies of insurance shown on the Certificate of Insurance shall not be cancelled or materially changed until thirty days prior notice has been given by Contractor to Owner and Engineer and to each additional insured, and shall contain waiver provisions in accordance with General Conditions, Paragraph 5.07.

Article 19 - Signing of Agreement

19.01 When Owner gives a Notice of Intent to Award to the apparent Successful Bidder, it will be accompanied by four unsigned counterparts each of the Agreement (each with a copy of the Bid submission and, if applicable, the List of Proposed Subcontractors attached), Performance and Payment Bonds, or other forms of financial security. Apparent Successful Bidder shall sign and deliver to the Owner, within the calendar days specified in the Notice of Intent to Award, all counterparts of the Agreement accompanied by the executed Performance and Payment Bonds (with a Power-of-Attorney certificate attached to each), or other forms of financial security and four originals of the required insurance certificate(s).

- A. Successful Bidder(s)/Contractor(s) shall be responsible for all costs resulting from reviewing by Engineer, or others, of non-conforming, or incomplete Contract Document submissions prior to execution of an Agreement. Costs shall be deducted by Change Order from Contractor's first Application for Payment.
- B. By signing the Agreement, the Contractor agrees to hold the prices Bid for materials and equipment throughout the Project.

19.02 If the Owner finds the documents submitted by the apparent Successful Bidder acceptable, it will, within ten calendar days after receipt of such documents, complete the signing of the Agreement and submit two fully executed counterparts and accompanying documents to the Contractor.

19.03 If the Owner elects to issue a Notice to Proceed, such notice will accompany the fully executed copies of the Agreement. If a Notice to Proceed is not issued, the Contract Times will commence to run as specified in General Conditions, Paragraph 2.03, as amended by Supplementary Conditions Paragraph SC-2.03.

19.04 Owner may annul the Intent to Award, if the apparent Successful Bidder fails or refuses to execute and deliver to the Owner the Agreement, together with the required Performance and Payment Bonds, Insurance Certificate, and any other required Contract Document(s), within the number of calendar days specified in the Notice of Intent to Award; Bidder shall be considered in Default, and the full amount of its Bid Bond shall be forfeited.

Article 20 - Pre-Bid Meeting and Site Visit

20.01 A pre-bid meeting and site visit will be held at the time and place set forth in the Invitation to Bid. Engineer will transmit to all prospective Bidders present at the pre-bid meeting and site visit such Addenda, as Engineer considers necessary in response to questions arising at the meeting. Attendance at the pre-bid meeting and site visit is not required but is recommended.

END OF INSTRUCTIONS TO BIDDERS

BIDDING FORMS

DOCUMENT 00300

BID FORM

BIDDER (Name and Address):

PROJECT IDENTIFICATION:

**SOUTH WASHINGTON STREET
WATER MAIN REPLACEMENT**

CONTRACT NUMBER AND IDENTIFICATION:

GENERAL CONSTRUCTION

THIS BID IS SUBMITTED TO:

**GREENCASTLE AREA, FRANKLIN
COUNTY WATER AUTHORITY**
60 North Washington Street
Greencastle, PA 17225

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform and furnish all Work as specified or indicated in the Bidding Documents for the Contract Price and within the Contract Time(s) and in accordance with the other terms and conditions of the Bidding Documents.
2. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant, or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. Thirty-day extensions of the date for the award may be made by the mutual written consent of the Owner and the apparent Successful Bidder. Bidder agrees, if required by Owner prior to and as a condition of Contract award, to execute and sign any documents related to financing of the Project. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Documents within 15 days after the date of Owner's Notice of Intent to Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
 - 3.1. Bidder has examined copies of all the Bidding Documents and of the following Addenda (Receipt of all which is hereby acknowledged):

Date	Number
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- 3.2. Bidder has visited the site and has become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, and furnishing of the Work;
- 3.3. Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.
- 3.4. Bidder has carefully studied any available reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Paragraph SC-4.02 of the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions. Bidder acknowledges that any such reports and drawings are not Bidding Documents or Contract Documents and may not be complete for Bidder's purposes. Bidder acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site. Bidder has obtained and carefully studied (or assumes responsibility for having done so) such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price, and other terms and conditions of the Bidding Documents and Contract Documents.
- 3.5. Bidder is aware of the general nature of Work to be performed by Owner and others at the site that relates to Work for which this Bid is submitted as indicated in the Bidding Documents and Contract Documents.
- 3.6. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents and Contract Documents.
- 3.7. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder, and the Bidding Documents and Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
- 3.8. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or

indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

- 3.9. That Bidder has reviewed all Bidding Documents and Addenda thereto and that it will complete all Work required thereby. Further, Bidder understands and acknowledges that if it has not reviewed all Bidding Documents and Addenda thereto, it will complete all such Work as if all Bidding Documents and Addenda were reviewed, and such Work shall not be the basis for additional compensation to the Bidder.
4. Bidder shall complete the Work for the lump sum prices and/or unit price(s) shown on the bid form. Stipulated prices (including those for Contingency Items) in the Bid Form shall be all-inclusive. They shall include furnishing all labor, superintendence, necessary equipment, utilities and facilities, furnishing and installing all Products described in the Drawings and Specifications, performing all work necessary for, or incidental to completing the Work, Contractor's overhead, profit, and burden costs and performing all other obligations imposed by the Agreement. Refer to Section 01025 for description of pay items

	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price (\$)</u>	<u>Extended Price (\$)</u>
1.	Furnish and Install 8-inch DICL Water Main	LF	580	\$_____	\$_____
2.	Furnish and Install 8-inch C900 Water Main	LF	50	\$_____	\$_____
3.	Furnish and Install 8" Gate Valves	EA	3	\$_____	\$_____
4.	Furnish and Install 8"x 8" Tee	EA	1	\$_____	\$_____
5.	Furnish and Install 8" Sleeve	EA	4	\$_____	\$_____
6.	Furnish and Install Cap	EA	3	\$_____	\$_____
7.	Furnish and Install Fire Hydrant Assembly	EA	2	\$_____	\$_____
8.	Furnish and Install New 1-inch Water Service Lateral	LF	75	\$_____	\$_____
9.	Water Service Lateral Reconnection	LF	75	\$_____	\$_____
10.	Furnish and Install Water Meter Setting	EA	5	\$_____	\$_____
11.	Temporary Trench Pavement Restoration	SY	400	\$_____	\$_____
12.	Permanent Trench Pavement Restoration	SY	530	\$_____	\$_____

13. Concrete Sidewalk Restoration	SF	140	\$_____	\$_____
14. Concrete Curb Restoration	LF	30	\$_____	\$_____
15. General Site Restoration	LS	1	\$_____	\$_____
16. Miscellaneous Concrete (Contingency Item)	CY	5	\$_____	\$_____
17. Miscellaneous Unclassified Excavation (Contingency Item)	CY	20	\$_____	\$_____
18. Miscellaneous Aggregate for Backfill (Contingency Item)	CY	20	\$_____	\$_____
19. Rock Removal (Contingency Item)	CY	50	\$_____	\$_____

Total of Items 1 through 19: BID PRICE (Figures): _____

BID PRICE (Words): _____

Bid Items 16 through 19 are Contingency Items to be used during construction to address unanticipated soil and other construction conditions throughout the Project. Quantities given above for "Contingency Items" are not guaranteed. Final payment will be based on actual quantities. Any difference between estimated and final quantities increases in market value of Products and services, or complexity of work will not be considered reason for increase of unit prices.

5. Bidder agrees that the Work will be substantially complete on or before the dates or within the number of calendar days indicated in the Agreement; and accepts the provisions of the Agreement as to liquidated and other damages in the event of failure to complete the Work on time.
6. The following documents are attached to and made a condition of this Bid:
 - 6.1 Required Bid Security in the form of _____.
 - 6.2 Experience Questionnaire; Document 00400.
 - 6.3 List of Proposed Subcontractors; Document 00450.
 - 6.4 Non-collusion Affidavit; Document 00460.
 - 6.5 Evidence of Bidder's and its Subbidder(s) qualification to do business in the Commonwealth of Pennsylvania or covenant to obtain such qualification prior to and as a condition of award of the Contract (for PA - to be provided if Bidder/Subbidder is out of State).

7. Communications concerning this Bid will be addressed to (Bidder's Contact Person):

Phone: () _____
Fax: () _____
Company Email Address: _____

8. The terms used in this Bid are defined and have the meanings assigned to them in the General Conditions, as may be amended by the Supplementary Conditions, included as part of the Bidding Documents.

9. Bidder acknowledges that the Bid Price is based on Products and methods described and named in the Drawings and Specifications.

10. Bidder certifies that (s)he visited the site on _____, _____, 20__.

INTENDING TO BE LEGALLY BOUND, the undersigned submits the forgoing Bid this ____ day of _____, 20__.

(If Bidder is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Bidder is a Limited Liability Company – All Members Must Sign)

Name of Company

Address of Company

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

(If Bidder is a Partnership - All General Partners Must Sign)

Name of Partnership

Address of Partnership

Signature of Witness

Signature of Partner

Signature of Witness

Signature of Partner

Signature of Witness

Signature of Partner

(If Bidder is a Corporation)

Attest:

	Name of Corporation
_____	_____
Signature of Secretary or Assistant Secretary	Address of Principal Office
(Corporate Seal)	_____
	State of Incorporation

	Signature of President or Vice President

Type or print name below each signature.

State here the names and addresses of all members, if a limited liability, or partners, if a partnership, or of three principal officers, if a corporation.

END OF BID FORM

DOCUMENT 00350

BID BOND

BIDDER (Name and Address):

SURETY (Name and Address):

OWNER (Name and Address):

**GREENCASTLE AREA, FRANKLIN
COUNTY WATER AUTHORITY**
60 North Washington Street
Greencastle, PA 17225

Project Bid Date:

Project Identification:

**SOUTH WASHINGTON STREET WATER
MAIN REPLACEMENT**

Contract Number and Identification:

GENERAL CONSTRUCTION

BOND

Date:

Amount:

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 full face amount of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents, the executed Agreement required by the Bidding Documents, and any Performance Bonds, Payment Bonds, Certificates of Insurance, or other documents required by the Bidding Documents and Contract 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 Bonds, Payment Bonds, Certificates of Insurance, or other documents required by the Bidding Documents and Contract 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).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt of 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, provided that the time for issuing Notice of Award shall not in the aggregate exceed 120 days from Bid opening 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 opening 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. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the first page of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

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

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of 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 terms used in this Bid Bond which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

(If Bidder is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Bidder is a Limited Liability Company – All Members Must Sign)

Name of Company

Address of Company

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

(If Bidder is a Partnership - All General Partners Must Sign)

	Name of Partnership

	Address of Partnership
_____	_____
Signature of Witness	Signature of Partner
_____	_____
Signature of Witness	Signature of Partner
_____	_____
Signature of Witness	Signature of Partner

(If Bidder is a Corporation)

Attest:

	Name of Corporation
_____	_____
Signature of Secretary or Assistant Secretary	Address of Principal Office
(Corporate Seal)	_____
	State of Incorporation

	Signature of President or Vice President

Type or print name below each signature.

(Corporation Surety)

Name of Corporation

Address of Office

Signature of Witness

Signature of Attorney-in-fact

Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

Type or print name below each signature.

NOTE: Substitute Bid Bond Form is not acceptable. Failure to submit Bond on this form will be reason for rejection of Bid.

END OF BID BOND

DOCUMENT 00400

EXPERIENCE QUESTIONNAIRE

PROJECT IDENTIFICATION: **SOUTH WASHINGTON STREET WATER MAIN REPLACEMENT**

CONTRACT IDENTIFICATION: **GENERAL CONSTRUCTION**

SUBMITTED TO: **GREENCASTLE AREA, FRANKLIN COUNTY WATER AUTHORITY**
60 North Washington Street
Greencastle, PA 17225

BY: _____
(-Corporation
(-Partnership
(-An Individual

PRINCIPAL OFFICE ADDRESS _____

The signer of this questionnaire attests to the truth and accuracy of all statements and of all answers to interrogatories hereinafter made.

1. What type of business is Bidder's company? _____

2. How many years has Bidder's company been performing work as a Contractor, or Subcontractor of the type required for this Project? _____

3. Provide information on all service contracts currently in progress.

Contract Amt.	Type of Work (±)	% Completed	Name and Address of Owner(*)	Engineer/ Architect(*)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(*) Provide name of contact person.

(±)Identify if work was performed as a Contractor or Subcontractor

4. What projects, comparable to this Project, has Bidder's company completed within the last five (5) years?

<u>Contract Amt.</u>	<u>Type of Work (±)</u>	<u>When Completed</u>	<u>Name and Address of Owner (*)</u>	<u>Engineer/ Architect (*)</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(*) Provide name of contact person.

(±) Identify if work was performed as a Contractor or Subcontractor

5. Has Bidder's company ever defaulted on a contract, or failed to complete a contract? _____
 If yes, where and why? _____

6. Has Bidder's company ever been debarred? If yes, when, why and by which agency, or political subdivision?

7. Has Bidder's company ever been involved in litigation? If yes, when, why and with which agency, or political subdivision?

8. Has the Bidder, or any of the company's executives ever been found guilty of a felony? If yes, when and why?

9. List names, addresses, and phone numbers of individuals, or companies referenced in Item 4, that may be contacted by Owner, or Engineer to obtain references.

10 What is the construction experience of the principal individuals of Bidder's company?

Individual's Name	Present Position or Office	Magnitude and Type of Work	In What Capacity?
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

STATE OF _____

COUNTY OF _____

_____ being duly sworn deposes and says that (s)he is _____ of _____
Title Name of Company

and attests that the answers to the foregoing questions and all statements therein are true and correct.

Signature

Sworn to before me this _____ Day of _____, 20 _____

My commission expires

Signature of Notary Public

Type or print name below each signature.

END OF EXPERIENCE QUESTIONNAIRE

DOCUMENT 00450

LIST OF PROPOSED SUBCONTRACTORS

PROJECT IDENTIFICATION: **SOUTH WASHINGTON STREET WATER MAIN REPLACEMENT**

CONTRACT NUMBER AND IDENTIFICATION: **GENERAL CONSTRUCTION**

SUBMITTED TO: **GREENCASTLE AREA, FRANKLIN COUNTY WATER AUTHORITY**
60 North Washington Street
Greencastle, PA 17225

List proposed subcontracts as required in Instructions to Bidders.

Description of Subcontract	Subcontractor's Name	Subcontractor's Address

Signature

Typed or Printed Name

Date _____

Title

NOTE: This List of Proposed Subcontractors must be submitted with the Bid, and failure to submit will be reason for rejection of the Bid.

END OF LIST OF SUBCONTRACTORS

DOCUMENT 00460

NON-COLLUSION AFFIDAVIT

I state that I am _____ of _____
(title) (firm)

and that I am authorized to make this affidavit on behalf of my firm and its owners, directors, and officers. I am the person responsible in my firm for the prices and the amount of this Bid.

I state that:

- (1) The prices and amount of this Bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder, or potential bidder.
- (2) Neither the price nor the amount of this Bid, and neither the approximate price nor approximate amount of this Bid, have been disclosed to any other firm or person who is a bidder or a potential bidder, and they will not be disclosed before Bid opening.
- (3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this Bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.
- (4) The Bid of my firm is in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.

(5) _____, its affiliates, subsidiaries, officers
(name of firm)

directors and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy or collusion with respect to bidding on any public contract except as follows:

I state that _____ understands and acknowledges
(name of firm)

the above representations are material and important and will be relied upon by the Owner in awarding the contract(s) for which this Bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from the Owner the true facts relating to the submission of bids for this Contract.

(name of firm)

By: _____

Title _____

Sworn to before me this _____ Day of _____, 20__

My commission expires:

Signature of Notary Public

Type or print name below each signature.

END OF NON-COLLUSION AFFIDAVIT

CONTRACT FORMS

DOCUMENT 00500

AGREEMENT

This Agreement made and entered into this _____ day of _____, 20____
by and between **GREENCASTLE AREA, FRANKLIN COUNTY WATER AUTHORITY** ,
hereinafter called the Owner,

and

A Corporation known as _____
organized and existing under the laws of the State of _____

A Partnership known as _____
consisting of the following partners _____

a Limited Liability Company known as _____
consisting of the following partners/members _____

An Individual, _____, trading as _____

whose address is _____
City of _____
State of _____, hereinafter called the Contractor,

WITNESSETH, that the parties hereto for the consideration stated do mutually agree as follows:

ARTICLE 1 - SCOPE OF WORK

1.1 The Contractor agrees to furnish all labor, superintendence, materials, necessary equipment, and other utilities and facilities for, perform all work necessary for or incidental to, and perform all other obligations imposed by this Agreement for the complete Work in connection with **SOUTH WASHINGTON STREET WATER MAIN REPLACEMENT**, herein called for, all in strict accordance with the Contract Documents as prepared by ARRO Consulting, Inc., acting as and entitled the Engineer in this Agreement.

1.2 The Contract Documents are defined in the General Conditions as amended by the Supplementary Conditions. The Contract Documents comprise the entire Agreement between Owner and Contractor and are incorporated in this Agreement and made a part hereof. The Contract Documents may only be altered, amended, or repealed as described in Paragraph 3.04 of the General Conditions.

1.2.1 In the event of a discrepancy among Contract Documents, the provisions of this Agreement (Document 00500) and the provisions of the Supplementary

Conditions (Document 00800) shall take precedence over the Standard General Conditions.

1.3 The Drawings for the Work covered under this Agreement consist of the following sheets:

<u>Sheet No.</u>	<u>Title</u>
FRONT STREET IMPROVEMENTS	
1 of 6	TITLE SHEET
2 of 6	PLAN AND PROFILE STA 22+92 TO STA 18+50
3 of 6	PLAN AND PROFILE STA 18+50 TO STA 15+60
4 of 6	CONSTRUCTION DETAILS
5 of 6	CONSTRUCTION DETAILS
6 of 6	EROSION AND SEDIMENT CONTROL PLAN

ARTICLE 2 - CONTRACT TIMES

2.1 The Work shall be substantially completed within 120 calendar days after the date when the Contract Times commence to run as provided in General Conditions Paragraph 2.03.A, as amended by Supplementary Conditions Paragraph SC-2.03.A, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 150 calendar days after the date when the Contract Times commence to run.

2.2 Liquidated Damages. Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 2.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner \$500 for each calendar day that expires after the time specified in Paragraph 2.1 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the time specified in Paragraph 2.1 above for completion and readiness for final payment or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500 for each calendar day that expires after the time specified in Paragraph 2.1 above for completion and readiness for final payment.

2.3 Additional Damages: In addition to the liquidated damages amount(s) specified above under Paragraph 2.2, Contractor also agrees to reimburse Owner for all administrative, legal, engineering, and construction observation costs associated with Contractor's failure to meet any deadline specified above under Article 2; and all actual damages that may result from Contractor's defective work including but not limited to additional administrative, legal, engineering, and construction observation costs.

ARTICLE 3 - CONTRACT PRICE, PAYMENT, AND RETAINAGE

3.1 The Owner shall pay, and the Contractor shall receive and accept as full payment for the performance of the Contractor's obligations hereunder, the price(s) stipulated in the Bid Form hereto attached and, in the manner, as specified in the General Conditions subject to the retainage provisions set forth below. Stipulated prices in the Bid Form shall be all inclusive. They shall include furnishing all labor, superintendence, necessary equipment, utilities and facilities, furnishing and installing all Products described in the Drawings and Specifications, performing all work necessary for, or incidental to completing the Work, Contractor's overhead and profit costs and performing all other obligations imposed by this Agreement.

3.2 Retainage

3.2.1 The Owner shall withhold ten percent of the amount of approved Applications for Payment until the Work is 50% completed. When the Work is 50% completed, one-half of the amount retained by Owner shall be returned to Contractor; provided that the Engineer approves the payment of this portion of the retained amount; and, provided further, that the Contractor is making satisfactory progress and there is no specific cause for greater withholding.

3.2.2 After the Work is 50% complete, and up to the date of Substantial Completion, subsequent approved Applications for Payment shall be paid by Owner, subject to withholding by Owner of five percent of each such approved Application for Payment, so that the total amount withheld from Contractor shall not exceed five percent of the value of completed Work, based on approved Applications for Payment.

3.2.3 After the Work is Substantially Complete, in accordance with General Conditions Paragraph 1.01.A.44, as amended by Supplementary Conditions Paragraph SC-1.01.A.44, subsequent approved Application(s) for Payment shall be paid, by Owner, subject to withholding, by Owner, of an amount equal to one and one-half times the amount required to complete any uncompleted minor items, provided there is no specific cause for greater withholding.

3.2.4 In the event that a dispute arises between the Owner and the Contractor, which dispute is based on increased costs incurred by one contractor occasioned by delays or other actions of another contractor, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld by the Owner from the Contractor until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the contractor causing the additional claim furnishes a Bond satisfactory to Owner to indemnify Owner against the claim.

3.3 Final Payment. Upon final completion and acceptance of the Work in accordance with General Conditions Paragraph 14.07, Owner shall pay the remainder of the Contract Price less the amount of liquidated and/or other damages and the amount of any unresolved claims, which have been filed against the Owner in connection with the Work, as recommended by Engineer in accordance with said General Conditions Paragraph 14.07.

3.4 Interest. The final payment if not paid when due in accordance with General Conditions Paragraph 14.07 shall bear interest at the rate of 10 percent per annum, or when the Owner has issued bonds to finance the Project, at the rate of interest of the bond issue, whichever is less. No interest will be paid on progress payments.

ARTICLE 4 - CONTRACTOR'S REPRESENTATIONS

In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

4.1 Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents, including "technical data."

4.2 Contractor has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, and furnishing of the Work.

4.3 Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.

4.4 Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Paragraph SC-4.02 of the Supplementary Conditions. Contractor accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which Contractor is entitled to rely as provided in Paragraph 4.02 of the General Conditions. Contractor acknowledges that such reports and drawings are not Contract Documents and may not be complete for Contractor's purposes. Contractor acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

4.5 Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work as indicated in the Contract Documents.

4.6 Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, reports, and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

4.7 Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 5 - MISCELLANEOUS

5.1 Terms used in this Agreement, which are defined in Article 1 of the General Conditions, as modified by the Supplementary Conditions, will have the meanings indicated in the General Conditions.

5.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

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

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

5.5 Paragraph SC-6.03.A.1 of the Supplementary Conditions directs the Contractor(s) to hold the prices Bid for equipment and materials throughout the Project.

5.6 Paragraph SC-6.05.L of the Supplementary Conditions provides for charging the Contractor for costs associated with any request for substitution made by the Contractor.

5.7 Section 01300 of the General Requirements provides for charging the Contractor for costs associated with review of any submittals which are classified as excess re-submittals; that is, any re-submittal beyond the first. Contractor agrees to compensate Owner for such charges by allowing deductions from Contractor's progress payments.

5.8 Contractor agrees to compensate Owner for such charges incurred under Paragraphs 5.6 and 5.7 above.

ARTICLE 6 – DISPUTE RESOLUTION

6.1 All claims, disputes and other matters in question between Owner and Contractor arising out of, or relating to, the Contract Documents or the breach thereof (except for claims which have

been waived by the making or acceptance of final payment as provided by General Conditions Paragraph 14.07 shall be settled by filing a complaint in the Court of Common Pleas of Franklin County, Pennsylvania, and litigating said matters in said forum.

6.2 The Contractor shall continue the Work and maintain the Progress Schedule, during all disputes or disagreements with Owner in accordance with General Conditions Paragraph 6.18, unless otherwise directed by the Owner.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

(If Contractor is an Individual)

_____ Signature of Witness	_____ Signature of Individual
	Trading and doing business as:
	_____ Name of Business
	_____ Address of Business

(If Contractor is a Limited Liability Company – All Members Must Sign)

	_____ Name of Company
	_____ Address of Company
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member

(If Contractor is a Partnership - All General Partners Must Sign)

	_____ Name of Partnership
	_____ Address of Partnership
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner

(If Contractor is a Corporation)

Attest:

	_____ Name of Corporation
_____ Signature of Secretary or Assistant Secretary	_____ Address of Principal Office
(Corporate Seal)	_____ State of Incorporation
	_____ Signature of President or Vice President

(Owner)

Attest:

Owner's Organizational Name

Owner's Address

Signature

Signature

Title

Title

Type or print name below each signature.

END OF AGREEMENT



Commonwealth of Pennsylvania Public Works Employment Verification Form

Complete and return the form to the contracting Public Body prior to the award of the contract.

Company Legal Name: _____

Doing Business As: _____
(if different from Legal Name)

Mailing Address: _____
Street Address 1

Street Address 2

City State Zip Code

Check one: Contractor Subcontractor

Contracting Public Body: _____

Contract/Project Number: _____

Project Description: _____

Project Location: _____

Date Enrolled in E-Verify (MM/DD/YYYY): _____

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of today's date, _____, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employee start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, _____, authorized representative of the company above, attest that the information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.

Authorized Representative Signature

Date of Signature

Printed Name: _____

Phone Number: _____ **Email:** _____

DOCUMENT 00610

PERFORMANCE BOND

CONTRACTOR (Name and Address):

SURETY (Name and Address):

OWNER (Name and Address):

**GREENCASTLE AREA, FRANKLIN COUNTY
WATER AUTHORITY**
60 North Washington Street
Greencastle, PA 17225

AGREEMENT

Amount:

Project Identification:

**SOUTH WASHINGTON STREET WATER
MAIN REPLACEMENT**

Contract Number and Identification:

GENERAL CONSTRUCTION

BOND

Date:

Amount:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the Performance of the Work as defined by the Agreement, which is incorporated herein by reference.
2. If the Contractor performs the Work, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
 - 3.1 The Owner has notified the Contractor and the Surety at its address described in Article 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Work. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Work, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor default; and
 - 3.2 The Owner has declared a Contractor default and formally terminated the Contractor's right to complete the Work. Such Contractor Default shall not be declared earlier

than twenty days after the Contractor and the Surety have received notice as provided in Paragraph 3.1; and

3.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Agreement or to a contractor selected to perform the Work in accordance with the terms of the Agreement with the Owner.

4. When the Owner has satisfied the conditions of Article 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Work; or

4.2 Undertake to perform and complete the Work itself, through its agents or through independent contractors; or

4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Work, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Work, and pay to the Owner the amount of damages as described in Article 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

4.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

4.4.2 Deny liability in whole or in part and notify the Owner citing reasons therefor.

5. If the Surety does not proceed as provided in Article 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Work, and if the Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Agreement, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Agreement. To the limit of the amount of this Bond, but subject to commitment by the Owner of

the Balance of the Contract Price to mitigation of costs and damages on the Work, the Surety is obligated without duplication for:

- 6.1 The responsibilities of the Contractor for:
 - 6.1.1 Completion of the Work, as defined in Article 1 of the General Conditions.
 - 6.1.2 Correction of defective work during the Correction Period, as defined in General Conditions Paragraphs 13.07.A through 13.07. E, and, where applicable, as amended by the Supplementary Conditions and as specified below:
 - a. Correction Period for all Work performed within Commonwealth of Pennsylvania State highway right-of-way: 2 years after acceptance of the Work by PA DOT and final payment.
 - b. Correction Period for Work performed outside Commonwealth of Pennsylvania State highway right-of-way: 1 year after the date of Substantial Completion.
 - 6.2 Additional legal (including litigation), design, professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Article 4; and
 - 6.3 Liquidated damages, or if no liquidated damages are specified in the Agreement, actual damages caused by delayed performance or non-performance of the Contractor.
7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Work, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.
8. The Surety hereby waives notice of any change, including changes of time, to the Agreement or to related subcontracts, purchase orders, and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working and within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Article are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the front page.

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

12. Definitions:

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

12.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Agreement.

12.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Agreement or to perform and complete or comply with the other terms thereof.

12.4 The terms used in this Performance Bond which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

(If Contractor is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Contractor is a Limited Liability Company – All Members Must Sign)

	_____ Name of Company
	_____ Address of Company
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member

(If Contractor is a Partnership - All General Partners Must Sign)

	_____ Name of Partnership
	_____ Address of Partnership
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner

(If Contractor is a Corporation)

ATTEST:

	Name of Corporation
_____	_____
Signature of Secretary or Assistant Secretary	Address of Principal Office
(CORPORATE SEAL)	_____
	State of Incorporation

	Signature of President or Vice President

Type or print name below each signature.

(Corporation Surety)

	Name of Corporation

	Address of Office
_____	_____
Signature of Witness	Signature of Attorney-in-fact

Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

Type or print name below each signature.

NOTE: Substitute Performance Bond Form is not acceptable. Failure to submit Bond on this form will be reason for rejection of Bid.

END OF PERFORMANCE BOND

DOCUMENT 00620

PAYMENT BOND

CONTRACTOR (Name and Address):

SURETY (Name and Address):

OWNER (Name and Address):

**GREENCASTLE AREA, FRANKLIN COUNTY
WATER AUTHORITY
60 North Washington Street
Greencastle, PA 17225**

AGREEMENT

Amount:

Project Identification:

**SOUTH WASHINGTON STREET WATER
MAIN REPLACEMENT**

Contract Number and Identification:

GENERAL CONSTRUCTION

BOND

Date:

Amount:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Work as defined by the Agreement, which is incorporated herein by reference.
2. With respect to the Owner, this obligation shall be null and void if the Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless the Owner from all claims, demands, liens, or suits by any person or entity who furnished labor, materials, or equipment for use in the performance of the Work, provided the Owner has promptly notified the Contractor and the Surety (at the address shown above) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligation to Claimants under this Bond until:

- 4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address shown on page one) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
- 4.2 Claimants who do not have a direct contract with the Contractor:
 - 4.2.1 Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
 - 4.2.2 Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
 - 4.2.3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address shown on page one) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.
5. If a notice required by Article 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of Article 4, the Surety shall promptly and at the Surety's expense take the following actions.
 - 6.1 Send an answer to the Claimant, with a copy to the Owner, within 60 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
 - 6.3 The Surety's failure to discharge its obligations under this Section 6 shall not be deemed to constitute a waiver of defenses the Surety or the Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this Section 6, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant under this Section 6.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Owner to the Contractor under the Agreement shall be used for the performance of the Work and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Work are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the Work.

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

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

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraphs 4.1 or 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Agreement, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page one. Actual receipt of notice by Surety, the Owner, or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the front page.

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

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

15. Definitions:

15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Work. The intent of this Bond shall be to include without limitation in the terms "labor, materials, or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Work, architectural and engineering services required for performance of the Work of the

Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Agreement or to perform and complete or comply with the other terms thereof.

15.3 The terms used in this Payment Bond which are defined in the General Conditions have the same meaning assigned to them in the General Conditions.

(If Contractor is an Individual)

_____ Signature of Witness	_____ Signature of Individual
	Trading and doing business as:
	_____ Name of Business
	_____ Address of Business

(If Contractor is a Limited Liability Company – All Members Must Sign)

	_____ Name of Company
	_____ Address of Company
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member

(If Contractor is a Partnership - All General Partners Must Sign)

	Name of Partnership

	Address of Partnership
_____	_____
Signature of Witness	Signature of Partner
_____	_____
Signature of Witness	Signature of Partner
_____	_____
Signature of Witness	Signature of Partner

(If Contractor is a Corporation)

ATTEST:

	Name of Corporation
_____	_____
Signature of Secretary or Assistant Secretary	Address of Principal Office
(CORPORATE SEAL)	_____
	State of Incorporation

	Signature of President or Vice President

Type or print name below each signature.

(Corporation Surety)

Name of Corporation

Address of Office

Signature of Witness

Signature of Attorney-in-fact

Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

Type or print name below each signature.

NOTE: Substitute Payment Bond Form is not acceptable. Failure to submit Bond on this form will be reason for rejection of Bid.

END OF PAYMENT BOND

**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations applicable where the Project is located. Amendments made to this document, by the Engineer or others, are described in the Supplementary Conditions of the Contract. This document is to be used in conjunction with the Supplementary Conditions of the Contract.

(*) Indicates General Conditions Article/Paragraph which has been amended, in whole or in part, by the Supplementary Conditions. Selection of Supplementary Conditions Paragraphs is Project driven; i.e. not all amended Articles/Paragraphs are applicable to every Project.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

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and

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STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

* 1.01 *Defined Terms*

*A. Wherever used in the Bidding Requirements or Contract Documents 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.
- *1.01.A.52 through 1.01.A.57.

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:

- does not conform to the Contract Documents; or
- does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
- 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:*

- 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.
- 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.
- 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.
- 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*

- 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.
- 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.

Work.

*4.

* 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.

*B.

* 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.

* 2.06 *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.

2.04 *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.

2.07 *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.

* 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

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.

*3.

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.
 - *1.
- *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.

*1.

- 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.

*D.

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.

*C.

*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.

*3.

*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.

*1., *2. & *3.

* 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.

*1. & *2.

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.

*G. - *L.

* 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.

*1.

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.

*1.

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.

*B.

* 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.

*1. – *7.

- 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.

*4.

- 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.
*1.

- *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.

*1. & *2.

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.

*1.

- 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.

*B. & *C.

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.

*8.

* 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.

- 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.

*D.

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

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.

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.

*8.13 *Resident Project Representative*

- *A.

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.

*1., *2. & *3.

- 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.

*C.

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.

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*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.

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.

*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.

**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:

* 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

- 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.

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.

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
- 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.

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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.

*F. & *G.

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.

*4.

*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.
- *e.
- 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.

* 17.07 *Resident Project Representative Responsibilities and Authority*

SUPPLEMENTARY CONDITIONS

DOCUMENT 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

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

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

SC-1.01.A

Add the following new *Defined Terms* to General Conditions Paragraph 1.01.A:

52. *Consultant* – A person, firm, or corporation having a contract with Owner or Engineer to furnish services as Owner's or Engineer's independent professional associate with respect to the Project and who is identified as such in the Supplementary Conditions.
53. *Emergency* – An occurrence which in the opinion of the Owner, the Owner's Representative, or the Contractor requires immediate attention by the Contractor and for which written notice to the Contractor, or the Owner, due to the urgency of the occurrence, cannot be issued within the time stipulated by the General Conditions.
54. *Imminent Danger* - Any conditions or practices in any place of employment, which are such that a danger exists, which could reasonably be expected to cause death or serious physical harm to a person immediately or before the imminence of such danger can be eliminated.
55. *Mobilization/Demobilization* - This work consists of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the Work required under the Contract at the time of award. It does not include mobilization and demobilization of Contractor's subcontractors, or for specific items of the Work for which payment is provided elsewhere in the Contract. Mobilization shall not be considered as work in fulfilling the Contract requirements for commencement of the Work.
 - a. Mobilization shall include all activities and associated costs for transportation of Contractor's personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary facilities for the Contractor's and others' (in case of multiple Contracts) operations at the site.

- b. Demobilization shall include all activities and costs for removal and transportation from the site, at completion of the Work, of personnel, equipment and supplies no longer required, or included in the Contract; including the disassembly, removal and site cleanup of offices, buildings, and other facilities assembled on the site specifically for performance of the Work.
56. *Products* – New materials, machinery, components, equipment, fixtures, systems, and any other item which will become or has become a permanent physical portion of the Work. The term “Products” may also include materials, equipment, or components removed from existing facilities that may, if specifically permitted by the Contract Documents, be re-used in the Work. The term “Products” does not include machinery and equipment used for preparation, fabrication, conveying, or erection of the Work.
57. *Attachment(s)* – Any documentation, appended to a contract or incorporated by reference, which does not establish a requirement for deliverables and is for “*Information Only.*”
58. *Exhibit(s)* – Any documentation, referred to in a contract, which is attached and establishes requirements for deliverables. The term shall not be used to refer to any other kind of attachment to a contract.

SC-1.01.A.8

Delete General Conditions Subparagraph 1.01.A.8 in its entirety.

SC-1.01.A.12

Delete General Conditions Paragraph 1.01.A.12 in its entirety and insert the following in its place:

12. *Contract Documents* The Contract Documents, which comprise the entire agreement between OWNER and CONTRACTOR, and which are incorporated in the Agreement by reference, and are made a part of it, consist of the Agreement, together with all written amendments,, Addenda, Contractor’s Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Intent to Award), which is attached to the Agreement, Performance, Payment and other required Bonds, the General Conditions, the Supplementary Conditions, any special conditions dictated by a funding or other regulatory agency, the Specifications, the Drawings (which are identified in the Agreement), Notice to Proceed, Change Orders, Work Change Directives, Field Orders and Engineer’s written interpretations and clarifications issued pursuant to General Conditions Paragraphs 3.04.A, 3.04.B.1 and 3.04.B.3 on or after the Effective Date of the Agreement. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

SC-1.01.A.27

Amend the defined term “Notice of Award” to read “Notice of Intent to Award.”

SC-1.01.A.34

Delete General Conditions Subparagraph 1.01.A.34 in its entirety and insert the following in its place:

34. *Project Manual* – The bound document containing the Invitation to Bid, Instructions to Bidders, Bidding Documents, Contract Documents, General Conditions, Supplementary Conditions, the Specifications (Divisions 1 through 16, as applicable), and any attached supplementary exhibits, appendices, and attachments.

SC-1.01.A.36

Delete General Conditions Subparagraph 1.01.A.36 in its entirety and insert the following in its place:

36. *Resident Project Representative* – A representative of either the Owner or Engineer who may be assigned to the Project site on either a full- or part-time basis. The duties, responsibilities, and limitations on authority of the Resident Project Representative are specified in Supplementary Conditions paragraph SC-17.07.

SC-1.01.A.44

Add the following new subparagraph to General Conditions Subparagraph 1.01.A.44:

- a. In accordance with PA Act 317 of 1978, as amended by Pennsylvania Public Works Contract Regulation Law Act 142 of 1994, in no event will the Work be certified as substantially complete until at least 90 percent of Work is completed. Partial utilization of any portion of the Work does not constitute Substantial Completion for that portion. Refer to Section 01700 for additional requirements to be met prior to Engineer issuing a “Definitive Certificate of Substantial Completion”.

SC-2.02.A

Delete General Conditions Paragraph 2.02.A in its entirety and insert the following in its place:

- A. Owner will furnish to Contractor (1) set of the Contract Documents in electronic PDF format.

SC-2.03.A

Delete General Conditions Paragraph 2.03.A in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the Effective Date of the Agreement, or if a Notice to Proceed is given on the date indicated on the Notice to Proceed.

SC-2.05.A

Amend General Conditions Paragraph 2.05.A by deleting from the first line the words "...Effective Date of the Agreement..." and replacing them with "...date when the Contract Times commence to run...".

Add the following new subparagraph to General Conditions Paragraph 2.05.A:

- 4 Preliminary Progress Schedule shall include a time estimate for performing work required by each contingency item, if any, listed in the Bid Form.

SC-2.05.B

Add the following new Paragraph immediately after General Conditions Paragraph 2.05.A:

- B. *Insurance Certificates:* Before any Work at the site is started, Contractor shall deliver to Owner, with a copy to Engineer, certificates (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with General Conditions Paragraph 5.04 and Supplementary Conditions Paragraph SC-5.06.

SC-3.03.B

Add the following new subparagraph to General conditions Paragraph 3.03.B:

2. If there are any conflicts, errors, ambiguities, or discrepancies within the Contract Documents, the documents shall be interpreted in the following order of precedence: (1) Agreement, together with all Written Amendments, (2) Supplementary Conditions, (3) Standard General Conditions, (4) Specifications together with all Written Amendments, Change Orders, Work Orders, Change Directives, Field Orders, and Engineer's written interpretations and clarifications, (5) Drawings as more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Orders, Change Directives, Field Orders and Engineer's written interpretations and clarifications.

SC-4.02

Delete General Conditions Paragraphs 4.02.A and 4.02.B, including their subparagraphs, in their entirety and delete all references to them elsewhere in the Contract Documents.

SC-4.04.A

Add the following new subparagraph to General Conditions Paragraph 4.04.A:

3. Refer to Specification Section 02015 for additional information pertaining to underground utilities.

SC-5.01.A

Add the following new subparagraph to General Conditions Paragraph 5.01.A:

1. For any portion of the Work within a State Highway Right-Of-Way the Performance Bond, or other instrument of financial security, shall remain in effect for at least two years after acceptance of the Work by the Commonwealth of Pennsylvania Department of Transportation and final payment.

SC-5.01.B

Add the following new subparagraph to General Conditions Paragraph 5.01.B:

1. The Payment Bond and the Performance Bond, or other instruments of financial security, to be supplied by the Contractor shall be in the forms included in the Contract Documents, and no other forms shall be acceptable.

SC-5.01.D

Add the following new Paragraph immediately after General Conditions Paragraph 5.01.C:

- D. *Additional Bonds:* If Contract Price or Contract Times are changed in accordance with General Conditions Article 10, Owner may require that Contractor's bonds and insurance policies be modified to reflect such changes. Any resulting changes in Contractor's bond and insurance costs will be paid for in accordance with General Conditions Paragraph 11.01.A.5.i.

SC-5.03

Delete General Conditions Paragraphs 5.03A and 5.03.B in their entirety and replace with the following:

- A. Contractor shall deliver to Owner, with copies to each additional insured 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 in accordance with General Conditions Paragraph 5.04 and Supplementary Conditions Paragraphs SC-5.04

- B. Contractor shall submit evidence of required insurance coverage on the most current Accord 25 “Certificate of Insurance” form. All the policies of insurance required to be purchased and maintained by Contractor shall not be cancelled or materially changed until thirty days prior notice has been given by Contractor to Owner and Engineer and to each additional insured, and shall contain waiver provisions in accordance with General Conditions Paragraph 5.07, as amended by Supplementary Conditions Paragraphs SC-5.07.A and SC-5.07.B.

SC-5.04.B

Amend General Conditions Subparagraph 5.04.B.1 by inserting the word ”non-contributory” between the words “primary” and “coverage” at the end of the Subparagraph.

SC-5.04.C

Add the following new Paragraph immediately after General Conditions Paragraph 5.04.B:

- C. The limits of liability for the insurance required by General Conditions Paragraphs 5.04.A.1 through 5.04.B.6 inclusive shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations; coverage shall be per project and per occurrence:
 - 1. Workers’ Compensation, and related coverages under General Conditions Paragraphs 5.04.A.1 and 5.04.A.2:
 - a. State: Statutory
 - b. Applicable Federal (e.g. Longshoreman’s): Statutory
 - c. Employer’s Liability: \$1,000,000
 - 2. Contractor’s General Liability under General Conditions Paragraphs 5.04.A.3 through 5.04.A.6, which shall include completed operations and product liability coverage; and eliminate the exclusion with respect to property under the care, custody and control of Contractor(*):
 - a. General Aggregate: \$2,000,000
 - b. Products – Completed Operations Aggregate: \$1,000,000
 - c. Personal and Advertising Injury: \$1,000,000
 - d. Each Occurrence (Bodily Injury and Property Damage): \$1,000,000
 - e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverage’s, where applicable.
 - f. Blasting hazards, where applicable.

g. Excess or Umbrella Liability: (**)

General Aggregate: \$2,000,000

Each Occurrence: \$2,000,000

(*) If Contractor's insurance does not allow eliminating the exclusion with respect to property under its care, custody and control, Contractor shall provide, by endorsement, "Voluntary Property Damage" coverage in the amount of the full replacement cost of the damaged property.

(**) If Contractor has lower underlying coverage than required above under Paragraphs SC-5.04.C.2.a through SC-5.04.C.2.d, Contractor may provide additional coverage to at least satisfy the required amount.

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury and Property Damage, Combined Single Limit of: \$1,000,000

4. The Contractual Liability coverage required by General Conditions Paragraph 5.04.B.3 shall provide coverage for not less than the following amounts:

a. Bodily Injury and Property Damage (Each Occurrence):

Combined Single Limit \$1,000,000

5. Additional Insured:

- a. Greencastle Area, Franklin County Water Authority (OWNER)
- b. Greencastle Borough
- c. ARRO Consulting Inc. (ENGINEER)
- d. The Commonwealth of Pennsylvania, Department of Transportation

Contractor shall be responsible for any deductible, or self-insured retention.

Contractor's insurance agent shall indicate on the insurance certificate, or by separate letter, that the limits required herein and shown on the certificate have not been reduced by an outstanding claim; and that the specific coverages required under Paragraph SC- 5.04 are provided in the Comprehensive General (Public) Liability Policy.

SC-5.05.A

Delete General Conditions Paragraph 5.05.A in its entirety.

SC-5.06

Delete General Conditions Paragraphs 5.06.A through 5.06.E, including their subparagraphs, in their entirety.

SC-5.07.A

Amend General Conditions Paragraph 5.07.A by inserting the words "and non-contributory" immediately after the word "primary" at the end of the ninth line.

Add the following new Subparagraph to General Conditions Paragraph 5.07.A:

1. Notwithstanding the provisions of Paragraph 5.07.A, any waiver of rights by the Owner shall be effective only to the extent of actual recovery of insurance proceeds.

SC-5.07.B

Add the following new Subparagraph to General Conditions Paragraph 5.07.B:

3. Notwithstanding the provisions of Paragraph 5.07.B and its Subparagraphs, any waiver of rights as contemplated shall be effective only if such waiver is permitted by Owner's policies.

SC-5.08

Delete General Conditions Paragraph 5.08, including its subparagraphs, in its entirety.

SC-6.02.B

Add the following new subparagraphs to General Conditions Paragraph 6.02.B:

1. Regular working hours for the Project are defined as 7 A.M. to 5 P.M. Monday through Friday.
2. For any portion of Work within a State Highway Right-Of-Way, the Contractor shall abide by work hour and holiday restrictions indicated in the Pennsylvania Department of Transportation Highway Occupancy Permit.

3. If Owner consents to Contractor working during non-regular hours or on Saturday, Sunday, or any legal holiday, Contractor shall reimburse Owner for wages, salaries, and expenses paid to Owner's and Engineer's personnel which, in the Owner's judgment, are required to be present at the Project site during the Contractor's Work. Contractor's reimbursement to Owner for these extra personnel costs will be in the form of deduction from a progress payment. Contractor's superintendent shall also be present during performance of Work during non-regular hours, or on Saturday, Sunday, or any legal holiday.

SC-6.03.A

Add the following new subparagraph immediately after General Conditions Subparagraph 6.03.A:

1. The cost for equipment and materials to be provided for the Project must be held to the amounts Bid for such equipment and materials which, by signing the Agreement are agreed to by all parties.

SC-6.05

Delete General Conditions Paragraphs 6.05.A through 6.05.F, including their Subparagraphs, in their entirety and insert the following new Paragraphs 6.05.A through 6.05.L in their place:

- A. "Or-Equal": If in Engineer's sole discretion a Product proposed by Contractor is functionally the same, is fully equivalent in quality and durability, and is 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 Product may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements, specified in the following Paragraphs 6.05.C. through 6.05.J., for acceptance of proposed substitute items.
- B. Substitute Items: If in Engineer's sole discretion a Product proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A. above, it will be considered a proposed substitute item. The determination as to whether the Product is an "or-equal" or a proposed substitute item will be made during Engineer's review of the Product Shop Drawing, as defined in Article 1 of the General Conditions. If the Product proposed by the Contractor is not considered an "or-equal" Product, the Shop Drawing will be returned to the Contractor with the notation "Returned for Correction". Contractor will then be required to proceed as specified in the following Paragraphs 6.05.C through 6.05.J.
- C. Submit three copies of request for substitution, plus the number required to be returned to the entity making the request, to the Engineer. Each request for substitution shall cover one Product only.
- D. Requests for Equal or substitutions will be accepted only from a prime Contractor on the Project and, if requests are permitted during the Bidding period, from a Bidder as defined in the Instructions to Bidders.

- E. If Instructions to Bidders allow requests for Equal or substitutions during the Bidding period, time the submittal so that Engineer receives request for at least 18 days prior to the Bid opening date.
- F. Submit, with request for substitution, Shop Drawings, Product data, warranty information, case histories, lists of projects on which the Product has been successfully used, test reports, manufacturer's company profile, name and address of manufacturer's service organization, and other data as required to establish that proposed substitute Product is fully equivalent in quality to the Product of the named manufacturer(s) and meets all Specification requirements.
- G. Submit, with request for Equal or substitution, the dollar amount which the Owner will receive as a credit toward the Contract Price if the Equal or substitution is approved. The Owner and Engineer reserve the right to make an independent investigation of the cost savings, to negotiate with the Contractor to increase the credit, and to reject a proposed Equal or substitution if the credit is considered insufficient.
- H. Attach letters, provided by other contractors whose work may be affected by the proposed substitution, stating that the substitution will either have no effect on their work or that the substitution will affect their work and that the entity making the request for substitution has agreed to pay any extra costs which may be incurred if the substitution is approved. (This requirement does not apply during the Bidding period.)
- I. The entity submitting the request for Equal or substitution shall include, on its transmittal letter, the signed statement: "The signer of this letter certifies that all requirements of Supplementary Conditions Paragraph SC-6.05.I have been or will be met". The signer of the transmittal letter, by making this statement, affirms that: the proposed substitute Product has been investigated and has been found to equal or exceed in quality and durability the Product of the named manufacturer(s) and, further, that it meets all Specification requirements; all other prime contractors on the Project have been contacted as to the effect of the proposed substitution on their work and that letters from all other prime contractors are being submitted with the request (this condition does not apply during the Bidding period); the same Product warranty, which would have been provided by the named manufacturer(s), will be provided for the substitute Product; the entity submitting the request for substitution will coordinate installation of the proposed substitute and make any required changes in the Work at no additional cost to the Owner; the entity submitting the request for substitution will not make claims for additional costs, including but not limited to costs resulting from increases in purchase price(s) and installation costs of accepted substitute Product(s), or additional time required to implement the substitution; the entity making the request for substitution will reimburse the Owner for all costs associated with review by Engineer, or others, of the request for substitution, all redesign costs, and all costs required to obtain re-approval from regulatory agencies; all licenses required for use of the proposed substitute Product will be obtained and paid for by the entity submitting the request for substitution

and such license(s) will be transferred to the Owner; if required by the Engineer, the entity submitting the request for substitution will provide a special performance warranty or bond (separate from the Contract Performance Bond) as a condition of Engineer's acceptance of the proposed substitute Product (such bond may be in an amount up to 200 percent of the dollar value of the Product as determined by the Engineer).

- J. Engineer will notify the entity submitting the request, in writing, of decision to accept or reject proposed substitute Product.
- K. The procedures for proposed substitute means, methods, techniques, sequences, or procedures shall be equivalent to those specified above in Paragraphs 6.05.A. through 6.05.J.
- L. Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability, and no substitute will be ordered, installed, or utilized without Engineer's prior written approval. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitutions, making any required revisions to Contract Documents, and obtaining re-approval from regulatory agencies. Contractor will be charged for the recorded man-hours, whether or not substitution is approved, at Engineer's and Engineer's Consultant's current hourly rates. Charges shall be subtracted from the Contractor's next progress payment.

SC-6.06.B

Add the following new subparagraph to General Conditions Paragraph 6.06B:

- 1. Instructions to Bidders and these Supplementary Conditions require that a list of proposed Subcontractors and their Experience Questionnaire be submitted with the Bid. Contractor shall not make substitutions of Subcontractors shown on the list, or additions of Subcontractors, after award of a Contract, without prior written approval of Owner or Engineer. Engineer will be allowed a reasonable time within which to investigate each proposed substitute or new Subcontractor. Engineer will be the sole judge of acceptability, and no substitute/new Subcontractor will perform any portion of the Work without Engineer's prior written approval. Engineer will record time required by Engineer in investigating the proposed substitute/new Subcontractor(s). Contractor shall be charged for the recorded man-hours, whether or not substitution is approved, at Engineer's current hourly rates. Charges will be subtracted from the Contractor's next progress payment.

SC-6.06.G

Add the following new sub-paragraph to General Conditions Paragraph 6.06.G:

- 1. If a written agreement between the Contractor and a Subcontractor or supplier is not obtained, Contractor, Subcontractor or supplier will not be entitled to payment for

any additional Work performed or changes to Work performed by Subcontractor or Supplier.

SC-6.08.B

Add the following new Paragraph immediately after General Conditions Paragraph 6.08.A:

- B. Unless otherwise noted within the contract documents, Contractor shall be responsible for all inspections and reporting required for any permits.

SC-6.09.A

Add the following new subparagraph(s) to General Conditions Paragraph 6.09.A:

1. The Contractor shall comply with Commonwealth of Pennsylvania minimum wage rate laws and regulations. The applicable provisions of the regulations and the wage rate determination are provided in Document 00810.
2. The Contractor and its Subcontractors are subject to the provisions of the Pennsylvania Public Works Employment Verification Act, Act 127 of 2012, which requires, as a pre-award condition, that Contractor and its Subcontractors provide confirmation of their participation in the e-verify program, operated by the Department of Homeland Security, to determine whether a person seeking employment with them is citizen or legal resident of the United States.
3. The Contractor is subject to the provisions of the Pennsylvania Steel Products Procurement Act of 1978, P.L. 6, as amended by Act 159 (HB 1840) of 2012. The Act and amendments require that the Contractor use or furnish only steel products (as defined in the Act and amendments), which have been produced in the United States, except in cases where these products are not produced in sufficient quantities in the United States.
4. The Contractor is subject to the provisions of the Pennsylvania Human Relations Act No. 222 of 1955, as amended.
5. The Contractor is subject to the provisions of Pennsylvania Underground Utility Line Protection Act, Act 287 of 1974, as amended by Act 50 of 2017, Underground Utility Protection Law AKA PA One Call Law (the Law), which requires contractors to notify public utilities prior to starting excavation or demolition work.
6. The Contractor is subject to the provisions of Pennsylvania Act 247 of 1972, as amended, relating to the prevention of environmental pollution and the preservation of public natural resources.

7. The Contractor shall comply with the Pennsylvania Public Works Contract Regulation Law, as amended by Act 142 of 1994 (Prompt Pay Act), as it relates to timely payment by Contractor/Subcontractor to its Subcontractors and suppliers.

SC-6.10.A

Delete General Conditions Paragraph 6.10.A in its entirety and insert the following in its place:

- A. The Contractor shall be responsible for the payment of all sales and use taxes required by law on all Products which may be purchased for use in and which will become part of the Work. Owner may be exempt from sales and use taxes for certain Products to be incorporated into the Work. Contractor shall obtain legal advice to determine how and to what extent the Owner's tax exemption may be utilized by the Contractor. Owner will provide, at Contractor's request, required documentation to assist Contractor in obtaining any applicable tax exemptions.

SC-6.11.A.4

Add the following new subparagraph immediately after General Conditions subparagraph 6.11.A.3:

4. Contractor's responsibility shall include repairing, replacing, or restoring damaged property to its original or better condition, or the payment of money in a sum equal to the reasonable value of the damage caused to such property. If Contractor fails to promptly repair or replace damaged property, Owner may have the work performed by others and the cost of such work shall be deducted from Contractor's subsequent progress payment.

SC-6.11.C.1

Add the following new subparagraphs to General Conditions Paragraph 6.11.C:

1. Cleaning shall continue up to Final Payment and final acceptance of the Work by Owner. Site cleaning shall include, but not be limited to removal of weeds from all areas within the limits of the Project site.

SC-6.11.D

Add the following new subparagraphs to General Conditions Paragraph 6.11.D:

1. The Contractor shall determine the legal dimensional and load limits on all roads and bridges over and under which equipment and materials will be moved. In the event that loads or dimensions exceed legal limits, the Contractor shall obtain the necessary permits, pay permit fees, and comply with all regulations for moving such loads.

2. Contractor shall be responsible for damages to structures, roads and bridges resulting from loads or dimensions exceeding legal or design limits.

SC-6.16

Add the following new Paragraphs immediately after General Conditions Paragraph 6.16.A:

- B. The Contractor shall provide during non-working hours a maintenance crew to correct conditions, which are hazardous to the public or detrimental to proper system operation. If the Contractor refuses, or fails to correct the problem within a reasonable period of time, the Owner will have the necessary corrections performed by others and the full cost of the work shall be deducted from Contractor's subsequent Application for Payment. Names, addresses, and telephone numbers of the Contractor's emergency repair personnel shall be submitted to the Owner and Engineer at the pre-construction conference.
- C. In the event of an emergency if Contractor refuses, or fails to respond to Owner's directive to make necessary corrections Owner may stop work immediately, and without seven days' written notice as required by General Conditions Paragraph 15.02.

SC-6.19.C

Add the following new subparagraph immediately after General Conditions subparagraph 6.19.C.7:

8. any contract between Owner and subcontractor regarding the correction of defective work.

SC-6.20.C

Delete General Conditions Paragraph 6.20.C in its entirety. Including its subparagraphs, and insert the following in its place:

- C. The indemnification obligations of the Contractor under Paragraph 6.20.A shall not extend to the liability of the Engineer, Engineer's Consultants, agents, officers, directors, or employees arising out of errors or omissions of any of them in the preparation of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or the giving or failure to give directions or instructions, relating to design of the Work, as opposed to Project Construction procedures, by the Engineer, its agents or employees, if such giving or failure to give is the primary cause of the injury or damage.

SC-8.04

Insert the following text at the end of General Conditions Paragraph 8.04.A:

“...unless otherwise dictated by a State/Federal law or regulation, or agreed to by Owner and Contractor.”

SC-8.06

Delete General Conditions Paragraph 8.06 in its entirety.

SC-9.03.A

Delete General Conditions Paragraph 9.03.A in its entirety and insert the following in its place:

- A. Engineer will assign a Resident Project Representative to the Project site. The responsibilities and authority of the Resident Project Representative, and their limitations, will be as provided in Supplementary Conditions Paragraph SC-17.07

SC-9.09.A

Add the following new subparagraphs under General Conditions Paragraph 9.09.A:

1. The Engineer will give the Contractor all desired assistance in interpreting specifications, drawings, or written instructions. Such assistance or lack thereof shall not relieve the Contractor from its responsibility to perform the Work in accordance with the Contract Documents.
2. The fact that the Engineer has permitted faulty work, or work to be performed not in accordance with the Contract Documents will not prevent the Engineer or Owner from requiring that the Contractor corrects any faults or incorrect construction immediately at no additional cost to the Owner.
3. The Engineer may not enter into any agreement with a Subcontractor which binds the Owner to make payments for work performed by the Subcontractor absent express written permission by the Owner for the specific work and Subcontractor involved.

SC-10.01.C

Add the following new Paragraph immediately after General Conditions Paragraph 10.01.B.

- C. When submitting a Change Order request, the Contractor shall provide such information as the Engineer and Resident Project Representative may require for the preparation of the Change Order in accordance with the General Conditions. Such information may include, but not be limited to, the following:
 1. Itemized description of the addition, deletion, or revision to the Work.
 2. Itemized description of the change in the Contract Price, including itemized contractor's/subcontractor's labor costs and materials pricing data to enable determination of the necessity and reasonableness of the costs. For work

performed by subcontractor(s), documentation may require submittal of actual invoices.

3. Description of the change, if any, in the Contract Time. The Contractor shall submit adequate documentation to satisfactorily prove that the nature of the delay actually and unavoidably will impact the Contract Times.

SC-11.01.B

Add the following new subparagraph to General Conditions Paragraph 11.01.B:

6. Costs associated with retaining Contractor's and others' own or rented equipment on the site, but not utilized, due to work stoppage or any other reason, including but not limited to addressing unforeseen, unknown and differing subsurface or physical conditions.

SC-11.01.C

Amend General Conditions Paragraph 11.01.C by inserting the following words prior to the word "Agreement" at the end of the first sentence:

"...Bid Form which is attached to the..."

SC-11.03.C

Amend General Conditions Subparagraph 11.03.C by revising the third line to read as follows:

"...to cover Contractor's overhead, profit and burden for each..."

Amend General Conditions Subparagraph 11.03.C by inserting the following words at the end of the Paragraph:

"..., in addition to all required labor, material, equipment, facilities and services.

SC-11.03.D

Amend General Conditions Subparagraph 11.03.D by inserting the following words at the beginning of the Paragraph:

- D. "Unless otherwise noted in the Bid Form, or elsewhere in the Contract Documents..."

SC-12.01.B

Add the following new Subparagraph immediately after General Conditions Subparagraph 12.01.B.3:

4. Where the Work involves locating and repairing unmarked, or incorrectly marked, underground utilities or utilities previously (concealed) damaged, or which due to age must be replaced, Contractor shall be reimbursed as required by specification Section 02015.

SC-12.01.B.2

Amend General Conditions Subparagraph 12.01.B.2 by deleting the words within the parentheses and replacing them with the following:

...(which may include a fee for overhead and profit in accordance with General Conditions Paragraph 12.01.C.2)...

SC-12.01.C.1

Amend General Conditions Paragraph 12.01.C by deleting subparagraph 1.

SC-12.01.C.2

Amend subparagraph 12.01.C.2 of the General Conditions by deleting the following words at the beginning of the subparagraph:

“...if a fixed fee is not agreed upon, then...”.

SC-12.03.

Add the following at the end of General Conditions Paragraph E:

“.....Costs resulting from such delays, including but not limited to liquidated damages, regulatory agencies’ penalties, and delay claims and associated costs by other contractors, shall be deducted, by Change Order, from Contractor’s Final Application for Payment in accordance with the Agreement

1. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays attributable by Contractor to the complexity of the Work.

Add the following new Paragraphs immediately after General Conditions Paragraph 12.03.E:

- F. When Contractor has submitted to Owner a schedule for completing the Work within a shorter time period than the Contract Times, or Milestones indicated in the Agreement, Contractor will not be entitled to any claims for additional costs, of any type, or delays, if the Contractor-submitted time schedule is for any reason exceeded, but its completion date is still within the Contract Times indicated in the Agreement.
- G. Contractor shall submit to Engineer detailed documentation, which shall include associated costs, reason(s), including but not limited to those described in General

Conditions Paragraph 12.03.A , and responsible party, for all delays beyond the control of the Contractor.

SC-13.03.B

Amend General Conditions Paragraph 13.03.B by deleting the word “Owner” at the beginning of the Paragraph and replacing it with the following:

“Unless otherwise specified in Section 01025 of the Project Manual, Contractor...”

SC-13.07.C

Delete General Conditions Paragraph 13.07.C and replace with the following:

- C. Correction Period for Products placed into service prior to the date of Substantial Completion, as defined in Supplementary Conditions Paragraph SC-1.01.44, shall not begin any earlier than the date of Substantial Completion for the entire Project (the Work).

SC-13.07.E

Amend General Conditions Paragraph 13.07.E by deleting the text “...any applicable statute of limitations or repose.” from the end of the Paragraph and replacing it with “...Supplementary Conditions Paragraph SC-13.07.F and SC-13.07.G.

SC-13.07.F

Add the following new Paragraph immediately after General Conditions Paragraph 13.07.E:

- F. The obligations of the Contractor to correct *defective work*, beyond the specified Correction Period, shall survive acceptance of the Work and termination of the Contract by the Owner by an additional time period, which shall begin on the date of discovery of the *defective work*, but not earlier than the date of termination of the specified Correction Period, which additional time period shall be specific to the jurisdiction in which the Project is located. Correction of *defective work* during this extended Correction Period shall be at the Contractor’s expense.

SC-13.07.G

Add the following new Paragraph immediately after Supplementary Conditions Paragraph SC-13.07.F above:

- G. Correction period for all work performed within State Highway Right-Of-Way shall be for two (2) years after the date of final payment and acceptance of the work by Penn DOT; correction and removal of defective work shall be at Contractor’s

expense and in accordance with Penn DOT requirements. All provision of the Contract Documents, which apply to the standard one-year correction period, shall also apply to this two-year correction period.

SC-14.02.A

Add the following new subparagraph immediately after General Conditions subparagraph 14.02.A.3:

4. Conditions relating to payment for Products suitably stored on the Project site or elsewhere, but not yet incorporated in the Work, are given in General Requirements Section 01025 of the Project Manual.

SC-14.02.B.5

Add the following new subparagraph immediately after General Conditions subparagraph 14.02.B.5.d:

- e. the amount of retainage is less than the amount of anticipated liquidated and other damages to be deducted from final payment.

SC-14.04.C

Amend General Conditions Paragraph 14.04.C by deleting the following words from the end of the first sentence and inserting them in the last sentence, after the parenthesis”

“ . . . , which shall fix the date of Substantial Completion”

SC-14.05.A

Delete General Conditions Paragraph 14.05.A₂ including its subparagraphs and the heading “Partial Utilization,” in their entirety. Delete all other General Conditions references to Paragraph 14.05.A and “Partial Utilization.”

SC-14.07.A.2.b

Amend General Conditions Subparagraph 14.07.A.2.b to read as follows:

- b. consent of surety to final payment;

SC-16

Delete General Conditions Article 16 and all references to it elsewhere in the Contract Documents, in its entirety. For dispute resolution, refer to Article 6 of the Agreement.

SC-17.02.A

Delete General Conditions Paragraph 17.02.A in its entirety and replace with the following:

- A. When any period of time is referred to in the Contract Documents by “day(s)” it will be defined to mean “calendar day(s)” except when it is contained within a Federal or State legal act, or statute, in which case it will be as defined by the legal act or statute.

SC-17.07

Add the following new Paragraph immediately after General Conditions Paragraph 17.06:

17.07 *Resident Project Representative Responsibilities and Authority*

- A. A Resident Project Representative (RPR) will be assigned to the Project site. The responsibilities and authority and limitations thereon of the RPR will be as follows:
 - 1. Schedules: Review the progress schedule and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
 - 2. Conferences and Meetings: Attend meetings with Contractor, such as pre-construction conferences, progress meetings, pre-installation conferences and other project-related meetings.
 - 3. Liaison:
 - a. Serve as Engineer’s liaison with Contractor, working principally through Contractor’s superintendent to assist in understanding the intent of the Contract Documents.
 - b. Serve as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-site operations.
 - c. Assist in obtaining from Owner or Engineer additional details or information, when required for proper execution of the Work.
 - 4. Shop Drawings and Samples:
 - a. Receive samples which are furnished at the site by Contractor, and notify Engineer of availability of samples for examination.
 - b. Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved.
 - 5. Review of Work, Rejection of Defective Work, Inspections, and Tests:

- a. Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever any work is unsatisfactory, faulty or defective, or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test, or approval required to be made; and advise Engineer of Work that should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
 - c. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record, and report to Engineer appropriate details relative to the test procedures and start-ups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project; record the results of these inspections and report to Engineer
6. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
7. Modifications:
- a. Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with recommendations to Engineer. Transmit to Contractor decisions as issued Engineer.
 - b. Allow minor deviations from Drawings or Specifications when Resident Project Representative is considered to be in the best position to make such decisions on a timely basis.
8. Records:
- a. Maintain orderly files of correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Change Directives, Addenda, Change Orders, Field Orders, additional Drawings and Specifications issued subsequent to the execution of the Agreement, Engineer clarifications and interpretations of the Contract Documents, progress reports, and other Project-related documents.
 - b. Monitor Contractor's work on Record Documents.

- c. Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions on Work Change Directives, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer
 - d. Record names, addresses, and telephone numbers of all Contractors, Subcontractors, and major suppliers of materials and equipment.
9. Reports:
- a. Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
 - b. Consult with Engineer in advance of scheduled major tests, inspections, or start of important phases of the Work.
 - c. Report immediately to Engineer upon the occurrence of any accident.
10. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the site but not incorporated in the Work.
11. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that certificates, Operation and Maintenance manuals, and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents.
12. Completion: Conduct closeout and final inspections in the company of Engineer, Owner, and Contractor, and assist in preparation of lists of items to be completed or corrected.
13. The authority of the RPR is limited and (s)he is not authorized to:
- a. Exceed limitations of authority as set forth in the Agreement or other Contract Documents.
 - b. Undertake any of the responsibilities of Contractor, Contractor's subcontractors and suppliers, or Contractor's superintendent.
 - c. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction unless such advice or directions are specifically required by the Contract Documents.

- d. **Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work, with the exception when, in RPR's opinion, conditions of imminent danger exist. If such conditions exist, RPR shall:**
- 1) Immediately notify Contractor's on-site safety representative and require that the work be stopped.**
 - 2) Concurrently RPR shall immediately notify Owner and Engineer of the work conditions and resulting action.**

END OF DOCUMENT

**DUTIES OF CONTRACTOR
UNDER PENNSYLVANIA
PREVAILING WAGE ACT**

DOCUMENT 00810

DUTIES OF CONTRACTOR UNDER PENNSYLVANIA PREVAILING WAGE ACT

1. The provisions of the Pennsylvania Prevailing Wage Act (the Act), approved August 15, 1961 (Act No. 442), as amended August 9, 1963 (Act No. 342), and the regulations issued pursuant thereto, are hereby incorporated into and made a part of the Contract Documents. The Act and its regulations can be found at www.dli.pa.gov.
2. Incorporated into the Contract Documents are the following requirements. These requirements shall apply to all Work performed by the Contractor and to all Work performed by all Subcontractors.
 - 2.1 The general prevailing minimum wage rates, including contributions for employee benefits as they have been determined by the Secretary of Labor and Industry (the “Secretary”), must be paid to the workmen employed in the performance of the Contract. The Contractor shall comply with the conditions of the Act and the regulations issued pursuant thereto, to assure the full and proper payment of said rates.
 - 2.2 These provisions shall apply to all work performed on the Contract by the Contractor and to all work performed on the Contract by all Subcontractors.
 - 2.3 The Contractor shall insert in each of his Subcontracts all of the stipulations contained herein and such other provisions as may be required under applicable law.
 - 2.4 No workmen may be employed on the public work except in accordance with the classifications set in the decision of the Secretary. In the event that additional or different classifications are necessary the procedure set in 34 PA Code § 9.107 shall be followed.
 - 2.5 All workmen employed or working on the public work shall be paid unconditionally, regardless of whether a contractual relationship exists, or the nature of a contractual relationship which may be alleged to exist between a Contractor, Subcontractor and workmen, not less than once a week, without deduction, or rebate, on any account, either directly, or indirectly, except authorized deductions, the full amounts due at the time of payment, computed at the rates applicable to the time worked in the appropriate classification. Nothing in the Contract, the Act, or these regulations will prohibit the payment of more than the general prevailing minimum wage rates, as determined by the Secretary, to any workman on public work.

- 2.6 The Contractor and each Subcontractor shall post for the entire period of construction the wage determination decisions of the Secretary, including the effective date of any changes thereof, in a prominent and easily accessible place, or places at the site of the work and at such place or places used by them to pay workmen their wages. The posted notice of wage rates must contain the following information:
- 2.6.1 Name of project.
 - 2.6.2 Name of public body for which it is being constructed.
 - 2.6.3 The crafts and classifications of workmen listed in the Secretary's general prevailing minimum wage rate determinations for the particular project.
 - 2.6.4 The general prevailing minimum wage rates determined for each craft and classification and the effective date of any changes.
 - 2.6.5 A statement advising workmen that if they have been paid less than the general prevailing minimum wage rate for their job classification, or that the Contractor or Subcontractor are not complying with the Act, or these regulations, they may file a protest with the Secretary within (3) months of the date of the occurrence. Any workmen paid less than the rate specified in the Contract shall have a civil right of action for the difference between the wage paid and the wages stipulated in the Contract, which right of action must be exercised within (6) months from the occurrence of the event creating such right.
- 2.7 The Contractor and all Subcontractors shall keep an accurate record showing the name, craft and classification, number of hours worked per day and the actual hourly rate of wage paid, including employee benefits, to each workman employed by him in connection with the public work and such record must include any deductions from each workman. The record shall be preserved for (2) years from the date of payment and shall be open at reasonable hours to the inspection of the public body awarding the Contract and to the Secretary, or his duly authorized representative.
- 2.8 Apprentices shall be limited to such numbers as shall be in accordance with a bona fide apprenticeship program registered with and approved by the Pennsylvania Apprenticeship and Training Council and only apprentices whose training and employment are in full compliance with the provisions of the Apprenticeship and Training Act approved July 14, 1961 (Act No. 304) and its rules shall be employed on the public work project. Any workman using the tools of a craft who does not qualify as

an apprentice within the provisions of this subsection shall be paid the rate predetermined for journeymen in that particular craft or classification.

- 2.9 Wages shall be paid without any deductions except authorized deductions. Employers not parties to a contract requiring contributions for employee benefits, which the Secretary has determined to be included in the general prevailing minimum wage rate, shall pay the monetary equivalent thereof directly to the workman.
 - 2.10 Payment of compensation to workmen for work performed on public work on a lump sum basis, or a piece work system, or a price certain for the completion of a certain amount of work, or the production of a certain result shall be deemed a violation of the Act and the regulations, regardless of the average hourly earnings resulting therefrom.
 - 2.11 Contractor and each Subcontractor shall file a statement each week and a final statement at the conclusion of the work on the Contract with the contracting agency (the "Owner"), under oath and in form satisfactory to the Secretary, certifying that all workmen have been paid wages in strict conformity with the provisions of the contract as prescribed by the Act and the regulations, or if any wages remain unpaid to set forth the amount of wages due and owing to each workman, respectively.
3. Contractor and all Subcontractors are required to file weekly wage certifications with the Owner. Copies of approved forms are attached to this Project Manual.
 4. Before final payment is made, Contractor and all Subcontractors are required to submit final wage certifications.

END OF SECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY
PREVAILING MINIMUM WAGE DETERMINATION

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project Name:	SOUTH WASHINGTON STREET WATER MAIN REPLACEMENT
General Description:	The project generally consists of furnishing and installing approximately 640 L.F of 8-inch water main, seven water services, appurtenances, and restoration of areas disturbed by construction.
Project Locality	GREENCASTLE BOROUGH
Awarding Agency:	GREENCASTLE AREA, FRANKLIN COUNTY WATER AUTHORITY
Contract Award Date:	12/30/2024
Serial Number:	24-09469
Project Classification:	Heavy/Highway
Determination Date:	10/25/2024
Assigned Field Office:	Harrisburg
Field Office Phone Number:	(717)787-4763
Toll Free Phone Number:	(800)932-0665
Project County:	Franklin County

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	6/26/2023		\$38.70	\$29.11	\$67.81
Asbestos & Insulation Workers	7/1/2024		\$40.00	\$29.86	\$69.86
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2024		\$36.71	\$19.13	\$55.84
Boilermakers	1/1/2023		\$51.27	\$35.30	\$86.57
Boilermakers	1/1/2024		\$52.10	\$35.72	\$87.82
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	4/30/2023		\$38.27	\$18.18	\$56.45
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	4/28/2024		\$38.62	\$19.68	\$58.30
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/4/2025		\$40.47	\$19.68	\$60.15
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/3/2026		\$42.32	\$19.68	\$62.00
Carpenters - Piledriver/Welder	1/1/2023		\$40.63	\$21.22	\$61.85
Carpenters - Piledriver/Welder	1/1/2024		\$42.13	\$21.97	\$64.10
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2023		\$33.01	\$18.41	\$51.42
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2024		\$33.72	\$19.20	\$52.92
Cement Finishers & Plasterers	4/30/2023		\$28.23	\$22.27	\$50.50
Cement Finishers & Plasterers	4/28/2024		\$30.23	\$22.27	\$52.50
Cement Finishers & Plasterers	5/4/2025		\$32.23	\$22.27	\$54.50
Cement Finishers & Plasterers	5/3/2026		\$34.23	\$22.27	\$56.50
Cement Masons	5/1/2023		\$32.90	\$22.70	\$55.60
Cement Masons	5/1/2024		\$33.80	\$22.80	\$56.60
Drywall Finisher	5/1/2023		\$30.10	\$22.14	\$52.24
Drywall Finisher	5/1/2024		\$30.33	\$22.79	\$53.12
Electricians	6/1/2023		\$37.00	\$26.67	\$63.67
Electricians	6/1/2024		\$38.75	\$27.03	\$65.78
Electricians	6/1/2025		\$38.75	\$30.87	\$69.62
Electricians	6/1/2026		\$38.75	\$34.71	\$73.46
Elevator Constructor	1/1/2023		\$53.93	\$38.34	\$92.27
Elevator Constructor	1/1/2024		\$60.76	\$39.19	\$99.95
Elevator Constructor	1/1/2025		\$63.40	\$40.03	\$103.43
Glazier	5/1/2023		\$31.23	\$20.66	\$51.89
Glazier	5/1/2024		\$32.46	\$20.93	\$53.39
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2023		\$36.26	\$31.38	\$67.64
Laborers (Class 01 - See notes)	1/1/2023		\$25.31	\$17.29	\$42.60
Laborers (Class 01 - See notes)	1/1/2024		\$26.31	\$17.79	\$44.10
Laborers (Class 02 - See notes)	1/1/2023		\$28.06	\$17.29	\$45.35
Laborers (Class 02 - See notes)	1/1/2024		\$29.56	\$17.79	\$47.35
Laborers (Class 03 - See notes)	1/1/2023		\$27.66	\$17.29	\$44.95
Laborers (Class 03 - See notes)	1/1/2024		\$28.66	\$17.79	\$46.45

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 04 - See notes)	1/1/2023		\$24.31	\$17.29	\$41.60
Laborers (Class 04 - See notes)	1/1/2024		\$25.31	\$17.79	\$43.10
Landscape Laborer (Skilled)	1/1/2023		\$23.79	\$18.28	\$42.07
Landscape Laborer (Skilled)	1/1/2024		\$24.79	\$18.53	\$43.32
Landscape Laborer (Skilled)	1/1/2025		\$25.79	\$18.78	\$44.57
Landscape Laborer (Skilled)	1/1/2026		\$26.79	\$19.03	\$45.82
Landscape Laborer (Tractor Operator)	1/1/2023		\$24.09	\$18.28	\$42.37
Landscape Laborer (Tractor Operator)	1/1/2024		\$25.09	\$18.53	\$43.62
Landscape Laborer (Tractor Operator)	1/1/2025		\$26.09	\$18.78	\$44.87
Landscape Laborer (Tractor Operator)	1/1/2026		\$27.09	\$19.03	\$46.12
Landscape Laborer	1/1/2023		\$23.37	\$18.28	\$41.65
Landscape Laborer	1/1/2024		\$24.37	\$18.53	\$42.90
Landscape Laborer	1/1/2025		\$25.37	\$18.78	\$44.15
Landscape Laborer	1/1/2026		\$26.37	\$19.03	\$45.40
Marble Mason	5/1/2023		\$34.80	\$17.74	\$52.54
Marble Mason	5/1/2024		\$35.25	\$19.24	\$54.49
Marble Mason	5/1/2025		\$37.20	\$19.24	\$56.44
Marble Mason	5/1/2026		\$39.15	\$19.24	\$58.39
Millwright	6/1/2023		\$39.21	\$22.95	\$62.16
Millwright	6/1/2024		\$41.07	\$22.95	\$64.02
Millwright	6/1/2025		\$43.00	\$22.95	\$65.95
Millwright	6/1/2026		\$44.97	\$22.95	\$67.92
Operators (Class 01 - see notes)	7/1/2023		\$35.87	\$20.92	\$56.79
Operators (Class 01 - see notes)	7/1/2024		\$36.87	\$21.42	\$58.29
Operators (Class 02 -see notes)	7/1/2023		\$31.25	\$20.92	\$52.17
Operators (Class 02 -see notes)	7/1/2024		\$32.87	\$21.42	\$54.29
Operators (Class 03 - See notes)	7/1/2023		\$28.70	\$20.92	\$49.62
Operators (Class 03 - See notes)	7/1/2024		\$29.70	\$21.42	\$51.12
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2022		\$26.60	\$20.62	\$47.22
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2023		\$28.30	\$20.92	\$49.22
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2024		\$29.30	\$21.42	\$50.72
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2022		\$25.60	\$20.62	\$46.22
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2023		\$27.30	\$20.92	\$48.22
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2024		\$28.30	\$21.42	\$49.72
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2022		\$25.15	\$20.62	\$45.77
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2023		\$26.85	\$20.92	\$47.77
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2024		\$27.85	\$21.42	\$49.27
Painters Class 1 (see notes)	5/1/2023		\$27.02	\$17.54	\$44.56

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Painters Class 1 (see notes)	5/1/2024		\$27.59	\$18.08	\$45.67
Painters Class 2 (see notes)	5/1/2020		\$27.43	\$15.99	\$43.42
Painters Class 3 (see notes)	5/1/2020		\$33.18	\$15.99	\$49.17
Pile Driver Divers (Building, Heavy, Highway)	1/1/2023		\$58.70	\$21.22	\$79.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2024		\$60.95	\$21.97	\$82.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17
Piledrivers	1/1/2023		\$39.13	\$21.22	\$60.35
Piledrivers	1/1/2024		\$40.63	\$21.97	\$62.60
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Plasterers	5/1/2023		\$31.33	\$20.83	\$52.16
Plasterers	5/1/2024		\$32.93	\$21.08	\$54.01
Plumber/Pipefitter	5/1/2023		\$41.36	\$29.72	\$71.08
Roofers (Composition)	5/1/2023		\$42.63	\$34.62	\$77.25
Roofers (Composition)	5/1/2024		\$44.13	\$34.77	\$78.90
Roofers (Shingle)	5/1/2023		\$32.85	\$22.10	\$54.95
Roofers (Shingle)	5/1/2024		\$34.35	\$22.20	\$56.55
Roofers (Slate & Tile)	5/1/2023		\$35.85	\$22.10	\$57.95
Roofers (Slate & Tile)	5/1/2024		\$37.35	\$22.20	\$59.55
Sheet Metal Workers	6/1/2022		\$40.22	\$41.01	\$81.23
Sheet Metal Workers	6/1/2023		\$41.41	\$42.32	\$83.73
Sheet Metal Workers	6/1/2024		\$43.09	\$43.14	\$86.23
Sign Makers and Hangars	7/15/2022		\$30.54	\$24.35	\$54.89
Sign Makers and Hangars	7/15/2023		\$31.76	\$24.63	\$56.39
Sign Makers and Hangars	7/15/2024		\$32.32	\$25.82	\$58.14
Sprinklerfitters	4/1/2023		\$44.33	\$28.04	\$72.37
Sprinklerfitters	4/1/2024		\$46.45	\$28.62	\$75.07
Terrazzo Finisher	5/1/2023		\$35.79	\$19.25	\$55.04
Terrazzo Finisher	5/1/2024		\$35.66	\$20.76	\$56.42
Terrazzo Grinder	5/1/2023		\$36.54	\$19.25	\$55.79
Terrazzo Grinder	5/1/2024		\$36.42	\$20.76	\$57.18
Terrazzo Mechanics	5/1/2023		\$36.51	\$21.00	\$57.51
Terrazzo Mechanics	5/1/2024		\$36.44	\$22.51	\$58.95
Tile & Marble Finisher	5/1/2023		\$32.91	\$15.49	\$48.40
Tile & Marble Finisher	5/1/2024		\$33.36	\$16.99	\$50.35
Tile & Marble Finisher	5/1/2025		\$35.31	\$16.99	\$52.30
Tile & Marble Finisher	5/1/2026		\$37.26	\$16.99	\$54.25
Tile Setter	5/1/2023		\$34.80	\$17.74	\$52.54
Tile Setter	5/1/2024		\$35.25	\$19.24	\$54.49
Tile Setter	5/1/2025		\$37.20	\$19.24	\$56.44
Tile Setter	5/1/2026		\$39.15	\$19.24	\$58.39
Truckdriver class 1(see notes)	1/1/2023		\$33.04	\$22.13	\$55.17
Truckdriver class 1(see notes)	1/1/2024		\$34.79	\$22.63	\$57.42

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Truckdriver class 1(see notes)	1/1/2025		\$36.29	\$23.13	\$59.42
Truckdriver class 1(see notes)	1/1/2026		\$37.79	\$23.63	\$61.42
Truckdriver class 2 (see notes)	1/1/2023		\$33.50	\$22.43	\$55.93
Truckdriver class 2 (see notes)	1/1/2024		\$35.25	\$22.93	\$58.18
Truckdriver class 2 (see notes)	1/1/2025		\$36.75	\$23.43	\$60.18
Truckdriver class 2 (see notes)	1/1/2026		\$38.25	\$23.93	\$62.18
Window Film / Tint Installer	6/1/2019		\$24.52	\$12.08	\$36.60
Window Film / Tint Installer	6/1/2024		\$26.37	\$14.83	\$41.20

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter	1/1/2023		\$38.35	\$20.59	\$58.94
Carpenter	1/1/2024		\$39.85	\$21.34	\$61.19
Carpenter	1/1/2025		\$41.10	\$22.09	\$63.19
Carpenter	1/1/2026		\$42.35	\$22.84	\$65.19
Carpenter Welder	1/1/2023		\$39.85	\$20.59	\$60.44
Carpenter Welder	1/1/2024		\$41.35	\$21.34	\$62.69
Carpenter Welder	1/1/2025		\$42.60	\$22.09	\$64.69
Carpenter Welder	1/1/2026		\$43.85	\$22.84	\$66.69
Carpenters - Piledriver/Welder	1/1/2023		\$40.63	\$21.22	\$61.85
Carpenters - Piledriver/Welder	1/1/2024		\$42.13	\$21.97	\$64.10
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Cement Finishers	1/1/2023		\$34.14	\$25.05	\$59.19
Cement Finishers	1/1/2024		\$35.14	\$26.30	\$61.44
Cement Finishers	1/1/2025		\$35.94	\$27.50	\$63.44
Cement Masons	1/1/2020		\$32.84	\$21.10	\$53.94
Electric Lineman	5/29/2023		\$51.40	\$29.62	\$81.02
Electric Lineman	6/3/2024		\$52.80	\$30.61	\$83.41
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2021		\$34.01	\$31.13	\$65.14
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2023		\$36.26	\$31.38	\$67.64
Laborers (Class 01 - See notes)	1/1/2023		\$29.85	\$25.50	\$55.35
Laborers (Class 01 - See notes)	1/1/2024		\$32.10	\$25.50	\$57.60
Laborers (Class 01 - See notes)	1/1/2025		\$33.60	\$26.00	\$59.60
Laborers (Class 01 - See notes)	1/1/2026		\$34.60	\$27.00	\$61.60
Laborers (Class 02 - See notes)	1/1/2023		\$30.01	\$25.50	\$55.51
Laborers (Class 02 - See notes)	1/1/2024		\$32.26	\$25.50	\$57.76
Laborers (Class 02 - See notes)	1/1/2025		\$33.76	\$26.00	\$59.76
Laborers (Class 02 - See notes)	1/1/2026		\$34.76	\$27.00	\$61.76
Laborers (Class 03 - See notes)	1/1/2023		\$30.50	\$25.50	\$56.00
Laborers (Class 03 - See notes)	1/1/2024		\$32.75	\$25.50	\$58.25
Laborers (Class 03 - See notes)	1/1/2025		\$34.25	\$26.00	\$60.25
Laborers (Class 03 - See notes)	1/1/2026		\$35.25	\$27.00	\$62.25
Laborers (Class 04 - See notes)	1/1/2023		\$30.95	\$25.50	\$56.45
Laborers (Class 04 - See notes)	1/1/2024		\$33.20	\$25.50	\$58.70
Laborers (Class 04 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 04 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 05 - See notes)	1/1/2023		\$31.36	\$25.50	\$56.86
Laborers (Class 05 - See notes)	1/1/2024		\$33.61	\$25.50	\$59.11
Laborers (Class 05 - See notes)	1/1/2025		\$35.11	\$26.00	\$61.11
Laborers (Class 05 - See notes)	1/1/2026		\$36.11	\$27.00	\$63.11
Laborers (Class 06 - See notes)	1/1/2023		\$28.20	\$25.50	\$53.70
Laborers (Class 06 - See notes)	1/1/2024		\$30.45	\$25.50	\$55.95
Laborers (Class 06 - See notes)	1/1/2025		\$31.95	\$26.00	\$57.95

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 06 - See notes)	1/1/2026		\$32.95	\$27.00	\$59.95
Laborers (Class 07 - See notes)	1/1/2023		\$30.85	\$25.50	\$56.35
Laborers (Class 07 - See notes)	1/1/2024		\$33.10	\$25.50	\$58.60
Laborers (Class 07 - See notes)	1/1/2025		\$34.60	\$26.00	\$60.60
Laborers (Class 07 - See notes)	1/1/2026		\$35.60	\$27.00	\$62.60
Laborers (Class 08 - See notes)	1/1/2023		\$32.35	\$25.50	\$57.85
Laborers (Class 08 - See notes)	1/1/2024		\$34.60	\$25.50	\$60.10
Laborers (Class 08 - See notes)	1/1/2025		\$36.10	\$26.00	\$62.10
Laborers (Class 08 - See notes)	1/1/2026		\$37.10	\$27.00	\$64.10
Millwright	6/1/2023		\$41.51	\$23.33	\$64.84
Millwright	6/1/2024		\$43.46	\$23.33	\$66.79
Millwright	6/1/2025		\$45.46	\$23.33	\$68.79
Millwright	6/1/2026		\$47.52	\$23.33	\$70.85
Operators (Class 01 - see notes)	1/1/2023		\$36.50	\$23.58	\$60.08
Operators (Class 01 - see notes)	1/1/2024		\$38.30	\$24.03	\$62.33
Operators (Class 01 - see notes)	1/1/2025		\$40.10	\$24.23	\$64.33
Operators (Class 02 -see notes)	1/1/2023		\$36.22	\$23.58	\$59.80
Operators (Class 02 -see notes)	1/1/2024		\$38.02	\$24.03	\$62.05
Operators (Class 02 -see notes)	1/1/2025		\$39.82	\$24.23	\$64.05
Operators (Class 03 - See notes)	1/1/2023		\$32.58	\$23.58	\$56.16
Operators (Class 03 - See notes)	1/1/2024		\$34.38	\$24.03	\$58.41
Operators (Class 03 - See notes)	1/1/2025		\$36.18	\$24.23	\$60.41
Operators (Class 04 - See notes)	1/1/2023		\$32.09	\$23.58	\$55.67
Operators (Class 04 - See notes)	1/1/2024		\$33.89	\$24.03	\$57.92
Operators (Class 04 - See notes)	1/1/2025		\$35.69	\$24.23	\$59.92
Operators (Class 05 - See notes)	1/1/2023		\$31.88	\$23.58	\$55.46
Operators (Class 05 - See notes)	1/1/2024		\$33.68	\$24.03	\$57.71
Operators (Class 05 - See notes)	1/1/2025		\$35.48	\$24.23	\$59.71
Operators Class 1-A	1/1/2023		\$39.50	\$23.58	\$63.08
Operators Class 1-A	1/1/2024		\$41.30	\$24.03	\$65.33
Operators Class 1-A	1/1/2025		\$43.10	\$24.23	\$67.33
Operators Class 1-B	1/1/2023		\$38.50	\$23.58	\$62.08
Operators Class 1-B	1/1/2024		\$40.30	\$24.03	\$64.33
Operators Class 1-B	1/1/2025		\$42.10	\$24.23	\$66.33
Painters Class 1 (see notes)	5/1/2018		\$23.92	\$14.37	\$38.29
Painters - Line Stripping	12/1/2023		\$42.10	\$27.43	\$69.53
Painters Class 2 (see notes)	5/1/2023		\$29.15	\$17.54	\$46.69
Painters Class 2 (see notes)	5/1/2024		\$29.72	\$18.08	\$47.80
Painters Class 3 (see notes)	5/1/2023		\$34.90	\$17.54	\$52.44
Painters Class 3 (see notes)	5/1/2024		\$35.47	\$18.08	\$53.55
Pile Driver Divers (Building, Heavy, Highway)	1/1/2023		\$58.70	\$21.22	\$79.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2024		\$60.95	\$21.97	\$82.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17


**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09469 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Piledrivers	1/1/2023		\$39.13	\$21.22	\$60.35
Piledrivers	1/1/2024		\$40.63	\$21.97	\$62.60
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2022		\$48.43	\$40.28	\$88.71
Truckdriver class 1(see notes)	1/1/2023		\$33.04	\$22.13	\$55.17
Truckdriver class 1(see notes)	1/1/2024		\$34.79	\$22.63	\$57.42
Truckdriver class 1(see notes)	1/1/2025		\$36.29	\$23.13	\$59.42
Truckdriver class 1(see notes)	1/1/2026		\$37.79	\$23.63	\$61.42
Truckdriver class 2 (see notes)	1/1/2023		\$33.50	\$22.43	\$55.93
Truckdriver class 2 (see notes)	1/1/2024		\$35.25	\$22.93	\$58.18
Truckdriver class 2 (see notes)	1/1/2025		\$36.75	\$23.43	\$60.18
Truckdriver class 2 (see notes)	1/1/2026		\$38.25	\$23.93	\$62.18

WEEKLY PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

Contractor or Subcontractor (Please check one)

ALL INFORMATION MUST BE COMPLETED

CONTRACTOR ADDRESS	SUBCONTRACTOR ADDRESS	 DEPARTMENT OF LABOR & INDUSTRY <small>COMMONWEALTH OF PENNSYLVANIA</small> BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGE DIVISION 7TH & FORSTER STREETS HARRISBURG, PA 17120 1-800-932-0665
PAYROLL NUMBER	WEEK ENDING DATE	

EMPLOYEE NAME	APPR. RATE (%)	WORK CLASSIFICATION	DAY AND DATE							S-TIME 0-TIME	BASE HOURLY RATE	TOTAL FRINGE BENEFITS (C=Cash) (FB=Contributions)*	TOTAL DEDUCTIONS	GROSS PAY FOR PREVAILING RATE JOB(S)	CHECK #
			HOURS WORKED EACH DAY												
											C: FB:				
											C: FB:				
											C: FB:				
											C: FB:				
											C: FB:				

*SEE REVERSE SIDE

PAGE NUMBER _____ OF _____

THE NOTARIZATION MUST BE COMPLETED ON FIRST AND LAST SUBMISSIONS ONLY. ALL OTHER INFORMATION MUST BE COMPLETED WEEKLY.

*FRINGE BENEFITS EXPLANATION (FB): Bona fide benefits contribution, except those required by Federal or State Law (unemployment tax, workers' compensation, income taxes, etc.)

Please specify the type of benefits provided and contributions per hour:

- 1) Medical or hospital care _____
- 2) Pension or retirement _____
- 3) Life insurance _____
- 4) Disability _____
- 5) Vacation, holiday _____
- 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

1. The undersigned, having executed a contract with _____
(AWARDING AGENCY, CONTRACTOR OR SUBCONTRACTOR)

_____ for the construction of the above-identified project, acknowledges that:

- (a) The prevailing wage requirements and the predetermined rates are included in the aforesaid contract.
- (b) Correction of any infractions of the aforesaid conditions is the contractor's or subcontractor's responsibility.
- (c) It is the contractor's responsibility to include the Prevailing Wage requirements and the predetermined rates in any subcontract or lower tier subcontract for this project.

2. The undersigned certifies that:

- (a) Neither he nor his firm, nor any firm, corporation or partnership in which he or his firm has an interest is debarred by the Secretary of Labor and Industry pursuant to Section 11(e) of the PA Prevailing Wage Act, Act of August 15, 1961, P.L. 987 as amended, 43 P.S. § 165-11(e).
- (b) No part of this contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation or partnership in which such subcontractor has an interest is debarred pursuant to the aforementioned statute.

3. The undersigned certifies that:

(a) the legal name and the business address of the contractor or subcontractor are: _____

(b) The undersigned is: a single proprietorship a corporation organized in the state of _____
 a partnership other organization (describe) _____

(c) The name, title and address of the owner, partners or officers of the contractor/subcontractor are:

NAME	TITLE	ADDRESS

The willful falsification of any of the above statements may subject the contractor to civil or criminal prosecution, provided in the PA Prevailing Wage Act of August 15, 1961, P.L. 987, as amended, August 9, 1963, 43 P.S. § 165.1 through 165.17.

 (DATE)

 (SIGNATURE)

 (TITLE)

 SEAL

Taken, sworn and subscribed before me this _____ Day
 of _____ A.D., _____

Definitions for Heavy & Highway Operators in the 33 County Area

Allegheny, Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Cameron, Centre, Clarion, Clearfield, Clinton, Crawford, Elk, Erie, Fayette, Forest, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Lawrence, McKean, Mercer, Mifflin, Potter, Somerset, Venango, Warren, Washington, & Westmoreland

CLASS I-A

Backhoes – 360° swing (above 120,000 lbs. gross weight)

Cranes (over 100 ton) *

Cranes – Rough Terrain (over 100 ton) *

*Requires an Oiler on Standard Agreement

CLASS I-B

Backhoes – 360° swing (above 70,000 lbs. to 120,000 lbs. gross weight)

Cranes (up to 100 ton) *

Cranes – Rough Terrain (65 ton - 100 ton) *

Tower Crane *

*Requires an Oiler on Standard Agreement

CLASS I

Asphalt Paving Machine (Spreader)

Autograder/Trimmer

Backfiller

Backhoe -360° swing (up to 70,000 lbs. gross weight)

Backhoe (Rear pivotal swing -180° swing)

Bidwell Concrete Finishing Machine (or similar)

*Caisson Drill (similar to Hugh Williams)

*Cooling Plant

Compactor with blade

Concrete Batch Plant (Electronically Synchronized)

Concrete Crusher

Concrete Paving Mixer

Concrete Pump (Self-propelled)

Derrick

*Derrick Boat

Dozer (with a gross weight of 25,000 lbs. and over)

*Dragline

*Dredge

Dredge Hydraulic (1 Leverman - 1 Oiler - 1 Apprentice)

Elevating Grader

*Gradall (Remote control or otherwise)

Grader (Power-Fine Grade)
Grease Unit Operator (Head)
Hilift (4 cy. and over)
Hoist 2 Drums or more (in one unit)
Hydraulic Boom Truck (with pivotal cab) (single motor – Pitman or similar)
*Locomotive (Std. Gauge)
*Metro-chip Harvester or similar
Mechanic
Milling Machine (Roto Mill or Similar)
*Mix Mobile
**Mix Mobile (with Self Loading Attachment)
Mucking Machine (Tunnel)
*Pile Driver Machine
Pipe Bursting Machine
Pipe Extrusion Machine
Presplitter Drill (Self-contained)
**Refrigeration Plant (Soil stabilization)
*Rough Terrain Crane (under 65 ton)
Scrapers
*Shovel-Power
Shuttle Buggy (Asphalt)
Slip Form Paver/Curb Machine
Slip Lining Machine
Soil Stabilizer Machine
*Trenching Machine (30,000 lb. and over)
Trenching Machine (under 30,000 lb.)
*Tunnel Machine (Mark XXI Jarva or similar)
Vermeer Saw
Working Mechanical Foreman (plus \$0.35 per hour over Class I Rate)

*Apprentice Engineer or Oiler required

**Two Engineers required

CLASS II

Asphalt Plant Operator
Auger (Tractor Mtd.)
Auger (Truck Mtd.)
Belt Loader (Euclid or Similar)
Boring Machine
Cable Placer or Layer
Concrete Placer and Spreader
Concrete Mixer (over 1 cy.)

Concrete Pump (Stationary)
*Core Drill (Truck or Skid Mtd. - similar to Penn Drill)
Directional Drills over 3,000 lbs. thrust
Dozer (with a gross weight under 25,000 lbs.)
Ditch Witch - Saw
Force Feed Loader
Fork Lift (Lull or similar)
Grader - Power
Guard Rail Post Driver (Truck Mounted)
Guard Rail Post Driver (Skid Type)
Hilift (under 4 cy.)
Hydraulic Boom Truck (Non-pivotal cab)
Job Work Boat (Powered) (When assistance is required it shall be a Deckhand)
Jumbo Operator
Locomotive (Narrow Gauge)
Minor Equipment Operator
Mucking Machine
Multi-head Saw (Groover)
Over-head Crane
Roller-power-asphalt
Ross Carrier
Side Boom or tractor mounted boom
Skid Steer Loader
Stone Crusher (Screening-Washing Plants)
Stone Spreader (Self-propelled)
*Truck Mounted Drill (Davey or similar)
Welder and Repairman
Well Point Pump Operator

*Apprentice Engineer or Oiler required
Pile driving operations: On truck cranes and crawler rigs the Company will employ an apprentice who will oil on the rig and also cover the minor machines regardless of size related to his operation, not to exceed four (4) units.

CLASS III
Concrete Texture/Cure Machine
Compactors/Rollers (Static or Vibratory) (Self-propelled)
Curb Builder
Multi-head Tie Tamper
Pavement Breaker (Self-propelled or ridden)
Tire Repairman (as per agreement with Teamsters)
Tractor (Snaking and hauling)

Well Driller and Horizontal
Winch or "A" Frame Truck (when hoisting and lowering)

CLASS IV

Ballast Regulator
Concrete Mixer (1 cy. and under with skip)
Concrete Saw (Ridden or self-propelled)
Conveyor
Elevator (Material hauling only)
Fork-lift (Ridden or self-propelled)
Generator
Grout Pump
Heater (Mechanical)
Hoist (single drum)
Ladavator
Light Plant
Mulching Machine
Personnel Boat (Powered)
Pulverizer
Pumps
Seeding Machine
Tie Puller
Tugger
Welding Machine (Gas or Diesel)

CLASS V

Deck Hand
Farm Tractor
Fireman on Boiler
Mechanic's Helper
Oiler
Power Broom
Side Delivery Shoulder Spreader (Attachment)

Notes for 33 County Heavy and Highway Laborers * (See below)

Allegheny, Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Cameron, Centre, Clarion, Clearfield, Clinton, Crawford, Elk, Erie, Fayette, Forest, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Lawrence, McKean, Mercer, Mifflin, Potter, Somerset, Venango, Warren, Washington & Westmoreland

HEAVY AND HIGHWAY

CLASS 1 - COMMON LABORER

Asphalt Curb Sealer
Batcher Man (Weight)
Boatman
Coffer Dam
Drill Runner's Assistant
Fence Construction (Including Fence Machine Operator)
GABION (Erectors and Placers)
Landscape Laborers
Radio Actuated Traffic Control Operator
RIP RAP Work
Sheeters and Shorers (Includes Lagging)
Water Boy
Wood Chipper
Asphalt Tamper
Blaster's Assistant
Brakeman
Concrete Curing Pitman, Puddler
Electric Bursh and/or Ginder
Form Stripper and Mover
Hydro Jet Blaster Nozzle Man
Manually Moved Emulsion Sprayer
(Bending, Aligning & Securing)
Scaffolds and Runways
Structural Concrete Top Surfacers
Walk Behind Street Sweeper
Welder's Assistant (Pipeline)

CLASS 2 – SEMI-SKILLED LABORER

Air Tool Operator (All Types)
Railroad Track Work
Burner

Carryable Pumps
Cribbing (Concrete or Steel)
Diamond Head Core Driller
Drill Runner's Assistant (Tunnel)
Highway Slab Reinforcement
Placers (Including Joint and Backer Setters)
Mechanical Joint Sealer; Dope Pot & Tar Kettle
Pipe Layers/Fusion Welders (Regardless of Materials)
Post Hole Auger (2 or 4 Cycle-Hand Operated)
Forklift (Walk Behind)
Asphalt, Batch and Concrete Plant
Operator (Manually Operated)
Caisson Men (Open Air)
Chain Saw Operator (Including Attachments)
Curb Machine Operator (Asphalt or Concrete-Walk Behind)
Form Setter (Road Forms Line Man)
Hydraulic Pipe Pusher
Liner Plates (Tile and Vitrified Clay)
Mechanical Compacting Equipment Operators
Mortar Mixer (Hand or Machine)
Muckers, Brakeman and All Other Labor (Includes Installation of Utility Lines)
Portable Single Unit Conveyor
Power Wheel Barrows and Buggies
Aid Porter or Similar
Sand Blaster
Vibrator Operator
All Railroad Track Work
Signal Man

CLASS 3 - SKILLED LABORER HEAVY AND HIGHWAY

Asphalt Luteman/Raker
Blacksmith
Cement Mortar Lining Car Pusher
Cement Mortar Mixer (Pipe Relining)
Concrete Saw Operator (Walk Behind)
Crown Screed Adjuster
Elevated Roadway Drainage Construction
Erector of Overhead Signs
Miners and Drillers (Including Lining M Supporting and Form Workman, Setting of Shields,
Miscellaneous Equipment and Jumbos)
Walk Behind Ditching Machine (Trencher Or Similar)
Blaster
Brick, Stone & Block Pavers and Block Cutters (Wood-Belgian-Asphalt)
Cement Mortar Pipe Reliners

Curb Cutters and Setters
Form Setter (Road Forms-Lead Man)
Gunitite or Dry Pack Gun-Nozzle and Machine Man
Grout Machine Operator
Multi-Plate Pipe (Aligning and Securing)
Manhole or Catch Basin Builder
Placing Wire Mesh on Gunitite Projects
Wagon Drill Operator (Air Track or Similar)
Welder

CLASS 4

Reinforcing Steel Placers (Bending, Aligning and Securing - Caldwell)

CLASS 5

High Burner (Any Burning Not Done From Deck)
Elder (Pipeline)

CLASS 6

Uniformed Flag Person/Signal Person (As per PENN DOT Specifications on Hardhats and Vests)
Watchman

CLASS 7

Toxic/Hazardous Waste Removal Laborer – Level C and D

CLASS 8

Toxic/Hazardous Waste Removal Laborer Levels A and B

****These notes pertain to projects whose rates were determined subsequent to March 23, 2009. Questions regarding rates prior to that date should be directed to the Bureau of Labor Law Compliance at 1-800-932-0665.***

Notes for Building, Heavy, Highway Truckdriver

Truckdriver Class 1

Single Axle

Truckdrivers Class 2

Tandem

Tri-Axle

Semi-Trailer (Combination)

Truckdrivers Class 3

Speciality Vehicles

Painters Notes for Building, Heavy, Highway Painters

Cameron, Crawford, Forest, Potter & Warren Counties

Painters Class 1 - Industrial Rates (Heavy/Highway)

Painters Class 2 - Commercial Rates (Building)

Allegheny, Fayette, Greene & Washington Counties

Painters Class 1 - Industrial Brush & Roll (Heavy/Highway)

Painters Class 2 - Industrial Sandblast & Spray (Heavy/Highway)

Painters Class 3 - Bridge, Hot Stack, & Transmission Towers (Heavy/Highway)

Painters Class 4 - Painter Tender I (Heavy/Highway)

Painters Class 5 - Painter Tender II (Heavy/Highway)

Painters Class 6 - Commercial Painting & Paperhanging (Building)

Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Centre, Clarion, Clearfield, Elk, Fulton, Huntingdon, Indiana, Jefferson, Juniata, Lawrence, Mercer, Mifflin, Somerset, Venango & Westmoreland Counties

Painters Class 1 - Industrial Brush & Roll (Heavy/Highway)

Painters Class 2 - Industrial Sandblast & Spray (Heavy/Highway)

Painters Class 3 - Bridge, Hot Stack, & Transmission Towers (Heavy/Highway)

Painters Class 4 - Painter Tender I (Heavy/Highway)

Painters Class 5 - Painter Tender II (Heavy/Highway)

Painters Class 6 - Commercial Painting & Paperhanging (Building)

Bucks, Chester, Delaware, Montgomery & Philadelphia Counties

Painters Class 1 - Brush, Roller & Spray

Painters Class 2 - Bridge

Painters Class 3 - Wallcoverer

Adams, Berks, Bradford, Carbon, Clinton, Columbia, Cumberland, Dauphin, Franklin, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Monroe, Montour, Northampton, Northumberland, Perry, Pike, Schuylkill, Snyder, Sullivan, Susquehanna, Tioga, Union, Wayne, Wyoming & York Counties

Painters Class 1 - Commercial*

Painters Class 2 - Industrial (includes Structural Steel, Industrial Spray & Sandblasting)*

Painters Class 3 - Bridge*

\$1.00 per hour above the rate for all classifications for work done in the following
* manner: Steel, Spray, Epoxy, HIPAC Coatings, Catalyzed Epoxy, Urethanes, Removers,
Swing, Basket, and Sandblasting

Clinton County

Painters Class 1 - Spray

Painters Class 2 - Brush & Roller

SPECIFICATIONS

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project Description.
- B. Project Location.
- C. Contractor's Use of Premises.
- D. Work Sequence.
- E. Special Requirements.

1.02 PROJECT DESCRIPTION

- A. The project generally consists of furnishing and installing approximately 640 L.F of 8-inch water main, two gate valves, two fire hydrant assemblies, five new water services, two water service reconnections, and restoration of areas disturbed by construction.

1.03 PROJECT LOCATION

- A. Project site is indicated on the "Location Map" on sheet 1 of the project drawings.

1.04 PUBLIC RELATIONS

- A. The work of this overall Project is such that the movement of equipment and materials will be through the streets of the Borough. To this end, the Contractor's attention is directed to the fact that, concerning the general public, Contractor's conduct and attitude will be closely associated with that of the Owner. Accordingly, where operations of the Contractor require personal contact with the public, Contractor and all Contractor's employees shall conduct themselves in a courteous and respectful manner. Any violation of this Section shall be considered sufficient cause for the Owner to order discharge of the employee(s) involved from the Project, and employee(s) shall not be employed again on the Project without written permission from the Owner.
- B. Contractor's attention is directed to the fact that the work is adjacent to private property. The Contractor shall take appropriate action to minimize the impact of the work on the private property. The Contractor shall exercise extreme caution to minimize the possibility of any injury occurring to private citizens while work is not in progress.

1.05 CONTRACTOR'S USE OF PREMISES

- A. Confine construction equipment, the storage of materials and equipment, and operations of workmen to within the Project site.
- B. Storage of equipment and materials shall be as allowed under Paragraph A above. Additional storage in excess of that available at the street shall be the responsibility of the Contractor. Additional payment will not be made for storing new Products, or excavated material off-site, or its transportation to the site when it is required.
- C. Assume full responsibility for materials stored on site (including materials for which the Owner has made payment).
- D. Transport materials remaining at the completion of the Project for which the Owner has made payment to a storage area designated by the Owner.
- E. The Contractor shall limit his use of the premises to the Work indicated, so as to allow for Owner occupancy and use by the public.
 - 1. Keep existing driveways and entrances serving the premises clear and available to the Owner and his employees at all times. Do not use these areas for parking or storage of materials.
 - 2. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas designated by the Owner. If areas for storage are not available on-site, or if additional storage is necessary, obtain and pay for such storage off-site.

1.06 WORK SEQUENCE

- A. Submit with initial progress schedule required by Section 01300, a detailed step-by-step Work sequence, which will achieve compliance with the requirements of this Section 01010.
- B. Sequence construction operations to:
 - 1. Minimize inconvenience to businesses, public facilities, and residences located adjacent to the Project.
 - 2. Minimize disruption of traffic and maintain continuous traffic flow through the Work area to the maximum extent practicable.

1.07 SPECIAL REQUIREMENTS

- A. **Owner anticipates Notice to Proceed to be issued in April/May 2025, at which time the Contract times will commence as indicated in the Agreement (00500).**
- B. Application for PADOT Highway Occupancy Permit has been made and will be issued to Contractor when received.

- C. All issued permits shall become part of these Contract documents. Contractor shall follow all regulations, conditions, and requirements of all permits.
- D. In the event that utility relocations or modifications are required during the Work, make arrangements with the affected utility company to perform such relocations or modifications. Cost of such utility relocations or modifications is considered part of the Contract Price(s) and no extra compensation will be allowed.
- E. When it is necessary to dewater trenches and other excavations provide pumping equipment, capable of handling the flows present; provide standby equipment to protect against equipment breakdown, including but not limited to extra pumps, and power generators. Cost of such equipment shall be included in the Contract Price(s).
- F. The following restrictions, as applicable, shall be observed during all hours of Work:
 - 1. No jackhammers, heavy equipment, or similar noise generating equipment will be used between 7:00 P.M. and 7:00 A.M. without written authorization by the Owner. Work and hour restrictions listed in the PADOT Highway Occupancy Permit shall prevail.
 - 2. Contractor shall shield adjacent properties from any supplemental lighting installed to illuminate work site.
 - 3. Contractor shall be responsible for resolution of complaints from adjacent property owners regarding disturbances resulting from Contractor's performance of work.
 - 4. All construction operations, including after hours, shall comply with Federal, State, and local noise and public nuisance regulations.
- G. Contractor shall provide protection, in the form of fences, for existing trees and physical features scheduled to remain.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Applications for Payment.
- B. Payment for Tests and Inspections.
- C. Products Stored on Project Site.
- D. Measurement and Payment.

1.02 APPLICATIONS FOR PAYMENT

- A. Submit four copies of Application for Payment at times specified in Paragraphs 14.02 and 14.07 of the General Conditions. Monthly Applications for Payment shall be accompanied by weekly payroll certificates, for the period, of contractor and its subcontractors, on the form(s) attached to this Project Manual.
- B. Submit Application for Payment on form 01025A attached to this Specification section. **AIA or other format forms are not acceptable.**
- C. Include the following Contractor's signed certification on Application for Payment:

The undersigned Contractor certifies that (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied to discharge in full all obligations of Contractor incurred in connection with Work covered by prior Applications for Payment numbered 1 through ___ inclusive and that such payments have been made in compliance with the Pennsylvania Prompt Pay Act, Act 142/ of 1994; (2) title to all materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all liens, claims, security interests, and encumbrances (except such as covered by Bond acceptable to Owner indemnifying Owner against any such lien, claim, security interest, or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective, as that term is defined in the Contract Documents.

1.03 PAYMENT FOR TESTS AND INSPECTIONS

- A. Include the costs of shop tests and shop inspections in the price of the manufactured Products, and no separate or extra payment will be made for such tests and inspections.
- B. Contractor shall employ and pay for the services of an independent firm(s) to perform laboratory and field testing and inspections as required in the various Specification

Sections. Obtain approval of the proposed testing and inspection firms from Engineer. Cost of such tests and inspections shall be included in the Contract Price and no separate or extra payment will be made.

1.04 STORED PRODUCTS

- A. Payment will not be made for Products suitably stored on the Project site or at another location, but not yet incorporated in the Work.

1.05 MEASUREMENT AND PAYMENT

- A. General: Unit and lump sum prices **shall be all-inclusive**; they shall include among other costs, all labor (which consists of the personnel plus the time required to perform each task), material, equipment, facilities and services required to perform the Work as defined in General Conditions Paragraph 1.01.A.50. Refer to General Conditions Paragraphs 3.01.A and B for intent of the Contract Documents.
 - 1. Additional payment will not be made for removing/relocating trees, fences, or other above or below grade physical obstacles, unless otherwise specified in this Section. These costs shall be included in the lump sum or unit price bid for the item requiring their removal/relocation.
 - 2. Contractor shall confine construction operations within the temporary and permanent right-of-way, and other limits of work, identified in the Drawings and Specifications. Repair to and restoration of paved, seeded and other areas, damaged by Contractor's operations, outside of the temporary and permanent right-of-way, and other limits of work, identified in the Drawings and Specifications, shall be at Contractor's expense. The repair/restoration work and products shall be as described in the Drawings and the Specifications, and may include, but not be limited to regrading, topsoil placement, seeding, pavement reconstruction etc.
 - 3. Additional time, personnel, equipment, services and facilities required to perform a task, in excess of that estimated by Contractor, shall not be a reason for additional costs or extension of Contract Times, unless otherwise specified in the Contract Documents.
 - 4. Contractor shall submit written request to and receive written authorization by Engineer prior to performing work for "Contingency Items."
 - 5. The following costs shall also be included in the unit and lump sum prices, as applicable:
 - a. Mobilization / Demobilization (refer to Supplementary Conditions Paragraph SC-1.01.A.55 for definitions).
 - b. Bonds and Insurance.
 - c. Contractor's overhead, profit, burden, and other expenses as allowed by the Conditions of the Contract(s).
 - d. Furnishing and installation of temporary facilities and controls required by Section 01500.
 - e. Storage and transportation of material, including topsoil and suitable backfill material, to/from off-site locations.

- f. Removal, transportation and disposal of construction debris and applicable fees, if any.
 - g. Temporary services and stand-by equipment including but not limited to generators and pumping equipment.
 - h. Removal/relocation of existing above or below-grade physical features.
 - i. Costs associated with protection of underground utilities.
 - j. Temporary Maintenance and Control of Traffic.
 - k. Suitable borrowed (imported) excavated material for backfill or topsoil.
 - l. Dewatering of excavated areas.
 - m. Erosion and Sedimentation Controls.
- 6. Change Orders: Lump sum and unit prices for Change Orders shall also include the costs listed under Subparagraph 5 above.
 - 7. Excavation Classification: **All excavation, which may include rock, is “unclassified, with the exception of rock in excess of ½ cubic yard in volume.**
- B. Furnish and Install 8-inch Water Main:
- 1. Measurement and payment per linear foot at the unit price bid.
 - 2. Payment shall include excavation, removal, and disposal of excavated material, furnishing and installing pipe, restraints, fittings other than those listed individually on the Bid Form, underground warning tape, tracer wire, connections to existing water main, trench dewatering, concrete encasement when required to cross over/under utilities, pipe bedding, backfill to pavement restoration depth, compaction, testing, flushing, and disinfection.
 - 3. Surface restoration will be paid separately.
- C. Furnish and Install Caps, Fittings, Valves and Valve Boxes:
- 1. Measurement and payment for each at the unit price bid.
 - 2. Payment shall include excavation in excess of that required for water main installation, removal and disposal of unsuitable excavated material, furnishing and installing individual items, concrete kicker blocks, bedding, backfill to pavement restoration depth, and as applicable, testing and disinfection.
 - 3. Fire hydrant valves, valve boxes, and tee are not included in this pay item. These items are included in and will be paid under the Fire Hydrant installation item.
 - 4. Surface restoration will be paid separately.
- D. Furnish and Install Fire Hydrant Assembly:
- 1. Measurement and payment for each at the unit price bid.
 - 2. Payment shall include excavation, removal, and disposal of unsuitable excavated material, trench dewatering, furnishing and installing new fire hydrant, lateral, valve, valve box, hydrant tee and other Products as shown on the Drawings, bedding, backfill to pavement restoration depth, flushing, testing, and disinfection.
 - 3. Surface restoration will be paid separately.
- E. Furnish and Install Water Meter Setting:
- 1. Measurement and Payment for each at the unit price bid.
 - 2. Payment shall include excavation, removal, and disposal of excavated material, removal of existing lateral and fittings, furnishing and installing meter box,

- installing water meter, connection to water service(s), bedding, backfill to restoration depth, and compaction.
3. Meter cocks and Meters to be provided by Owner.
 4. Surface restoration will be paid separately.
- F. Furnish and Install New 1-inch Water Service Lateral:
1. Measurement and payment per linear foot at the unit price bid.
 2. Payment shall include excavation, removal, and disposal of unsuitable excavated material, removal of existing service, curb stop and curb box, furnishing and installation of corporation stop, PE tubing, unions, curb stop and box, connection to meter box and existing service, bedding and backfill to pavement restoration depth.
 3. Permanent pavement restoration will be paid separately.
- G. Water Service Lateral Reconnection:
1. Measurement and payment per linear foot at the unit price bid.
 2. Payment shall include excavation, removal, and disposal of unsuitable excavated material, furnishing and installation of corporation stop, PE tubing, unions, connection existing service, bedding, and backfill to pavement restoration depth.
 3. Permanent pavement restoration will be paid separately.
- H. Temporary Trench Pavement Restoration:
1. Measurement and payment per square yard at the unit price bid.
 2. Payment shall include furnishing and placing hot-mix bituminous material, maintenance, and removal and disposal.
- I. Permanent Trench Pavement Restoration:
1. Measurement and payment per square yard at the unit price bid.
 2. At ends of lines, connections to existing lines, valves, or fire hydrants, the payline shall extend one-half the trench pay width beyond the center of the valve, fitting, or hydrants.
 3. Payment shall include furnishing and placing bituminous material, additional excavation for pavement placement, sealing of pavement joints and traffic line/legend painting (where applicable).
- J. Concrete Sidewalk Restoration:
1. Measurement and Payment per square foot at the unit price bid.
 2. Payment shall include excavation and disposal of excavated material, furnishing and placing aggregate base, reinforcing and concrete, backfill to restoration depth.
 3. Surface restoration will be paid separately.
- K. Concrete Curb Restoration:
1. Measurement and Payment per linear foot at the unit price bid.
 2. Payment shall include excavation, removal, and disposal of excavated material, furnishing, and placing aggregate base, formwork, concrete, and backfill to restoration depth.
 3. Surface restoration will be paid separately.

- L. General Site Restoration:
 - 1. Measurement and payment at the lump sum price bid.
 - 2. Payment shall include grading, furnishing, and placing topsoil and seed mix, maintenance, and general cleanup.

- M. Miscellaneous Concrete (Contingency Item):
 - 1. Measurement and payment per cubic yard at the unit price bid.
 - 2. Payment includes concrete where required by Engineer and not paid for under another pay item.
 - 3. Payment requires prior authorization by Engineer.

- N. Miscellaneous Unclassified Excavation (Contingency Item):
 - 1. Measurement and payment per cubic yard at the unit price bid.
 - 2. Payment includes excavation and disposal of materials to address unanticipated soil and other construction conditions and where required by Engineer but not paid under another pay item.
 - 3. Payment requires prior authorization by Engineer.

- O. Miscellaneous Aggregate for Backfill (Contingency Item):
 - 1. Measurement and payment per cubic yard at the unit price bid.
 - 2. Payment includes furnishing and placing Aggregate Backfill where required by Engineer but not paid under another item.
 - 3. Payment requires prior authorization by Engineer.

- P. Rock Excavation (Contingency Item):
 - 1. Measurement and payment per cubic yard at the unit price bid.
 - 2. Payment includes rock removal by mechanical means; blasting is not permitted. Engineer will determine if material qualifies as Rock Excavation.
 - 3. Payment requires prior authorization by Engineer.

PART 2 – PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01040
COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Coordination.

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- C. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pre-construction conference.
- B. Construction sequence coordination meetings.
- C. Progress meetings.

1.02 PRE-CONSTRUCTION CONFERENCE

- A. Engineer will schedule a conference to be held prior to Contractor's commencement of the Work.
- B. Attendance:
 - 1. Owner's representative(s).
 - 2. Contractor's Project Manager (attendance required).
 - 3. Contractor's Project Superintendent (attendance required).
 - 4. Major Subcontractors and suppliers.
 - 5. Engineer.
 - 6. Resident Project Representative.
 - 7. Governmental agency representatives, utility representatives, and other parties who may have control of, or may be affected by, the Work.
- C. Agenda Items (as applicable to the Project):
 - 1. Designation of Contractor's supervisory personnel and phone numbers to be used in the event of an emergency during non-working hours.
 - 2. List of major Subcontractors and suppliers.
 - 3. List of proposed Products.
 - 4. Schedule of Shop Drawing submissions.
 - 5. Schedule of Values.
 - 6. Construction progress schedule and work sequencing.
 - 7. Utility relocations.
 - 8. Procedures for submittals; Field Orders and Change Orders; and Applications for Payment.
 - 9. Control points.
 - 10. Record documents.
 - 11. Project coordination.
 - 12. Site security.
 - 13. Temporary utilities.
 - 14. Field offices.
 - 15. Housekeeping.

16. Safety and first-aid procedures.
 17. Environmental requirements.
- D. Engineer will preside at and at her/his option digitally record the conference and prepare minutes for distribution to participants.

1.03 CONSTRUCTION SEQUENCE COORDINATION MEETINGS

- A. Engineer will schedule construction sequence coordination meetings at critical times during the construction period to discuss interfacing of the new work with the existing facilities and to discuss the Contractors' plans for maintaining the facility in operation. In general, meetings will be scheduled a minimum 7 calendar days prior to major shutdowns/equipment changeovers.
- B. Attendance:
1. Owner's representative(s).
 2. Contractor's Project Manager (attendance required).
 3. Contractor's Project Superintendent (attendance required).
 4. Major Subcontractors, including by-pass pumping subcontractor when applicable.
 5. Engineer.
 6. Resident Project Representative.
 7. Others as appropriate for agenda topics for each meeting.
- C. Agenda:
1. Review of schedule for shutdowns and/or changeovers.
 2. Review of bypass pumping plan, when applicable.
 3. Review of shutdown/changeover procedures.
 4. Review of plan for maintaining operations during shutdown/changeover.
 5. Discussion of any anticipated problems which may impede planned schedule.
 6. Review of contingency plans for maintaining/restoring service in the event of problems.
 7. Review of operational issues associated with planned shutdown/changeover.
 8. Resolution of any outstanding operational concerns about maintenance of service.
 9. Coordination of work of all trades.
 10. Other business relating to work.
- D. Engineer will preside at and at her/his option digitally record the conference and prepare minutes for distribution to participants.

1.04 PROGRESS MEETINGS

- A. Engineer will schedule monthly progress meetings throughout the construction period.

B. Attendance:

1. Owner's representative(s).
2. Contractor's Project Manager (attendance required).
3. Contractor's Project Superintendent (attendance required).
4. Major Subcontractors and suppliers.
5. Engineer.
6. Resident Project Representative.
7. Others as appropriate for agenda topics for each meeting.

C. Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

- D. Engineer will preside at and at her/his option digitally record the conference and prepare minutes for distribution to participants.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures.
- B. “Or Equal” and Substitute submittals.
- C. Action on submittals.
- D. Shop Drawings.
- E. Product data.
- F. Manufacturers' instructions.
- G. Manufacturers' certificates and warranties.
- H. Construction progress schedules.
- I. Pre-construction Video.
- J. Submittals specified in other Documents/Sections.

1.02 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted form.
- B. Number each submittal. Number shall consist of the following parts, each separated by a dash:
 - 1. Contract number.
 - 2. Five-digit Specification Section number.
 - 3. Two-digit sequence number starting for each Specification Section with 01 and continuing with 02, 03, etc., for subsequent submittals with the same Specification Section number.
 - 4. Use the fourth part of the number only for resubmittals. For the first resubmittal of a previous submittal, add -R1 to the previous number. For the second resubmittal, change to -R2, and so on.

As an example of the numbering process for Contract Number 1, the third submittal under Section 03300 would be numbered 1-03300-03, and the second resubmittal of this same submittal would be numbered 1-03300-03-R2.

- C. Identify Project, Contractor, Subcontractor, or Supplier. Identify pertinent Drawing sheet and detail number(s), and Specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed 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. Stamp shall have the following format:

Approved for Contract Requirements

The Contractor's signature below indicates that this Submittal has been checked with the Drawings, Specifications, and site conditions and found to meet all requirements of same including dimensions, and that the Contractor's guarantee fully applies to the Product(s) covered.

RE: Project: _____
 Submittal Number: _____
 Drawing Sheet Number: _____ Detail Number: _____
 Deviations from Contract Documents? No ___ Yes ___ (letter attached)
 By: _____
Signature (Contractor)
 Contractor's Name: _____

- E. Submittals without Contractor's stamp of approval will not be reviewed by Engineer and will be returned to Contractor for resubmittal. Resubmittal will be considered as No. 1 and all others will be at Contractor's expense.
- F. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.
- G. Submit letter, which specifically identifies deviations from Contract Documents. Identify Product or system limitations, which may be detrimental to successful performance of the completed Work.
- H. When a Product is of various sizes, or there are similar Products (e.g. sump and grinder pumps) in the Project, provide a submittal, which includes all identical/similar Products.
- I. When a Specification Section includes several Products, submit shop drawings for all Products in a single submittal.
- J. Where deviations from Contract Documents will affect the Work of another Contractor, the Contractor making the submittal shall attach a letter from the other Contractor(s) stating that the deviation will either:
 1. Have no effect on the other Contractor's Work; or
 2. Have an effect on the other Contractor's Work and that the Contractor making the submittal has agreed to pay all extra costs associated with the deviation.
- K. Provide space for Contractor and Engineer review stamps.

- L. Revise and resubmit submittals **within ten calendar days from date of receipt**. Identify all changes made since previous submittal. Where submittal must be held for coordination Engineer shall be so advised by Contractor.
- M. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- N. **Incomplete submittals will be returned without review and their receipt will be counted as Submittal No. 1.**

1.03 "OR EQUAL" AND SUBSTITUTE SUBMITTALS

- A. "Or Equal" and Substitute Products or methods submittals shall be in compliance with Supplementary Conditions Paragraphs SC-6.05.A through SC-6.05.L.
- B. The Engineer will determine if a Product or method qualifies and is acceptable as an "Equal" or as a Substitute.
- C. Contractor shall be responsible for Engineer's, and others', review time, and for all other costs associated with acceptance/rejection of an "Equal" or "Substitute" Product or method.
- D. **Request for "or Equal"/substitute of Product, or method shall be made as a separate submittal, prior to, not as part of a shop drawing submittal.**

1.04 ACTION ON SUBMITTALS

- A. Engineer's Action: Where action and return is required or requested, Engineer will review each submittal, mark with the action taken, and where possible return **within fourteen calendar days from date of receipt**. Where submittal must be held for coordination, Contractor will be so advised by Engineer.
- B. Submittals returned with "**APPROVED**" action indicate that the information submitted was found to be in conformance with the design concept and in compliance with the requirements of the Contract Documents. The Contractor remains responsible for work-related errors, deviations, and discrepancies in the submittal, but may proceed with performance of the work covered by the submittal.
- C. Submittals returned with "**APPROVED AS NOTED**" action indicate that the information submitted was found to be in conformance with the design concept and in compliance with the requirements of the Contract Documents, provided the noted clarifications or corrections are incorporated in the Work and in the Record Documents. The Contractor remains responsible for work-related errors, deviations, and discrepancies in the submittal, but may proceed with performance of the work covered by the submittal. Resubmission of information is not required.

- D. Submittals returned with "**RETURNED FOR CORRECTION**" action indicate that: (1) information submitted is at least partially not in conformance with the design concept, (2) information submitted is at least partially not in compliance with the requirements of the Contract Documents, (3) submittal is incomplete and does not include all items required by the individual Specification Sections, or (4) certifications or computations required by the individual Specification Sections have not been included with the Shop Drawings and Product data. Engineer will note the deficiencies or corrections required, and return the submittal to the Contractor. Performance of the work covered by the submittal shall not proceed until corrected information is submitted and approved.
- E. Submittals returned with "**NOT AS SPECIFIED**" action indicate that the Engineer interprets the information submitted to be not in conformance with the design concept or not in compliance with the Contract Documents. This action may also indicate non-compliance with the Contractor's responsibility to review information and submit notification of deviations and discrepancies for the Engineer's review. Performance of the work shall not proceed until new information is submitted and approved.
- F. Review Action does not establish submitted information as a Contract Document, a Change Order, or authorization to deviate from the Contract Documents.
- G. For all re-submittals except the first, Engineer and Engineer's consultants will record man-hours required for review of the re-submittal. Contractor shall be charged for review of such repeat re-submittals at Engineer's (and Engineer's consultant's) current hourly rates. Charges for repeat re-submittals shall be subtracted from Contractor's next progress payment.

1.05 SHOP DRAWINGS

- A. Submit one set of reproducible, plus two copies, which will be retained by Engineer.
- B. After review, distribute in accordance with Article on "Submittal Procedures" above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.06 PRODUCT DATA

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

1.07 MANUFACTURERS' 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.

1.08 MANUFACTURERS' CERTIFICATES AND WARRANTIES

- A. When specified in individual Specification Sections, submit manufacturers' certificates and sample warranties to Engineer for review, in quantities specified for Product data.
- B. Indicate Product conforms to or exceeds specified requirements. Submit supporting computations, reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.
- D. When required by individual Specification Sections, include a "Letter of Assurance" specified previously in Article 1.05.
- E. When Supplementary Conditions specify certain regulatory restrictions concerning origin of Products (for example, that any steel used on the Project must be a Product of the United States), submit a certificate from Products manufacturer that Products supplied to the Contractor are in conformity with the regulatory requirements.
- F. Submit sample(s) of manufacture's warranties to Engineer, for review, in quantities specified for Product Data. Actual Warranty Certificate shall be submitted when specified in Section 01700.

1.09 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit four copies of progress schedule prior to pre-construction meeting for Owner and Engineer review. Revise and resubmit at pre-construction meeting.
- B. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- C. Indicate submittal dates required for Shop Drawings, Product data, samples, and Product delivery dates, including those furnished by Owner and under Allowances.
- D. Do not include extensions to the Contract Time in revised progress schedules until such extensions have been approved by Owner and Engineer in accordance with Article 12 of the General Conditions.

- E. Failure to submit an initial or revised progress schedule acceptable to the Engineer, before or with each Application for Payment may be reason for the Engineer to recommend the Owner withhold payment of all or part of the amount shown in an Application for Payment until an acceptable progress schedule is submitted.
- F. Time unit used on progress schedule: calendar day.
- G. Submit a bar chart (Gantt chart) showing, for each activity on each submittal:
 - 1. Anticipated start calendar date.
 - 2. Anticipated completion calendar date.
 - 3. Actual start calendar date.
 - 4. Actual completion calendar date.
 - 5. Percentage of activity completed on calendar date of each submittal.

1.10 PRE-CONSTRUCTION VIDEO REPRESENTATION

- A. Prior to commencing with the Work Contractor shall generate a video record of pre-construction conditions at the Project area, including all areas within the temporary/construction right-of-way, and submit on a portable storage device or ShareFile site to Engineer. Contractor shall submit video in MP4 High-Definition format.
 - 1. Information shown shall include, but not limited to streets, driveways, sidewalks, curbs, ditches and other surface physical features, visible utilities and adjacent structures.
 - 2. The purpose of the video recording is to document existing conditions and to provide a fair measure of required restoration.
 - 3. Temporary lighting shall be provided as necessary to properly record areas where natural lighting is insufficient (indoors, shadows etc.).
 - 4. The videos shall include an audio soundtrack to provide the following information:
 - a. Detailed description of location being viewed referenced to Contract Drawings (i.e. station no., building designation, pipeline route, etc.).
 - b. Direction (N, S, E, W, looking up, looking down, etc.) of camera view.
 - c. Date, time, temperature, environmental conditions at time of video recording
 - 5. Any areas not readily visible by video recording methods shall be described in detail. Unless otherwise approved by Engineer, video recording shall not be performed during inclement weather, or when the ground is partially, or totally covered with snow, ice, leaves etc.
 - 6. The original videos shall be submitted to the Engineer accompanied by a detailed log of the contents of each video file. The log shall include location descriptions with corresponding time stamps to facilitate the quick location of information contained on the videos.
 - 7. One set of video files will be maintained by the Engineer during construction and may be viewed at any time by Contractor upon request. Upon final acceptance of the Work, the video will become the property of the Owner.

- B. Extent of video recording will be established during the pre-construction conference.
- C. Costs associated with video recording shall be included in the Contract Price.

1.11 SUBMITTALS SPECIFIED IN OTHER DOCUMENTS/SECTIONS

- A. Applications for Payment: Section 01025.
- B. Schedule of Shop Drawing Submittals: General Conditions 2.05.
- C. Requests for Substitutions: General Conditions 6.05, as amended by the Supplementary Conditions Paragraphs SC-6.05.A through SC-605.L.
- D. Claim Documentation: General Conditions 10.05 and 12.02.A.
- E. Documentation Required with Applications for Progress Payments and Final Application for Payment: General Conditions 14.02.A and 14.07.A.
- F. Emergency Crew Names, Addresses, and Telephone Numbers: Supplementary Conditions 6.16.
- G. Supervisory Personnel Names and Phone Numbers: Section 01200.
- H. Reports on Tests and Inspections: Section 01400.
- I. Record Documents: Section 01700.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Inspection and testing laboratory services.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over subcontractors, 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.

1.03 REFERENCES

- A. Conform to reference standards cited in Specifications.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.
- D. Measurement or payment provisions included in a reference standard are not applicable to this Project.

1.04 INSPECTION AND TESTING LABORATORY SERVICES

- A. Method of paying for the services of an independent firm(s) to perform inspection and testing is specified in Section 01025.
- B. The independent firm will perform inspections, tests, and other services specified in individual Specification Sections and as required by the Engineer.
- C. Reports will be submitted by the independent firm to the Engineer, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents. Reports will be submitted to Engineer within 48 hours after completion of test.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Engineer and independent firm at least 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of non-conformance to specified requirements will be performed by the same independent firm on instructions by the Engineer. Payment for retesting will be charged to the Contractor.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Regulatory requirements.
- B. Temporary sanitary facilities.
- C. Barriers.
- D. Water control.
- E. Dust control.
- F. Protection of installed work.
- G. Parking.
- H. Progress cleaning.
- I. Safety equipment.
- J. Removal of utilities, facilities.

1.02 REGULATORY REQUIREMENTS

- A. Comply with applicable laws and regulations of authorities having jurisdiction, including but not limited to building codes, health and safety regulations, utility company regulations, and environmental protection regulations.
- B. Provide electrical equipment which is UL listed.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide self-contained single-occupant toilet units of the chemical, aerated-circulation, or combustion type. Units shall be properly vented and fully enclosed with a shell of glass fiber-reinforced polyester or similar non-absorbent material.

1.04 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing wetlands and adjacent properties from damage from construction operations.

- B. Provide protection for plant life designated to remain. Replace damaged plant life.

1.05 WATER CONTROL

- A. At all times during the construction of Work on this Project maintain the flow of storm water and naturally occurring water and channels affected by the Work.
- B. Contractor assumes responsibility for damages to property caused by flooding due to blocking or restriction of storm water passages, natural waterways, and wastewater facilities.
- C. See other water control requirements under Section 01560 -- "Soil Erosion and Sedimentation Control".

1.06 DUST CONTROL

- A. Perform dust control whenever a dust nuisance or hazard occurs and whenever directed by the Engineer or Resident Project Representative.

1.07 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

1.08 PARKING

- A. When site space is not adequate, provide additional off-site parking.

1.09 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain each site in a clean and orderly condition.
- B. Remove waste materials, debris, and rubbish from each site daily and dispose off-site.
- C. Maintain cleaning each site until Final Completion and acceptance of the Work by Owner. Cleaning shall include removal of weeds and other objectionable vegetation.
- D. Remove mud and construction debris on a daily basis from paved surfaces used by the Contractor.

1.10 SAFETY EQUIPMENT

- A. First Aid Supplies: Comply with governing regulations.

1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, and materials prior to Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01560

SOIL EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Work required by regulations to prevent soil erosion and control sedimentation during Work on the Project.

1.02 SEDIMENT AND EROSION CONTROL PLAN

- A. The requirements of the Sediment and Erosion Control Plan are given in the following Articles of this Section. Construction details for various Sediment and Erosion Control measures are shown on the Drawings.

1.03 REGULATORY REQUIREMENTS

- A. The sediment and erosion control measures are subject to inspection by State, county, and local regulatory agencies. The Contractor shall be fully responsible for constructing and maintaining the sediment and erosion control measures to the extent that they are, at all times, acceptable to the regulatory agencies. The Contractor shall be liable for payment of any fines or legal costs that the Owner may incur as a result of the Contractor's failure to properly construct and maintain the sediment and erosion control measures.
- B. One objective of the "Sediment and Erosion Control Plan" is the protection of private property. To assist any damaged property owners in redress of grievances, the following stipulations are made:
 - 1. Any silt, sediment, or mud leaving the construction site will be construed as damage to neighboring property and evidence of negligence on the part of the Contractor.
 - 2. Any damages claimed by neighboring property owners will be rectified and restitution made by the Contractor.
- C. Comply with the requirements of Chapter 102 of Pennsylvania Administrative Code Title 25 as authorized by the Clean Streams Law, Act 222, as amended.

1.04 CONSTRUCTION SEQUENCE

- A. Install all sediment and erosion control measures prior to start of clearing operations.

- B. Conduct construction operations in accordance with the “Construction Sequence” notes provided on the associated plans titled “Erosion and Sediment Control Notes and Details”.

1.05 GENERAL SEDIMENT AND EROSION CONTROL METHODS/PROCEDURES

- A. In all cases, the smallest practical area of land surface shall be disturbed.
- B. Topsoil shall be stripped and placed up slope from proposed construction areas where possible. Topsoil shall be kept separate from all other materials.
- C. Stockpiles of stripped topsoil, or excavated material and other erodible/soluble areas and materials shall be stabilized immediately.
- D. Excavated material shall be placed up slope from the excavation whenever possible. Runoff from spoil piles shall be directed through a sediment filter structure and discharged in a non-erosive manner. Stockpiles of excavated material shall be stabilized immediately.
- E. Utility excavations shall be open only long enough to properly install and inspect all underground facilities in accordance with applicable Specification Sections.
- F. Dewatering equipment discharge shall be directed onto a stabilized surface so that erosion does not occur. Discharges shall be directed through a sediment filter structure or sedimentation basin and discharged in a non-erosive manner.
- G. Backfilled excavations shall be restored to original type of cover and grade in accordance with Specifications. Temporary stabilization is required for any and all erodible/soluble areas and materials.
- H. Areas to be seeded or sodded shall be finish graded with six inches of topsoil unless otherwise specified. Positive drainage shall be maintained away from all structures. No isolated low spots shall be created.
- I. All sediment shall be prevented from entering storm drains, or watercourses through use of appropriate sediment filtration Products or systems.
- J. Construction access from unpaved areas to paved areas or streets (public or private) shall be via a stabilized construction entrance. The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto the paved surface. Sediment spilled, dropped, or tracked onto paved surface shall be removed immediately.
- K. Refer to Drawings for additional information and details.

1.06 SPECIFIC SEDIMENT AND EROSION CONTROL PROCEDURES

- A. Clearing/Grubbing:
1. Upstream diversion facilities shall be constructed and operational prior to removal of vegetation from Project areas. This system shall divert surface runoff away from the construction area.
 2. A temporary diversion and collection system shall be provided at the downstream limits of all areas to be stripped. This facility shall be in place and functional prior to stripping operations. This system shall collect sediment-carrying water from the construction area and convey it to temporary or permanent sediment traps for non-erosive discharge onto stabilized areas.
 3. Temporary and permanent sediment traps and discharge structures shall be located such that all surface water leaving the construction area passes through them.
- B. Dewatering Operations: Dewatering operations, when required, shall discharge through sediment traps onto non-erodible surfaces. Existing sediment trap structures may be utilized or additional structures may be required.
- C. Filter Sock: Water permeable compost filter sock, weed free product, derived from a well-decomposed source of organic matter, free of any refuse, contaminants, or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow USCC TMECC guidelines for laboratory procedures.
1. Composted Product:
 - a. pH: 5.0 – 8.0 in accordance with TMECC 04.11-A, “Electrometric pH Determinations for Compost”.
 - b. Particle Size: 99% passing a 2” sieve and a minimum of 60% greater than the 3/8” sieve in accordance with TMECC 02.02-B, “Sample Sieving for Aggregate Size Classification”.
 - c. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
 - d. Material shall be relatively free (<1% by dry weight) of inert or foreign man-made materials.
 - e. A sample shall be submitted to the Engineer for approval prior to being used and must comply with all local, State, and Federal regulations.
 - f. Acceptable Manufacturer:
 - 1) Filtrexx International, LLC.
 - 2) Or Equal.
 2. Filter sock shall be placed at locations as shown on the Drawings, or as directed by the Engineer. Filter sock should be installed parallel to the base of the slope or other affected area, perpendicular to sheet flow.
 3. Contractor shall maintain the filter sock in a functional condition at all times and it shall be routinely inspected.
 4. Sock repairs shall be made in accordance with manufacturer recommendations.

5. Contractor shall remove sediment collected at the base of the filter sock when they reach one-half of the exposed height of the filter sock, or as directed by the Engineer.
6. The filter sock shall be dispersed on site when no longer required, as determined by the Engineer.

D. Stabilized Construction Entrance:

1. Install stabilized construction entrance at each point where construction traffic leaves Project site and enters any paved or public roads.
2. Stabilized construction entrances shall be used to reduce tracking of mud onto paved roads.
3. Any sediment or mud which flows or is tracked onto any paved or public roads shall be removed daily.
4. The stabilized construction entrance shall be removed when permanent pavement structure will be constructed.
5. See Drawings for details on construction of stabilized construction entrance.

1.07 RESTORATION

- A. After completion of construction, remove all temporary erosion and sedimentation control devices. Restore areas in which these devices were located to the original condition or to the condition called for by the Contract Documents.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01570

TRAFFIC REGULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General requirements for control of public traffic through the Work area with the goal of ensuring safe and efficient traffic movement and providing safe working conditions for Contractor's personnel.

1.02 REGULATORY REQUIREMENTS

- A. Requirements of Regulatory Agencies
 - 1. Traffic regulation on streets other than State Highways shall be performed in accordance with the requirements of Greencastle Borough.
 - 2. Minimum work zone traffic control shall be in accordance with PADOT Publications 213 and 212.
- B. State Highways:
 - 1. The Contractor shall provide traffic control and devices in compliance with the rules and regulations of the Pennsylvania Department of Transportation (PA DOT), including but not limited to the following:
 - a. PA Code Title 67, Transportation: Chapter 212.
 - b. PA Code Title 67, Transportation: Chapter 459 - Occupancy of Highways by Utilities.
 - c. Section 901 "Maintenance and Protection of Traffic During Construction" of the Commonwealth of Pennsylvania Department of Transportation Specifications Publication 408, latest edition, and such other sections therein which complement Section 901.
 - 2. Traffic control requirements are as indicated on the Drawings by way of diagrams based on PA DOT regulations.
 - 3. The traffic control diagrams shall be used to establish the minimum requirements for the Project and in no way preclude the installation of additional control measures.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01600

MATERIALS AND EQUIPMENT HANDLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Transportation and handling.
- B. Storage and protection.

1.02 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure 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.

1.03 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 ensure Products are undamaged and are maintained under specified conditions.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Project record documents.

1.02 CLOSEOUT PROCEDURES

- A. General Conditions Article 14 contains detailed requirements for Project closeout. Sequence of closeout procedures is as follows:
 - 1. Contractor submits written request for closeout inspection to Engineer.
 - 2. Owner, Engineer, and Contractor conduct **initial closeout inspection**.
 - 3. Engineer prepares "punchlist" of items to be completed and submits to Contractor.
 - 4. Contractor completes items on punchlist and requests re-inspection.
 - 5. Engineer and Contractor conduct re-inspection.
 - 6. If, on the basis of re-inspection, Engineer believes Project to be substantially complete, Engineer prepares a **tentative certificate** of Substantial Completion and submits to Owner for approval. **Tentative certificate** shall include a list of items to be completed and time limit for their completion. List of items to be completed will include deficiencies in cleaning and in submittal of extra materials, inspection certificates from regulatory agencies, Record Documents, warranties, and other items required by the Contract Documents.
 - 7. When Owner approves the **tentative certificate**, Engineer issues to the Contractor a **definitive** Certificate of Substantial Completion as described in the General Conditions.
 - a. **The definitive certificate of Substantial Completion fixes the date of Substantial Completion.**
 - b. **In no event will the Work be certified as substantially complete until at least 90 percent of the Work is completed.**
 - c. **Partial utilization of any portion of the Work does not constitute Substantial Completion.**
 - 8. When Contractor completes the list of items, as issued with the **definitive** Certificate of Substantial Completion, he requests final inspection.
 - 9. Owner, Engineer, and Contractor conduct final inspection.
 - 10. If Owner and Engineer agree that all items have been completed, Contractor will submit Final Application for Payment.
 - 11. Contractor submits to the Engineer Final Application for Payment, including all documents required by General Conditions' Paragraph 14.12, and any other

portion of the Contract Documents; Final Payment will not be made until these documents have been received by the Engineer. Final Applications for Payment shall identify total adjusted Contract Price, previous payments, and amount remaining due.

12. When Engineer approves Final Application for Payment, he submits to Owner with recommendation for payment.
13. Owner makes final payment to Contractor, deducting the amount of liquidated damages and the amount of any unresolved claims, which have been filed against the Owner in connection with the Work.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Rake landscaped areas.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site. Do not bury debris or excess materials on Owner's property; do not burn waste materials on site, but remove and dispose of in a lawful manner.

1.04 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other Modifications to the Contract.
 5. Reviewed Shop Drawings, Product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. 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 utilized.
 3. Changes made by Addenda and Modifications.
- E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 1. Measured elevations of site improvements in relation to site datum.
 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to site datum and base lines.
 3. Field changes of dimension and detail.

- 4. Details not on original Drawings.
- 5. Post-Construction surveys specified in Section 01050.
- F. Delete Engineer title block and seal (by crossing out) from Record Drawings.
- G. Include the following Contractor's signed statement on each Record Drawing sheet:

These Record Drawings have been prepared by

(Name of Contractor)

and accurately reflect as-built conditions. Responsibility for accuracy of the Record Drawings rests with the Contractor.

- H. Submit documents to Engineer with request for closeout inspection. (See Paragraph 1.02.A.1 of this Section.).
- I. **Certificate of Substantial Completion will not be issued until acceptable Record Drawings have been submitted.**

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 02015

PROTECTION OF UNDERGROUND UTILITIES

PART 1 - GENERAL

1.01 PROJECT CONDITIONS

- A. In preparation for and prior to commencing with the excavation work required by this Project, Contractor shall comply with the requirements of Pennsylvania Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 50 of 2017, Underground Utility Protection Law AKA PA One Call Law (the Law) and this specification Section.

- B. The existence and location of underground utilities shown on the Drawings is based on information supplied by the underground utility owners in accordance with the Law. Neither the Owner nor the Engineer warrants the accuracy of this information; this information is intended to serve as notification that such utilities exist in the general proximity of the Work.
 - 1. Contractor shall be responsible for the protection against direct or indirect injury of known existing underground pipes, conduits, utilities, and structures, or other property in the vicinity of the Work, or those that may be discovered during performance of the Work.
 - 2. Contractor shall maintain on site, during performance of the Work, a sufficient quantity of suitable materials, for sustaining or supporting any structure or utility that may be uncovered, which may be weakened, or otherwise compromised, whether or not such structure or utility is indicated on the Drawings.
 - 3. Cost of the work associated with protection of utilities shall be included in the Contract Price.

- C. The Contractor shall comply with notification provisions of the Law. Excavation shall only begin after notification by the Contractor of its intent to dig, is given to the One-Call System, within the time required by the Law. Damage to existing utilities resulting from the failure of the Contractor to follow the notification requirements of the Law shall be at Contractor's expense and no additional compensation will be provided.
 - 1. Contractor shall notify the utility not less than three nor more than ten business days prior to beginning excavation or demolition work.
 - 2. In case of complex projects notification shall be given not less than ten business days prior to beginning excavation or demolition work.
 - 3. If the Contractor removes its equipment and vacates the work site for more than two business days, (s)he shall notify the One Call System again, unless other arrangements have been made directly with the utility owner(s) involved.
 - 4. If the location of excavation changes, a new notification shall be made.
 - 5. Contractor shall provide the One-Call System with specific information to identify the site of the proposed work. Contractor shall provide any other information requested by the One-Call System.
 - 6. Contractor shall obtain a serial number from the One Call System evidencing compliance with notification requirements of the Law.

7. Contractor shall schedule and conduct a preconstruction meeting with the utility owners. Written notice of this meeting shall be provided to the Engineer a minimum of seven (7) business days in advance of the meeting. When a utility owner, with facilities located within the project area, requests a meeting with the Contractor, the Contractor shall promptly arrange and attend such a meeting. Contractor shall provide full accounting of any such meetings to the Engineer.
8. If the utility owner fails to respond to the Contractor's request to the One Call System, or the facility owner notifies Contractor that the utility cannot be marked within the time frame, and a mutually agreeable date for marking cannot be arrived at, the Contractor may proceed with excavation as scheduled, but not earlier than the lawful dig date.
9. If the Contractor has reason to believe that the facilities have been overlooked or marked incorrectly, the Contractor shall contact the One Call System and re-notify the utility owner. If, after re-notification, sufficient information to safely excavate is still not provided, Contractor shall be compensated, by the Owner, in accordance with the payment provisions of the Law and of the Contract, for all costs resulting from repairs to, or replacement of damaged, existing underground utilities or structures.

- D. Contractor shall establish procedures, for emergency action and repairs to utilities accidentally damaged during construction, with the utility owners prior to the commencement of work. During the course of the work, if the Contractor accidentally damages an existing utility, the Contractor shall immediately follow the established procedures for emergency action and repairs.
1. Contractor shall immediately notify 911 and the utility owner if the damage results in the escape of any flammable, toxic, hazardous or corrosive gas or liquid, which endangers life, health, or property.
 2. Contractor will not be subject to liability, or incur any obligation to utility owner, or others who sustain injury to person or property, if Contractor has complied with the terms of the Law and has not otherwise been negligent.
 3. When the Contractor damages a utility during the excavation work and the damage results in personal injury or property damage to parties other than the Contractor or the utility owner, the Contractor shall submit an incident report to the Pennsylvania Public Utility Commission and to any other agency required by the Law, no later than ten (10) business days after the incident. A copy of the incident report shall also be submitted to the Engineer and Owner.

- E. **Provided that existing services had been correctly marked prior to excavation operations and further provided that the Contractor did not further damage the existing service line(s)**, when the Contractor, during the progress of the excavation, uncovers utility services, which because of previous (concealed) damage or age are in poor condition, the Contractor shall immediately notify the utility owner in order that steps may be taken for replacement or repair.
1. Locations of repairs, and the procedures of repairs that have been made by Contractor, at the direction of the utility owner, shall be recorded by the Contractor.

2. Contractor shall be compensated, by the Owner, in accordance with the payment provisions of the Law and of the Conditions of the Contract, for all costs resulting from repairs, or replacement authorized by the utility owner.
 3. In the event the Contractor, during the progress of the excavation, further damages the existing service line(s) (s)he shall be responsible for the resulting costs.
- F. Pipes, conduits, and other underground utilities exposed as a result of the Contractor's operations, shall be adequately supported, along their entire exposed length, by timber or planking, installed in such a manner that the anchorage of the supporting members will not be disturbed or weakened during the backfilling operations. Backfill of selected material shall be carefully placed and compacted under and around the supports, and all supports shall be left in place as a guard against breakage of the supported facility due to trench settlement.
- G. Contractor shall perform exploratory excavations when, in the opinion of the Engineer, the utility owner, or the project owner, it is necessary to determine, or confirm the location(s) of existing underground structures and utilities.
1. Contractor shall excavate test pits to determine the location and elevation of existing subsurface utilities, or structure(s) at locations where indicated on the Drawings and other areas as directed by the Engineer. Excavate such test pits in the presence of an authorized representative of the utility/structure owner. Contractor may not proceed with excavation work without the prior notification and approval of the owner of the subsurface utility, or structure(s).
 2. Contractor may not proceed with excavation work in locations where new utility lines are to be connected to existing utility lines until test pits have been dug and the exact location and elevation of the existing utility has been determined.
 3. Work required for digging test pits at the request of the Engineer, utility owners or other interested parties will be classified as "Miscellaneous Unclassified Excavation".
 4. Test pits or other miscellaneous excavation performed for the Contractor's convenience will be at Contractor's expense.
- H. Contractor shall plan the excavation to avoid damage to or minimize interference with underground utilities in the construction area. Excavation that requires temporary or permanent interruption of a utility service shall be coordinated with the affected utility owner.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

3.01 PAYMENT FOR ADDITIONAL WORK

- A. General: The cost for repair and/or support of existing underground utilities and structures damaged during construction, including those found to have been damaged previously (concealed), or in poor condition due to age, will be paid as follows:
1. If the utility/structure was properly and correctly marked, in accordance with the Law, Contractor shall be responsible for all costs, including support material left in place.
 2. If the utility/structure was not shown, or was marked improperly or incorrectly, and not in accordance with the Law, Contractor will be compensated for the work performed in accordance with the payment provisions of the Contract and as further specified below.
 3. Payment of work for repair/replacement of a utility/structure, which was properly and correctly marked, in accordance with the Law, but was found to have been damaged previously (concealed), or in poor condition due to age, shall be as specified in Paragraph 1.01.E.2 above.
- B. When information on the location of existing utilities is not provided, the information provided is inaccurate or incorrect, or uncharted or incorrectly charted utilities are encountered, the Contractor shall determine the location of the existing utilities by utilizing prudent techniques including excavating test pits. The Contractor shall submit written notification to the Engineer apprising the Engineer of the conditions that have warranted the notification and request for additional compensation. In the event that written notification cannot be immediately provided, the Contractor may provide oral notification to the Engineer followed by written notification no later than three (3) business days thereafter. After submission of written notification, the Contractor will be entitled to additional compensation in accordance with the Law.
1. Where a price for additional excavation has been indicated in the Contract Documents, payment will be made as “Miscellaneous Unclassified Excavation”. When a price is not indicated, the extra work will be paid on a force account (time and material) basis in accordance with the latest edition of the Pennsylvania Department of Transportation Publication 408, Specifications.
 2. When claiming extra work on a force account basis, the Contractor shall complete a Force Account Daily Sign-Off form (PA DOT CS-4347) on a daily basis. The Engineer or an authorized representative of the Owner shall countersign the sign-off form. Failure to complete the sign-off form on a daily basis may constitute grounds to deny additional payment.
 3. Contractor shall submit a change order request for the extra force account work. The change order request shall include a Negotiated Price Cost Justification form (PA DOT CS-4347CJ) as well as copies of the daily sign-off forms for the period covered under the change order request. Fees for subcontractors, overhead and profit, and other costs, as may be allowed by the Conditions of the Contract, shall be in accordance with the Conditions of the Contract. The Engineer reserves the right to require additional documentation to substantiate the amounts claimed in the change order request.

4. The change order request will be processed in accordance with the Conditions of the Contract.

END OF SECTION

SECTION 02151

SHORING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General shoring, sheeting and bracing necessary to protect excavations against loss of ground, caving or slipping.
- B. General shoring, sheeting and bracing necessary to protect existing buildings, streets, walkways, utilities, and other improvements.

1.02 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 - 1. Trench shoring materials and installation methods shall conform to Federal, State, and local laws, rules, regulations, and requirements.
 - 2. Provide material for sheet piling, sheeting bracing and shoring and drive or set in place in accordance with Federal, State and local laws for excavations and construction and as may be required to protect the workers and the public, or to maintain the trench pay-line widths specified in Section 02221.

1.03 PROJECT CONDITIONS

- A. Responsibility for Project Safety and Condition of Excavation:
 - 1. Contractor shall be responsible for complying with all safety, health and sanitation laws, rules, regulations, and guidelines, including but not limited to the Occupational Safety and Health Act (OSHA), 29 CFR 1910 and 29 CFR 1926.
 - 2. The failure or refusal of the Engineer to suggest the use of bracing or sheeting, or type of materials, or to suggest sheeting, bracing, or shoring to be left in place, shall not relieve the Contractor of its responsibility concerning the condition of excavation, or its obligations under the Contract concerning safety precautions and programs in connection with the Work; nor will it impose any liability on the Engineer, or the Owner; nor shall any delay, whether caused by any action, or want of action on the part of the Contractor, or by any act of the Engineer, or the Owner, or their agents, or employees, resulting in the keeping of any excavation open longer than would otherwise have been necessary, relieve the Contractor from the responsibility of properly and adequately protecting the excavation from caving or slipping, nor from any of the obligations under the Contract relating to injury to persons or property, nor entitle Contractor to any claims for extra compensation.

- B. Tight Sheeting:
 - 1. Protect excavations deeper than eight feet with tight sheeting from the top of the original grade to below the structure foundation or to the bottom of utility trench except for excavations where stable rock is encountered. If stable rock is encountered at a depth greater than eight feet but above the structure foundation, or the bottom of utility trench, carry sheet down to the top of the rock.
 - 2. Include cost for tight sheeting in the Contract cost for the item(s) that requires the tight sheeting.
 - 3. Contractor, at her/his discretion and expense, may use other, OSHA approved, methods for protection of excavations in lieu of tight sheeting.
- C. Trenches 5-feet deep or greater shall require a protective system, unless the excavation is made entirely in stable rock. If less than 5-feet deep, Contractor's on-site competent person may determine that a protective system is not required. Protective system for trenches 20-feet deep, or greater shall be designed by a professional engineer, registered in the State where the Project is located, or be based on tabulated data prepared and/or approved by a professional engineer registered in the State where the Project is located, in accordance with OSHA Section 1926.652(b) and (c).
- D. The Engineer reserves the right to order sheeting and bracing left in place for the protection of the finished work or adjacent property. Sheeting and bracing which have been ordered left in place by the Engineer must be removed for a distance of three feet below the established or existing grade, whichever is lower. Trench bracing, except that, which must be left in place, may be removed when the backfilling has reached the respective levels of such bracing.
- E. Before starting work, check and verify governing dimensions and elevations.
- F. Protect existing active sewer, water, gas, electricity and other utility services and structures.
- G. Notify municipal agencies and service utility companies having jurisdiction over the areas of work.
- H. Comply with requirements of governing authorities and agencies for relocation, removal and discontinuing of services, as affected by this work.
- I. Refer to Section 02015 for requirements for protection of underground utilities.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide suitable shoring and bracing materials which will support loads imposed.

- B. Wood Materials: Use wood sheeting, sheet piling, bracing, and shoring which is in good serviceable condition and timbers of sound condition.
 - 1. If wood is part of shoring system near existing structures, use pressure preservative treated materials or remove before placement of backfill.
- C. Steel Materials: Steel sheet piling and bracing of equal strength may be substituted for wood.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Drive or set sheeting, sheet piling, braces or shores in place and arrange such that they may be withdrawn as the excavations are backfilled, without damage to piping and structures, and without damage to or settlement of adjacent structures and pavements.
- B. Engineer reserves the right to order sheeting driven to the full depth of the excavation or to such additional depths as may be required for the protection of the work.
- C. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
- D. When tight sheeting is required, it shall be driven to prevent adjacent soil from entering the excavation either below or through such sheeting.
- E. Provide access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4 feet or deeper; locate these devices within 25 feet of all workers.
- F. Install internal bracing, if required, to prevent spreading or distortion to braced frames.
- G. Remove sheeting, shoring and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.
- H. Repair or replace, as acceptable to Engineer, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

END OF SECTION

SECTION 02202
ROCK REMOVAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Removal of rock discovered during water main trench excavation.

1.02 PROJECT CONDITIONS

- A. Under this Contract, all excavation, which may include rock, is unclassified, with the exception of rock in excess of ½ cubic yard in volume. Engineer will determine if rock removal qualifies as “Rock Excavation.” Payment for “Rock Excavation,” if approved by Engineer, will be made at the unit price(s) listed in the Bid Form.
 - 1. Rock excavation may be performed only by mechanical method or by chemical fracturing. **Rock excavation by blasting is not permitted.**

1.03 SUBMITTALS

- A. Product Data: Submit in compliance with Section 01300 – Submittals.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify site conditions and note irregularities affecting work of this Section.

3.02 ROCK REMOVAL

- A. Mechanical Method:
 - 1. Remove rock to minimum of six inches below pipe bottom. If bedding layer shown on the Drawings is thicker than six inches, excavate to the depth shown on the Drawings.
 - 2. Cut away rock at excavation bottom to form level bottom for pipe bedding.
 - 3. Remove excavated material from site.
 - 4. Correct unauthorized rock removal in accordance with directions of Engineer.

END OF SECTION

SECTION 02221

TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Trench Excavation for Piped Utilities.
- B. Bedding, Backfill, and Compaction.
- C. Surface Restoration.

1.02 RELATED SECTIONS

- A. Measurement and Payment: Section 01025.
- B. Sediment and Erosion Control: Section 01560.
- C. Traffic Regulation: Section 01570.
- D. Shoring: Section 02151.
- E. Paving and Surfacing: Section 02500.
- F. Division 3 - Concrete.

1.03 DESCRIPTION

- A. Definitions:
 - 1. Rock Excavation: Removal of consolidated hard mineral material in solid beds or masses, in original or stratified position, and boulders greater than one-half cubic yard in volume, which, in the opinion of the Engineer, must be removed by blasting, or mechanical/chemical wedging. Structure foundations of concrete or of masonry or stone laid in cement-mortar is classified as rock if the volume of a solid section requiring removal at any single location exceeds one-half cubic yard.
 - a. Soft or disintegrated rock, which can be removed with a pick, or any material which can be broken down by sledge hammers, or any ledge or single boulder less than one-half cubic yard in volume, or loose, shaken or previously blasted rock, or broken stone in rock filling or elsewhere, or rock exterior to the line of measurement specified, shall not be classified as rock excavation.

- b. Items involved in the excavation such as sidewalks, curbs and street or roadway paving, of whatever material, shall not be classified as rock excavation.
2. Earth Excavation: Removal of materials of any kind in the excavation, which cannot be classified as rock excavation.
3. Earth Excavation Below Subgrade: Same as Earth Excavation except such excavation is performed below elevations given as subgrade.
4. Unclassified Excavation: Removal of materials of any kind in the excavation, including rock excavation.
5. Unclassified Excavation Below Subgrade: Same as unclassified excavation except such excavation is performed below elevations given as subgrade.
6. Miscellaneous Unclassified Excavation: Unclassified excavation required by the Engineer and not included in other items for payment.
7. Subgrade: Trench bottom prepared as specified to receive pipe bedding, concrete cradle or encasement, or the bottom of excavations prepared to receive pipeline structures or structure foundations.

1.04 REFERENCES

- A. The "Pennsylvania DOT Sections" noted herein refer to sections contained in the State of Pennsylvania Department of Transportation Standard Specifications, as supplemented. The references pertain only to materials, construction equipment, methods and labor. The payment provisions do not apply to work to be performed under this Contract.

1.05 PROJECT CONDITIONS

- A. **Classification of Excavated Materials: Refer to Section 01025, Article 1.05.**

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Backfill Material: Excavated material free of cinders, ashes, refuse, vegetable, or organic material, boulders, rocks, stone, or other material which, in the opinion of the Engineer, is unsuitable. Backfill material shall conform to the requirements established under "Classification of Backfill Materials", specified below.
- B. Aggregate Backfill and Bedding: Fine aggregates and coarse aggregates conforming to Pennsylvania DOT requirements. Aggregate Backfill requirements established under "Classification of Backfill Materials", specified below.
- C. Classification of Backfill and Bedding Materials:
 1. Pipe Bedding: As indicated on the Drawings.
 2. Initial Backfill: As indicated on the Drawings.

3. Backfill to Restoration Depth: As indicated on the Drawings.
 4. Backfill Material to Restoration Depth (Seeded Areas): Excavated material approved by the Engineer and containing no stones larger than four (4) inches in maximum dimension. A maximum of 20% of the backfill volume may be stones as long as the stones are evenly distributed within the material.
- D. Topsoil: On-site or imported screened, fertile, friable, natural, productive surface topsoil; free of subsoil, clay, stones, or similar hard objects larger than 2 inches in greatest dimension, and partially disintegrated debris and materials toxic or harmful to growth.
- D. Seed Mixture for Restoration of Seeded Areas: As indicated on the Drawings.
- E. Erosion Control Seed Germination Mat: Miramat 3M by Mirafi, Inc.
- F. Underground Warning Tape:
1. Printed polyethylene tape, 3 inches minimum width, color coded, 1-inch minimum lettering, printed with name of utility buried below, and suitable for installation in all soil types.
 2. Non-magnetic.
 3. Provide for the following:
 - a. Potable water.

PART 3 - EXECUTION

3.01 TRENCH PREPARATION AND EXCAVATION

- A. Perform soil erosion control work in accordance with requirements of Sediment and Erosion Control: Section 01560.
- B. Perform sheeting and shoring in accordance with requirements of Section 02151.
- C. General: Excavation of every description and of whatever substances encountered shall be performed to the lines and grades indicated on the Drawings and specified herein, or as directed by the Engineer.
 1. Excavation shall be made by open cut, unless written permission to tunnel or bore is given by the Engineer or is specifically outlined in the specifications or shown on the Drawings.
 2. Trenches may be excavated and backfilled either by machinery or by hand as the Contractor may elect, provided, however, that the Contractor shall use hand excavation where necessary to protect existing structures, utilities, or private or public properties and provided, further, that backfilling shall be done by hand to the extent hereinafter specified.
 3. The Contractor shall have no claim for extra compensation due to the fact that hand excavation, instead of machine excavation, may be made necessary from any cause whatever.

- D. Stripping, Storing and Restoring Surface Items: The Contractor shall remove all paving, sub-paving, curbing, or other similar materials, and grub and clear the surface over the area to be excavated. He shall properly store and preserve such materials that may be required for future use in restoring the surface. The Contractor shall be responsible for any loss or damage to said materials because of careless removal or neglectful or wasteful storage, disposal, or use of the materials.
1. All suitable excavated materials shall be stored, if practical, in the roadway or such other suitable place and in such manner as the Engineer will approve. Unsuitable materials will be removed from the site.
 2. If more suitable materials are removed from any trench than can be backfilled over the completed pipe or stored in the street, leaving space for traffic, the excess materials shall be removed and stored at a suitable site provided by the Contractor.
 3. The Contractor shall, at no expense to the Owner, bring back as much of the suitable materials so removed as may be required to properly refill the trench.
 4. When directed by the Engineer, the Contractor shall furnish such other suitable materials as may be necessary to properly refill the trench at no additional cost to the Owner.
 5. The Contractor shall restore all items removed or disturbed as a part of the work, to a condition equal to that before the work began, furnishing all labor and materials incidental thereto, without any additional cost to the Owner.
 6. The Engineer may mark certain trees items that are not to be disturbed or damaged. In the event such items are disturbed or damaged, they shall be replaced or compensated for at the Contractor's expense.
- E. Width of Trench: Pipe trenches shall be sufficiently true in alignment to permit the pipe to be laid in the approximate center of the trench. The trench shall be wide enough to provide a free working space on each side of the pipe. Maximum trench width as indicated on the Drawings.
1. The trench width at least 12 inches above the top of the outside barrel of the pipe shall not exceed pay-line dimensions shown on the Drawings.
 2. Where sheeting and shoring are used, the maximum allowable width of trench shall be measured between the closest interior faces of the sheeting or shoring as placed. Whenever, for any reason, the maximum trench width is exceeded below the top of the pipe, the Contractor may be ordered by the Engineer to cradle or encase the pipe in concrete at the Contractor's expense in order to ensure the structural integrity of the pipe.
 3. In locations other than rights-of-way or easements, the Engineer may, as warranted by working conditions, and where permitted by Federal or State safety requirements, waive the requirements specified for exceeding the maximum width at the top of trench.
 4. If the maximum width of trench shown on the Drawings cannot be maintained, the Contractor shall install temporary sheeting at no additional cost to the Owner.
 5. If the maximum width requirement at the top is waived by the Engineer, the Contractor will not be entitled to additional compensation beyond the specified trench widths.
 6. Where the Engineer specifically requires the Contractor in writing to excavate beyond the maximum allowable trench width, the Contractor will be entitled to

and will be reimbursed for the quantity of material excavated beyond the specified trench widths in accordance with the applicable unit price bid for Miscellaneous Unclassified Excavation.

- F. Length of Trench:
1. The Contractor shall limit all trench openings to a distance commensurate with all rules of safety.
 2. If the work is stopped either totally or partially, the Contractor shall refill the trench and temporarily repave over the same at his expense and the trench shall not be opened until he is ready to proceed with the construction of the pipeline.
- G. Pumping and Draining: The Contractor shall remove by pumping, draining, or otherwise, any water which may accumulate in the trenches and other excavations and shall build all dams and do all other work necessary to keep the trenches or other excavation as free from water as possible.
1. Where it is impractical to completely drain the trench, special pipe or jointing materials may be authorized at no additional expense to the Owner.
 2. While the pipelines are being laid, the Contractor shall have sufficient pumping machinery ready for immediate use.
 3. All surface waters shall be prevented from entering the open ditches or excavations by proper grading of the surface in the vicinity of the excavation.
- H. Accommodations of Drainage: The Contractor shall keep gutters, sewers, drains and ditches open at all times so that the flow of storm or other waters shall not be obstructed. If the material excavated from the trenches must temporarily extend over gutters or other waterways, it shall be the duty of the Contractor to plank or bridge over the gutters, without extra compensation, so that the flow of water is not impeded.
- I. Blasting and Explosives: Not permitted in performance of Work in this Project.
- J. Protection of Utilities, Property and Structures: The existence and location of underground utilities as indicated on the Drawings is presented merely to serve as a notification that such utilities do exist in the general proximity of the work. Any utilities not shown, or not located as shown, shall not relieve the Contractor of the responsibility for their protection and/or repair during construction.
1. The Contractor shall notify all utility companies, through the Pennsylvania One Call System, in advance of construction, to locate their facilities in accordance with Pennsylvania Act 287 of 1974, as amended by Act 121 of 2008; and shall cooperate with agents of these companies during the progress of the work. Procedures for emergency action and repairs to utilities shall be as established by the Act.
 2. Whenever the Contractor, during the progress of the excavation, shall uncover service pipes or lines, which because of injury or age are in poor condition, Contractor shall immediately notify the proper authority in order that steps may be taken for replacement or repair. Locations of repairs and the procedures of repairs that have been made shall be recorded by the Contractor.

3. Refer to Section 02015 for specific requirements for protection, repair of, and payment for underground utilities.

K. **Maintenance of Traffic:** Work shall be conducted so as to cause a minimum of inconvenience to pedestrian and vehicular traffic and to private and public properties along the line of work. It shall be the duty of the Contractor, at all times, to maintain crossing, walks, sidewalks, and other roadways open to traffic and in a satisfactory condition, and to keep all fire hydrants, water valves, fire alarm boxes, and letter boxes accessible for use. Whenever it is necessary to maintain pedestrian traffic over open trenches, a timber bridge at least three feet in width and equipped with side railings shall be provided. When the excavated material will encroach upon sidewalks or private property, planking shall be placed in order to keep the sidewalk or private property clear of excavated material.

1. In important thoroughfares, or in narrow streets, the material excavated from the trench shall be removed from the site of the work at the Contractor's own expense in order to provide suitable space for traffic. The Contractor shall, at no expense to the Owner, bring back as much of the approved material as necessary to properly refill the trench or shall furnish such other suitable materials as may be necessary to properly refill the trench.
2. When it is necessary to haul soft or wet materials over public streets, the Contractor shall provide suitable vehicles and shall conform to all laws and ordinances relevant to such hauling.
3. Maintenance and protection of traffic on municipal roadways shall be as specified in Section 01570. The Contractor shall modify sign locations daily in order to protect that Section of roadways to be disturbed during that same day.
4. When working in other public rights-of-way, maintenance of traffic shall be as directed by the governing authority.

3.02 PIPE BEDDING AND TRENCH BACKFILL

A. **Bedding:** The trench shall be excavated to a depth of six (6) inches below the outside diameter of the pipe barrel, or deeper if so specified. The resultant subgrade shall be undisturbed, or compacted as approved by the Engineer if disturbed. The bedding shall then be prepared by placing a thoroughly compacted aggregate pipe bedding and initial backfill material, as specified hereinafter, in 3-inch (uncompacted thickness) layers to 12-inches above top of pipe. Bedding shall provide uniform and continuous bearing and support for the pipe at every point between bell holes.

B. **Special Bedding:**

1. **Concrete Encasement:** If concrete encasement is indicated on the Drawings or required by the Engineer, the trench shall be excavated to a depth of six (6) inches below the outside of the barrel of pipes 24-inches in diameter or less and nine (9) inches below the outside of the barrel of pipes larger than 24-inches in diameter. All of this excavation may be done by machine. Quality of concrete and method of placement is specified in Section 03300 - Cast-In-Place Concrete.

2. Unstable Subgrade: Where the bottom of the trench at subgrade is found to be unstable or to include material, which, in the opinion of the Engineer, should be removed, the Contractor shall excavate and remove such unsuitable material to the width and depth recommended by the Engineer.
 - a. Before pipe is laid, the subgrade shall be made by backfilling with aggregate material, as directed by the Engineer, in 3-inch (uncompacted thickness) layers thoroughly tamped and the bedding prepared as hereinbefore specified.
 - b. Aggregate Backfill when used at the direction of the Engineer to stabilize trench subgrade will be paid for in accordance with the applicable unit price bid under Miscellaneous Aggregate Backfill, exclusive of the pipe bedding.
 - c. Additional excavation required to remove unstable material will be paid for in accordance with the applicable unit price bid under Miscellaneous Unclassified Excavation.
 3. Special Foundations: Where the bottom of the trench at the subgrade is found to consist of material which is unstable to such a degree that, in the opinion of the Engineer, it cannot be removed and replaced with an approved material thoroughly compacted in place to support the pipe properly, the Contractor shall construct a foundation for the pipe, consisting of such materials and in accordance with plans prepared by the Engineer. Compensation for such additional work shall be in accordance with the General Conditions of the Contract.
- C. Backfilling Methods:
1. General: Backfilling shall not be done in freezing weather except by permission of the Engineer, and it shall not be done with frozen material. Do not backfill when the material already in the trench is frozen.
 - a. Where aggregate backfill is not indicated on the Drawings or specified herein, and in the opinion of the Engineer should be used in any part of the work, the Contractor shall furnish and backfill with aggregate as directed.
 - b. Payment will be made in accordance with the unit price bid under Miscellaneous Aggregate Backfill.
 - c. No extra compensation will be made for aggregate backfill required for the pipe bedding, or due to excavation made beyond the limits specified, or where used as special bedding at the discretion of the Contractor.
- D. Pipe Bedding Beneath and to Centerline of Pipe: All trenches shall be backfilled by hand, from the bottom of the trench to the centerline of the pipe with bedding material placed in layers of 3 inches (uncompacted thickness) and compacted by tamping. Bedding material shall be deposited in the trench for its full width on each side of the pipe and fittings simultaneously.
- E. Initial Backfill over Pipe: From the centerline of the pipe and fittings to a depth of one (1) foot above the top of the pipe, the trench shall be backfilled by hand or by approved mechanical methods. The Contractor shall use special care in placing this portion of the backfill so as to avoid injuring or moving the pipe. The backfill shall be placed in 4-inch layers (uncompacted thickness) and compacted by tamping.

- D. Aggregate Backfill to Restoration Depth (Paved Areas): From one (1) foot above the top of the pipe to restoration depth, the trench shall be backfilled by hand or by approved mechanical methods. Backfill in this section of the trench shall be coarse aggregate material subject to limitations specified and consolidated by tamping in four (4) inch layers or other approved mechanical methods unless otherwise specified. Any consolidation method utilizing water such as jetting or puddling shall not be permitted. Consolidation shall proceed from the center of the trench to the sides to prevent arching.
- E. Excavated Backfill Material to Restoration Depth (Lawn Areas): From one (1) foot above the top of the pipe to restoration depth, the trench shall be backfilled by hand or by approved mechanical methods. Backfill in this section of the trench shall be suitable excavated material subject to limitations specified, and consolidated by tamping in eight (8) inch layers or other approved mechanical methods unless otherwise specified. Any consolidation method utilizing water, such as jetting or puddling shall not be permitted. Consolidation shall proceed from the center of the trench to the sides to prevent arching. No extra payment for excavated material backfill will be given the Contractor.
- F. Underground Warning Tape: For the purposes of early warning and identification of buried pipes during future trenching or other excavation, provide continuous identification tapes in trenches. Install in accordance with printed recommendations of the tape manufacturer, and as modified herein. Bury tape at a depth of 12 inches below grade; in pavements measure 12 inches from subgrade of pavement.
- G. Compacting: During the course of backfilling and compacting work, the Engineer may, at any location or depth of trench, make tests to determine whether compaction operations meet specified requirements. Compact trench backfill as follows:
 1. All trench excavation, backfill and compaction within State Highway right-of-way shall be performed in accordance with PENNDOT (the Department) requirements and will be subject to inspection by representatives of the Department. Contractor shall not be entitled to extra compensation for work performed as required by the Department.
 2. Lawn Areas: Use mechanical tampers to compact backfill materials in trench to produce a density of backfill, at the bottom of each layer, of not less than 90 percent of maximum density obtained at optimum moisture content as determined by AASHTO T99.
 3. Paved Areas: Place material in lifts not exceeding 8 inches in loose thickness and compact to a 95% maximum dry density based on ASTM D1557, modified proctor.
 4. Perform field compaction density, when required by the Engineer or Permit, by Nuclear Density Testing, in accordance with ASTM D6938.

3.03 RESTORATION AND CLEAN-UP OF SURFACE

- A. Pavement Replacement: As specified in Section 02500 - Paving and Surfacing.

B. Clean-Up and Maintenance of Surfaces:

1. General: During construction, the surfaces of all areas including, but not limited to, roads, streets, and driveways shall be maintained on a daily basis to produce a safe, desirable, and convenient condition. Streets shall be swept and flushed after backfilling, and re-cleaned as dust, mud, stones and debris caused by the work, or related to the work again accumulates. Failure of the Contractor to perform this work shall be cause for the Owner to order the work by others, and backcharge all costs to the Contractor.
 - a. All surplus material and temporary structure furnished by each Contractor shall be removed from the work site by each Contractor.
 - b. All dirt, rubbish and excess earth from the excavation shall be disposed of by the Contractor in a manner and place acceptable to all governing agencies.
 - c. The construction site shall be left clean at the end of each working day to the satisfaction of the Engineer.
2. Repair or Correction of Unsatisfactory Conditions: All unsatisfactory conditions resulting from the work shall be corrected.
 - a. Any subnormal or dangerous condition caused by the work, on any surface, shall be repaired or corrected within two hours of observance or notification of its existence. If repairs or corrections are not made within this period, the Owner shall cause to have the work completed with the resulting cost subtracted from the Contractor's next monthly payment request. Any such costs shall be deemed a reduction in the total amount due the Contractor under the Contract and no subsequent reimbursement shall be made to the Contractor by the Owner for these costs.
 - b. There will be no additional payment made for maintenance work.

C. Restoration of Seeded Areas:

1. General: All disturbed areas, whether inside or outside the pay-lines shall receive a minimum of 6-inches of topsoil, and the surface hand raked, stones removed and natural drainage features provided and/or restored prior to the application of seed. The Contractor shall restore all disturbed areas to a condition equal to or better than prior to construction.
 - a. Final restoration shall be performed no later than the start of the next planting season following construction. The planting season shall be as established by the U.S. Agricultural Service for the area of construction.
 - b. Topsoil shall be free from subsoil, brush, weeds, or other litter, clay lumps and stones, but may contain decaying vegetable matter as is present in good topsoil.
 - c. Precautions shall be exercised to conform with laws relating to erosion and sediment control.
 - d. Seed shall be not more than two (2) years old. Germination tests of seeds shall be made not more than six (6) months prior to seeding. Seed, which has become wet, moldy or otherwise damaged, shall not be used.
 - e. Submit all seed mixtures to the Engineer for approval prior to seeding.

- f. Contractor shall be responsible to produce a stand of grass in all seeded areas. Erosion, drought, or any other condition encountered shall not relieve the Contractor of this requirement.
2. The seed shall be sown with approved seeding procedure at the rate as shown on the Drawings. An approved starter fertilizer shall be utilized and applied per manufacturer's recommendations.
3. Seeding and soil supplement application may be performed by the hydroseeding method. Engineer shall approve rates of application, methods and equipment prior to commencing with work.
4. Erosion Control/Seed Germination mat shall be applied in accordance with manufacturer's instructions either before or after hydroseeding operations.

END OF SECTION

SECTION 02500

PAVING AND SURFACING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary Paving.
- B. Permanent Paving.
- C. Pavement Markings.

1.02 RELATED SECTIONS

- A. Trenching, Backfilling and Compaction: Section 02221.
- B. Division 3 - Concrete.

1.03 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Use materials conforming to requirements of the Commonwealth of Pennsylvania Department of Transportation Specifications Publication 408, latest edition.
 - 2. Use products of a bituminous concrete producer regularly engaged in production of bituminous concrete conforming to the standards referenced herein.
 - 3. Maintain quality of work by using products of a qualified bituminous concrete producer and qualified plant operating workmen.
- B. Requirements of Regulatory Agencies:
 - 1. Removal, protection and replacement of paving on State Highways shall be performed in accordance with the requirements of the Commonwealth of Pennsylvania, Pennsylvania Code, Title 67, Transportation, Department of Transportation, Chapter 459, Occupancy of Highways By Utilities.
 - 2. Removal, protection, and replacement of paving on State Highways will be subject to inspection by representatives of the Commonwealth of Pennsylvania Department of Transportation.
 - 3. Inspection, insurance, or other charges demanded after award of the Contract by the Commonwealth of Pennsylvania Department of Transportation, or other authority having jurisdiction will be paid by the Owner whether billed to the Owner or Contractor.
 - 4. All products installed within Penn DOT (PDT) right-of-way shall be certified in accordance with PDT Publication 35 (Bulletin 15).
 - 5. Pavement removal and replacement requirements on State Highways specified in this Section are the requirements of the Highway Occupancy Permit obtained by

the Owner and supersede similar requirements of Title 67, Chapter 459, regulations. However, the requirements of the Highway Occupancy Permit are subject to change by the Pennsylvania Department of Transportation.

6. Removal, protection and replacement of paving on roadways other than State Highways shall be performed in accordance with the requirements of the authority having jurisdiction over the roadway.

1.04 REFERENCES

- A. The "PDT Sections" noted herein refer to sections contained in the Commonwealth of Pennsylvania Department of Transportation Specifications Publication 408, latest edition, as supplemented. The references pertain only to materials, construction, equipment, methods and labor. The payment provisions do not apply to work to be performed under this Contract.
- B. Commonwealth of Pennsylvania Department of Transportation Bulletin 25: Specifications for Bituminous Materials.
- C. Commonwealth of Pennsylvania Department of Transportation Bulletin 27: Bituminous Concrete Mixtures, Design Procedures, and Specifications for Special Bituminous Mixtures.

1.05 SUBMITTALS

- A. Certificates: Furnish certification from bituminous and aggregate producer attesting that materials conform to requirements of Pennsylvania Department of Transportation Specifications.

1.06 PROJECT CONDITIONS

- A. State Highways:
 1. All work within the right-of-way of State Highways shall be performed in strict accordance with the requirements of PA DOT, Title 67, Chapter 459.
 2. Employ traffic control measures in accordance with the requirements of PA DOT, Title 67, Chapter 212.
- B. Time Requirements:
 1. State Highways: The permanent replacement of street roadway and shoulder pavement will not be permitted until at least 90 days after the required temporary pavement has been placed. However, permanent replacement pavement must be placed within 210 days after the required temporary pavement has been placed.
 2. Streets other than State Highways: As specified for State Highways.
 3. Streets other than State Highways: The permanent replacement of street roadway and shoulder pavement will be placed as soon as the trenches have been acceptably backfilled; however, in the event the permanent pavement cannot be placed due to weather limitations, provide a temporary pavement. No separate or

additional payment will be allowed the Contractor for furnishing, placing, maintaining, and removing this temporary pavement.

- C. Protection: The Contractor shall be liable for damages to State or local roads caused by equipment. The repairs may include lane or full roadway width overlays as directed by the agency having jurisdiction over the roadway. No additional payment will be made for repairs to State or local roads damaged by Contractor's equipment.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregate Materials: As indicated on the Drawings.
- B. Bituminous Materials: As indicated on the Drawings.
- C. Traffic Paint - State Highways: Conforming to PDT Section 962.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Pavement Removal:
 - 1. Saw cut and remove existing pavement to neat lines equidistant from the centerline of the trench.
 - 2. Initial pavement removal will be to width indicated in the "Maximum Payline Widths" shown on the Drawings.
 - 3. Prior to pavement restoration, saw cut and remove pavement one foot from each edge of trench unless otherwise indicated on the Drawings. If pavement is removed or disturbed for a greater width than indicated on the "Maximum Payline Widths" shown on the Drawings, without written authorization of the Engineer, the Owner will require the Contractor to replace such pavement without compensation.
- B. Subgrade: Backfill and compact trenches per requirements of Section 02221.

3.02 INSTALLATION

- A. Temporary Pavement:
 - 1. Install temporary hot-mix bituminous pavement over areas where the pavement has been removed. Install temporary pavement to thickness of 2" after compaction, or as indicated on the Drawings, with top surface flush with surface of adjacent pavement, and maintain until permanent restoration is made.
- B. Replacement of Permanent Pavement:

1. General:
 - a. The Contractor shall restore all street paving, shoulders, driveways, and parking areas, including subgrade, and base courses with materials, as shown on the Drawings. This includes areas within the paylines as well as areas disturbed outside the paylines. Such restoration is for that area removed or broken in the execution of the work or that subsequently fails as a result thereof.
 - 1) Restoration to areas outside of payline width shall be at Contractor's expense.
 - b. Method of preparing and placing mixture, compaction, and protection of in-place bituminous concrete for pavement shall comply with the appropriate PDT Sections.
 2. Contractor shall remove temporary pavement and shall perform additional excavation to the limits indicated on the Drawings prior to installation of base and wearing courses.
 3. Location of types and thicknesses of replacement pavements are as indicated on the Drawings.
- C. At joints between existing pavements and new paving work, the edges of existing pavements shall be cut and neatly trimmed. An application of petroleum asphalt shall be provided at all locations where new bituminous paving joins existing bituminous paving.
- D. Dust Control: Provide effective dust control by sprinkling water, by the use of calcium chloride or by any other methods approved by the Engineer. Use dust control measures where, when and in a manner required by the Engineer.
- E. Roadway Traffic Lines and Markings: Apply in accordance with PDT Section 962

3.03 CLEAN-UP AND MAINTENANCE

- A. During construction, surfaces of all areas including, but not limited to roadways and driveways shall be maintained on a daily basis to produce a safe, desirable, and convenient condition.
 1. Roadways shall be swept and flushed after backfilling, and re-cleaned as dust, mud, stones and debris caused by the work, or related to the work again accumulates.
 2. Failure of the Contractor to perform this work shall be cause for the Owner to order the work to be done by others, and backcharge all costs to the Contractor.
- B. Repair or Correction of Unsatisfactory Conditions: All unsatisfactory conditions resulting from the work shall be corrected.
- C. Continuously maintain temporary pavement without additional compensation until it is replaced with permanent pavement.

- D. Any subnormal or dangerous condition caused by the work, on any surface, shall be repaired or corrected within two hours of observance or notification of its existence. If repairs or corrections are not made within this period, the Owner shall cause to have the work completed with the resulting cost subtracted from the Contractor's next monthly payment request. Any such costs shall be deemed a reduction in the total amount due the Contractor under the contract and no subsequent reimbursement will be made to the Contractor by the Owner for these costs.

END OF SECTION

SECTION 02950

WATER MAIN

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Water Main Pipelines.
- B. Valves, Valve Boxes and Hydrants.
- C. Water Service Lines.
- D. Pipeline Testing.
- E. Disinfection.

1.02 RELATED SECTIONS

- A. Submittals: Section 01300.
- B. Trenching, Backfilling and Compacting: Section 02221.
- C. Cast-in-Place Concrete: Section 03300.

1.03 SUBMITTALS

- A. Shop Drawings and Product Data: Submit in compliance with Section 01300. Furnish completely dimensioned shop drawings, cuts or other data as required to provide a complete description of pipe and piping specialties, including temporary piping system.
- B. Certificates: Certified records or reports of results of shop tests, such records or reports to contain a sworn statement that shop tests have been made as specified.

1.04 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Shop Tests and Inspection: All materials furnished by the Contractor shall be certified by the supplier for compliance with the pertinent specifications. Shop inspections and testing may be required. The cost of shop testing shall be borne by the supplier or the Contractor.
- B. All pipe and appurtenances shall be furnished, installed, and tested for defects in material and/or workmanship in the manner specified and in the presence of and as approved by the Engineer.

- C. Disposition of Defective Material: All material found during the progress of the work, either before or after installation, to have cracks, flaws, or other defects will be rejected. All defective materials furnished by the Contractor shall be promptly removed by him from the site at his own expense.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Replacement of Damaged Material: The Contractor shall replace, at his own expense, all material furnished by him and found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all materials and labor required for replacement of installed material.
- B. Responsibility for Safe Storage: 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. All equipment and materials subject to damage from freezing shall be drained and stored in a manner which will protect them.
- C. Hauling: All materials furnished by the Contractor shall be delivered and distributed at the site by the Contractor.
 - 1. Pipe, fittings, items of equipment, and other materials of construction shall be loaded and unloaded by lifting with hoists or skids so as to avoid shock or damage. Under no circumstances shall such materials be dropped.
- D. At Site of Work: In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench, or as otherwise directed by the Owner. Under no circumstances should lawns, grass plots or other private property be used for this purpose without the consent of the property owner.
- E. Care of Pipe Lining: Pipe shall be handled so the lining will not be damaged. If, however, any part of the lining is damaged, the repair shall be made by the Contractor at his expense in a manner satisfactory to the Owner.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Chemicals or materials which may come in contact with or affect the quality of water and are used in the construction, treatment processes, containment or conveyance of public water supply systems shall be certified for conformance with ANSI/NSF Standards 60 & 61.
- B. Submit certificate of conformance with ANSI/NSF Standard 60 & 61 with product data submittals in accordance with Section 01300.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: All materials shall be new, manufactured within (2) years prior to date of installation:
 - 1. Refer to EXHIBIT A, attached to and made part of the Bidding/Contract Documents, for additional information.
 - 2. The information contained in this Specification Section supersedes that of EXHIBIT A.

- .B. Ductile Iron Pipe, Cement Lined: ANSI/AWWA C151/A21.51 and ANSI/AWWA C 150/A21.50.
 - 1. Wall Thickness: Minimum of Class 52. The minimum wall thickness shall be based on internal pressure, earth, and live loads, with the addition of corrosion and casting tolerances and shall be determined in accordance with ANSI Standard A21.50, American Standard for the Thickness Design of Ductile-Iron Pipe.
 - 2. Cement Mortar Lining: Conforming to ANSI/AWWA C104/A21.4, double thickness

- C. Fittings shall be ductile iron AWWA/ANSI C110/A21.10 or ductile iron compact fittings AWWA/ANSI C153/A21.53. All fittings shall have a minimum pressure rating of 250 psi and shall have cement lining and joints as required for pipe restraint.
 - 1. All tees, plugs, plugged crosses, and bends deflecting 11.25 degrees or more on mains 6" in diameter or larger shall be provided with restrained joints to prevent movement.

- D. Joints shall be push-on type or mechanical joint type in accordance with ANSI/AWWA C 111/A21.11 for all pipes except as approved by the Authority.
 - 1. All joints between full sections of pipe shall be restrained push-on type in accordance with ANSI/AWWA C110/A21.11. Mechanical restrained joints shall be used for joints that include less than a full section of pipe to be fitted into the bell end of a new section of pipe, a change in alignment, appurtenances, or any other condition that requires pipe restraint.
 - a. Restrained joints for pipe anchorage shall be TR Flex, as manufactured by U.S. Pipe; Super-Lock or Field Lok as manufactured by Clow; Lok-Fast, as manufactured by American Pipe; Locked Mechanical Joint, as manufactured by Atlantic States; Snap-Lok as manufactured by Griffin or equal.
 - b. Mechanical restrained joints shall include restrained push-on type pipe with a follower gland equipped with twist-off nuts to ensure proper restraint against the pipe. When the twist-off nuts are sheared off, standard hex-heads shall remain. The follower gland shall employ a restraining system which, when activated, employs a multiple wedging action against the pipe. Follower glands shall possess a minimum working pressure of 250 psi. Follower glands shall be as manufactured by EBBA Iron, Inc: Mega-lug, or equal.

- E. Gate Valves:
 - 1. Provide valves of non-rising stem type when installed underground.

2. Valve stuffing box of such design that valve can be packed under pressure when in fully open position.
 3. Valves 6 inches through 12 inches in diameter:
 - a. Iron body, bronze mounted with resilient-seated wedge conforming to AWWA C509.
 - b. Resilient seat of Styrene Butadiene (SBR) or Urethane Rubber bonded to cast iron wedge.
 - c. Stem seals of "O"-ring type.
 - d. Valves equipped with 2-inch square operating nut mechanical joint ends and open counter-clockwise.
 - e. Exterior to be asphalt varnish or epoxy coated; interior ferrous metal parts shall be epoxy coated, AWWA C550.
 4. Acceptable Manufacturers:
 - a. American Flow control.
 - b. Or Equal.
- F. Valve Boxes (for valves 2' and larger): Provide Buffalo Style adjustable roadway type constructed of cast iron with a shaft provided with screw type or sliding type extension pieces and either round base.
1. Valve boxes shall have a 5 1/4" inch shaft. Box shall have a plug lid fitting into a recessed seat. The lid shall have the word "WATER" cast on the top surface. All parts of the box shall be of gray iron, free from cold shuts and blow holes and shall be painted with black bituminous paint.
 2. Valve boxes shall be set at or above the surface of the adjoining ground or roadway and shall be provided for all buried valves. Valve box shall have an adjustable range up to 6 inches above grade.
 3. Boxes shall be Bingham and Taylor
 - a. Top Section: #54, #55, #56, #54-S, #55-S, or #56-S
 - b. Base Section: #61, #62, #64, #61-S, #62-S, or #64-S
 - c. Or Equal.
- G. Tapping Sleeve and Valve: As specified in EXHIBIT A.
- H. Fire Hydrant: As specified in EXHIBIT A
1. SUBSTITUTIONS are not permitted.
- I. Hydrant Tees: Shall be used to connect hydrant lateral to water main.
1. Acceptable Manufacturers:
 - a. Union Foundry Company.
 - b. Griffin.
 - c. Or Equal.

2.02 WATER SERVICE LINES

- A. Water Service Lines: High Density Polyethylene Tubing as specified in EXHIBIT A.
- B. Curb Stop: Brass, compression style, corporation.
 1. Acceptable Manufacturers:
 - a. Ford Meter Box Co.: Z44-333-G or larger.
 - c. Or Equal.

- C. Curb Box: Cast iron Buffalo style extension type as manufactured by Mueller Co., Erie Style with Drive Shaft Spanner Lid as manufactured by Ford Meter Co, or approved equal.
- D. Couplings: Refer to EXHIBIT A.

2.03 TRACER WIRE AND ACCESS BOXES

- A. Wire: Direct burial #14 AWG, copper-clad steel, 282 lbs. average tensile break load.
- B. Jacket: 30 mil high-density polyethylene
- C. Color: BLUE
- D. Connectors: System manufacturer's connectors, 3M DBR splice kit, or approved equal.
- E. Tracer Box: Roadway, magnetized box with cast iron cover, product shall be Snake Pit RB 14TP.
- F. In areas of open trenching, warning tape shall be placed approximately 12 inches above the water piping in addition to the Tracer Wires.
- G. Warning Tape: Acid and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored "BLUE" for Water systems.
- H. Acceptable Manufacturer:
 - a. Copperhead Industries, LLC.
 - b. Or Equal

PART 3 - EXECUTION

3.01 PREPARATION

- A. Earthwork: Perform earthwork for water mains as specified in Section 02221.
- B. Protect existing utilities from damage due to operations associated with work of this Section. Repair utilities and other property damaged as a result of doing work of this Section.

3.02 PIPE INSTALLATION

- A. General: Where existing water main is required to be removed or broken into for the making of new water main connections, the work shall be performed in such a manner as to prevent damage to the remaining work. Wherever existing work is damaged in making such connections, or removals the Contractor shall be responsible for the

replacement of the damaged section. Existing piping, once removed, shall not be permitted to be reused unless specifically directed in writing by the Engineer. Where parts of existing systems are altered, the remaining system shall be properly reconnected as required for proper operation.

- B. All pipe shall be laid and maintained to the required lines and grades with fittings and valves at the required locations, spigots centered in bells, and all valves plumb.
 - 1. The pipe shall be laid in the backfill materials as specified in Section 02221.
 - 2. Construction of the pipelines shall begin with connections to existing, active water lines and shall proceed with adjoining main line sections.
 - 3. If services are connected to the main prior to testing, testing shall be done against the curb or corporation stops.

- C. Construction Control: During installation the pipe shall be laid at a constantly increasing grade to each high point, or point of discharge. The Contractor shall provide sufficient construction control to ensure that there are no sags or loss in grade in the water main, which could tend to accumulate air. Failure to comply with this requirement shall necessitate the Contractor to take remedial steps to correct this situation. All such costs shall be borne by the Contractor.

- D. Caution in Excavation: The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures, both known and unknown, may be determined, and shall be held responsible for the repair of such structures when broken or otherwise damaged because of carelessness on his part.

- E. Subsurface Explorations: Whenever, in the opinion of the Owner, it is necessary to explore and excavate to determine the location of existing underground structures, the Contractor shall make explorations and excavations for such purposes. If the Contractor is required to perform additional work in making the explorations and excavations, extra compensation will be allowed for such additional work at the applicable unit price bid under each Contract for Miscellaneous Unclassified Excavation.

- F. Depth of Pipe: All pipe shall be laid to a minimum depth of 4 feet from grade to the crown of pipe, unless otherwise approved by the Owner.

- G. Separation of Water Mains, Sanitary Sewers and Storm Sewers:
 - 1. Parallel Installation: Water mains shall be laid at least 10 feet horizontally from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10-foot separation, deviations may be allowed, if approved in writing by the Owner. Such deviation may allow installation of the water main closer to a sewer, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer.
 - 2. Crossings: Whenever water mains must cross building drains, storm drains, or sanitary sewers, the water main shall be laid at such an elevation that the bottom of the water main is 18 inches above the top of the drain or sewer. This vertical separation shall be maintained for the portion of the water main located within 10

feet horizontally of any sewer or drain it crosses. The 10 feet is to be measured as a perpendicular distance from the drain or sewer line to the water line.

- a. Where water mains must cross under a sewer, additional protection shall be provided by:
 - 1) A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water line.
 - 2) Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the water line.
 - 3) That the length of the water line be centered at the point of the crossing so that the joints shall be equidistant and as far as possible from the sewer.
- b. If any of the above conditions cannot be met, concrete encasement of the sewer and/or water lines may be utilized and installed. Concrete encasement shall extend ten feet in each direction from the crossing, measured perpendicular to the sewer or storm drain. Requirements for concrete are as specified in Section 03300.
- c. The Contractor is responsible for providing all fittings, anchorage, excavation and backfill, as required to cross any and all sanitary sewer lines and appurtenances and storm drain lines within the above requirements.

- H. Handling of Pipeline Materials into Trench: Proper implements, tools and facilities satisfactory to the Owner shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, fittings, valves, etc., 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 pipeline materials, protective coatings and linings. Under no circumstances shall such materials be dropped or dumped into the trench.
- I. Hammer Test: The pipe and fittings shall be inspected for defects and, while suspended above grade, be rung with a light hammer to detect cracks.
- J. Cleaning Pipe and Fittings: All lumps, blisters, and excess coal tar coating shall be removed from the bell and spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire-brushed and wiped clean and dry and free from oil and grease before the pipe is laid.
- K. Laying Pipe: Every precaution shall be taken to prevent foreign material from entering the pipe while the pipe is being placed in the trench. If the pipe cannot be placed into the trench and in place without allowing earth into it, the Contractor shall place a suitable size and type of cover over each end before lowering the pipe into the trench. Cover shall remain in place until the connection is to be made into the adjacent pipe. During laying operations, no debris, tools, clothing, or other material shall be placed in the pipe.
 1. After placing a length of pipe in the trench, the spigot end shall be centered in the bell or coupling 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 joints. Pipe and fittings which do not allow a sufficient and uniform space for joints shall be removed and replaced with pipe and fittings of proper dimensions to insure such uniform space.

2. Precautions shall be taken to prevent dirt from entering the joint space.
 3. 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 Owner. This provision shall apply during the noon hour as well as overnight. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.
- L. Cutting Pipe: 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, so as to leave a smooth end at right angles to the axis of the pipe.
- M. Bell Ends to Face Direction of Laying: Bell and spigot pipe shall be laid with bell ends facing in the direction of laying, unless directed otherwise by the Owner.
- N. Permissible Deflection of Joints: If deflection is required, make after joint is assembled. The amount of deflection shall not exceed the maximum limits as specified in the AWWA Standard C600. Restrained joints must be capable of being deflected up to the maximum limits as specified in the AWWA Standard C600, for push-on type joints. To meet previously mentioned standards, shorter lengths of pipe shall be provided at no additional cost.
- O. Unsuitable Conditions for Laying Pipe: No pipe shall be laid in water or when, in the opinion of the Engineer, trench conditions are unsuitable.

3.03 PIPE JOINTING

- A. Jointing Ductile Iron Pipe:
1. Mechanical Joints: The spigot end of the pipe shall be centrally located in the bell so that the rubber gasket is evenly seated.
 - a. All loose rust or foreign matter shall be removed from the inside surfaces of the bell and outside surface of the spigot prior to assembly. Bolts shall be tightened uniformly with a ratchet wrench so as to effect the joint seal. The normal range of bolt torques to be applied are:

Bolt Size (Inches)	Torque-Ft. Lbs.
5/8	45 - 60
3/4	75 - 90
1	100 - 120
1¼	120 - 150
 - b. If effective sealing is not attained at the maximum torque indicated above, the joint shall be disassembled and reassembled after thorough cleaning.

3.04 SETTING FITTINGS AND VALVES

- A. General: Valves and fittings shall be set and jointed to pipe in the manner specified for cleaning, laying, and jointing pipe.
- B. Valve Boxes: A cast iron valve box shall be provided for every valve as shown on the plans. The valve box shall not transmit shock or stress to the valve and shall be

centered and plumb over the wrench nut of the valve, with the box cover flush with the surface of the finished pavement or such other level as may be directed.

3.05 SETTING HYDRANTS

- A. Location: Hydrants shall be located as shown on the Drawings or as directed by the Engineer.
- B. Position: All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the curb, with the pumper nozzle facing the curb. Hydrants shall be set to the established grade, with the nozzles at least 12-inches above the ground, and the frangible ring of the hydrant shall be 2-inches above the ground. **Remove drain hole plug prior to placing backfill.**
- C. Hydrant Drainage in Pervious Soil: Wherever a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing crushed stone as shown on the drawings, assuring that the hydrant drain hole is clear.
- D. Hydrant Drainage in Impervious Soil: Wherever a hydrant is set in clay or other impervious soil, a drainage pit 2-feet in diameter and 3-feet deep shall be excavated below each hydrant and filled completely with crushed stone, under and around the elbow of the hydrant and to a level of 6-inches above the waste opening, assuring that the hydrant drain hole is clear.

3.06 ANCHORAGE

- A. Anchorage for Bends: All tees, plugged crosses, and bends deflecting 11.25 degrees or more on mains 6" in diameter or larger shall be provided with restrained joints to prevent movement on all joints of all fittings. Suitable metal rods shall be used only as shown on the plans or directed by the Owner. All dead-end valves shall be secured to main line with a restrained joint. "Duc-A-Lugs" shall not be used.
- B. Thrust Blocking: Blocking shall be placed between solid ground and the fitting to be anchored; the area of bearing on the pipe and on the ground in each instance shall be as shown on the plans or directed by the Engineer. The blocking shall, unless otherwise shown or directed, be so placed that the pipe and fitting joints will be accessible for repair.
- C. Metal Harness: Metal harness of tie rods of adequate strength to prevent movement shall be used where shown on the Drawings. Steel rods or clamps shall be type 304 Stainless Steel.

3.07 CONCRETE ENCASEMENT

- A. Preparation: Prior to the formation of the encasement, temporary supports consisting of solid concrete bricks or cap blocks shall be used to support the pipe in place. Temporary supports shall have minimum dimensions and shall support the pipe at not

more than two locations, one at the bottom of the barrel of the pipe adjacent to the shoulder of the socket, and the other near the spigot end.

- B. Placing: After jointing of the pipe has been completed, concrete shall be uniformly poured beneath and on both sides of the pipe.
 - 1. Placement shall be done by the use of suitable equipment.
 - 2. The concrete shall be wet enough during placement to permit its flow, without excessive prodding, to all required points around the pipe surface.
 - 3. The width of encasement shall be such as to fill completely the trench width. In case of extremely wide trenches, concrete encasement may be confined above the top of the pipe to a narrower width, but in no case shall it be less than the width of trench required for the size of pipe being used.
 - 4. Before depositing concrete, the space within the limits of the pour shall have been cleared of all debris and water.
 - 5. Water shall not be allowed to rise adjacent to, or flow over, concrete deposited for less than 24 hours.
 - 6. Concrete shall be protected from the direct rays of the sun and kept moist by a method acceptable to the Owner for a period of seven (7) days or until backfilling is begun.
 - 7. In no case shall backfilling begin within 36 hours of the time of placing. The Owner shall have strict control of the rate of backfilling.

3.08 WATER SERVICE LINE INSTALLATION

- A. All new services shall be installed by open cut.
- B. Use proper seals or other devices to ensure that no leaks are left in the water mains at the points of tapping. Do not backfill and cover the service connection until approved by the Engineer.
- C. All water service lines or portions thereof shall be bedded and backfilled with sand unless otherwise indicated in EXHIBIT A.
- D. Lay the service line in a manner to avoid offsets, kinks or awkward bends to ensure a smooth flow line.
- E. When the work is not in progress and at the end of each workday, securely plug the ends of pipe and fittings to prevent any dirt or foreign substances from entering the lines.
- F. The Contractor shall install all services at the locations shown on the Drawings, unless otherwise directed by the Engineer.

3.10 FIELD QUALITY CONTROL

- A. **General: Disinfection and successful bacteriological testing of new water mains shall be performed prior to performance of hydrostatic testing.**

- B. Disinfection: Disinfect the water pipelines in accordance with the recommended practice established in AWWA Standard C651. Conduct water line disinfection in the following order:
1. Preliminary flushing: Prior to disinfection, except when the tablet method is used, fill the line to eliminate air pockets and flush the line at a rate of flow of 2.5 feet per second to remove particulates. Refer to AWWA C651 for rate of flow to produce 2.5 fps in pipe of various sizes. The Engineer shall be notified at least 24 hours in advance of any flushing operation. The Engineer shall be present during the operating of valves required to fill mains. Flushing shall be monitored by the Engineer. Dispose of flushing water.
 2. Chlorine application: The chlorine form to be applied to the system shall be chlorine gas solution, calcium hypochlorite or sodium hypochlorite. The Engineer's written approval of the chlorine form to be used is required.
 - a. Continuous Feed Method: Continuous feed method consists of placing calcium hypochlorite granules in the main during construction. Completely fill the main to remove air pockets, flush to remove particulates, and fill the main with potable water chlorinated so that after a 24-hour holding period in the main there will be a free chlorine residual of not less than 10 mg/L.
 - 1) At a point not more than 10 feet downstream from the beginning of the new main, feed water and chlorine to the line at a constant rate such that the water will have not less than 25 mg/L free chlorine. Chlorine application shall not cease until the entire line is filled with heavily chlorinated water.
 - 2) During chlorine application, take precautionary measures to prevent the concentrated treatment solution from flowing back into the existing distribution system and/or supply source.
 - b. Tablet Method: The tablet method consists of placing calcium hypochlorite granules and tablets in the water main as it is being installed and then filling the main with potable water when installation is completed.
 - 1) NOTE: Since the preliminary flushing step must be eliminated, this method may be used only when scrupulous cleanliness has been exercised and only with approval of the Owner. It shall not be used if trench water or foreign material has entered the main, or if the water temperature is below 41°F.
 - 2) During construction, place calcium hypochlorite granules at the upstream end of the first section of pipe, at the upstream end of each branch main, and at 500 ft. intervals. Refer to AWWA C651 for quantity of granule to be used. WARNING: This procedure must not be used on solvent welded plastic pipe or in screwed joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite.
 - 3) During construction, place sufficient number of 5g calcium hypochlorite tablets in each section of pipe, in hydrants, hydrant branches, and other appurtenances to obtain a minimum of 25 mg/L available chlorine. Attach tablets to the crown of pipe sections with adhesive (Permatex No. 1). Apply adhesive only to the broad side of the tablet next to the pipe surface. Refer to AWWA C651 for the proper number of 5g calcium hypochlorite tablets required.

- 4) When pipeline installation is completed, fill the main with water at a maximum velocity of one foot per second. This water shall remain in the pipe for at least 24-hours. Manipulate valves so that the chlorine solution does not flow back into the line supplying the water.
 - 5) During the 24-hour treatment, operate all valves, curb stops, and hydrants in the section treated.
 - 6) At the completion of the 24-hour treatment, the treated water in all portions of the main shall have a residual of not less than 10 mg/L free chlorine.
 - 7) Repeat the disinfection process until the minimum available chlorine is present at the end of the treatment sequence. The tablet method cannot be used in these subsequent disinfections. No additional compensation will be provided the Contractor for repeat treatment or testing.
3. Final flushing: Within 24-hours after chlorination, flush the heavily chlorinated water from the system under treatment until the chlorine concentration in the water leaving the system is no higher than that generally prevailing in the system or is acceptable for domestic use.
- a. Disposing of Heavily Chlorinated Water: It shall be the Contractor's responsibility to dispose of the chlorinated water in a manner acceptable to the Pennsylvania Department of Environmental Resources. If it is determined that the chlorinated discharge will cause damage to the environment or to sanitary treatment facilities then a neutralizing agent using one of the chemicals listed below shall be applied as per Table A below to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water.

TABLE A
Pounds of Chemicals Required to
Neutralize Various Residual
Chlorine Concentrations in 100,000 gal. of Water

Residual Chlorine Concentration mg/L	Sulfur Dioxide SO ₂	Sodium Bisulfite NaHSO ₃	Sodium Sulfite	Sodium Thiosulfate Na ₂ S ₂ O ₃ ·5H ₂ O
1	0.8	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
10	8.3	12.5	14.6	12.0
50	41.7	62.6	73.0	60.0

4. Bacteriological Testing:
 - a. After final flushing is completed and before the water main is placed in service, test the line for bacteriological quality.
 - b. Collect two consecutive samples, taken within at least a 24 hours span. At least one set of samples shall be collected for every 1,200 ft of new main, plus one set from each branch. Additionally, take.
 - c. Collect samples in sterile bottles treated with sodium thiosulfate.

- d. Sampling tap shall consist of corporation stop installed in the main with copper tube gooseneck assembly. No hose or fire hydrant shall be used to collect samples.
 - e. Provide bacteriological test reports to the Owner and the Engineer within 48 hours of sampling. **Owner and Engineer will verify test results with responsible laboratory prior to authorizing use of the water main.**
 - f. Water mains shall be approved to be placed into service only after satisfactory bacteriological test report for a section has been submitted to the Engineer.
 - g. The Engineer reserves the right to test the water at any time prior to final acceptance of the work and if found unsafe bacteriologically, to require the Contractor to re-chlorinate and re-test the system
- C. Hydrostatic Testing: Refer to Section 01010, Article 1.06 for water supply provisions.
- 1. Pressure Test: After the pipe has been laid and backfilled as specified, all newly laid pipe, or any valved section thereof, shall be subjected to a hydrostatic pressure of 150 pounds per square inch, or 50% in excess of the normal working pressure, whichever is greater. Where any section of a main is provided with concrete reaction backing, the hydrostatic pressure test shall not be made until at least five days have elapsed after the concrete reaction backing was installed. If high early strength cement is used in the concrete reaction backing, the hydrostatic pressure test shall not be made until at least two days have elapsed.
 - a. Duration of Test shall be at least two hours.
 - b. Procedure: Each section of pipe shall be slowly filled with water and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. The pump, pipe connections, and all necessary apparatus, including gauges, shall be furnished by the Contractor and are subject to approval by the Engineer. The Contractor shall make all taps into the pipe, and furnish all necessary assistance for conducting the tests. The Contractor shall supply either a container calibrated in 0.1 gallon increments or a laboratory certified calibrated water meter accurate to 0.1 gallons. Testing against existing valves is not permitted.
 - c. Expelling Air Before Test: Before applying the specified test pressure, all air shall be expelled from the pipe. If permanent air vents are not located at all high points, the Contractor shall make the necessary taps at such points before the test is made. After the test has been completed the Contractor shall remove and plug the taps or leave them in place at the direction of the Engineer.
 - d. Examination Under Pressure: Any cracks or defective pipes, fittings, or valves discovered in consequence of this pressure test shall be removed and replaced by the Contractor with sound material, and the test shall be repeated until satisfactory to the Engineer.
 - e. Test Pressure Variations: Test pressures shall not vary by more than +5 psi for the duration of the test.
 - f. Saturation of Cement Lining: It is good practice to fill the pipeline to be tested 24 hours in advance of the test to allow the cement lining of the pipe to become saturated.

2. Leakage Testing: A leakage test shall be conducted concurrently with the pressure test. The Contractor will furnish laboratory calibrated test gauge and measuring device, and all necessary assistance to conduct the test.
 - a. Leakage Definition: Leakage is defined as the quantity of water that must be supplied into the newly laid pipe, or any section thereof, to maintain pressure within 5 psi of leakage test pressure after the pipe has been filled with water and the air expelled.
 - b. Permitted Leakage: No pipe installed will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{SD\sqrt{P}}{133,200}$$

in which "L" equals the allowable leakage in gallons per hour; "S" is the length of pipeline tested in feet; "D" is the nominal diameter of the pipe, in inches, and "P" is the average test pressure during the leakage test, in pounds per square inch gauge. (The allowable leakage according to the formula is equivalent to 11.65 U.S. Gal. per 24 hours per mile of pipe per inch nominal diameter, for pipe in 18 foot lengths evaluated on a pressure basis of 150 psi). When testing against closed metal seated valves, an additional leakage per closed valve of 0.0078 gallon per hour per inch of nominal valve size shall be allowed. There shall be no additional leakage allowed for service connections.

- 1) The Owner will record both the makeup water and pressure at one-half hour intervals during the test period.
 - 2) Should any test of pipe laid disclose leakage greater than that specified above, the Contractor shall, at his own expense, locate, repair, and replace the defective joints, pipe, or fittings until the leakage is within the specified allowance.
3. Common Requirements:
 - a. Engineer shall monitor the pressure and leakage tests. The Contractor shall notify the Engineer at least 48 hours in advance of the test day.
 - b. Engineer shall be present during the operating of valves required to fill mains for pressure and leakage tests.
 - c. If test fails to meet test requirements, the Contractor shall pay for all additional engineering personnel testing time.
 - d. Where multiple sections are tested the allowable loss shall be limited to the loss for the smallest main line valve section or 1000 feet whichever is less unless otherwise approved by the Engineer.
 - e. Weather: No testing will be authorized unless air temperature is 35 degrees F. or higher.
 - f. Hydrants: When hydrants are in the test section, the test shall be made against the closed hydrant.
 - g. Acceptance: Observation of successful testing of mains by the Engineer does not constitute acceptance of the system or any portion thereof. Only upon final inspection and written acceptance by the Engineer will the system or portion thereof be considered substantially completed. If, during this

final inspection, any irregularities are observed, the condition must be corrected at the Contractor's expense prior to acceptance.

4. If the test is applied against an existing valve that the Contractor claims that said valve is passing, Contractor shall excavate valve at his expense so Owner, or Engineer can sound valve. In addition to the sound test, test section shall be valved off and system pressure applied. Engineer will observe pressure for 24 hours. This section should remain at system pressure if valve is passing.

3.10 TEMPORARY WATER SERVICE

- A. In the event it is necessary to interfere with any services, temporary lines shall be installed by the Contractor at its expense. Delays resulting in residences or businesses having to go overnight or for longer periods without water service due to the neglect of the Contractor will be remedied by the Owner at the Contractor's expense without written notice.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Concrete cast-in-place, including admixtures, design mix and finishing.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland Cement: ASTM C150 of the following Type(s):
 - 1. Type I, Normal.
- B. Normal Weight Aggregates: Meeting requirements of ASTM C 33.
- C. Water: Potable quality, clean and free of deleterious substances.
- D. Design Mixes: Provide normal-weight concrete with the following properties, as indicated on drawings and schedules:
 - 1. 2500 psi 28-day compressive strength, for encasement, pipe collars and thrust blocks.
 - 2. 3,000 psi 28-day compressive strength: Sidewalks, curbs, fill concrete.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prepare formwork in advance and remove debris from within forms
- B. Pre-position reinforcement, if any, in advance of concrete pours.

3.02 CONCRETE PLACEMENT

- A. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete" and as herein specified.

END OF SECTION

EXHIBIT A

**Greencastle Area, Franklin County,
Water Authority
Greencastle, Pennsylvania**

**General Specifications
For
Water System Construction**

February 2001



**GANNETT FLEMING
Harrisburg, PA**

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SECTION I - GENERAL

1.01 SCOPE

These Specifications cover the design and construction of water main extensions and related appurtenances. The design and construction of other water facilities, such as pumping stations and storage tanks, shall be completed by the Authority.

The persons or agencies referred to in these Specifications are defined as follows:

Applicant: Any person or company who applies for water service.

Authority: Greencastle Area, Franklin County, Water Authority, or its authorized agent.

Borough: The Borough of Greencastle, Franklin County, which operates the water system under a management agreement with the Authority and acts as the agent of the Authority under its direction.

Contractor: The builder of the water main extension or water supply facilities, whether under contract with the Applicant or the Authority.

Customer: Any person or company who receives water services from the Authority.

Owner: The legal owner of real estate or other property.

PennDOT Sections: The sections contained in the current issue of Commonwealth of Pennsylvania, Department of Transportation Specifications, Form 408 and Supplements issued thereto. The references pertain only to materials, construction equipment, methods and labor and do not apply to payment provisions.

All water service projects shall be done in accordance with the latest edition of the Authority Rules, Regulations, and Schedules of Charges for Water Service and these General Specifications.

An Applicant for an extension of water service shall submit three (3) sets of plans providing the following information for the property served by the main extension:

- A. Water Demands:
 - 1. Number and type of housing units, or other structures, with anticipated construction schedule and staging of construction.
 - 2. Estimated total population served.
 - 3. Average daily water demand.
 - 4. Maximum daily water demand.
 - 5. Maximum hourly water demand.
 - 6. Fire protection demand and duration (hours).

7. Construction elevations (U.S.G.S. datum).
- B. Existing and proposed streets, property and lot lines, and building locations.
 - C. Existing and proposed utilities including location and sizes of mains, valves, hydrants, blow-offs, and other facilities.
 - D. Legend of symbols, scale, north arrow, and date.
 - E. A note which states: "All water main construction shall conform to the Greencastle Area, Franklin County, Water Authority General Specifications for Water System Construction, which Specifications shall take precedence over other notes on the Drawings."

1.02 DESIGN CRITERIA

- A. General: The following design criteria shall be used unless exceptions are approved in writing by the Authority. Where special design criteria are required, the Applicant should consult with the Authority prior to preparation and submission of plans.
- B. Water Demands:
 1. Population (New Developments): 3.0 persons per unit.
 2. Domestic Water Demand:
 - Average Daily Demand: 100 gallons per capita per day.
 - Maximum Daily Demand: 2.0 times average daily demand.
 - Maximum Hourly Demand: 4.0 times average daily demand.
 3. Industrial or Special Water Demands: established for each installation.
 4. Fire Demands:

<u>Type of Construction</u>	<u>Fire Flow (g.p.m.)</u>	<u>Flow Duration (hours)</u>
Industrial or high value	3,500	4
High-density residential and commercial (includes apartments, townhouses, and condominiums)	2,500	2
Low-density single-family	1,500	2

- C. Water Pressures:
 1. General: Water pressure should normally be maintained in the range from 35 pounds per square inch (psi) to 80 psi at ground elevation. The required minimum pressure at ground elevation shall be 30 psi during maximum hourly flows and 20 psi during fire flows.

2. Design Pressures: The design pressure for equipment and materials shall be at least equal to the maximum working pressure plus a surge allowance of 50 percent of maximum working pressure, unless specified otherwise.
3. Pressure Regulating Valves: When pressures exceed 80 psi, the Applicant shall, at its own expense, install and maintain, on the house side of the meters, pressure regulating valves meeting Authority specifications.
4. Fire Demands: Where only hose streams are required, fire flow requirements shall be satisfied while maintaining 20 psi residual pressure at hydrants in the immediate vicinity of the fire. Where automatic sprinkler systems are involved, residual pressures must be adequate for their proper operation.
5. Booster Pumping Stations: The necessity of, design of, and construction of individual customer booster pumping stations and equipment shall be subject to Authority approval.

- D. Size of Mains: Main sizes shall conform to the latest Authority Rules and Regulations. Required minimum sizes are 8-inch diameter in residential areas, and 12-inch diameter in employment-center areas. Adequacy of main sizes is based on total flow requirements. A maximum "C" value of 130 is permitted for new cement-lined ductile iron pipe.

Fire hydrant branches shall be not less than 6-inch diameter and no longer than necessary. The maximum permissible length is 50 feet, except in special instances.

E. Location of Mains:

1. General:
 - a. Mains shall normally be located within the right-of-way lines of public streets. If it is necessary to locate a main on private property, the Applicant shall provide a water main easement in the Authority's name. The easement shall consist of a 20-foot wide permanent easement with an adjacent 10-foot wide temporary construction easement.
 - b. Distribution main networks shall be looped and dead-end mains shall be avoided. When dead-end mains cannot be avoided, blow-off connections or hydrants, as specified by the Authority, shall be provided at the main ends.
 - c. Distribution mains shall be located a minimum of 15 feet from the nearest structure, except as approved by the Authority.
 - d. A safe and adequate separation shall be maintained between water mains and all other underground utilities.
2. Water Mains Near Sewers:
 - a. Water main installation near sewers shall conform to the Pennsylvania Department of Environmental Protection Water Supply Manual. Water mains shall be laid at least ten (10) feet,

horizontally, from any existing or proposed drain or sewer line. If local conditions prevent a horizontal separation of ten feet, the water main shall be laid in a separate trench, or on an undisturbed earth shelf located on one side of the sewer, such that the bottom of the water main is at least 18 inches above the top of the sewer. When it is impossible to obtain the horizontal and vertical separation stipulated above, both the water main and the sewer should be constructed of pressure pipe utilizing push-on joints, mechanical joints, or similar joints employing a rubber gasket to obtain a seal. Both the water main and the sewer shall be pressure-tested before backfilling to assure water tightness.

- b. When a water main crosses a sewer or storm drain, the bottom of the water main shall preferably be installed 18 inches above the top of the drain or sewer, and this vertical separation shall extend at least ten (10) feet horizontally on each side of the sewer. If a water main must cross under a sewer or drain, a full-length of water pipe shall be centered under the sewer, the vertical separation shall be a minimum of 18 inches, and the sewer pipe shall be encased in concrete for a minimum of ten (10) feet on each side of the crossing.
 - c. Water mains shall always cross above sewer force mains with a minimum vertical separation of 18 inches, and the sewer force main shall be encased in concrete for at least ten (10) feet on each side of the crossing.
 - d. No water pipe shall pass through, or come into contact with, any part of a sewer manhole.
- F. Cross Connections: No water source of any type, other than the Authority water supply, shall be connected to customer piping served from the Authority water system. All potential cross-connections shall be eliminated and the Authority may require any customer to install a backflow prevention device in accordance with Article 2.28.
- G. Minimum Cover Over Pipes: The minimum depth of backfill over pipes shall be four (4) feet, or 48 inches. When the minimum depth of cover cannot be provided, insulated construction approved by the Authority shall be employed.
- H. Location of Valves:
- 1. Generally, a minimum of three valves shall be used at crosses and two valves at tees. The Authority reserves the right; however, to require the installation of four valves at each cross and three valves at each minor distributor, or at other selected points throughout the distribution system.
 - 2. All water mains shall extend at least twenty (20) feet beyond each valve located on a dead-end main, unless otherwise approved by the Authority.

3. A valve shall be installed on each hydrant branch pipe between the main and the hydrant and near the end of any main which may be extended.
- I. Air-Release and Vacuum Valves: Air-release and vacuum valves shall be installed at all high points on supply or transmission mains and on distribution mains as directed by the Authority. Air valves shall be installed in approved manholes.
 - J. Blow-offs: In dead-end mains, a blow off connection shall be installed for flushing the main. Where a fire hydrant is installed at the dead-end, the hydrant may be used for flushing, and the blow-off connection is not required. Authority reserves the right to require fire hydrants in place of blow-offs. Blow-offs shall be a minimum 1 ½-inch diameter on 4-inch mains, and a minimum 2-inch diameter on 6-inch and larger mains. Blow-offs shall conform to detail on attached Sheet W5.
 - K. Fire Hydrants: Fire hydrants are required and are normally installed at the Applicant's expense. Hydrant spacing and locations shall be as required by the local municipality. In the absence of local municipality requirements, the following hydrant spacing guidelines shall apply:
 1. In low-density, single-family, residential areas, all parts of an existing or proposed building shall be within 300 feet of one hydrant.
 2. In high-density, residential or common commercial areas, each entire unit shall be within 300 feet of one hydrant and 500 feet of a second hydrant.
 3. In industrial areas, hydrants should be spaced according to the latest requirements of the Insurance Services Office.
 4. Generally, a hydrant should be placed at each street intersection, and intermediate hydrants should be installed if the distance between intersections is excessive.
 5. In checking distances between hydrants and buildings, measurements should be made along public streets, except where private entrances or parking areas are available for access.
 - L. Cathodic Protection: Water mains installed near utilities having cathodic protection shall themselves be protected. The method of protection, which may include insulating couplings, polyethylene encasement, electrical connectors, test stations, and other facilities, shall be subject to Authority approval. General specifications for cathodic protection are presented in Article 4.15.
 - M. Customer Metering: Each customer shall be metered.

1.03 AUTHORITY'S RIGHT OF INSPECTION

The Authority shall have the right to inspect any water system construction being carried out by the Applicant. All mains and appurtenances shall be visibly inspected and approved by the Authority before backfilling. Should the inspected work prove unsatisfactory, the cost of removing and replacing, renewing and making good the unsatisfactory work shall be borne by the Applicant. No water service facility shall be placed in service until it has been successfully tested in the presence of an authorized Authority representative in accordance with Section V.

1.04 WORKING CONDITIONS

No night or Sunday work subject to Authority inspection will be permitted except in cases of emergency, and then only with written Authority consent. No work shall be done when, in the opinion of the Authority, the weather is unsuitable.

1.05 CONTRACTOR

The word "Contractor" as used in these Specifications means any person constructing a water main extension for itself or for another person in accordance with these Specifications and the Rules and Regulations of the Authority.

Where the Contractor is acting as an agent of the Applicant, the requirements of the Contractor under these Specifications shall also apply to the Applicant, and the Authority shall have resources to either party. These Specifications shall not, however, be constructed to dictate the legal relationship between an Applicant and its Contractor.

1.06 LIABILITY

The Contractor shall be responsible for any and all damage, loss, or injury to persons or property that may arise, or be incurred, in or during the conduct or progress of the work.

1.07 EXPLORATORY TEST PITS

Test pits shall be dug in advance of trench excavation when necessary to determine the location and depth of existing utilities, rock, water levels, or other conditions that might affect construction.

1.08 STANDARD SPECIFICATIONS

Standard specifications of societies, associations, institutes, etc., referred to in these Specifications, shall be the latest edition of such Specifications, unless otherwise noted.

1.09 WORK AREA TRAFFIC CONTROL AND MAINTENANCE

Traffic in work areas shall be controlled to protect the public and workmen, while minimizing the inconvenience to the public. Traffic control devices shall conform to the Pennsylvania Department of Transportation (PennDOT) Regulations Governing the Design, Location and

Operation of all Traffic Signs, Signals and Markings on or along Highways within the Commonwealth of Pennsylvania; the current revision of Bulletin No. 43, Maintenance and Protection of Traffic on Construction Projects; and Publication No. 90, Handbook for Work Area Traffic Control; unless specified otherwise herein.

When vehicles must be stopped for short periods, work shall be performed during non-peak traffic periods. Access to residential and business establishments shall be maintained, except when work is actually being performed in the area. Trenches across driveways, side streets, alleys, and entrances shall be maintained after backfilling.

1.10 COMPLIANCE WITH PROVISIONS OF ACT NO. 287

Pennsylvania General Assembly Act No. 287 sets forth requirements designed to protect underground utility lines from damage during excavation. Generally, the Act requires the Contractor to ascertain the location and type of utility lines at the work site and to request detailed information from each user (utility owner or operator) not less than three working days before beginning work. The Contractor must provide its operators with the information and must inform any user of any damage made or discovered during construction.

1.11 GUARANTEE PERIOD

Unless otherwise specified, the guarantee period is one(1) year from the date of acceptance by the Authority of constructed facilities.

1.12 SPECIAL REQUIREMENTS

- A. Construction of water mains and appurtenances shall conform to the requirements of the Occupational Safety and Health Act (OSHA).
- B. All equipment used on roadways shall be equipped with rubber tires or treads. If other than rubber tires or treads are used, the pavement shall be protected by heavy rubber belting.
- C. The Contractor shall maintain existing water mains in service. If an existing water main is damaged or broken, the Contractor shall expeditiously restore service at its expense.
- D. The Contractor shall not remove backfill material from the lines of work before the excavation is refilled, except with Authority approval. This provision shall not relieve the Contractor of its obligation to remove and dispose of the excavated material at its expense or to move excavated material upon requirement of the Pennsylvania Department of Transportation.
- E. The Contractor shall protect the work from damage during storms.
- F. The Contractor shall authorize a competent person to be available in case emergency situations shall arise during non-working hours.

- G. The Contractor shall inform the local Police and Fire Departments of its work schedule and of possible street obstructions.
- H. At the shutdown of work or at the end of the work day, all roadways shall be left in such condition that they can be readily opened and safely traveled in cases of emergency.

SECTION II - MATERIALS

2.01 DUCTILE IRON PIPE

All ductile iron pipe shall conform to ANSI A21.51 (AWWA C151) and shall be cement-mortar lined, double thickness, and asphaltic seal coated in accordance with American Water Works Association (AWWA) C104. Provide NSF 61 approved seal coatings. All water mains, 4-inch diameter and larger, shall be ductile iron pipe, except that pipe in cathodic protection areas may be PVC conforming with AWWA C900.

Joints shall be the push-on type, conforming to ANSI A21.11 (AWWA C111), except that all pipe installed at railroad, highway and stream crossings shall have mechanical joint ends, conforming to ANSI A21.11.

The Contractor shall submit to the Authority, in triplicate, a certificate from the manufacturer that the pipe furnished complies with all applicable requirements of ANSI A21.51 (AWWA C151).

Minimum wall thickness of ductile iron pipe shall be determined in accordance with ANSI A21.50 (AWWA C150), American National Standard for the Thickness Design of Ductile Iron Pipe, and ANSI A21.51 (AWWA C151). The design internal pressure in combination with earth and live loads shall be as specified in Article 1.02 (c) (2) herein. The design for trench loading shall be based on Laying Condition Type 2, as defined in ANSI A21.51 (AWWA C151). Under normal conditions, the pipe furnished shall be Class 52, unless otherwise specified by the Authority. Pipes shall be U.S. Pipe, American, Clow, Griffin, Atlantic States or approved equal.

Minimum Wall Thickness

<u>Pipe Diameter Inches</u>	<u>Wall Thickness Inches</u>
6	0.31
8	0.33
10	0.35
12	0.37
14	0.39
16	0.40
18	0.41
20	0.42
24	0.44

2.02 FITTINGS

Ductile iron fittings will be accepted for all ductile iron pipe. Ductile iron fittings shall have a minimum pressure rating of 250 psi, and shall conform to ANSI A21.10 (AWWA C110).

Fittings used with ductile iron pipe shall be furnished with mechanical joint ends conforming to ANSI A12.11 (AWWA C110). Mechanical joint fittings shall be furnished complete with either gray iron or ductile iron glands, bolts and nuts, and plain rubber gaskets.

Flanged fittings, for exposed piping or when specified on the Drawings, shall conform to ANSI A21.10(AWWA C110) or ANSI B16.1. All flanges shall be faced and drilled in accordance with ANSI B16.1. Machine bolts and nuts for flanged fittings shall be steel, conforming to ASTM Designation A307, Grade B. Dimensions of bolts and nuts shall conform to ANSI B18.2. Threads of bolts and nuts shall conform to ANSI B1.1, Coarse-Thread Series, Class 2A fit on bolts, and Class 2B fit on nuts. Gaskets for flanged connections shall be synthetic rubber and the flat ring type. Dimensions of gaskets shall conform to ANSI B16.21.

All fittings shall be cement-mortar lined, paint seal coated inside, and bituminous coated outside. The Contractor shall submit to the Authority, in triplicate, a certification from the manufacturer that all fittings comply with the ANSI Standards noted above.

2.03 CEMENT-MORTAR LINING

Cement-mortar lining shall conform to ANSI A21.4.

2.04 MECHANICAL JOINT RETAINER GLANDS

Provide retainer glands for use on mechanical joints on fittings and valves 24 inches or less. Use fully restrained type joints on fittings and valves greater than 24 inches. Retainer glands on fittings and valves greater than 24 inches are not acceptable. Retainer glands are not acceptable in lieu of restrained joints.

Mechanical joint retainer glands shall be cast from ductile iron. Wedging mechanism shall be manufactured of ductile iron, heat treated to a hardness of 370 BHN minimum. Provide retainer glands with dimensions that can be used with standardized mechanical joint bell and tee head bolts conforming to requirements of AWWA C111 and AWWA C153. Wedge action screws incorporate twist off nuts in design to ensure proper torque. Provide mechanical joint restraining device for a water working pressure rating of 250 psi minimum with a safety factor of at least 2:1.

Install and apply torque according to manufacturer's recommendations. Tighten torque limiting twist off nuts in alternate manner and clockwise direction. Apply joint deflection before T-bolts are torqued. Where retainer glands are used, limit joint deflection to 2 ½ degrees maximum. Glands are to be EBAA Iron, Inc., Series 1100 (Megalug); Ford Meter Box Co., Inc. Series 1400 (Uni-Flange) or approved equal.

2.05 VALVES

- A. General: Valves 14-inches and larger shall be butterfly valves as long as valve design pressures are not exceeded. Valves 3 to 12 inches shall be gate valves.

- B. Butterfly Valves: Butterfly valves shall conform to AWWA C504, except where otherwise specified herein. Butterfly valves shall be the tight-closing, rubber-seated type. Valves shall be bubble tight at design pressure, and shall be satisfactory for valve operation after long inactive periods.

Valves shall be the short body type with mechanical-joint ends, constructed of cast iron conforming to ASTM A126, Class B. All valve bodies shall have two hubs for shaft bearing housings, cast integrally with the body. Body shell thicknesses shall conform to Table 2 of AWWA C504. Valves shall be painted in accordance with AWWA C504, Section 4.2.

Valve shafts shall be one-piece or two-piece units securely attached to the valve disc. Valve shafts shall have a minimum diameter as specified in Table 3 of AWWA C504, and shall be 18-8 stainless steel, Type 304. Shaft seals shall conform to AWWA C504, Section 3.7. Valve bearings shall be nylon, reinforced Teflon, or graphite bronze.

Valve seats shall provide leak-proof shutoff with design pressure on one side and zero pressure on the other side. Valve seats shall be the 90-degree type, and shall be bonded and/or mechanically secured to the valve body or disc. Valve discs shall be alloy cast iron conforming to ASTM A436, Type 1 or 2, or ASTM A439, Type D2, with a maximum lead content of 0.003 percent.

Valve operators shall be the worm gear or traveling nut type, fully enclosed, and fitted with a standard 2-inch square operating nut. Operators shall produce the required output torque with a maximum input torque of 150 foot-pounds on the operating nuts. All valves shall open to the left.

The Contractor shall furnish manufacturer's certified shop drawings, in triplicate, to the Authority. Valves shall be American Flow Control or approved equal.

- C. Gate Valves: All gate valves shall be iron body, bronze-mounted, and shall have double-disc gates. Valve working pressure shall conform to AWWA C500, Section 2.

Valves shall be vertical, inside screw, non-rising stem valves with 2-inch square operating nuts. Valves shall open to the left, shall be fitted with O-ring seals, and shall have mechanical joint ends and conform to AWWA C111. Valves shall be American Flow Control, Mueller or approved equal.

The Contractor shall furnish manufacturer's certified shop drawings, in triplicate, to the Authority for approval. The manufacturer shall also certify that the valves comply with AWWA C500.

- D. Tapping Sleeves and Valves: Before installing a tapping sleeve, the Contractor shall verify the type and diameter of the existing pipe. Tapping sleeves shall have

mechanical joint type ends and shall have two halves for bolting around the main. Gaskets shall extend the entire sleeve length and shall provide a water tight joint.

Tapping valves shall comply with the gate valve specification presented herein. Valves shall be American Flow Control, Mueller Company or approved equal. The tapping sleeve and valve can be seen in the Plug and Tee detail on Sheet No. W2.

2.06 VALVE BOXES

Provide Tyler utilities cast iron valve boxes of two piece for valves up to 12 inches. Valve box design of adjustable two section, screw type, telescoping column, inside diameter of 5-1/4 inches, and furnished with a cover marked WATER. Hot coat inside and out with tar or asphalt compound.

2.07 EXTENSION STEMS

Each underground valve whose operating nut is deeper than 4 feet shall be equipped with an extension stem that is 1-inch square solid steel and fitted over the valve operating nut. The stem shall have a 2-inch square top operating nut and a spacer or spyder. Each extension stem top shall be set in the range from 3 feet to 6 inches below ground surface and shall not interfere with the valve box cover.

2.08 SMALL VALVES

- A. General: Small valves are defined as 2-1/2 inch or smaller valves and shall be one of the following types, unless specified otherwise.
- B. Gate Valves: Gate valves shall be the 150-pound split wedge disc, parallel seat, rising stem type and be handwheel operated. Valve bodies shall be bronze and have threaded ends. Valves shall be Crane company, Catalog No. 440, or approved equal.
- C. Globe Valves: Composition Disc Globe Valves: Composition disc 150- pound bronze globe valve with treaded ends, bronze body conforming to ASTM B62, brass or bronze bonnet and bronze stem. Valves to be Crane No. 7TF as manufactured by Crane Company.
- D. Ball Valves: Bronze body with bronze trim and TFE seats and seals. Valves to be Crane Company, Nibco T-560 or approved equal.

2.09 PLASTIC WATER SERVICE TUBING

Plastic water service tubing shall be polyethylene, defined as PE 3408, SDR 9, NSF approved, 200 psi, copper tube size (WST). Conforming to requirements of ASTM D2737 with stainless steel inserts at all connection points.

2.10 COPPER TUBE

Copper tube shall conform to the requirements of ASTM B-88, with Type K underground and Type L in exposed locations. Type K shall also be used in hook-ups to air-release valves.

2.11 FITTINGS FOR COPPER AND PLASTIC TUBING

All new service laterals shall be one continuous run of plastic or copper with no underground splicing connections. Couplings for pipe and tubing of existing laterals shall be the Mueller Company "Insta-Tite" coupling or the Ford Meter Box Company, Inc. "Gap Joint" coupling, or approved equal needed to connect to the existing service material.

2.12 CORPORATION STOPS

For copper tubing, corporation stops shall be Mueller H15000, Ford Meter Box Company, Inc. F-1000, or approved equal.

For plastic tubing, corporation stops shall be Mueller Company H-15006 (with "Insta-Tite" Connection), Ford Meter Box Company, Inc. F-1000, or approved equal.

2.13 CURB STOPS AND BOXES

Curb stops shall be ~~Mueller Company H-15200~~, Ford Meter Company, Inc., 3/4 inch, Z44-333-G or larger as appropriate, or approved equal.

Curb boxes shall be manufactured of cast iron. Cast iron curb boxes shall be Buffalo type as manufactured by Mueller Company, Erie Style with Drive Shaft Spanner Lid as manufactured by Ford Meter Company, Inc. or approved equal. The Typical Service Reconnection Details can be found on Sheet No. W3. *McDonald #5607 - #5660 S.S. Red 24"*

2.14 CLAMPING DEVICES

Socket clamps, anchor straps and tie rods used to anchor pipe fittings, shall be as manufactured by the Grinnell Company, Inc. or approved equal. All thread tie rods shall be coated with bitumastic paint and wrapped in polyethylene. The Contractor shall submit a sketch for Authority approval for installations using clamping devices.

2.15 FIRE HYDRANTS

Fire hydrants are to be compression type with a 5-inch main valve, 5-1/4 inch seat opening and a 6-inch mechanical joint inlet. The hydrants shall have two 2-1/2 inch hose nozzles, and one 4-1/2 inch pumper nozzle, complete with nozzle cap chains. Hydrants shall be traffic type with breakable safety flange and stem coupling and shall open left. The hydrant shall have a pentagon operating nut and be provided with National Standard threads on the hose and steamer nozzles. Fire hydrant is shown on Sheet No. W3. Exposed portion of hydrant is to be painted

according to the Authority. Hydrants must conform to AWWA C502 and be leakproof at the design pressure. ~~Use American Darling, Model B-62-B or approved equal.~~ *Mueller Super Centurion*

2.16 STEEL ENCASEMENT PIPE

Steel encasement pipe shall be the size and wall thickness specified in Part 5 of the American Railway Engineering Specifications for pipelines and have a minimum tensile strength of 60,000 psi and a minimum yield point of 35,000 psi. Do not consider the coating when finding the strength of the pipe. Pipe shall conform to ASTM Designation A139, Grade B; or A53. Use pipe with flame or machine cut plain ends, which shall be beveled for field welding and circumferential joints, and have a protective coating of Standard Mill Primer prior to shipment.

Support water mains inside steel casing pipe by use of casing spacers to prevent direct contact between water main and steel casing. Casing spacers also facilitate installation of pipe within casing, and limits movement of pipe within casing, both vertically and horizontally. Provide casing spacers of one of the following design types:

- A. Bolt on style, fusion PVC coated steel band (14 gauge) with (10 gauge) steel risers, PVC inner liner, and glass reinforced polyester insulation runners.
- B. Bolt on style, T-304 stainless steel (14 gauge) shell and risers, lined with ribbed PVC extrusion, and ultra high molecular weight polymer insulating runners.

Casing spacers shall be PSI (Pipeline Seal and Insulator, Inc.), Cascade Waterworks Mfg. Co., APS (Advance Products and Systems, Inc.) or approved equal.

MODEL # S86 - Better than A86-2

2.17 CAST COUPLINGS

Cast couplings shall be casketed, sleeve type with diameter to properly fit specified pipe. Couplings consist of one steel middle ring; two steel, malleable iron or ductile iron followers; two specially compounded rubber gaskets; and high strength low alloy steel bolting system suitable for coupling steel or ductile iron pipe. Use Dresser Manufacturing Division, Style 38 and 138, transition Style 162; Smith Blair Product No. 411, transition product No. 413 or approved equal.

2.18 FLANGED COUPLING ADAPTERS

Gasketed, sleeve type with diameter to properly fit specified pipe. Couplings consist of one steel middle ring; two steel, malleable iron or ductile iron followers; two specially compounded rubber gaskets; and high strength low alloy steel bolting system suitable for coupling steel or ductile iron pipe. Flanged coupling adapters shall be Dresser Manufacturing Division Style 38 and 138, transition Style 162; Smith Blair Product No. 411, transition product No. 413 or approved equal.

2.19 PRESSURE REGULATING VALVES

The installation of pressure regulating valves may be required by the Authority to prevent excessive pressures at customer services or other locations.

Pressure regulating valves 2-inch and smaller shall be diaphragm-type with cast-bronze body and galvanized iron strainer. They shall be manufactured by GA Industries Inc., Ross Valve Manufacturing Company, Inc. or approved equal.

Pressure regulating valves 2-1/2 inches and larger shall be globe pattern, cast iron ASTM A126 with Class 125 flanges conforming to ANSI B16.1 standards. Interior trim will be bronze ASTM B62. Provide easily renewable valve seals and visual valve position indicator. Also, provide a pressure sensing line (including copper tubing, union and gate valve) from the inlet side of the valve to the sensing port of the control pilots.

Factory assemble and mount on the valve the hydraulic piping, shut-off valves, needle valves, control pilots and unions. Valves shall be GA Industries, Inc., Ross Valve Manufacturing Company, Inc. or approved equal.

2.20 AIR RELEASE VALVES

Air release valves shall be combination air release valves to vent air accumulating at high points in water main. Air/vacuum valve portion exhausts larger quantities of air present in system during filling of water main and allows air to re-enter main during draining of pipe. Provide air release valves with cast-iron body and cover, stainless steel float, stainless steel lever mechanism and stainless steel trim with Buna-N-Seat. Use a maximum working pressure of 100 psi and inlet size of 1 inch. Valves shall be Val-Matic, Model 38, APCO, G.A. Industries or approved equal.

2.21 PRECAST REINFORCED CONCRETE MANHOLES

Manhole walls shall be constructed of precast concrete riser sections set on a cast-in-place concrete footing. The riser sections shall be manufactured in compliance with the requirements of ASTM Specifications Designation C478 for Precast Reinforced Concrete Manhole Sections and shall have a minimum inside diameter of 4 feet. The manhole shall be provided with a flat slab top. The flat slab top shall have a minimum thickness of 8 inches and shall be reinforced with steel in accordance with the design requirements specified in ASTM Designation C478. The bottom riser section shall be provided with doghouse holes designed to accommodate the water main pipe passing through the manhole. See detail on Sheet No. W5.

2.22 CONCRETE

Concrete shall conform to the applicable requirements of Section 204, Cement Concrete and Ready-Mixed Cement Concrete, of Commonwealth of Pennsylvania, Department of

Transportation Specifications Form 408 with latest supplements. High Early Strength cement concrete conforming to the requirements set forth in the current issue of the Supplement to Form 408, shall be used for reaction backings and pavement replacement.

2.23 MANHOLE BRICK AND MORTAR

Brick shall conform to ASTM Designation C32, Grade MS, and mortar shall meet the requirements of ASTM C270, Type M with waterproofing admixture included. Commercially prepared masonry cement shall conform to ASTM Designation C91.

2.24 MANHOLE FRAMES AND COVERS

Manhole frames and covers shall conform to ASTM A48 for Class No. 35B and be Neenah Foundry Company No. R-1773-A or approved equal. The word WATER shall be cast in 2-inch high letters on the cover. Provide castings of uniform quality, free from blowholes, porosity, hard spots, shrinkage distortion or other defects.

2.25 MANHOLE STEPS

Manhole steps shall be forged 6061-T6 aluminum alloy cast into the precast concrete manhole riser section. Steps are to be aligned vertically, spaced a maximum 12 inches apart on equal centers, with a minimum 5-3/8 inch projection from wall, a minimum width of 10 inches and shall satisfy OSHA requirements.

2.26 METERS

The manufacturer or vendor shall certify that the meters comply with the AWWA Standard for the particular meter being furnished and that each meter complies with accuracy and capacity requirements of the AWWA Standard for Testing Cold-Water Meters, C705. Meters and appurtenances shall be purchased through the Authority.

2.27 PLASTIC PIT SETTERS

Plastic Pit Setters shall be used outside homes over 75 feet from the water main and outside homes which do not have sufficient basements as determined by the Authority. Plastic Pit Setters shall be Ford Meter Box Company, with cast-iron top and frost-proof lid. All meter pits and appurtenance shall be purchased through the Authority.

2.28 BACKFLOW PREVENTION DEVICES

- A. General: A backflow prevention device shall be installed at each customer service where the Authority determines that a potential cross-connection may exist. The number, size, location and type of backflow preventor shall be approved by the Authority.

- B. Reduced Pressure Backflow Preventors: This device shall be used at connections where toxic chemicals, sewage, or other substances determined by the Authority to be hazardous, might enter the distribution system. It shall conform to AWWA C511, shall be minimum 150 psi design pressure, and shall be equipped with suitable test cocks. The device consists of an automatic pressure differential relief valve located in the zone between two or more independently acting check valves, which in turn are located between two tightly-closing shutoff valves. All reduced pressure backflow preventors for fire service connections shall be BEECO or approved equal. All other reduced pressure backflow preventors shall be Hersey-Sparling Meter Company, BEECO Model 6CM; Watts Regulator Company Series 990 or approved equal.
- C. Double Check Valve Assemblies: This device shall be used at connections where nuisance materials, such as foods and beverages, or other materials that do not constitute a health hazard, might enter the distribution system. It shall conform to AWWA C510, shall withstand a 150 psi design pressure. The device consists of a mechanical, independently operating hydraulically dependent relief valve located between two independently operating, internally loaded check valves that are located between two tightly closing resilient-seated shutoff valves with four properly placed resilient-seated test cocks. All double check valve assemblies shall be Hersey-Sparling Meter Company No. 2 or approved equal.

SECTION III - EXCAVATION AND BACKFILL

3.01 GENERAL

Excavation and backfill work shall conform to the AWWA Standard for Installation of Cast Iron Water mains, C600 plus the changes and additions specified herein. The Contractor shall conform to the regulations of all governmental agencies having jurisdiction over the work.

Standard details for trench excavations, Sheet No. W1, are attached to these Specifications and are made a part thereof. These details cover unpaved trenches and trenches in paved areas.

The term "subgrade", as used herein, shall have the following meanings:

- A. The planned bed of a trench prepared to receive bedding material.
- B. The area upon which the lower surface of roadway paving rests.
- C. The area upon which the planned bottoms of manholes rest.

3.02 ROCK EXCAVATION

Unless otherwise approved by the Authority, rocks shall be removed from the trench at least 25 feet in advance of pipe laying. Rock shall be excavated for the full specified width of the trench for a depth of 8 inches below the outer bottom of the pipe.

Rock below the specified subgrade that is shattered and unfit for foundation in the Authority's opinion shall be removed and the area backfilled to the proper subgrade with Class B concrete. Rock encountered at blank connections or stubs shall be excavated at least 10 feet from the blank connections in the direction of any proposed future extension, and the excavation shall conform to the requirements for the extension.

Pre-drilling, or pre-drilling and blasting, within State Highway Rights-of-Way is not permitted. Prior to removal of rock within State Highway Rights-of-Way, strip earth to rock.

3.03 EXPLOSIVES AND BLASTING

Blasting procedures shall conform to AWWA C600, Section 3.2.7. Rock within 5 feet of any existing water or gas main, sewer, electrical conduit or other utility or structure shall be removed by means other than blasting. The Authority reserves the right to designate any other specific limits of the work in which rock shall be removed by means other than blasting. All blasting shall be done under the supervision of a competent licensed blasting expert.

3.04 REMOVAL OF PAVEMENT AND STORAGE OF MATERIALS

The Contractor shall grub and clear the surface and remove all surface materials over the line of the trench; properly separate and classify the material removed; and store, guard and preserve any materials required for back filling or other purposes. All materials taken from the trenches shall be stored away from the street or highway, unless otherwise authorized by the Authority, PennDOT or the local municipality. The materials shall be placed or stored in a manner that will not obstruct any pipe, culvert, gutter, drain or waterway. The width of existing pavement removed shall be no greater than the trench widths specified in Article 3.05, unless otherwise directed by the Authority. Pavement shall be cut to neat lines with a concrete saw or air spade in accordance with local government regulations.

In business districts, State highways, streets with heavy traffic, narrow streets or any other locations where working space is limited, the excavated material shall, when required by the Authority, be removed as soon as excavated at the Contractor's own cost and expense. The Contractor shall not cast excavated material beyond the curb or right-of-way lines, or on sidewalks or lawns. Excess excavated material shall be removed to a location provided by the Contractor. The Contractor may, at its own cost and expense, bring back this material for backfill, if it is suitable, or shall provide other suitable material. When soft or wet material must be hauled over streets, the Contractor shall prevent spillage. All topsoil within the trench limits shall be removed prior to excavation and replaced after backfilling.

3.05 WIDTH AND DEPTH OF PIPE TRENCHES

The width and depth of pipe trenches shall conform to the dimensions shown on the attached standard detail on Sheet No. W1. Trench sides shall be vertical, and dimensions shall apply to the inside faces of any required sheeting. The trench depth shall include excavating 4 inches below planned bottom of pipe, in earth, 8 inches in rock and a minimum depth of cover of 4 feet. The Contractor shall not excavate below the depths specified, except where excavation of rock or unsuitable material is required. Trenches excavated beyond the specified depths without written approval of the Authority shall be backfilled with thoroughly tamped Class A bedding material at the Contractor's expense.

3.06 PREPARATION OF PIPE TRENCHES

Pipe trenches shall be uniformly graded to planned subgrade. If subgrade conditions are satisfactory, as determined by the Authority, Class A bedding material shall be furnished and placed as described below. If subgrade conditions are not suitable, the Contractor shall excavate the unsuitable material and shall backfill in accordance with the standard detail on Sheet No. W1. No stone dust is to be used around water mains and laterals.

3.07 BEDDING MATERIAL.

- A. Class A Bedding: Class A bedding shall be provided between the subgrade level and 12 inches above the top of the pipe for the full water main length unless the

Authority requires Class B bedding. Class A bedding shall consist of AASHTO No. 8 stone or gravel coarse aggregate conforming to PennDOT Section 703.2 and shall be approved by the Authority.

The bedding material shall be compacted in 4-inch tamped layers. Material shall be graded to provide a uniform and continuous bearing support for the pipe throughout its entire length. Bell holes shall be provided but the size of the holes shall be kept to the minimum required to make the joint. The bell holes shall be backfilled with bedding material.

After the pipe is laid, bedding material shall be tamped under the pipe haunches to 12 inches above the top of the pipe, to the satisfaction of the Authority.

- B. Class B Bedding: The Authority may require Class B bedding, when, in its opinion, conditions require its use. Class B bedding shall consist of Class B concrete placed between the subgrade level and one-half the diameter of the pipe. Prior to placing the Class B bedding, the pipe shall be laid on a minimum of four supporting blocks and otherwise held firmly to the line and grade required. After the joints have been made, the concrete shall be placed under and around the pipe, and shall be vibrated to fill all voids.

3.08 SHEETING, SHORING AND BRACING

Provide material for, and install, all sheeting, shoring and bracing according to Federal, State and local laws, rules, regulations, requirements, precautions, orders and decrees. Sheeting, sheet piling, bracing and shoring shall be withdrawn and removed as the trenches are being backfilled, except where the Authority shall require that the above be left in place or where the Authority permits the Contractor to leave the sheeting, sheet piling, bracing and shoring in place at the Contractor's own request and cost. Voids or holes left by the sheeting or sheet piling shall be filled with compacted approved material.

3.09 BACKFILLING TRENCHES

Trench backfill shall conform to AWWA C600, except as specified herein and on the standard trench details.

Backfill material shall be carefully placed in trenches according to specified layer thicknesses, and each layer shall be thoroughly compacted. The amount of compaction equipment and compaction effort is subject to Authority approval.

- A. Select Backfill: Select backfill material shall consist of clean, dry earth and shall not contain stones larger than 2 inches. Excavated material may be used if approved by the Authority. Select Backfill shall be used for backfilling lateral trenches.

8
6" under
12" on Top

- B. Ordinary Backfill: Ordinary backfill material shall consist of clean, dry earth or aggregate and shall not contain stones larger than 4 inches. Excavated material may be used if approved by the Authority.
- C. Trenches Located on State Highways: All trench excavation and backfill on State Highways shall conform to PennDOT requirements. The Applicant shall pay all costs of PennDOT inspections.

Backfill of transverse or longitudinal trenches under paved surfaces shall be refilled from a point 1 foot above the top of pipe to the pavement subgrade in 4-inch layers with coarse aggregate. The coarse aggregate shall be Pennsylvania No. 2RC, conforming to PennDOT Section 703.3. The Contractor shall remove excess excavated material at its expense. Backfill under unpaved shoulders shall be placed from a point 1 foot above the top of pipe to a point 18 inches below the existing grade of the shoulder in 4-inch tamped layers with approved backfill material. The backfill shall conform to PennDOT Section 206.2, Material.

- D. Trenches Located on Borough or Township Streets: Transverse trenches across paved borough or township streets or paved entrances to parking lots, business establishments, etc. shall be backfilled from a point 1 foot above the top of pipe to the pavement subgrade with Pennsylvania No. 2RC aggregate conforming to Section 703.2 of PennDOT Specifications. Compacted in 4-inch layers. The Contractor shall remove excess excavated material at its expense.

Longitudinal trenches located along paved borough or township streets shall be refilled in 4-inch mechanically-compacted layers from a point 1 foot above the top of pipe to the pavement subgrade with No. 2RC aggregate conforming to Section 703.2 of PennDOT specifications. Trenches located along unpaved borough or township streets and alleys shall be backfilled in 4-inch tamped layers from a point 1 foot above the top of the pipe to a point 18 inches below the existing grade of the street or alley.

- E. Unpaved Areas Not Subject to Traffic: Backfill trenches to a height at least one foot above top of outside barrel of pipe with AASHTO No. 8 Stone placed in 4-inch layers. Carefully place this backfill in a manner not to damage or disturb the pipe. Backfill the remainder of the trench with topsoil to approximate depth of existing, as a final refill operation, crown to height required by Engineer. Maintain crowned surfaces as required by Engineer, during guarantee period.

3.10 DEWATERING

The Contractor shall keep all excavations free from water at its own expense.

3.11 EXISTING UNDERGROUND UTILITIES OR OBSTRUCTIONS

The Contractor shall conform to Pennsylvania General Assembly Act No. 287 ("One Call").

The Contractor shall be responsible for all damage to existing underground utilities due to its operations. The Contractor shall determine the correct location of utilities by means of exploratory test pits and information obtained from utility owners, and shall be responsible for all utilities or other obstructions, whether or not they are shown on the drawings or are located incorrectly. Any damage to existing utilities shall be repaired at the Contractor's expense and to the satisfaction of the owner of the utility.

The Contractor shall uncover and verify the location of utilities and other underground obstructions far enough in advance of the pipe laying to permit changes in pipe alignment or grade to bypass obstructions without removing the pipeline. The Contractor shall be responsible for removing and installing the pipe at its own expense if necessary to avoid utilities. Conform to requirements in details on Sheet No. W5, where concrete cradles and bridges are used in crossing existing utilities.

The Contractor shall support utility poles located at or near the trench line limits, and shall contact utilities for pole supports when necessary. If the utility poles are damaged, the Contractor shall be responsible for repairs.

3.12 REMOVAL OF OBSTRUCTIONS

Any removal, realignment or change in the location of any pipe, conduit, pole or other structure due to the construction shall be done at the Contractor's expense and with the approval of the owner of the obstruction.

If removed fencing served as an enclosure for animals, the Contractor shall prevent the escape of the animals. Trees and shrubs in the right-of-way shall not be damaged or cut down, unless authorized by the owner of the property and the Authority. Trees cut down shall have their stumps removed, and all resulting debris shall be removed and disposed of by the Contractor at its expense. When the water main is completed, the Contractor shall restore the temporary and permanent rights-of-way to their original condition at his own expense.

3.13 CHANGE OF TRENCH LOCATION OR DEPTH

The Authority reserves the right to require changes in the trench location or depth. If field conditions require the lowering of the pipe to a depth greater than that specified, the Contractor shall obtain approval from the Authority to install the pipe at the lower depth. If the Contractor installs the pipe at the lower depth without such approval, and the Authority determines that a different pipe class is required at the lower depth, the Contractor shall excavate and remove the pipe of the lower class and shall install the pipe class required by the Authority at the Contractor's expense.

3.14 LENGTH OF OPEN TRENCH

The Authority reserves the right to limit the amount of trench opened in advance of pipe laying to not more than 300 feet, with a minimum of 25 feet, and the amount of pipe laid in advance of backfilling not more than 100 feet. At the close of work at night or at the discontinuance of work, not more than 20 feet of trench shall remain open at any location, pipe laying may be completed to within 5 feet of the end of open trench, and the Authority reserves the right to require the refilling of all open trenches.

3.15 ACCOMMODATION OF DRAINAGE

The Contractor shall keep gutters, sewers, drains and ditches open at all times for surface drainage. The Contractor shall direct water across or over pavement only through approved pipes or properly constructed troughs, and shall do so at its own cost and expense. The ground surface shall be properly ditched to prevent water from running into the pipe trenches.

3.16 ACCOMMODATION OF TRAFFIC

These provisions supplement the requirements of Article 1.09. Streets shall not be unnecessarily obstructed, unless the Contractor obtains permission in writing to close a street. The Contractor shall, at its own expense, take all necessary measures to keep the street or road open and safe for traffic. Keep at least a 3-foot straight and continuous passageway on sidewalks and over crosswalks. During shutdowns of work, the Contractor shall insure that all streets affected by construction are open and can be safely traveled by vehicles.

The Contractor shall construct and maintain, without extra compensation, adequate and proper bridges over excavations for safe accommodation of pedestrians or vehicles. The Contractor shall furnish and erect approved barricades at crossings of trenches, or along the trench, to protect the public.

All stored material and equipment which may be obstructions to traffic shall be protected by approved lights, lanterns, torches or guards. The Contractor shall not obstruct fire hydrants.

3.17 PROTECTION OF PROPERTY AND STRUCTURES

The Contractor shall, at its own expense, sustain in their places, and protect from direct or indirect injury, all poles, pipes, conduits, tracks, roadways, curbs, walks, walls, buildings and other structures or property in the vicinity of his work. The Contractor shall be responsible for any damages, and assume all expense for direct or indirect injury, caused by its work, to any person, property or structure.

Pipes and underground conduits exposed as a result of the Contractor's operations shall be adequately supported by timber or planking, such that the anchorage of the supports will not be disturbed or weakened during backfilling. Approved backfill material shall be carefully tamped under and around the supports, and all supports shall be left in place.

3.18 PERMITS AND LICENSES

The Authority shall obtain the necessary permit from PennDOT for the occupancy of state highways. The Authority will submit the required data and execute agreements with the railroad companies for the installation of water mains on their rights-of-way. The Contractor shall obtain and pay for any other permits required by local or other governmental agencies having jurisdiction over the streets to be opened. Prior to opening any excavation with the right-of-way of any railroad, state highway, borough or township streets, the Contractor shall make certain that the necessary agreements have been executed and that all required permits have been obtained by it, the Applicant, or the Authority.

3.19 CLEANUP

As the trenches are backfilled, the Contractor shall immediately remove and dispose of all surplus material. If the Contractor fails or neglects to keep roads, sidewalks and other areas free of surplus material, the Authority may remove such surplus material after 24 hours written notice to the Contractor, and the costs of said work shall be charged to the Contractor. When the paving is completed, all paved surfaces shall be swept clean and, if required by the Authority, shall be flushed with water. All such work shall be at the Contractor's expense.

3.20 MAINTENANCE OF UNPAVED AREAS

The Contractor shall maintain all backfilled excavations in all unpaved areas to the satisfaction of the Owner during the guarantee period.

3.21 CLEARING AND GRUBBING

Clearing includes the cutting and disposal of all trees, vegetation and other objectionable material occurring within a width of the work area established prior to construction. Grubbing includes the removal and disposal of all stumps and root mats located within the established area. The method of disposal of waste material shall conform to all State and local laws, ordinances and regulations, including the Air Pollution Control Act, as amended.

Shade trees, hedges, shrubbery, flowers and grass on private or public property shall not be cut or destroyed. The Contractor shall at his own expense protect and/or remove and replace shade trees, hedges, shrubbery and flowers along the water main and be responsible for establishment of firm growth of said trees and other vegetation. The Authority reserves the right to designate the size and number of trees to remain in place and these trees shall be protected from damage. Any trees killed or damaged by the Contractor's operations shall be replaced at his own expense.

SECTION IV - PIPELINE INSTALLATION

4.01 GENERAL

This Section covers the installation of the water mains, complete with all fittings, valves, reaction backings and/or harnessing, connections and appurtenances. The Contractor shall conform to AWWA Standard for Installation of Ductile Iron Water Mains, C600, except where otherwise specified herein.

4.02 RESPONSIBILITY FOR MATERIAL

The Contractor shall be responsible for all material, and shall replace at its own expense all such materials found defective in manufacture or damaged in handling, as determined by the Authority. Authority has the right to inspect all storage sites and preventive maintenance records at any time. Any materials found defective shall be promptly removed from the site. Defective pipe shall be classified as follows:

- A. Damage to interior or exterior paint seal coats.
- B. Damage to interior cement-mortar lining.
- C. Insufficient cement-mortar lining thickness.
- D. Poor quality interior paint seal coat causing a partial obstruction in the pipe round.
- E. Pipe out of round.
- F. Damaged pipe barrel area causing a reduction in effective pipe thickness.
- G. Any material that is dropped during handling, regardless of its apparent condition.

4.03 HANDLING OF MATERIAL

Pipe shall be so handled that the coating and lining is not damaged. If any part of the coating or lining is damaged, the repair shall be made by the Contractor, at the Contractor's expense, to the satisfaction of the Authority. Valves and hydrants shall be stored and kept dry before installation. Any material that is dropped during handling is subject to rejection regardless of its apparent condition.

4.04 ALIGNMENT AND GRADE

Maximum allowable deflection at joints for push-on joint ductile iron pipe is as follows (half of the manufacture's allowable deflection):

Size of Pipe	Deflection Angle	Maximum Deflection	
		18 ft. Length	20 ft. Length
Thru 12"	2-1/2°	9-1/2"	10-1/2"
14" - 24"	2-1/2°	9-1/2"	10-1/2"

Where underground conditions require a change of alignment or grade, such change shall only be made with the written consent of the Authority. When a change in grade is indicated, the class of pipe installed at the location shall withstand the new loadings.

Except at predesignated point, no high point shall be established where air can accumulate. If field conditions necessitate a change in the pipe profile and, in the opinion of the Authority, the change requires the installation of an air release valve and manhole, the Contractor shall install the same at his expense.

4.05 LOWERING WATER MAIN MATERIAL INTO TRENCH

The Contractor shall conform to AWWA Specification C600, Section 3.3.

4.06 CLEANING PIPE AND FITTINGS

All lumps, blisters and excess coating shall be removed from the end of each piece of pipe and fittings. The outside of the spigot, the inside of the bell and the gasket shall be thoroughly wiped clean and dried before the pipe is installed. Remove pipe and fittings if interior has been contaminated with oil, gasoline, kerosene or other material damaging to bituminous seal coat or cement-mortar lining and replace.

4.07 LAYING PIPE

No pipe shall be laid when, in the opinion of the Authority, trench or weather conditions are unsuitable. When pipe laying is not in progress, the open ends of installed pipe shall be closed by approved means to prevent entrance of trench water and foreign material into the line. Enough backfill shall be placed in the center sections of the pipe to prevent floating. Any pipe that has floated shall be removed from the trench and relaid.

All joints shall be made in accordance with the pipe supplier's specifications and in accordance with the following instructions:

- A. Push-on Type Joints: Cleaning and assembly of push-on joints shall conform to AWWA C600, Section 3.4.1.
- B. Mechanical Joints: The cleaning, assembly and bolting of the mechanical joint shall conform to AWWA C600, Section 3.4.2.

- C. Bell-and-Spigot Joints: Bell-and-spigot joints shall conform to AWWA Specification C603, Section 3.4.4.4.
- D. Flanged Joints:
1. Flanged joints shall not be used for buried service.
 2. Flanges shall be wiped clean with a solvent-soaked rag prior to installation. The gasket shall also be wiped clean.
 3. The pipe, fittings and valves shall be properly supported during installation.
 4. All flanges shall be properly aligned and checked with a spirit level, both horizontally along the pipe and vertically across the flange faces.
 5. With flanges secured in position, half the bolts shall be inserted at the bottom of the flange, the gasket inserted between the flanges and the remaining bolts inserted.
 6. The threads of the bolts shall be given a light coating of thread lubricant and the nuts shall be installed on the bolts and turned up by hand. The nuts shall be tightened with a wrench by the crossover method to load the bolts evenly until the joints are tight.

4.08 SETTING VALVES AND VALVE BOXES

All valves shall be set vertical and shall be provided with a valve box. If the valve is furnished with a bypass, a valve box shall also be furnished for the bypass valve. The tops of boxes shall be set to finished grade, unless directed otherwise by the Authority.

4.09 SETTING OF HYDRANTS

Fire hydrants shall be installed as specified in AWWA C600, Section 3.7. Where there is no sidewalk or curb the hydrant shall not be less than 6 feet from the edge of the paved road surface. In no case will hydrants be located closer than 25 feet to a building except where building walls are blank firewalls. Hydrants shall not be located closer than 3 feet to any obstruction, or in front of any entrance ways. All hydrants shall stand plumb, with the pumper nozzle facing the curb, and the hose nozzles parallel to the curb. The lowest nozzle shall be at least 18 inches above finished grade. Connecting hydrant lateral main shall be 6 inches or larger and controlled by an independent gate valve. The gate valve shall be placed a minimum of 2 feet from the hydrant, unless directed otherwise by the Authority.

4.10 ANCHORAGE

All plugs, caps, tees and bends (both horizontal and vertical) shall be provided with concrete reaction backings, or shall otherwise be anchored as authorized by the Authority. Sizes of required concrete reaction backings are shown on the attached standard detail Sheet No. W2. Where the water mains must be tested before connections to existing mains can be installed, temporary reaction backings or restrained type plugs shall be installed. Concrete for reaction backings shall be High Early Strength cement concrete as specified in Article 2.22.

The Contractor shall submit a sketch and obtain the Authority's approval for the anchorage of the pipe and fittings at each connection, or at any other locations designated by the Authority. The Authority reserves the right to require mechanical joint retainer glands in addition to concrete reaction backings.

Hydrant bases shall be braced against undisturbed earth with reaction backings, or shall be restrained with tie rods, clamps or retainer glands, in a manner approved by the Authority. The approved hydrant installation is shown on the attached standard detail Sheet No. W3.

4.11 CONNECTION TO EXISTING SYSTEM AND INTERRUPTIONS OF SERVICE

The Contractor shall notify the Authority at least 7 working days before installing connections to the existing water system or shutting off a portion of the system. All valves shall be operated by a representative of the Authority. Under no circumstances shall the Contractor operate valves on the existing system.

The Authority reserves the right to designate the day and time when water mains may be shut-off and may require that this work be done at night or on a weekend. In addition, the Authority reserves the right to require that, where service to customers is interrupted, work is carried out continuously and expeditiously until water service is restored. The Contractor shall give adequate and timely notice to the Authority's customers in advance of construction requiring service interruption. The installation schedule and procedure shall be approved by the Authority before the work is started, and all necessary material, tools and equipment shall be on hand before work is started. Where required, the new water mains shall be tested, sterilized and flushed prior to the installation of the connections. For jobs such as installation of connections, cutting and capping of existing water mains or passing of existing fittings, the Authority has the right to require that work be continuous, without interruption and that this work be at night or on a Sunday.

The Contractor shall dig test pits prior to making any connection to existing water mains in order to determine the exact location, elevation, diameter and type of the existing pipe. Test pits shall be excavated under the supervision of the Authority and shall be protected and backfilled by the Contractor.

4.12 SERVICE LINES

- A. General: The sizing of customer service lines shall be subject to Authority approval and shall be based on the length of line and the water demand. Residential service lines shall normally be 3/4 inch in size. The service line shall normally consist of a plastic pit setter as described in Article 2.27.
- B. Materials:
 - 1. Corporation Stops: See Article 2.12.
 - 2. Plastic Water Service Tubing: See Article 2.09.
 - 3. Copper Tube: See Article 2.10.

4. Fittings for Copper and Plastic Tubing: See Article 2.11.
5. Curb Stops and Boxes: See Article 2.13.
6. Meter Pits and Plastic Pit Setters: See Article 2.27.

- C. Construction Methods: When installing corporation stops, the main shall be tapped at a 22 ½ degree angle above the horizontal. Service tubing shall be installed as a continuous length of pipe and shall have a minimum cover of 4 feet. Curb stops shall be vertical, with the top of the curb box at finished grade. Where grading may be still in progress, the curb box shall be marked by a high stake. Curb boxes shall be located behind curbs and outside driveways.

4.13 RAILROAD AND CREEK CROSSINGS

Pipeline crossings under railroad tracks and creeks shall be installed in accordance with Section VIII. Special Crossings.

4.14 STATE HIGHWAY AND STREET CROSSINGS

The general requirements for work on state highway rights-of-way are specified in Article 8.05. Maintenance and control of traffic shall be as specified in Article 1.09, and the accommodation of traffic as specified in Article 3.16.

All construction on state highway right-of-way shall be subject to inspection by PennDOT personnel. Streets under local jurisdiction may also be subject to inspection by the borough or township engineer. All inspection costs shall be borne by the Contractor.

4.15 CORROSION CONTROL

Water mains that cross pipelines which are now, or may be in the future, cathodically protected, shall be constructed using PVC pipe as specified herein. The PVC pipe shall extend a minimum distance of 20 feet from the crossing pipe on each side. The PVC pipe shall be suitable for direct connections to cast iron or ductile iron piping, and shall conform to AWWA C900.

SECTION V - TESTING AND DISINFECTION

5.01 GENERAL

This Section covers the testing and disinfection of the water mains. The Contractor shall prepare a schedule and procedure for the testing and disinfection of the different parts of the work, and shall submit the same to the Authority for approval two weeks before beginning the testing and disinfection. The Contractor shall perform the testing and disinfection promptly and efficiently without interference to the system operation. The Contractor shall give the Authority 48 hours' notice before testing any main.

The Contractor shall begin testing and disinfection of the various sections of water mains promptly upon the completion of a section of work unless the Authority approves otherwise. The Authority reserves the right to limit the amount of water main to be tested. The Authority shall close the section of water main to be tested by valves or temporary plugs. The Contractor shall install temporary reaction backings where required. Do not test or disinfect water mains if air temperature is expected to fall below 35 degrees F.

5.02 HYDROSTATIC AND LEAKAGE TEST

Hydrostatic pressure tests shall not be made until at least 5 days after the High Early Strength cement concrete reaction backings are installed. Conduct hydrostatic and leakage tests in the presence and to the satisfaction of the Authority.

The Contractor shall completely backfill the trench, or may partially backfill the trench with written approval of the Authority, prior to carrying out the pressure test.

The section of water main being tested shall be filled with water a minimum of 24 hours before the main is tested. The Authority shall insure that the air is expelled from the pipeline. Any taps necessary to release air or water from the main during testing shall be made at the Contractor's expense, unless retained by the Authority for other use.

After the pipeline has been filled with water for 24 hours, the Contractor shall conduct a hydrostatic or pressure test. The duration of the pressure test shall be at least 2 hours. Each section of water main shall be tested under the design pressure specified in Article 1.02 C.2, measured at the low point of the section of main being tested. The pressure shall be 150 psi, unless otherwise specified by the Authority. The Contractor shall not employ a test pressure which exceeds the allowable pressure of any installed pipe, valve or appurtenance. The section of pipeline shall be tested and examined in accordance with AWWA C600, Section 4.1. After completion of the test the Authority will flush the system. Sixteen hours after replenishing the system, will be responsible for obtaining samples for testing.

The leakage test shall be in accordance with AWWA C600, Section 4.1, except that the Contractor shall provide an approved means for measuring the leakage. The leakage test may be

conducted at the same time as the pressure test, provided leakage is suitably measured during the pressure tests and a 2-hour record is kept of water added to the pipeline.

5.03 DISINFECTION

- A. General: Before being placed in service, all pipe installed under this Contract shall be disinfected by chlorination in accordance with AWWA C651, except where specified otherwise in this Section.
- B. Preliminary Flushing: Prior to disinfection, the section of pipeline being disinfected shall be flushed thoroughly. If necessary, the line shall be opened up to flush, as in a case where no hydrants are available. The Authority shall operate all existing flushing valves.
- C. Form of Chlorine for Disinfection: The Contractor shall use either liquid chlorine or calcium hypochlorite solution for disinfection in accordance with AWWA C651, Section 2.
- D. Application of Chlorine: The following table gives the amount of calcium hypochlorite and the quantity of 1 percent hypochlorite solution required to produce a 25 mg/l chlorine concentration in 100 feet of pipe:

Calcium Hypochlorite and Chlorine Solution Required to Produce 25 mg/l Concentration in 100 Feet of Pipe

Pipe Size (Inches)	Contents in a 100 - Foot Section			Amount of Calcium Hypochlorite		1% Chlorine Solution (Gallons)
	Cubic Feet	Pounds	Gallons	Ounces	Pounds	
3	4.9	306	37	1/5	0.012	0.09
4	8.73	545	66	1/3	0.021	0.16
6	19.65	1,227	147	3/4	0.046	0.36
8	34.90	2,178	261	1-3/8	0.083	0.65
10	54.28	3,388	406	2-1/8	0.131	1.02
12	78.48	4,899	587	3-0	0.185	1.44
14	106.90	6,673	800	4-1/8	0.258	2.01
16	139.98	8,738	1,047	5-3/8	0.334	2.60
20	218.06	13,611	1,631	7-3/4	0.486	4.08
24	314.16	19,603	2,350	11-5/32	0.698	5.88

- E. Point of Application: The chlorine solution shall be applied at the high end of the pipeline section through a corporation stop inserted in the top of the new pipe. If the water for the chlorine solution is supplied from the existing pipeline, there shall be a physical break between the injector supply and the injector or pump.
- F. Rate of Application: The chlorine solution shall be pumped slowly into the new pipeline until the entire main is filled with the chlorine solution. If required by the Authority, the chlorine residual shall be measured at several points along the main.
- G. Point of Discharge: The Contractor shall discharge the sterilizing solution through available outlets, or through taps in the main. The chlorine-bearing water is extremely toxic, and the Contractor shall protect property and fish life from damage due to the discharge of chlorine solution. If special precautions are required to prevent damage to aquatic life, the Contractor shall neutralize the chlorine solution by applying sodium thiosulfate, in the ratio of two parts thiosulfate to one part chlorine, at the point of discharge.
- H. Flushing Water: The Authority will provide flushing water. Existing water system valves shall be operated by the Authority.
- I. Water for Testing: The Authority will furnish water for one hydrostatic test and disinfection procedure per line installed. If pipelines must be retested and disinfected, the cost for additional water will be borne by the Contractor at current Authority rates.
- J. Tablet Method of Disinfection: The Authority, at its option, may allow the tablet method of disinfection to be used for short extensions (up to 2,000 feet) and smaller diameter mains (up to 12 inches). The tablet method shall be in accordance with AWWA C651, Article 5.1.
- K. Disinfection of Water Main Connections: If it is not possible to disinfect the pipe, valves and fittings in the manner specified above, the Contractor shall, with the Authority's approval, use the following procedure:

The Contractor shall prevent foreign material and trench water from entering the pipe, fittings and valves during their installation. The interior of all pipe, fittings and valves shall be swabbed with a 5 percent hypochlorite solution which can be obtained by mixing 3 pounds of granulated calcium hypochlorite with 5 gallons of water. After the pipe, fittings and valves have been swabbed, they shall be thoroughly flushed with water.

5.04 SERVICE CONNECTIONS

Service connections shall be part of the testing and disinfection program. The Contractor shall drain the chlorine from the service connections. If necessary, the Contractor shall request service customers to run spigots in the dwelling to remove chlorine from the lines. The Contractor shall be responsible for any damage to customer service lines.

SECTION VI - REPLACEMENT OF STREET PAVING,
WALKS, GUTTERS, INLETS AND CURBING

6.01 SCOPE

This Section of the Specification covers the requirements for the following:

- A. Removal and protection of street, roadway and shoulder paving.
- B. Temporary replacement of street, roadway and shoulder paving.
- C. Permanent replacement of street, roadway and shoulder paving.
- D. Restoration of unpaved shoulders adjoining paved streets.
- E. Restoration of unpaved streets and alleys.
- F. Replacement of street curbing, sidewalks, gutters and inlets.

6.02 GENERAL

The term "street" used in this Section of the Specifications shall mean any street, highway, avenue, boulevard, road, alley, lane, driveway, parking lot or other area used as a vehicle way.

Where the term "specified maximum trench width" is used herein, it shall mean the maximum trench width specified in Article 3.05.

Work on Pennsylvania Department of Transportation right-of-way shall be carried out in accordance with Regulations (67 PA Code, Chapter 459, Governing Occupancy of Highways by Utilities) published by the Department of Transportation.

In the event a Highway Restoration and Maintenance Bond or a Blasting Bond is required by the Pennsylvania Department of Transportation, the Contractor will obtain the bond(s) and be responsible for any costs.

The Contractor shall maintain all permanent replacement of street and shoulder paving, all restoration of stabilized shoulders adjoining paved streets, and all restoration of unpaved streets which the Contractor performs until such work is accepted by PennDOT or the local municipality.

Shoulder and pavement restoration requirements are described in part on the attached standard details on Sheet No. W4.

6.03 REMOVAL AND PROTECTION OF STREET AND SHOULDER PAVING

- A. Remove paving to a width equal to specified maximum trench width as defined in Section 3.05, plus 2 feet and not less than 1 foot on each side of the trench.
- B. Where paving must be removed for the installation of tapping sleeves and valves, the paving shall be removed in accordance with the valve manufacturer's recommendations for the size of pit required to properly install the tapping sleeve and valve. Prior to repaving, the Contractor shall cut back the existing paving 1 foot beyond the pit opening dimensions.
- C. If the Contractor removes or disturbs paving for a greater width than stated above without written authorization of the Authority, the Contractor shall repair or replace all such pavement at the Contractor's expense.
- D. Pavement shall be cut to neat lines equidistant from the centerline, using equipment suitable for such work, and pavement edges shall be maintained by the Contractor until the repaving is completed. If pavement edges are not satisfactory to the Authority, the pavement shall be recut prior to repaving, and the extra pavement removal and repaving shall be done by the Contractor and at its own expense.
- E. Where only 3 feet or less of the existing paving remains at the edge of a paved street or shoulder, this remaining paving shall be removed.
- F. All removal and protection of street and shoulder paving on state highways and local streets will be subject to inspection by representatives of PennDOT and the local municipality. All work must be performed in accordance with the requirements of PennDOT and the local municipality. Inspection cost shall be borne by the Contractor.
- G. The Contractor shall inform the local municipality in writing, with a copy to the Authority, at least 1 week prior to the start of work within the municipal right-of-way. If the Contractor anticipates temporarily closing a township or borough street, it shall notify the local municipality a minimum of 3 working days in advance and shall obtain municipality approval. A street shall not be closed without such approval.

6.04 REPLACEMENT OF STREET PAVING , WALKS, CURBING, GUTTERS AND INLETS

- A. General: Highway and street paving, sidewalks, curbing, gutters, inlets, paved and stabilized shoulders adjoining paved roads and highways where broken or damaged, shall be repaved, rebuilt or otherwise restored by the Contractor, as specified in this Section. The water main will not be accepted until all

replacement of pavements, sidewalks, curbing, gutters, inlets, paved shoulders and restoration of all unpaved surfaces is completed and approved.

Permanent pavement may be placed over trenches after water mains are satisfactorily tested, the trench backfill is approved by the Authority and appropriate government agencies, and weather conditions are suitable for the placement of permanent paving. Material and methods of installation shall conform to standard detail on Sheet No. W4 and to the specifications stated herein.

- B. **Materials:** Unless otherwise specified herein, all materials used in the work covered by this Section of the Specifications shall conform to the PennDOT Specifications, Form 408, and all bulletins supplementary thereto. Sources of paving materials and the paving subcontractor, if used, shall be approved by the Authority prior to the start of paving operations. The type of paving materials specified herein are minimum requirements. If existing paving is constructed of superior materials, the Contractor shall replace that kind at its own expense and at no cost to the Authority.
- C. **Construction Methods:** Backfilling of trenches and the preparation of subgrades shall conform to the requirements specified hereinbefore in Section III.

The placing of bituminous paving mixtures shall terminate between October 15 to 31 and shall not be resumed prior to April 1 to 15, unless otherwise approved in writing by the Authority. Interim days between date limits may be used for placement as determined by Authority depending on weather conditions.

Bituminous paving mixtures shall not be placed on wet surfaces; nor, when the air temperature is 40 degrees F or lower; nor, when the temperature of the pavement, base or binder on which it is to be placed is 40 degrees F or lower.

The existing surface of curbs, structures, gutters and paving to be in contact with bituminous mixtures, shall be painted with a uniform coating of AE-T Bituminous Tack Coat or of the type designated for the surface course.

After the paving is completed over a section of trench, the joint between the new and existing paving shall be sealed with AC-20, asphalt cement. The sealing material shall be applied in accordance with PennDOT Section 469.4.

6.05 TEMPORARY PAVEMENT REPLACEMENT

If the PennDOT inspector, local municipality, weather conditions or other conditions do not permit the placement of permanent pavement, the Contractor shall place temporary paving in lieu of the permanent paving. Temporary paving shall conform to standard detail on Sheet No. W4.

The temporary paving shall include a compacted base course of PennDOT No. 2RC coarse aggregate. The material shall be spread on a thoroughly tamped subgrade and compacted to the satisfaction of the Authority. After compaction, the base course shall be 2 inches below the adjacent existing paving. A surface of Type 2P plant-mixed bituminous stockpile patching material shall then be placed on the base and compacted to a 2-inch depth so as to be flush with the adjoining pavement. The Type 2P material shall conform to the requirements of PennDOT Section 484.

Temporary pavement shall be removed and disposed of by the Contractor when permanent paving is authorized. The Contractor will be required to continuously maintain all temporary paving without additional compensation until it is removed.

6.06 PERMANENT PAVEMENT REPLACEMENT

- A. General: Permanent pavement replacement shall be installed in accordance with the following standard details:

State Highway	Sheet No. W4
Type 6-I Shoulder	Sheet No. W4
Township Highway/Borough Streets	Sheet No. W4
Driveway and Parking Areas	Sheet No. W3

The above types of pavement are the normal requirements, but the Authority will consider other types of pavement replacement for specific locations, subject to the approval of PennDOT or the local municipality.

- B. Permanent Pavement with Plain Cement Concrete Base and Bituminous Surface: Permanent pavement replacement of transverse trenches in State Highways shall consist of an 8-inch minimum cement concrete base and a bituminous material surface course not less than 2-1/2 inches thick after compaction. The materials and methods used to construct the concrete base shall conform to PennDOT Section 305, except that High Early Strength cement shall be used. High Early Strength cement concrete shall conform to PennDOT Section 704 (g). If the trench excavation width exceeds 4 feet, No. 6 reinforcing bars shall be placed in the concrete base at 6 inches, center to center, with 2-inch clearance at each end and 3-inch clearance on the bottom as shown in detail on Sheet No. W4.

Following the curing of concrete, a tack coat of bituminous material conforming to PennDOT Section 460, Class AE-T, shall be applied to the concrete base. After the tack coat has cured, the ID-2 bituminous binder and wearing courses shall be placed. Install binder course with top surface below surface of adjacent pavement a distance equal to the thickness of replacement wearing course pavement. Install wearing course with top surface flush with surface of adjacent pavement. The materials, composition of mixture and methods used to construct the ID-2 binder and wearing courses shall conform to PennDOT Sections 421 and 420. Asphaltic cement, AC-20 conforming to PennDOT Section 469.4, shall be

applied to seal joints where new bituminous paving joins existing bituminous paving.

- C. Permanent Pavement with Bituminous Concrete Base and Bituminous Surface: Permanent pavement replacement on longitudinal trenches in State Highways and on Borough or Township Streets will be installed with a Bituminous Concrete Base Course (BCBC); such that, the top surface is below the surface of adjacent pavement a distance equal to the thickness of replacement surface course pavement. The material and methods used to construct the bituminous concrete base course shall conform to PennDOT Section 305. The bituminous material binder and wearing courses shall conform to paragraph (b) above. Permanent pavement shall conform to details on Sheet No. W4.

6.07 PERMANENT PAVED SHOULDER REPLACEMENT

Unless otherwise specified by the local municipality or PennDOT, permanent paved shoulder replacement shall conform to detail on Sheet No. W4. Notwithstanding the above, paved shoulders along State Highways, if identified by PennDOT as to Type, shall be restored to a condition equal to or better than that which existed prior to the trench excavation, in accordance with PennDOT Sections 651, 653, 654, 656 and 657.

6.08 RESTORATION OF STABILIZED SHOULDERS, STREETS AND ALLEYS

Trenches shall be backfilled from the top of the "Class A" bedding to within 18 inches of the adjacent surface in 4-inch mechanically tamped layers as shown on standard detail on Sheet No. W1. The final 18 inches of the backfill shall be made with Pa. No. 2RC coarse aggregate, compacted in 4-inch layers.

After the trenches have been backfilled as specified above, the Contractor shall grade and roll the entire width of the disturbed stabilized shoulder, street or alley area adjacent to the trench. The surface of the trench area and the disturbed area adjacent to the trench shall be penetrated with MC-30 bituminous material, conforming to PennDOT Section 461, at a rate of 0.25 gallons per square yard.

6.09 MISCELLANEOUS AREAS

Where the water main trench is located in unpaved areas outside the limits of stabilized shoulders, streets and alleys, the Contractor shall resort the unpaved area to its original condition or better. The Contractor shall protect mail boxes, signs and other structures from damage and replace any structure removed or damaged during construction to the property owner's satisfaction.

6.10 REPLACEMENT OF SIDEWALKS, CURBING, GUTTERS AND INLETS

All sidewalks, curbing, gutters and inlets removed, damaged or disturbed during the work shall be replaced by the Contractor at its expense.

Sidewalks shall conform to PennDOT Section 676 and details on Sheet No. W1.

Curbing shall conform to PennDOT Section 630, 633, and 636 and detail on Sheet No. W1.

Gutters shall conform to PennDOT Sections 640 and 641.

Endwalls and inlets shall conform to PennDOT Section 605.

6.11 PERMIT

The Applicant or Contractor shall obtain the necessary permit for construction on State rights-of-way, and shall be responsible for constructing the water main in strict conformance to PennDOT requirements.

The Contractor shall obtain all permits required by local municipalities for the opening of streets and shall adhere to all requirements, ordinances, rules and regulations of such municipalities regarding the opening of streets and the procedures to be followed during construction.

SECTION VII - PLANTING AND SEEDING

7.01 GENERAL

The Contractor shall protect trees, shrubs, plants and grassed areas from damage. The Contractor shall pay the cost of guarding and protecting trees, shrubs, plants and grassed areas; cutting down, removing and replanting trees and shrubs; and reseeding of damaged grass areas.

No trees, shrubs or plants shall be cut down or removed without authorization from their Owner. When trees and shrubs are authorized to be cut down, the stumps shall be removed and all debris properly disposed of by the Contractor. Grassed areas damaged by the Contractor's operations shall be reseeded.

Contractor shall submit laboratory test reports of soil analysis and supplement recommendations to Engineer for approval prior to adding any soil supplements to topsoil.

7.02 TREES AND SHRUBS

Trees and shrubs designated by the Authority shall be removed and replanted when the local climatic and soil conditions are favorable for satisfactory planting operations. Trees and shrubs, when removed from the ground, shall be replanted within 48 hours.

Trees and shrubs shall be removed by excavating a ball of soil encompassing the principal root system. The ball of soil shall have a minimum diameter as follows:

Size of Trunk	Diameter of Soil Ball
1"	24"
2"	30"
3"	36"

The ball shall be wrapped with burlap or similar approved material and tightly laced to hold the ball firm and intact. The balled and burlapped plants shall be temporarily stored in a protected place with balls 6 inches apart and voids filled with moist mulch to and including the top of the ball.

Shrubs and any other woody plants that are removed with bare roots shall be protected at all times. The bare roots shall be carefully packed in sphagnum moss, moist straw or other suitable material.

All plant holes shall be prepared in accordance with PennDOT Section 808.3 (d). Planting operations shall conform to PennDOT Section 808.3 (g). A shallow basin, approximately 3 inches in depth and the diameter of the hole, shall be constructed of backfill mix around each plant. After the backfilling is completed, the plant basins shall be thoroughly watered.

The backfill area outside the root spread area shall be fertilized with commercial fertilizer of uniform composition, free-flowing and in conformity with applicable state fertilizer laws and applied to the surface in accordance with the following proportions:

Trees - 1 pound per inch of diameter

Shrubs - 1/4 pound per foot of height

Analysis shall be as recommended by laboratory soil supplement recommendations report. Immediately following fertilizing, all plant basins shall be uniformly mulched to a loose depth of 3 inches of tanbark. If required by the Authority, the trunks of trees shall be wrapped with 4-inch wide waterproof paper and shall be staked and guyed.

7.03 SEEDING

- A. **Finish Grading and Topsoiling:** After trenches have been backfilled to within 4 inches of final grade, the Contractor shall fill the trench with approved topsoil. Grassed areas outside the trench which are damaged by construction operation as compacted by construction equipment shall be free from clay lumps, stones or other objects larger than 3 inches in diameter.

The topsoil shall be uniformly distributed on the designated areas and evenly spread to an average thickness of 4 inches, with a minimum thickness of 3 inches. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry or in a condition otherwise detrimental to the proposed planting or proper grading. Establish finish grade of topsoil one-half to three-quarter inch below top of abutting walks or paving to provide positive drainage.

After the topsoil has been spread and rough graded, the area shall be thoroughly tilled to a minimum depth of 2 inches. The surface shall then be cleared of all stones or other objects larger than 2 inches in diameter and all roots, brush or other objectionable material. The area shall then be fine graded to avoid the formation of sharp changes in grade, gulleys and any low areas that will result in erosion and ponding.

- B. **Application of Lime and Fertilizer:**
1. **Liming:** Pulverized limestone shall conform to the requirements of ASTM C602 and applicable state liming material regulations. Lime shall be distributed uniformly at a rate of 800 pounds per 1,000 square yard area and shall be incorporated into the soil to a depth of 2 inches by approved equipment and acceptable methods. Lime shall be applied at least 15 days prior to the application of a fertilizer and seed mixture.
 2. **Fertilizing:** All fertilizers shall conform to the requirements of any applicable state fertilizer law and shall be 10-20-20 grade. Fertilizer shall be distributed uniformly at a rate of 140 pounds per 1,000 square yard

area and into the soil to a depth of 2 inches by approved equipment and acceptable methods.

- C. Planting Seed: Seeds and Mixtures shall conform to PennDOT Section 804.2.

Sow seed when air current is low and not more than five days after soil supplements have been applied. Sow seeds in two applications using power seeders or mechanical seeders. Sow one-half of seed mixture in one direction over designated areas and the remainder at right angles to first sowing. The Authority reserves the right to designate the time the seeding may be carried out.

Embed seed into topsoil 1/4 inch using a light drag or rake moving in directions parallel to contour lines. Immediately after dragging or raking, compact seeded areas using a cultipacker or similar design lawn roller, weighting 60 to 90 pounds per linear foot of roller. Roll at right angles to existing slopes.

- D. Mulching: Immediately after compaction, a straw mulch shall be spread uniformly to provide a continuous 1-1/2 to 3-inch thick loose blanket over the seeded area. The straw shall then be anchored with twine, stakes, wire staples, paper nets, emulsified asphalt or other approved methods.
- E. Protection: The seeded areas shall be protected against traffic or other use by erecting barricades and warning signs.
- F. Establishment: The Contractor shall care for the seeded areas while the grass is becoming established and until final acceptance by the Authority. Seeded areas shall be watered within 2 days after seeding and mulching are completed and subsequently during the establishment period. The seeded area shall be mowed with approved mowing equipment to a height of 2- 1/2 inches as required. If weeds or other undesirable vegetation threaten the growth of the grass, such vegetation shall be removed.
- G. Repair: If any portion of the surface becomes damaged before acceptance, the affected portion shall be repaired to establish the grass.

SECTION VIII - SPECIAL CROSSINGS

8.01 GENERAL

This Section of the Specifications covers the requirements for the construction of railroad, stream and highway crossings.

All work shall be performed as specified herein, or as otherwise required by the railroad company, the Pennsylvania Department of Environmental Protection, PennDOT or other agencies having jurisdiction. Plans approved by these companies and agencies shall be submitted to the Authority before construction begins in the affected areas. Scheduling of construction work shall be approved by the Authority, and the Contractor may be required to work evenings and weekends at the Contractor's expense to comply with required schedules.

8.02 MATERIALS

- A. Water Main Pipe: All special crossings shall be constructed of restrained joint ductile iron pipe. Subject to approval of the railroad company, the Pennsylvania Department of Environmental Protection, PennDOT or other agencies having jurisdiction.
- B. Steel Casing Pipe: Steel casing pipe shall conform to Article 2.16 and shall be installed at the locations specified by, and of the diameter and wall thickness approved by the railroad company, the Pennsylvania Department of Environmental Protection, PennDOT or other agencies having jurisdiction. However, the Contractor, at its own expense, may install a larger diameter casing pipe than is specified, provided all necessary clearances under railroad tracks, highways, pipelines and other structures are maintained. If the Contractor elects to use a larger diameter steel casing pipe, the wall thickness shall be increased accordingly, as required by the governing agency.
- C. Concrete: Concrete shall be as specified in Article 2.22.

8.03 RAILROAD CROSSINGS

- A. General: Railroad crossings shall be installed in accordance with the requirements of Part 5, Pipelines, Specifications for Pipelines for Conveying Flammable and Non-Flammable Substances, latest edition, published by the American Railway Engineering Association and with any additional or special requirements of the Owner of the track. The Applicant shall pay all charges imposed by the railroad for the crossing installation, including license agreement preparation fees and the cost of any personnel and insurances required by the railroad company during the crossing construction.

- B. Work on Railroad Right-of-Way: The Contractor shall inform itself of the terms and conditions of the work on railroad right-of-way and shall bear the costs which may arise therefrom.

The Contractor may not work on railroad property until a fully executed copy of the agreement between the railroad company and the Authority is on file with the Public Utility Commission, provided that the Commission has not instituted proceedings affecting the validity of the agreement. Notify the railroad company seven days in advance of beginning work on railroad property. Work in the railroad right-of-way shall conform to the agreement between the railroad company and the Authority.

The Contractor shall submit any plans of construction method and proposed materials in accordance with railroad regulations. The railroad company approval of plans and methods of doing the work will not be considered a release from responsibility for damage to the railroad company by the acts of the Contractor or its employees.

All costs to the railroad for flagging and protective personnel, engineering inspection, removal and replacement of tracks, repair to railroad facilities damaged by the Contractor's operations and other work shall be borne by the Contractor or Applicant.

- C. Methods of Construction: The Contractor shall not start work within the railroad right-of-way until it has received authorization from the railroad company to start work.

All water main pipe crossings under railroad track shall be encased in a steel pipe conduit. Unless open cutting of all or part of a particular railroad crossing is specifically authorized by the railroad company in writing, all steel casing pipes shall be installed by boring, boring and jacking simultaneously or by drilling.

Boring pits shall be located outside railroad or highway right-of-way limits. Boring pits are not permitted closer to railroad or highway unless specifically authorized in writing by the railroad company. Boring pits located on railroad or highway right-of-way shall be backfilled to the satisfaction of the railroad company or PennDOT accordingly. Backfilling of excavations outside of railroad and highway right-of-ways shall be done in accordance with the requirements of Article 3.09. Blasting will not be permitted under or near railroad tracks and facilities. All excavations shall be sheeted, shored and braced as required to prevent subsurface subsidence, damage or disturbance of adjacent property and facilities. Boring or drilling methods, personnel and equipment shall be approved by the Authority and the railroad company.

Boring and jacking shall be carried out by pushing the pipe into the ground with a boring auger, rotating within the pipe to remove the spoil. The front of the pipe shall have a mechanical arrangement that will prevent the auger and cutting head from leading the pipe, so that there will be no unsupported excavation ahead of the pipe. The face of the cutting head shall provide reasonable obstructions to the free flow of soft or poor material. The use of water or other liquids for casing emplacement and spoil removal is prohibited.

If field conditions require, the boring or drilling operation shall be continued without interruption, except to install new lengths of casing pipe. The lengths of casing pipe shall be joined by welding completely around the circumference of the pipe.

If an obstruction is encountered during the installation which stops the forward action of the pipe, the Contractor shall cease operations and notify the resident inspector and governing agency immediately. An obstruction can be defined as being any physical object including water, electric, gas, sewer, telephone lines and manholes encountered during installation of casing pipes. Rock, boulders, sandstone, shale or similar objects encountered during construction of a crossing are not considered obstructions and are to be removed. If the installation cannot be continued, the casing pipe shall be abandoned and filled completely with grout.

After the casing pipe is installed, the water main pipe shall be made up at the joints and pushed through the casing pipe, using spacers in accordance with the Boring Detail on Sheet No. W5. The space between the water main pipe and the casing pipe at the casing pipe ends shall be closed with brick or other approved means, which will prevent dirt from entering the casing pipe, but which permits water to flow from the casing pipe.

If open cutting of a railroad crossing is permitted, the work shall be performed and completed during the time interval stipulated by the railroad. The track or tracks involved at the pipe crossing will be removed and resorted by railroad forces as required for the open trench installation at the Contractor's sole cost and expense.

Unpaved surfaces shall be restored to their original condition or better. Pavement replacement, where required, shall conform to Section VI.

8.04 STREAM CROSSINGS

- A. General: The Contractor or Applicant will obtain the necessary permits for stream crossings from the Pennsylvania Department of Environmental Protection. The Contractor shall not perform any work in a stream channel, unless notified that the required permit has been issued and informed of any special conditions. The

Contractor shall not damage the stream channel and stream banks, erode the stream banks, deposit excess sediment in the stream or otherwise harm the streams or the properties along the streams.

- B. Construction Methods: Excavation and backfill shall conform to the applicable provisions of Section III, Excavation and Backfill, or as specified herein. The pipeline shall be installed, so that there will be a minimum of 3 feet of cover between the top of pipe, or encasement, and the lowest point in the stream, unless the pipeline crossing is in rock, in which case, 1 foot of cover shall be provided. The pipeline shall be kept as horizontal as possible beyond existing stream banks to permit future channel improvements.

The Contractor shall lay the pipe in the dry by diverting the stream, and at the same time preventing property damage. The pipe shall be installed on wood blocks in order to maintain the proper grade. The pipe shall be encased with a minimum of 12 inches of concrete around the pipe as shown in detail on Sheet No. W5. After the concrete is placed, the balance of the trench, if the stream has an earth bottom, shall be backfilled with rock. If required by the Owner, Authority or responsible agency rock riprap shall be placed at the Contractor's expense over the trench a sufficient distance up each bank of the stream to prevent erosion. The banks of the stream shall otherwise be restored to a condition equal to or better than that which originally existed. Open ends of the pipeline shall be kept tightly plugged anytime work is not actually in progress on the pipeline.

Blasting in the stream will not be permitted unless written approval is first obtained from the Pennsylvania Fish Commission.

8.05 HIGHWAY CROSSINGS

- A. General: The Contractor or Applicant will submit PennDOT Form 945-A, Application for Highway Occupancy Permit, for work on state highway right-of-way. The Contractor will pay all PennDOT fees, including inspection costs, in connection with the project.
- B. Photodocumentation: At least 20 calendar days prior to work being performed in State Highway Right-of-Way, provide two copies of photodocumentation to the Authority verifying preconstruction condition of all pavement and shoulder surfaces that might be disturbed. Photodocumentation consists of color videotape (VHS format) or color film, with each cartridge or reel dated and compatible with PennDOT District viewing equipment. Color slides or color prints may be submitted in lieu of videotape or film, if each slide or print is clearly labeled, dated and arranged to verify surface condition of each successive 25 linear feet of pavement and shoulder that might be disturbed. Photodocumentation shall conform to PennDOT requirements.

If, in the opinion of the Authority or PennDOT, the photodocumented conditions or locations are not clear, complete or otherwise acceptable, the Authority will either return photodocumentation for resubmission or will create its own photodocumentation record and deduct costs from monies owed to the Contractor. The Contractor shall assume responsibility for delays in commencing work on State Highways because of unacceptable or late photodocumentation.

- C. Work on State Highway Right-of-Way: The Contractor shall not start work on state highway right-of-way until the Authority has received the "Opening-of-Highway Agreement."

The Contractor shall submit written notice to PennDOT a minimum of seven days prior to starting work on highway property. Provide copies of notice to Authority. The work carried out on state highway right-of-way shall be performed in accordance with the requirements set forth in PennDOT regulations Governing Occupancy at Highways by utilities, and such other special requirements of Article 8.03 C above.

If open cutting is permitted by PennDOT, only one-half of the crossing shall be installed at a time. When the first half of the crossing is installed, the trench shall be backfilled in accordance with these Specifications. The Contractor shall then pave the trench, or install steel plates over the trench if weather conditions do not permit immediate paving, so that the first half of the crossing can be opened to traffic prior to excavating the second half of the crossing.

SECTION IX - TEMPORARY ENVIRONMENTAL CONTROLS

9.01 GENERAL

- A. Section Includes: Requirements relating to responsibilities for environmental protection during construction of Project.
- B. Following paragraphs are general in nature however, comply with their intent. The specific requirements shall be described in the Soil Erosion and Sedimentation Control Plan.

9.02 NOISE CONTROL

- A. Take every action possible to minimize noise caused by construction operations. Operate in conformance with any applicable ordinances, regulations, rules and laws in effect in area pertaining to noise.
- B. Provide equipment that operates with least possible noise. Provide electrically operated equipment in work area to extent possible. Equip air intake of compressors with silencers, and provide machinery operated by gearing with a type of gearing designed to reduce noise to a minimum. Equip internal combustion engines with mufflers. Maintain equipment silencing features in good condition and use at all times.

9.03 AIR POLLUTION CONTROL

- A. Exercise every reasonable precaution to keep air pollution to a minimum throughout life of Project.
- B. Maintain dust control throughout entire construction period by use of water sprinklers or chemical dust control binder. Coatings on structures located on private property, resulting from failure to control dust, will be removed promptly at no additional expense.

9.04 WATER CONTROL

- A. Keep excavations free from water while site grading, structural work, pipe laying, or other construction is in progress.
 - 1. Surface Drainage:
 - a. Intercept and divert upstream surface drainage away from work site by use of dikes, curb walls, ditches, pipes, sumps, or other means.
 - b. Intercept and divert work site surface drainage away from excavation by use of dikes, curb walls, ditches, pipes, sumps, or other means.
 - c. Design surface drainage systems so they do not cause erosion on or off site or cause unwanted flow of water.
 - d. Remove surface drainage system when no longer required.

- e. Remove debris and restore site to original condition.
- 2. Dewatering:
 - a. Provide and maintain ditches of adequate size to collect surface water and seepage that could enter excavations and divert into a sump that can be drained or pumped into drainage channels, or storm sewers if approved by Engineer and jurisdictional agency concerned.
 - b. Maintain trenches free of standing water until backfill operations are complete.
 - c. Install sedimentation ponds or other approved means as required to reduce amount of fine particles carried by water diverted into storm sewers or flowing off site. Provide treatment facilities as required to prevent construction originated pollutants from entering adjacent streams or property.
 - d. Should a storm sewer become blocked or have its capacity reduced due to dewatering operations, make arrangements with the jurisdictional agency for cleaning the sewer.
 - e. Backfill drainage ditches, sumps, and sedimentation ponds when no longer required, with granular material, concrete, or other approved material.

9.05 PLANT PEST CONTROL

- A. The indiscriminate movement of nursery stock, hay or straw mulch, equipment and soil samples into and out of Pennsylvania constitutes a potential hazard to State and National Agriculture. Comply with all applicable State and Federal Plant Pest Regulations in fulfillment of these Specifications.
- B. Information regarding these regulations may be obtained from the United States Department of Agriculture, Agriculture Research Service, Plant Pest Control Division, P.O. Box 1257, Roanoke, Virginia 24001.

9.06 DEBRIS CONTROL

- A. Proceed with construction cleanup as construction progresses. Cleanup consist of removal of mud, oil, grease, trash, used forms, scrap, debris, excess materials, and any other items that are unsightly or can cause the tripping or slipping of workmen, ladders, or equipment.
- B. Dispose of construction waste material in an authorized disposal area.
- C. Upon failure to clean up construction area each day to satisfaction of appropriate persons, Authority may clean area and deduct cost from monies due.

9.07 POLLUTION CONTROL

- A. Take precautions in conduct of operations as necessary to avoid contaminating water in adjacent water courses or water impoundments such as lakes, reservoirs, etc. Do not discharge pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful waste into or along side of rivers, streams, impoundments or into natural or man-made channels leading to them. Do not discharge water used during work on Project, that has become contaminated, into rivers, streams, or impoundments. Do not discharge any substance detrimental to water quality into the water supply.
- B. Conduct all earthwork, moving of equipment, water control of excavations or other operations likely to create silting, so as to minimize pollution of rivers, streams, and impoundments. Do not deposit excavated material in or so near to rivers, streams, or impoundments that it will be washed away by high water or runoff. Unless otherwise approved in writing by appropriate agencies, do not operate mechanized equipment in live streams except as required to construct pipe line crossings and temporary or permanent structures.
- C. Comply with applicable regulations of the Commonwealth of Pennsylvania Department of Environmental Protection and any other statutes relating to prevention and abatement of pollution.
- D. The Contractor shall obtain necessary permits; including wastewater disposal plan approval for discharge of chlorinated water used in disinfection/testing of pipelines, structures, etc., PADEP.

9.08 EROSION CONTROL

- A. Where determined necessary by Engineer, arrange for an on site review of potential soil erosion problems with personnel of the Soil Conservation District where the project is located. Use proper and acceptable methods of soil erosion and sedimentation control for exposed earthwork. Assume obligation for fines and related costs resulting from failure to provide adequate protection against soil erosion.
- B. Conduct work in complete compliance with all rules, regulations, and requirements of the Pennsylvania Department of Environmental Protection and the Soil Conservation District where the project is located.
- C. General Requirements:
 - 1. Perform stripping of vegetation, regrading or other earthmoving activities in a way that will minimize erosion.
 - 2. Where possible, preserve salient natural features; keep cut and fill operations to a minimum; and conform development to existing topography so as to minimize erosion.

3. Clear only those areas as required for construction and, where possible, maintain a vegetative buffer zone between the disturbed working area and any watercourse. If a minimum twenty-five foot buffer with heavy vegetation (75 percent of soil surface covered by plant life) cannot be maintained for any reason, construct a silt fence in its place and maintain until final restabilization is complete.
4. Do not deposit excavated materials in or near rivers, streams, or impoundments or otherwise located in a manner susceptible to erosion due to high water, flooding, or runoff.
5. Keep disturbed areas and time of exposure to a minimum.
6. Stabilize disturbed soils as quickly as practicable.
7. Immediately stabilize critical areas (disturbed areas with a surface gradient exceeding 30 percent) with vegetation after backfilling operations. Provide temporary seed consisting of annual rye grass and barley or oats or annual rye grass and cereal rye or wheat. Adequately cover those areas that cannot be planted with straw mulch, wood chips, or stone mulch. Matting for erosion control to be jute or excelsior matting.
8. Disturbed areas less than 30 percent in surface gradient are considered critical after exposure of more than 30 calendar days. Divert runoff from flowing onto critical areas.
9. Provide erosion control measures such as silt fence, earth berm or dike channels and other diversion devices that will safely convey runoff through disturbed areas to prevent scour or gulley erosion. When possible, divert runoff in a safe manner around disturbed areas using pipes with headwalls and protected outlets.
10. Install all permanent vegetation, paving, erosion control, and drainage facilities as soon as possible.
11. Restrict construction operations in rivers, streams, and impoundments to those areas which must be entered for construction of water mains and/or structures.
12. Frequent fording of live streams with construction equipment will not be permitted. Use temporary bridges or other structures wherever an appreciable number of stream crossings are necessary.
13. Place stone riprap on stream banks immediately after pipe is installed.
14. Maintain erosion control measures and facilities in proper condition, so they will individually and collectively perform the functions intended. Make periodic inspections at frequent intervals to detect any impairment of structural stability, and equate capacity or requisites of measures and facilities which might impair effectiveness. Take immediate steps to correct any impairment found to exist.
15. Repair existing sediment control devices disturbed during construction operations by end of that concurrent working day.
16. Do not permit sediment to accumulate in sedimentation basins to a depth sufficient to limit storage capacity or interfere with settling efficiency. Handle and dispose of any material removed so that a problem is not created

and every reasonable and practical precaution is taken to prevent material from reaching streams.

17. Stabilize slopes, channels, ditches or any disturbed areas as soon as possible after final grade or final earthmoving is completed. Where not possible to permanently stabilize a disturbed area immediately after final earthmoving is completed or where activity ceases for more than 20 days, promptly implement temporary stabilization measures, such as temporary seeding.
 18. Upon completion of the project, stabilize all areas disturbed so that accelerated erosion will be prevented. Maintain any erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period until stabilization is completed. Upon completion of stabilization, remove all unnecessary or unusable control measures and facilities, grade areas and stabilize soils.
 19. As applicable, conform with Federal, State and local laws, and General Specifications concerning soil erosion and sedimentation.
- D. Authority reserves the right to impose whatever limitations deemed necessary to assure an operation providing for soil erosion and sedimentation control consistent with the intent of this Section of the Specifications.
- E. All soil erosion and sedimentation control measures employed are subject to approval of Authority, Pennsylvania Department of Environmental Protection and local Soil Conservation District.
- F. In case of repeated failure on part of Contractor to control erosion, pollution, or siltation, Owner reserves the right to employ outside assistance or to use own forces to provide necessary corrective measures. Such incurred direct costs plus related engineering costs will be charged to Contractor and appropriate deductions made from any moneys due or to become due him under Contract.

APPENDIX A

APPENDIX A

CUSTOMER SERVICE CONNECTIONS

General: The customer's service line, beyond the Authority service line, shall be installed and maintained by the customer at the customer's expense. Furthermore, the customer is responsible for sizing the service line and for protection of the service box cover. The sizing of customer service lines shall be subject to Authority approval and shall be based on the length of line and the water demand. Residential service lines shall normally be 3/4 inch in size. The Authority reviews and comments, however, the Authority assumes no responsibility for adequacy of service line size.

Materials: Plastic water service tubing shall be polyethylene, defined as PE 3408, SDR 9, NSF approved, 200 psi, copper tube size (WST). Tubing shall conform to requirements of ASTM D2737 with stainless steel inserts at all connection points.

Copper tube shall conform to the requirements of ASTM B-88, with Type K underground and Type L in exposed locations.

All plumbing shall be furnished by the Applicant and installed in an approved manner. The Applicant shall use lead-free materials within all plumbing and piping systems installed and shall be liable for the removal and replacement of materials that violate this provision.

When reconnecting to an existing line, couplings shall be Ford Meter Box Co. Inc., couplings, polyethylene ("Grip Joint") of type needed to connect to existing service material.

A separate stop or valve, with drain and a check valve, shall be installed by the customer immediately inside the basement wall between the basement wall and the meter. The Applicant shall also install a meter setting device, to be furnished by the Authority and paid for by the Applicant, at a location approved by the Authority. A stop or valve shall be installed immediately after the meter to prevent plumbing drainage when the meter is removed.

Meters and Meter Setters: All meters, meter setters and appurtenances shall be purchased through the Authority.

Construction Methods: Service tubing (service laterals) shall be installed as a continuous length of pipe with 6 inches of sand beneath the pipe. After inspection of the line is complete and approval is given by the Authority, the trench shall be backfilled with sand to 6 inches above the pipe. Minimum cover over the pipe shall be 4 feet. No stone dust shall be used near water mains or service laterals.

The Customer's service line shall be constructed after the Authority's service line has been constructed, unless otherwise approved in advance by the Authority.

No other utility line except approved building sewer laterals or building drains, shall occupy or be within four(4) feet of the Customer's water service line trench, unless written approval is secured in advance by the Authority.

If the Authority permits the Customer's water service line to be placed in the same trench with the building drain or building sewer lateral, the following conditions shall be met:

- (a) The bottom of the water service line, at all points, shall be at least 18 inches above the top of the sewer line at its highest point.
- (b) The water service line shall be placed on a solid shelf excavated at one side of the common trench.

Disinfection: Service connections shall be part of the testing and disinfection program. The Contractor or Contracted Plumber shall drain the chlorine from the service connections. If necessary, the Contractor shall request service customers to run spigots in the dwelling to remove chlorine from the lines. The Contractor shall be responsible for any damage to customer service lines.

Inspection: The Customer, Homeowner or Contracted Plumber connecting to an existing water system, that has been approved and accepted, shall contact the Authority for inspection of the lateral. The inspection shall include the section of line in the customer's property from the curb stop toward the house. A meter pit or in-house meter shall be installed with a shut off on the house side. Meter pits shall be required for homes over 75 feet from the water main and homes which do not have sufficient basements as determined by the Authority. The line shall be charged and visually inspected before it is covered. Upon completion of the inspection to the Authority's satisfaction, the curb stop will be left open.

Special Requirements: No connections are permitted on the service line between the Authority's service line and the meter. All water supplied to the Customer is to pass through the meter.

If service line pressure is deemed excessive by either the Authority, applicant, or customer, it shall be the customer's responsibility to install a pressure regulator at his or her expense. Although service line pressure may be undesirably low, the Authority shall be under no obligation to increase pressure by pumping or other means.

The customer shall keep the customer service line in good condition under penalty of service discontinuance.

The customer shall pay all costs for relocating or changing the customer service line.

If the Authority is required to renew its water service line, and the customer's service line does not meet Authority specifications, the Authority may issue notice to the customer to renew his or her service line at the customer's expense, coincident with the Authority's renewal. If at any time the Authority performs repair work on Authority service lines and discovers galvanized or lead Customer service line pipe or leaks in a Customer's service line, the Customer, at his or her expense, shall be required to immediately replace the service line with a material and at a location approved by the Authority before water service is restored. The service line shall be equipped at an accessible point within the premises with a stop and waste cock of a pattern and material approved by the Authority.

APPENDIX A

CUSTOMER SERVICE CONNECTIONS

General: The customer's service line, beyond the Authority service line, shall be installed and maintained by the customer at the customer's expense. Furthermore, the customer is responsible for sizing the service line and for protection of the service box cover. The sizing of customer service lines shall be subject to Authority approval and shall be based on the length of line and the water demand. Residential service lines shall normally be 3/4 inch in size. The Authority reviews and comments, however, the Authority assumes no responsibility for adequacy of service line size.

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When reconnecting to an existing line, couplings shall be Ford Meter Box Co. Inc., couplings, polyethylene ("Grip Joint") of type needed to connect to existing service material.

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Construction Methods: Service tubing (service laterals) shall be installed as a continuous length of pipe with 6 inches of sand beneath the pipe. After inspection of the line is complete and approval is given by the Authority, the trench shall be backfilled with sand to 6 inches above the pipe. Minimum cover over the pipe shall be 4 feet. No stone dust shall be used near water mains or service laterals.

The Customer's service line shall be constructed after the Authority's service line has been constructed, unless otherwise approved in advance by the Authority.

No other utility line except approved building sewer laterals or building drains, shall occupy or be within four(4) feet of the Customer's water service line trench, unless written approval is secured in advance by the Authority.

If the Authority permits the Customer's water service line to be placed in the same trench with the building drain or building sewer lateral, the following conditions shall be met:

- (a) The bottom of the water service line, at all points, shall be at least 18 inches above the top of the sewer line at its highest point.
- (b) The water service line shall be placed on a solid shelf excavated at one side of the common trench.

Disinfection: Service connections shall be part of the testing and disinfection program. The Contractor or Contracted Plumber shall drain the chlorine from the service connections. If necessary, the Contractor shall request service customers to run spigots in the dwelling to remove chlorine from the lines. The Contractor shall be responsible for any damage to customer service lines.

Inspection: The Customer, Homeowner or Contracted Plumber connecting to an existing water system, that has been approved and accepted, shall contact the Authority for inspection of the lateral. The inspection shall include the section of line in the customer's property from the curb stop toward the house. A meter pit or in-house meter shall be installed with a shut off on the house side. Meter pits shall be required for homes over 75 feet from the water main and homes which do not have sufficient basements as determined by the Authority. The line shall be charged and visually inspected before it is covered. Upon completion of the inspection to the Authority's satisfaction, the curb stop will be left open.

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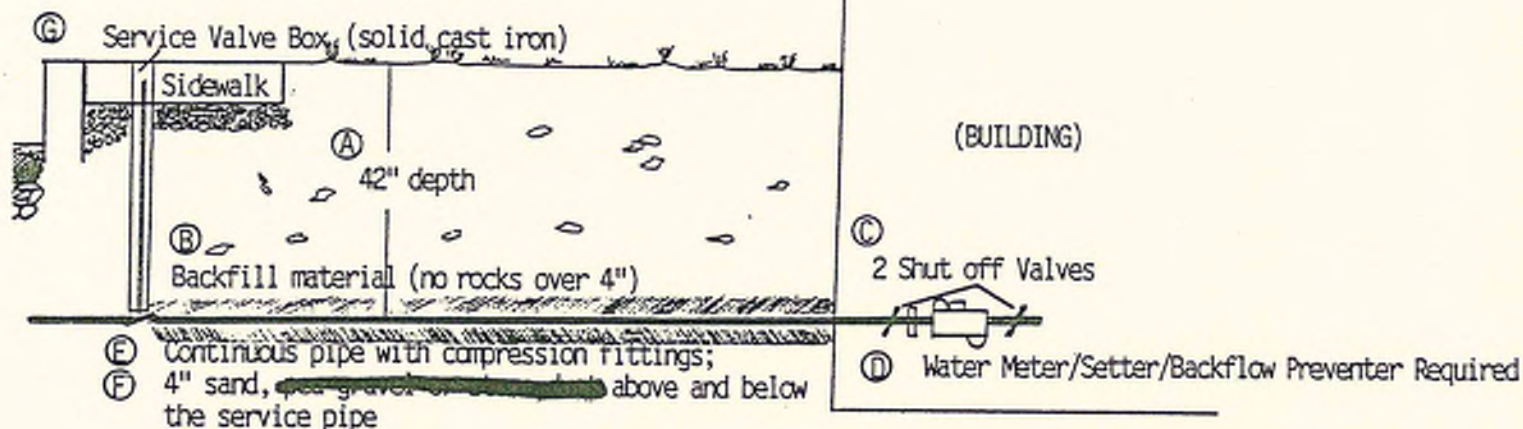
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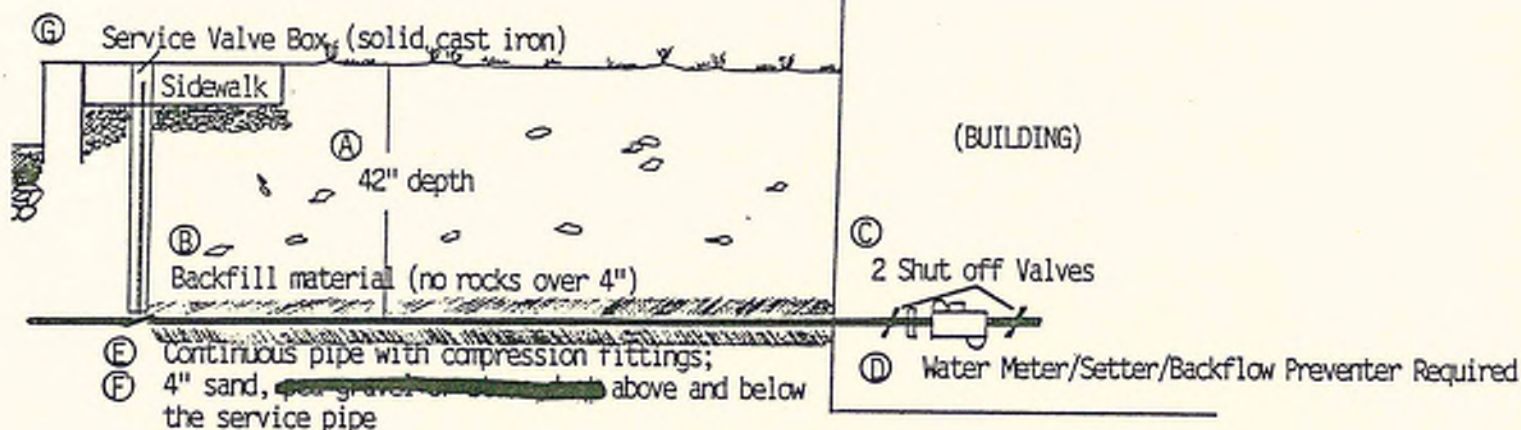
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WATER SERVICE SPECIFICATIONS
CONSUMER LINES



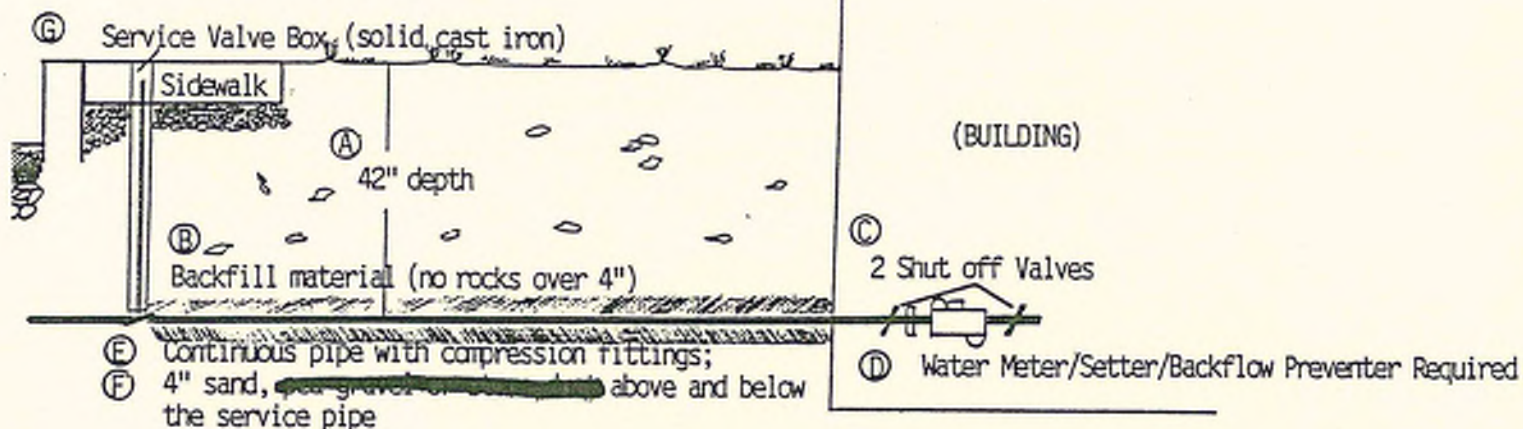
- A Piping Depth;
- B Backfill Material;
- C Shut off Meter Valves;
- D Meter/Setter/Backflow Prevention; (furnished by Authority)
- E Continuous Piping (K Copper or 200 psi Plastic);
- F Sand, ~~and gravel or stone dust~~
- G Service Valve Box 3" to 12" behind curb (solid cast iron);
- H Piping must be a minimum of 18" from sewer laterals;
- I If building is over 75' from curb, a meter pit is required outside the street right of way;
- J Inspection must pass prior to backfilling operations;
- K Permission to turn off/on service valves shall be obtained by calling (717) 597-7143.

WATER SERVICE SPECIFICATIONS
CONSUMER LINES



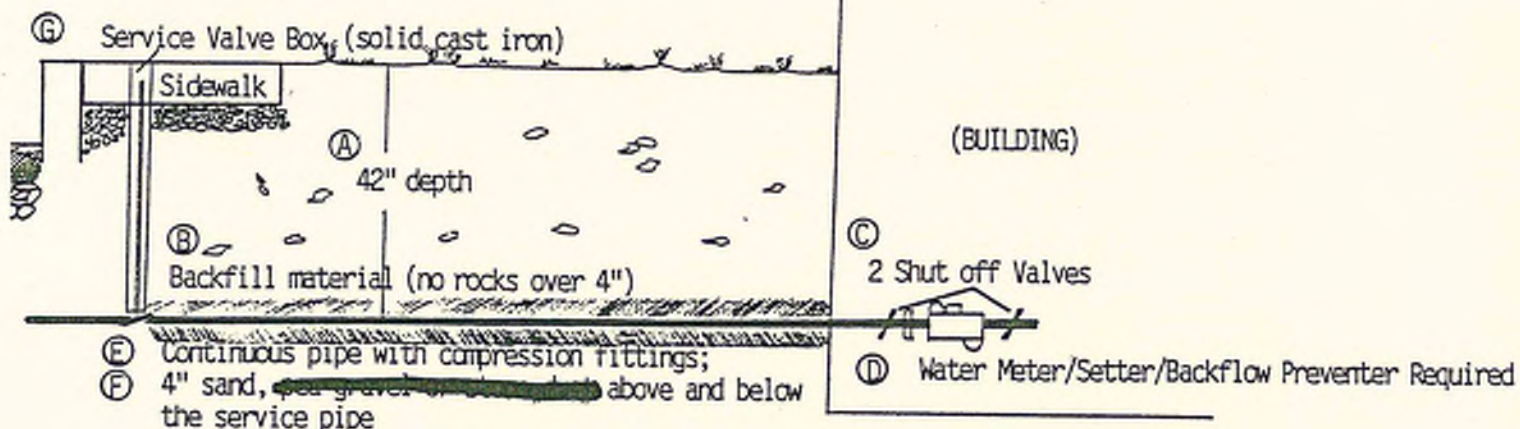
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WATER SERVICE SPECIFICATIONS
CONSUMER LINES



- A Piping Depth;
- B Backfill Material;
- C Shut off Meter Valves;
- D Meter/Setter/Backflow Prevention; (furnished by Authority)
- E Continuous Piping (K Copper or 200 psi Plastic);
- F Sand, ~~or Stone Dust~~
- G Service Valve Box 3" to 12" behind curb (solid cast iron);
- H Piping must be a minimum of 18" from sewer laterals;
- I If building is over 75' from curb, a meter pit is required outside the street right of way;
- J Inspection must pass prior to backfilling operations;
- K Permission to turn off/on service valves shall be obtained by calling (717) 597-7143.

WATER SERVICE SPECIFICATIONS
CONSUMER LINES



- A Piping Depth;
- B Backfill Material;
- C Shut off Meter Valves;
- D Meter/Setter/Backflow Prevention; (furnished by Authority)
- E Continuous Piping (K Copper or 200 psi Plastic);
- F Sand, ~~gravel or Stone Dust~~
- G Service Valve Box 3" to 12" behind curb (solid cast iron);
- H Piping must be a minimum of 18" from sewer laterals;
- I If building is over 75' from curb, a meter pit is required outside the street right of way;
- J Inspection must pass prior to backfilling operations;
- K Permission to turn off/on service valves shall be obtained by calling (717) 597-7143.

APPENDIX A

CUSTOMER SERVICE CONNECTIONS

General: The customer's service line, beyond the Authority service line, shall be installed and maintained by the customer at the customer's expense. Furthermore, the customer is responsible for sizing the service line and for protection of the service box cover. The sizing of customer service lines shall be subject to Authority approval and shall be based on the length of line and the water demand. Residential service lines shall normally be 3/4 inch in size. The Authority reviews and comments, however, the Authority assumes no responsibility for adequacy of service line size.

Materials: Plastic water service tubing shall be polyethylene, defined as PE 3408, SDR 9, NSF approved, 200 psi, copper tube size (WST). Tubing shall conform to requirements of ASTM D2737 with stainless steel inserts at all connection points.

Copper tube shall conform to the requirements of ASTM B-88, with Type K underground and Type L in exposed locations.

All plumbing shall be furnished by the Applicant and installed in an approved manner. The Applicant shall use lead-free materials within all plumbing and piping systems installed and shall be liable for the removal and replacement of materials that violate this provision.

When reconnecting to an existing line, couplings shall be Ford Meter Box Co. Inc., couplings, polyethylene ("Grip Joint") of type needed to connect to existing service material.

A separate stop or valve, with drain and a check valve, shall be installed by the customer immediately inside the basement wall between the basement wall and the meter. The Applicant shall also install a meter setting device, to be furnished by the Authority and paid for by the Applicant, at a location approved by the Authority. A stop or valve shall be installed immediately after the meter to prevent plumbing drainage when the meter is removed.

Meters and Meter Setters: All meters, meter setters and appurtenances shall be purchased through the Authority.

Construction Methods: Service tubing (service laterals) shall be installed as a continuous length of pipe with 6 inches of sand beneath the pipe. After inspection of the line is complete and approval is given by the Authority, the trench shall be backfilled with sand to 6 inches above the pipe. Minimum cover over the pipe shall be 4 feet. No stone dust shall be used near water mains or service laterals.

The Customer's service line shall be constructed after the Authority's service line has been constructed, unless otherwise approved in advance by the Authority.

No other utility line except approved building sewer laterals or building drains, shall occupy or be within four(4) feet of the Customer's water service line trench, unless written approval is secured in advance by the Authority.

If the Authority permits the Customer's water service line to be placed in the same trench with the building drain or building sewer lateral, the following conditions shall be met:

- (a) The bottom of the water service line, at all points, shall be at least 18 inches above the top of the sewer line at its highest point.
- (b) The water service line shall be placed on a solid shelf excavated at one side of the common trench.

Disinfection: Service connections shall be part of the testing and disinfection program. The Contractor or Contracted Plumber shall drain the chlorine from the service connections. If necessary, the Contractor shall request service customers to run spigots in the dwelling to remove chlorine from the lines. The Contractor shall be responsible for any damage to customer service lines.

Inspection: The Customer, Homeowner or Contracted Plumber connecting to an existing water system, that has been approved and accepted, shall contact the Authority for inspection of the lateral. The inspection shall include the section of line in the customer's property from the curb stop toward the house. A meter pit or in-house meter shall be installed with a shut off on the house side. Meter pits shall be required for homes over 75 feet from the water main and homes which do not have sufficient basements as determined by the Authority. The line shall be charged and visually inspected before it is covered. Upon completion of the inspection to the Authority's satisfaction, the curb stop will be left open.

Special Requirements: No connections are permitted on the service line between the Authority's service line and the meter. All water supplied to the Customer is to pass through the meter.

If service line pressure is deemed excessive by either the Authority, applicant, or customer, it shall be the customer's responsibility to install a pressure regulator at his or her expense. Although service line pressure may be undesirably low, the Authority shall be under no obligation to increase pressure by pumping or other means.

The customer shall keep the customer service line in good condition under penalty of service discontinuance.

The customer shall pay all costs for relocating or changing the customer service line.

If the Authority is required to renew its water service line, and the customer's service line does not meet Authority specifications, the Authority may issue notice to the customer to renew his or her service line at the customer's expense, coincident with the Authority's renewal. If at any time the Authority performs repair work on Authority service lines and discovers galvanized or lead Customer service line pipe or leaks in a Customer's service line, the Customer, at his or her expense, shall be required to immediately replace the service line with a material and at a location approved by the Authority before water service is restored. The service line shall be equipped at an accessible point within the premises with a stop and waste cock of a pattern and material approved by the Authority.

ADDENDUM NO. 1
June 2001

To the General Specifications for
WATER SYSTEM CONSTRUCTION
Dated February 2001

For
GREENCASTLE AREA, FRANKLIN COUNTY,
WATER AUTHORITY

This Addendum is made part of the above noted General Specifications.

REVISIONS TO SECTION II - MATERIALS

- (1) Page II-3, in Item 2.05, C., change "AWWA C500, Section 2" in the first paragraph to "AWWA C509".
- (2) Page II-3, in Item 2.05, C., revise the second paragraph to read as follows:

"Valves shall be vertical, resilient-seated inside screw, non-rising stem valves with 2-inch square operating nuts. Valves shall open to the left, shall be fitted with Double O-ring stem seals, and shall have mechanical joint ends conforming to AWWA C111. Valves shall be American Flow Control, Mueller or approved equal."
- (3) Page II-3, in Item 2.05, C., change "AWWA C500", in the third paragraph, to "AWWA C509".
- (4) Page II-7, in Item 2.20, revise the sentence beginning in the fifth line, to read as follows:

"Use a maximum working pressure of 150 psi and inlet size of 2 inches."
- (5) Page II-7, in Item 2.21, add to the beginning of the paragraph the following sentence:

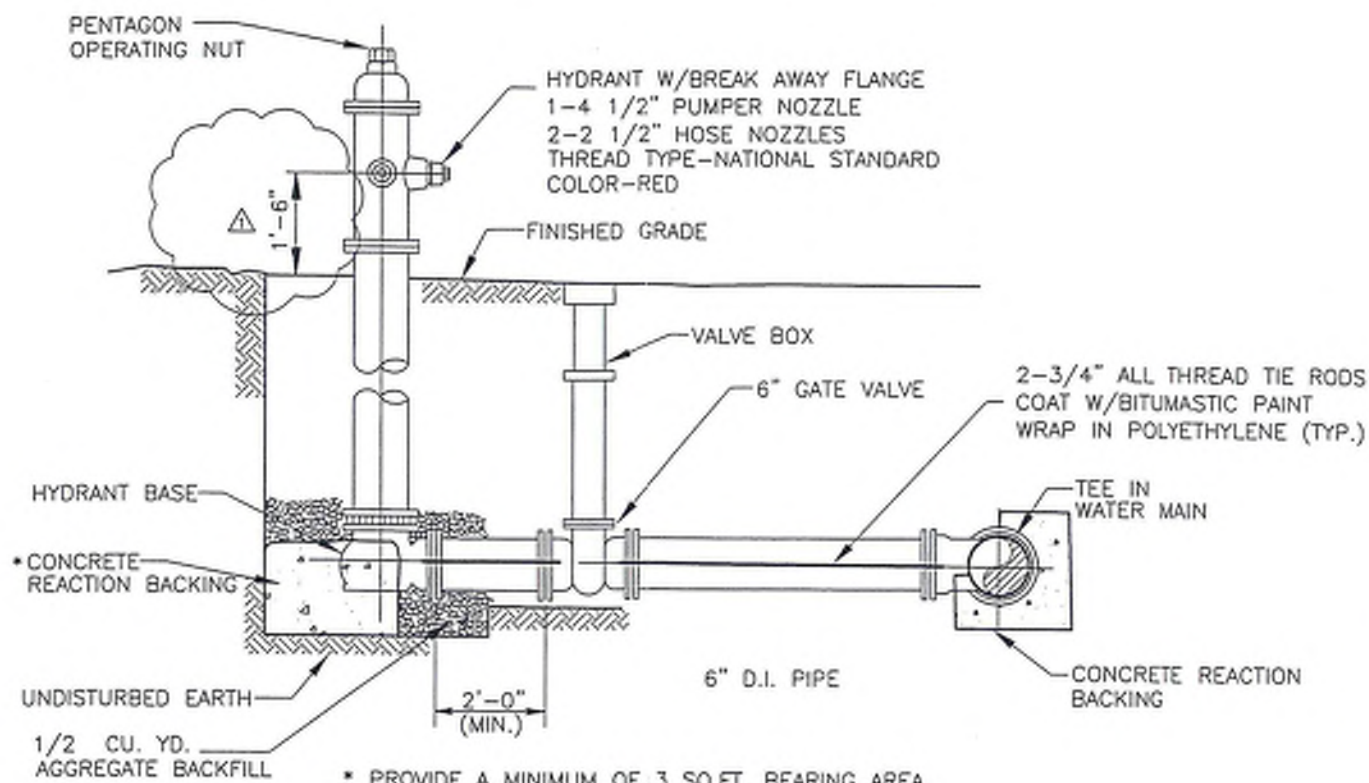
"The manhole shall be designed for AASHTO H-20 wheel loading."

REVISIONS TO STANDARD DETAIL DRAWINGS

(6) Sheet No.W3

- A. Revise the BLOWOFF HYDRANT DETAIL per attached Sketch No. SK1.
-

END OF ADDENDUM



* PROVIDE A MINIMUM OF 3 SQ.FT. BEARING AREA.

BLOWOFF HYDRANT DETAIL

NO SCALE

GREENCASTLE AREA, FRANKLIN COUNTY
 WATER AUTHORITY
 GREENCASTLE, PENNSYLVANIA

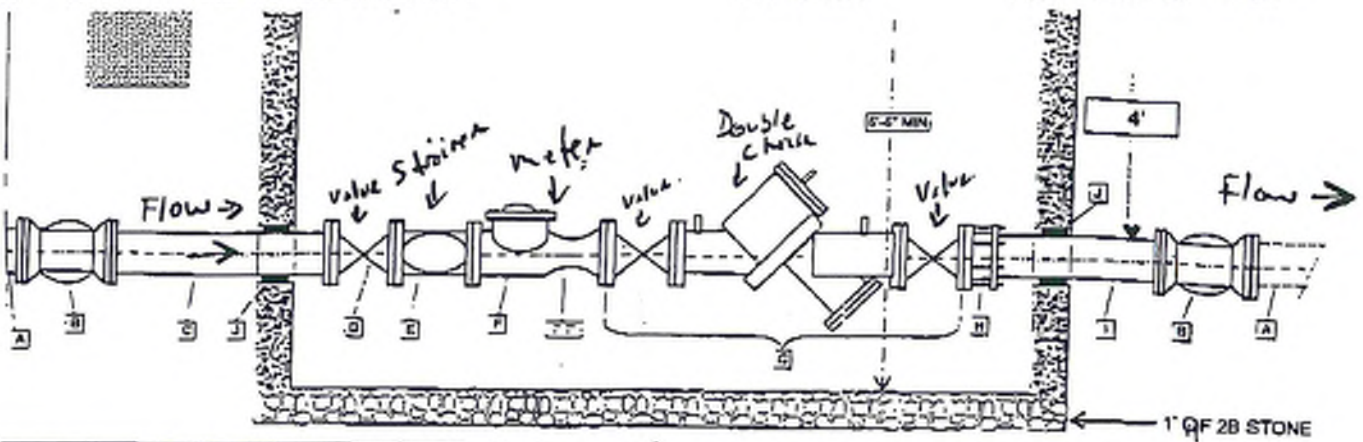
ADDENDUM NO. NO.1

SKETCH NO. SK1

GENERAL SPECIFICATIONS

DATE MAY 2001

MODIFICATION
 TO SHEET NO. W3



LIST OF MATERIALS				
ID	Quan	Size	Description	Tag
A	---	---	Existing water main	---
B	2 ea	---	Mech. J. Tee	---
C	1 ea	---	flange & plain end	---
D	1 ea	---	Flange gate valve	---
E	1 ea	---	Melton Farmer Strainer	---
F	1 ea	---	Melton Farmer Enclosure	---
	---	---	12000 water meter	---
	---	---	1 Cubic feet	---
G	1 ea	---	Flange Wilkens Model	---
	---	---	150 DCA double	---
	---	---	check valve backflow	---
	---	---	1 preventer w isolation valves	---
H	1 ea	---	flange coupling adapter	---
I	1 ea	---	plain end & plain end	---
J	7 ea	---	LS-100-C Link Seals	---

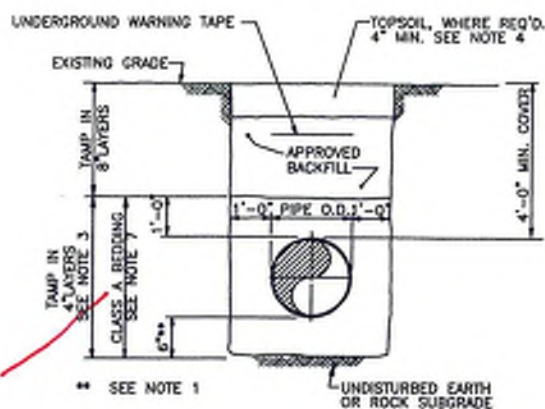
Notes:

1. Exact location to be determined in the field.
2. Vault to be sized according to meter assembly.
3. Support stands to be shown according to assembly size.
4. 4" Lines over 75' in length from main to building must use c vault and meter installed as close to main as field conditions will allow.
5. 4" lines 75' in length and under from main to building may install fire assembly inside building. Lines must be built to borough specs. with borough inspector on site.

COPY

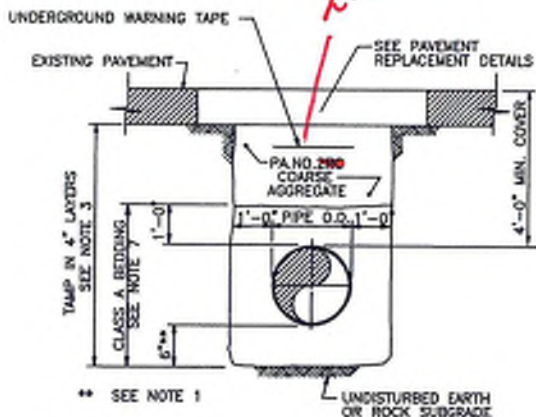
Done @ Newcastle.

DEC 20 2005



TYPICAL TRENCH UNPAVED AREAS

NO SCALE



TYPICAL TRENCH PAVED AREAS

NO SCALE

TRENCH NOTES:

1. IF UNSUITABLE SUBSOIL IS ENCOUNTERED AT THE NORMAL TRENCH SUBGRADE, THE CONTRACTOR SHALL REMOVE IT TO THE DEPTH DIRECTED BY THE ENGINEER IN THE FIELD, AND BACKFILL W/ CLASS 'A' BEDDING MATERIAL IN 4" LAYERS.
2. BOTTOM OF TRENCH SHALL BE FREE OF WATER PRIOR TO PLACING BEDDING.
3. IF VIBRATORY COMPACTION EQUIPMENT IS USED BACKFILL MAY BE IN 8" LAYERS.
4. PROVIDE 4" OF TOPSOIL WHERE SEEDING IS REQUIRED, SEE NOTE 6 AT GRAVEL DRIVEWAYS.
5. CONTRACTOR SHALL SHORE THE TRENCH IN ACCORDANCE WITH SECTION II, ARTICLE 3.08 OF THE AUTHORITY'S SPECIFICATIONS.
6. GRAVEL AND PAVED DRIVEWAYS TO BE RESTORED IN KIND WITH MINIMUM REQUIREMENTS AS INDICATED ON SHEET W3 OF THE AUTHORITY'S SPECIFICATIONS.
7. CLASS A BEDDING MATERIAL SHALL CONSIST OF AASHTO NO.8 STONE.

GREENCASTLE AREA, FRANKLIN COUNTY
WATER AUTHORITY
GREENCASTLE, PENNSYLVANIA

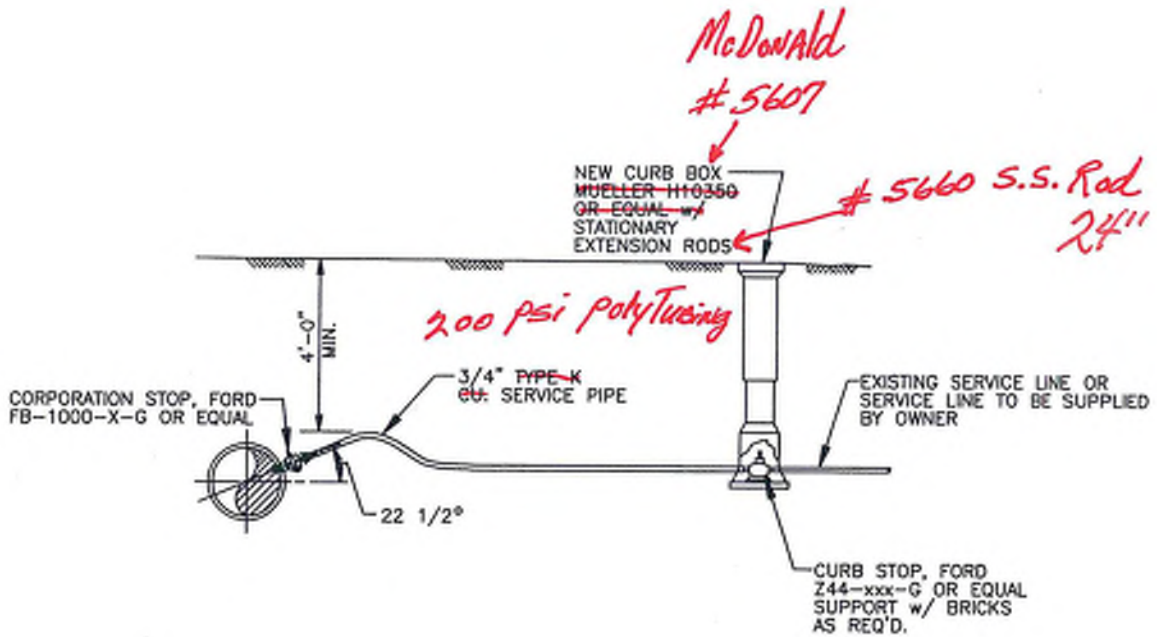
TRENCH DETAILS

SKETCH NO. SK1

GENERAL SPECIFICATIONS

DATE NOVEMBER 2004

PORTION OF SHEET NO. W1



TYPICAL SERVICE
CONNECTION DETAIL

NO SCALE

GREENCASLE AREA, FRANKLIN COUNTY,
WATER AUTHORITY
GREENCASLE, PENNSYLVANIA

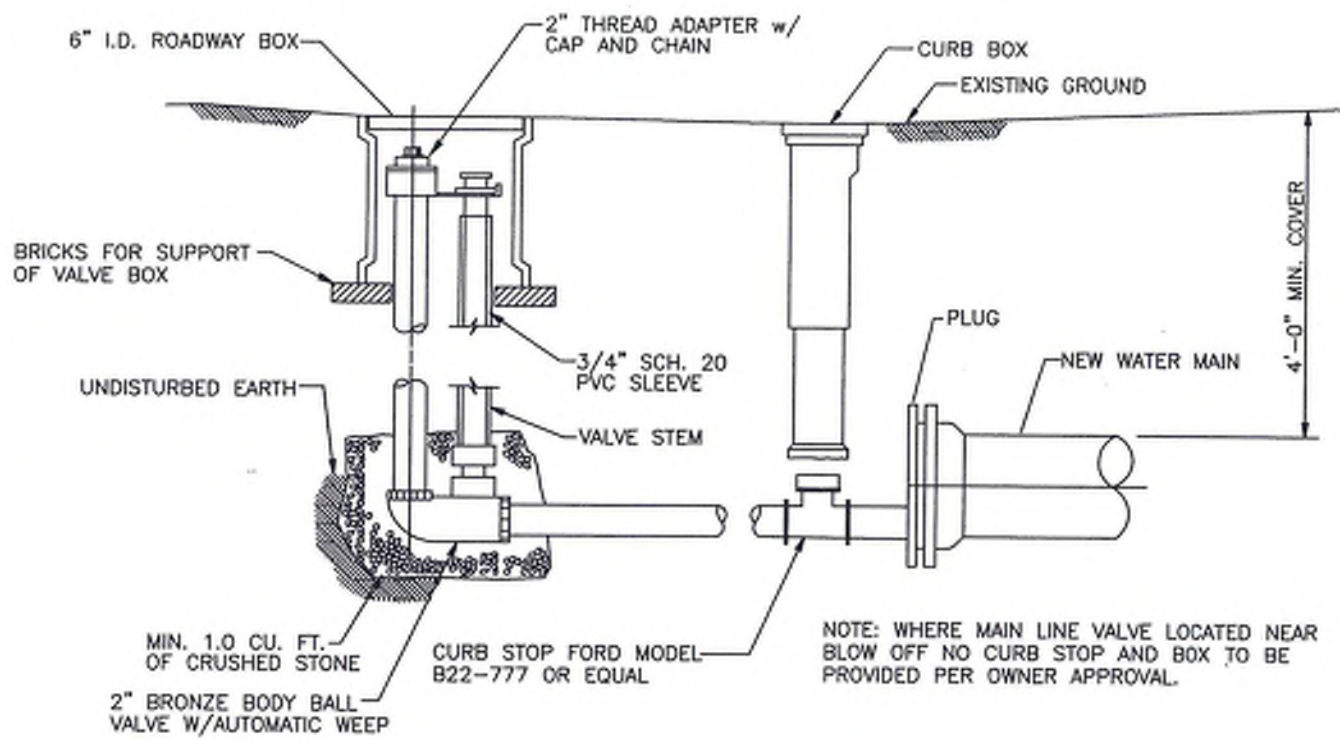
SERVICE CONNECTION

SKETCH NO. SK2

GENERAL SPECIFICATIONS

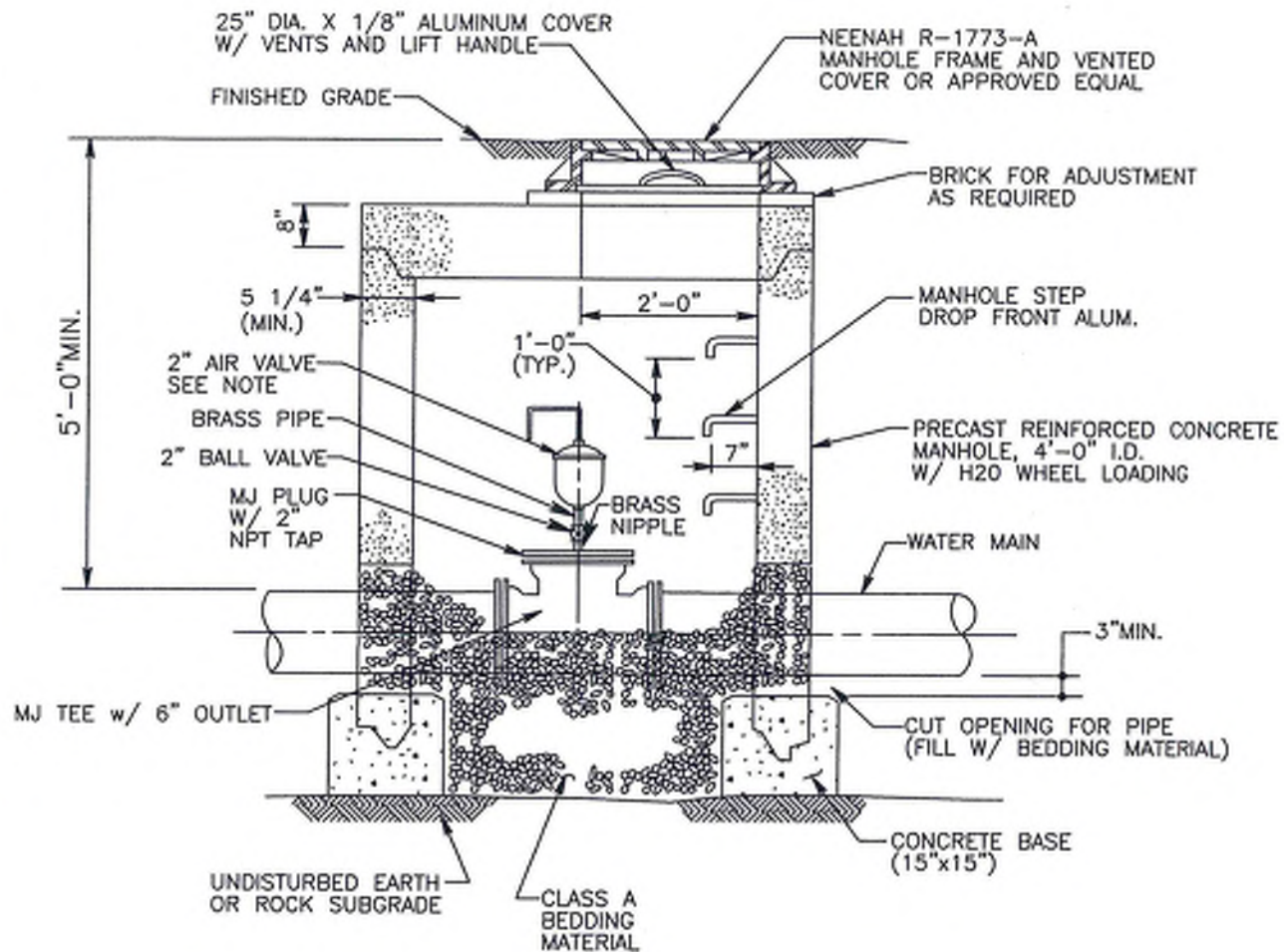
DATE MAY 2006

PORTION OF
SHEET NO. W3



2" BLOW-OFF HYDRANT DETAIL
NO SCALE

GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY GREENCASTLE, PENNSYLVANIA	BLOW-OFF DETAIL	SKETCH NO. SK3
GENERAL SPECIFICATIONS	DATE MAY 2006	PORTION OF SHEET NO. W5



NOTES:

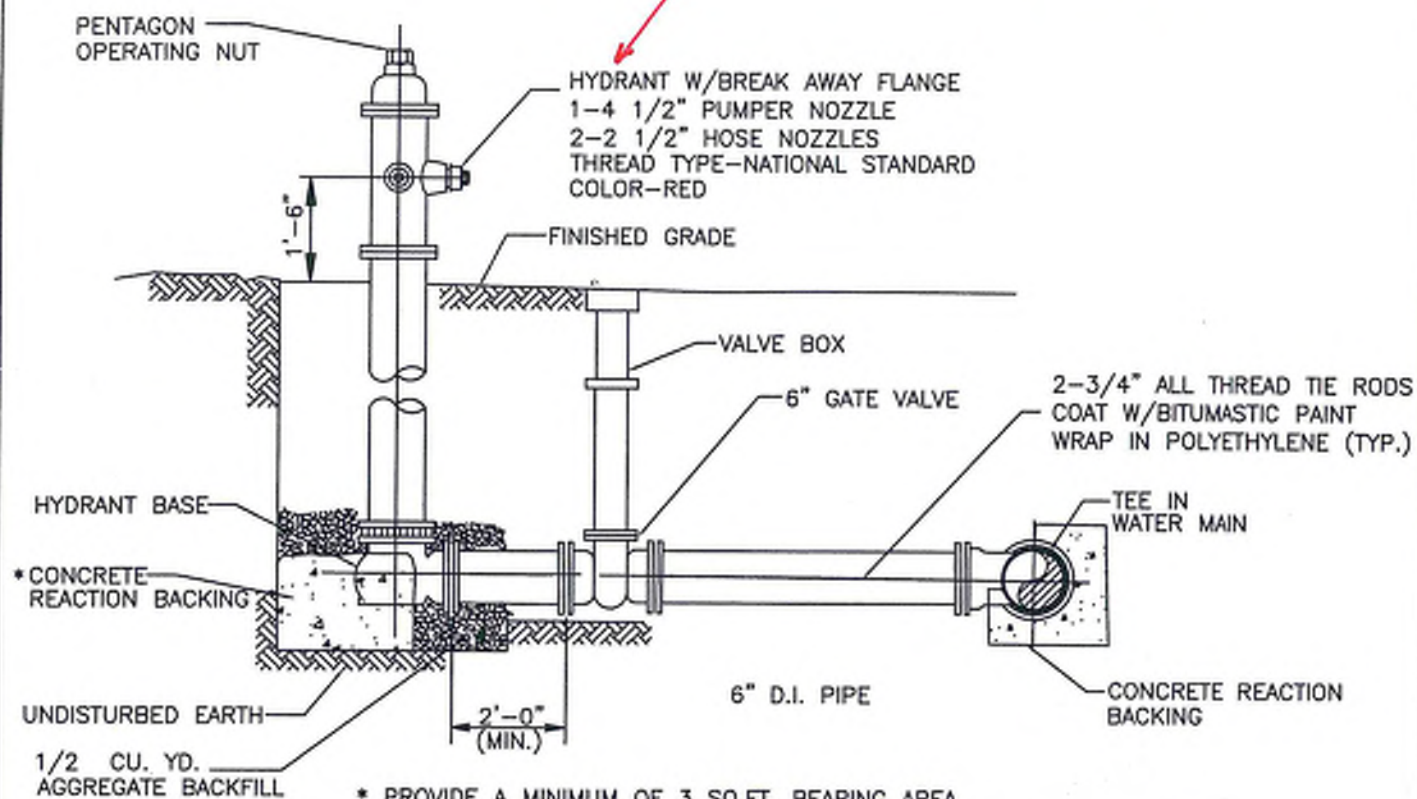
- (1) Install as high as practical in manhole to avoid seasonal high water tables.
- (2) Air valve shall be combination air valve, cast-iron body and cover, stainless steel float, stainless steel lever mechanism and stainless steel trim with Buna-N-Seal. Maximum working pressure of 150 psi and 2-inch inlet size. Valves shall be Val-Matic 202C.2, APCO, G. A. Industries or approved equal.

AIR VALVE MANHOLE DETAIL

NO SCALE

GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY GREENCASTLE, PENNSYLVANIA	AIR VALVE DETAIL	SKETCH NO. SK4
GENERAL SPECIFICATIONS	DATE MAY 2006	PORTION OF SHEET NO. W5

Mueller Super Centurion

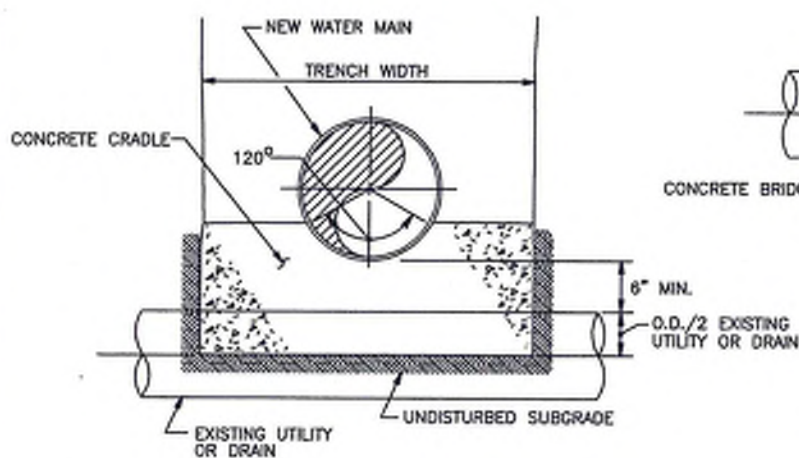
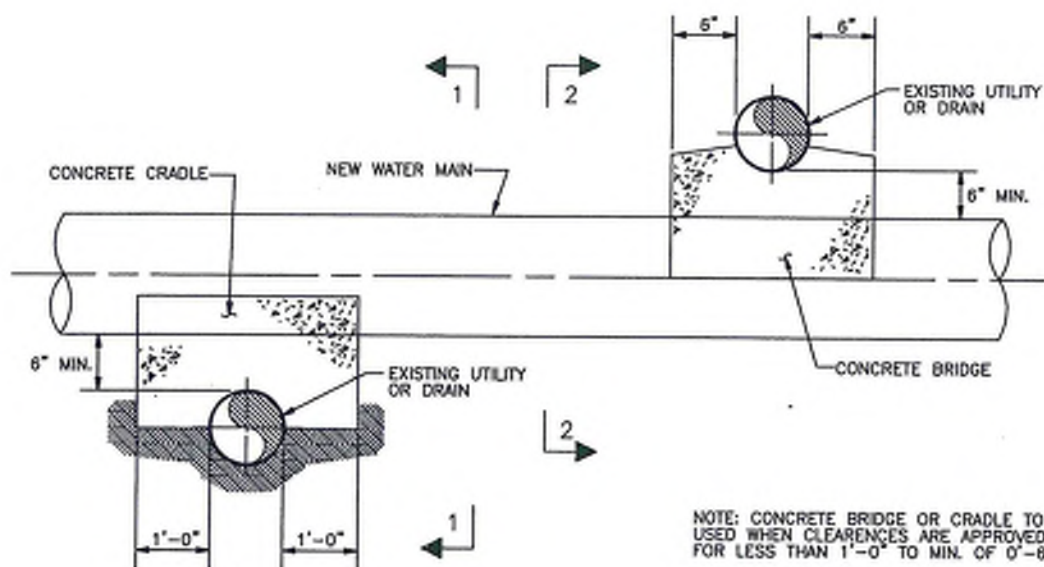


* PROVIDE A MINIMUM OF 3 SQ.FT. BEARING AREA.

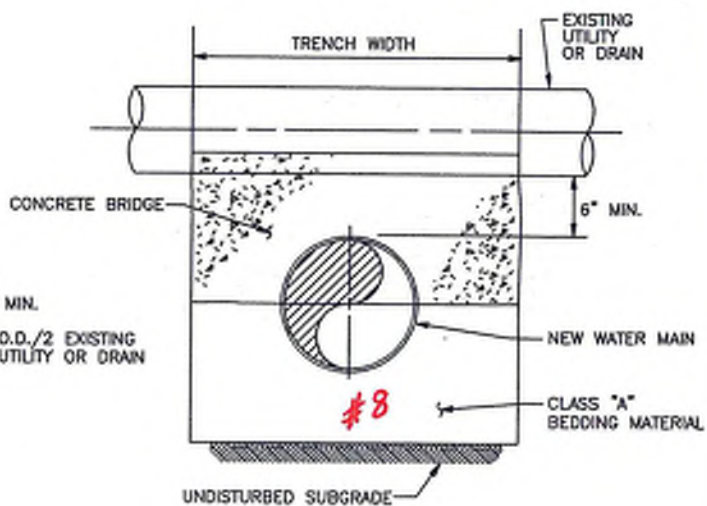
TYPICAL HYDRANT DETAIL

NO SCALE

GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY GREENCASTLE, PENNSYLVANIA	HYDRANT DETAIL	SKETCH NO. SK5
GENERAL SPECIFICATIONS	DATE MAY 2006	PORTION OF SHEET NO. W3



SECTION 1



SECTION 2

CONCRETE CRADLE AND CONCRETE BRIDGE DETAIL

NO SCALE

GREENCASTLE AREA, FRANKLIN COUNTY,
WATER AUTHORITY
GREENCASTLE, PENNSYLVANIA

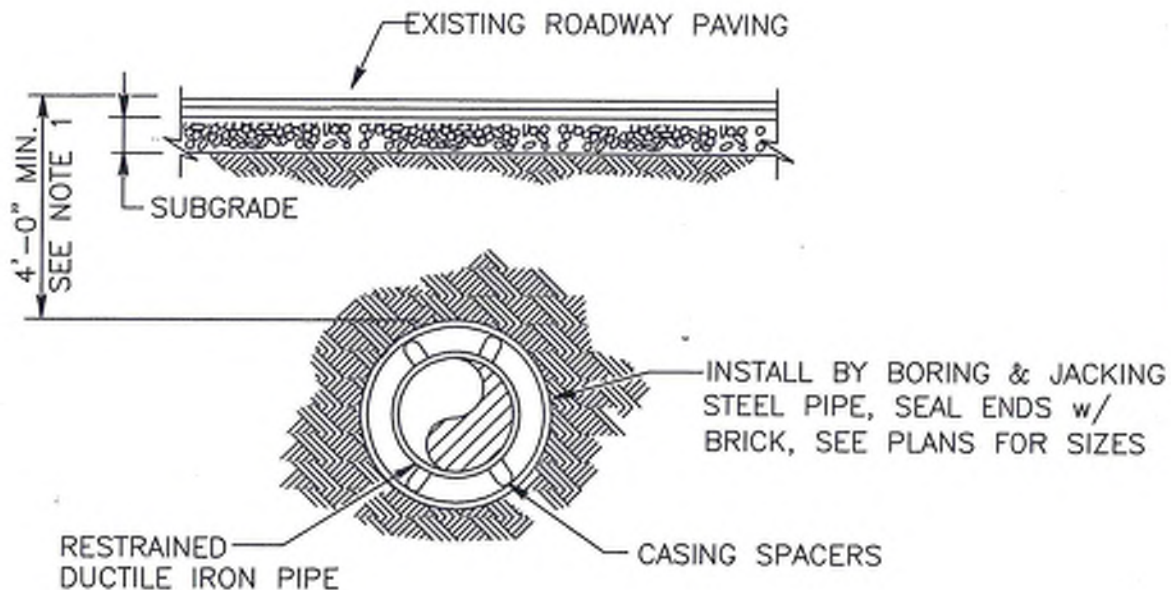
CONCRETE CRADLE AND BRIDGE DETAIL

SKETCH NO. SK6

GENERAL SPECIFICATIONS

DATE MAY 2006

PORTION OF SHEET NO. W5



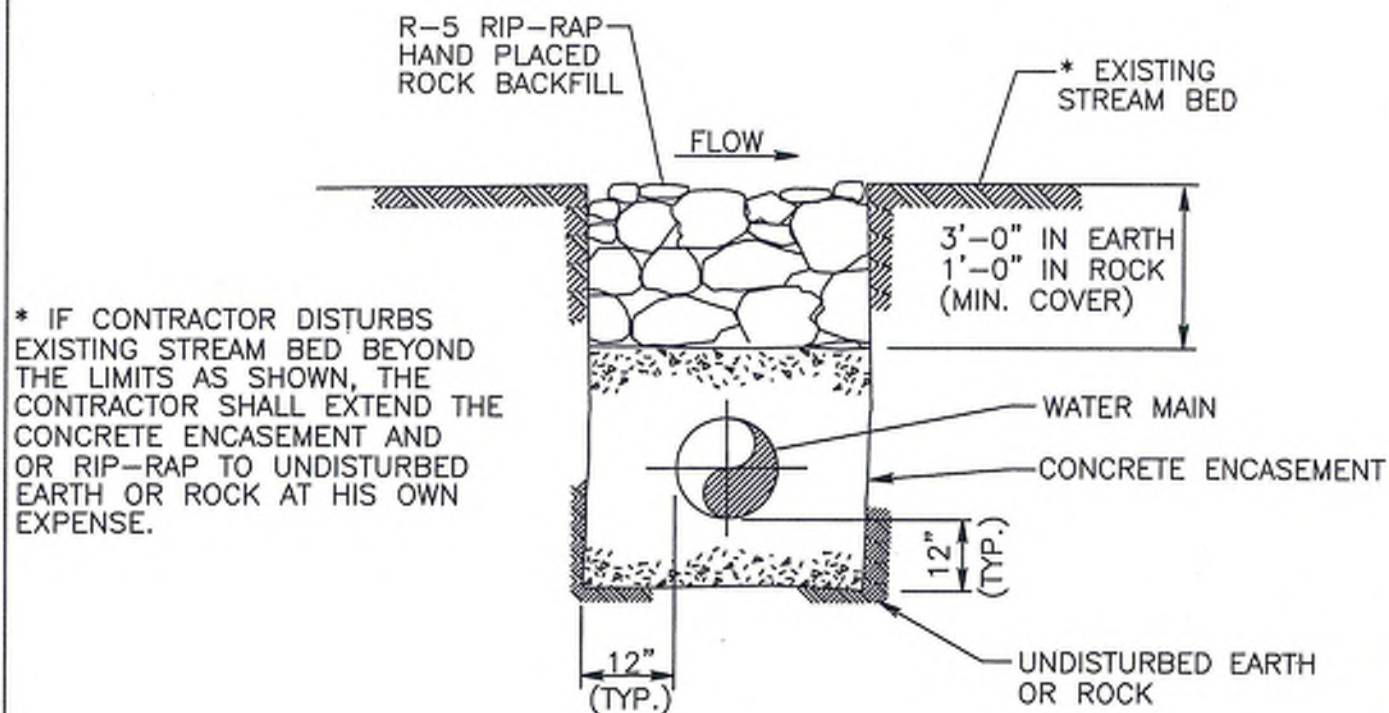
SECTION
BORING DETAIL

NO SCALE

NOTE:

1. FOR BORINGS AT RAILROADS DEPTH IS 5'-6" MINIMUM TO TOP OF CASING PIPE.

GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY GREENCASTLE, PENNSYLVANIA	BORING DETAIL	SKETCH NO. SK7
GENERAL SPECIFICATIONS	DATE MAY 2006	PORTION OF SHEET NO. W5



CONCRETE ENCASEMENT DETAIL
AT STREAM CROSSING

NO SCALE

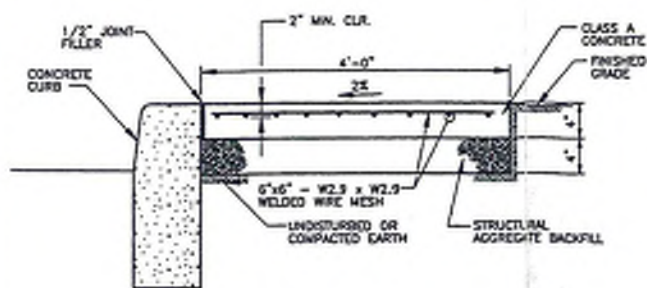
GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY GREENCASTLE, PENNSYLVANIA	CONCRETE ENCASEMENT DETAIL	SKETCH NO. SK8
GENERAL SPECIFICATIONS	DATE MAY 2006	PORTION OF SHEET NO. W3

Free chlorine Residuals

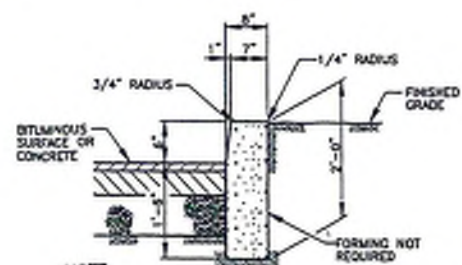
Hypochlorite Solution Liquid
12.5% Sodium Hypo

4" CAST IRON Pipe	0.7 gals of water Per Ft of Pipe
6" CAST IRON Pipe	1.53 gals of water Per Foot of Pipe
8" CAST IRON Pipe	2.59 gals of water Per Foot of Pipe

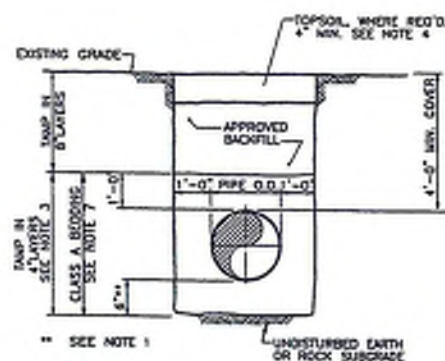
1/4 oz Liquid chlorine	200 gals water	chlorine Res 1.2
1/2 oz Liquid chlorine	450 gals water	chlorine Res 1.0
1 oz Liquid chlorine	900 gals water	chlorine Res 1.0
2 ozs Liquid chlorine	900 gals water	chlorine Res 2.0
3 ozs Liquid chlorine	900 gals water	chlorine Res 3.0
4 ozs Liquid chlorine	900 gals water	chlorine Res 4.0



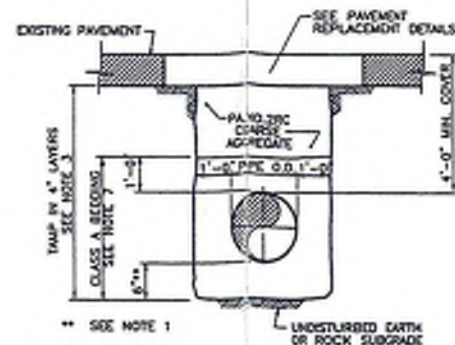
SIDEWALK SECTION AT CURB
NO SCALE



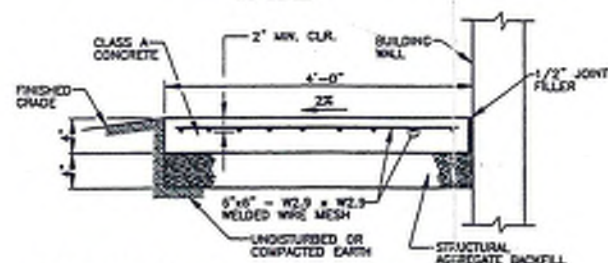
CONCRETE CURB SECTION
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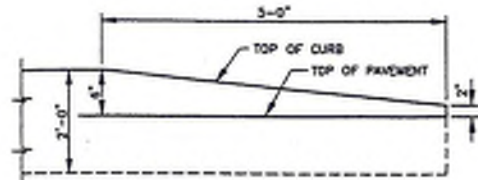
TYPICAL TRENCH UNPAVED AREAS
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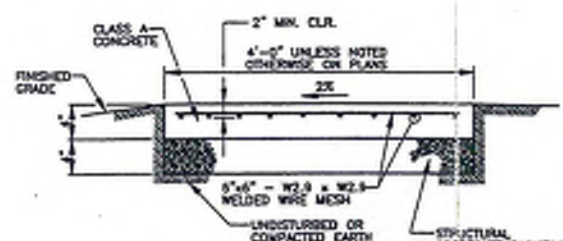
TYPICAL TRENCH PAVED AREAS
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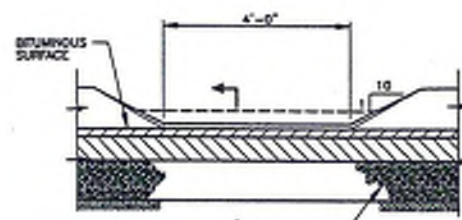
SIDEWALK SECTION AT BUILDING
NO SCALE



END OF CURB DETAIL
NO SCALE

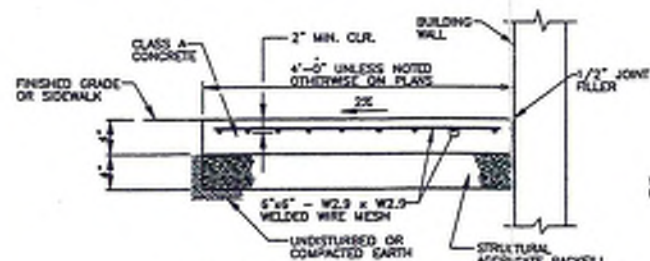


TYPICAL SIDEWALK SECTION
NO SCALE

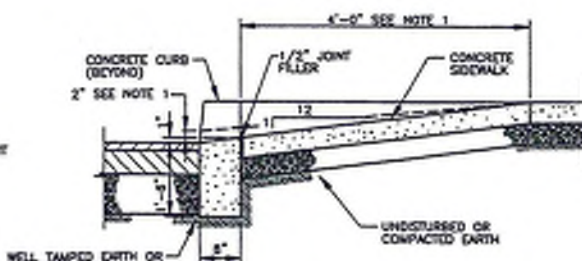


ELEVATION

NOTE:
SIDEWALK TO BE CONSTRUCTED WITH CLASS A CONCRETE, SPACE CONTRACTION JOINTS WITH JOINT FILLER AT 16'-0" MAXIMUM.



CONCRETE PAD DETAIL
NO SCALE



SECTION

NOTES:
1. CURB CUT RAMP TO BE CONSTRUCTED IN ACCORDANCE WITH ADA REQUIREMENTS.

CURB CUT RAMP DETAIL
NO SCALE

TRENCH NOTES:

- IF UNDESIRABLE SUBSOIL IS ENCOUNTERED AT THE NORMAL TRENCH SUBGRADE, THE CONTRACTOR SHALL REMOVE IT TO THE DEPTH DIRECTED BY THE ENGINEER IN THE FIELD, AND BACKFILL W/ CLASS 'A' BEDDING MATERIAL IN 4" LAYERS.
- BOTTOM OF TRENCH SHALL BE FREE OF WATER PRIOR TO PLACING BEDDING.
- IF VIBRATORY COMPACTION EQUIPMENT IS USED BACKFILL MAY BE IN 8" LAYERS.
- PROVIDE 4" OF TOPSOIL WHERE SEEDING IS REQUIRED. SEE NOTE 6 AT GRAVEL DRIVEWAYS.
- CONTRACTOR SHALL SHORE THE TRENCH IN ACCORDANCE WITH SECTION II, ARTICLE 3.08 OF THE SPECIFICATIONS.
- GRAVEL AND PAVED DRIVEWAYS TO BE RESTORED IN KIND WITH MINIMUM REQUIREMENTS AS INDICATED ON SHEET W3.
- CLASS A BEDDING MATERIAL SHALL CONSIST OF MASHED NO.8 STONE.

FILE: 0:\PC\05\31666\GRC\DWG\CDS\PC\31666.DWG
DATE: 11/02/2000 TIME: 12:44:33 pm

This drawing is not valid unless the signature of a registered professional engineer or architect is present. The contractor shall be responsible for the accuracy of the information provided on this drawing. The contractor shall be responsible for the accuracy of the information provided on this drawing. The contractor shall be responsible for the accuracy of the information provided on this drawing.

NO.	DESCRIPTION	DATE	BY

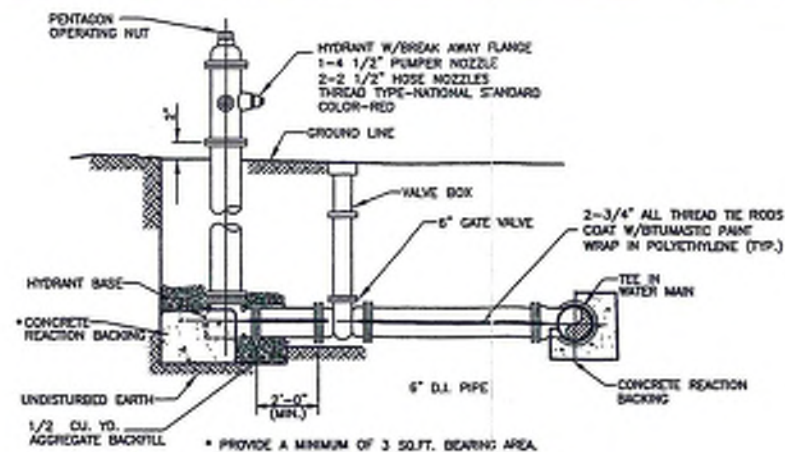
DESIGNED	DATE	SCALE
CHECKED	APPROVED	APPROVED

Gannett Fleming
HARRISBURG, PENNSYLVANIA

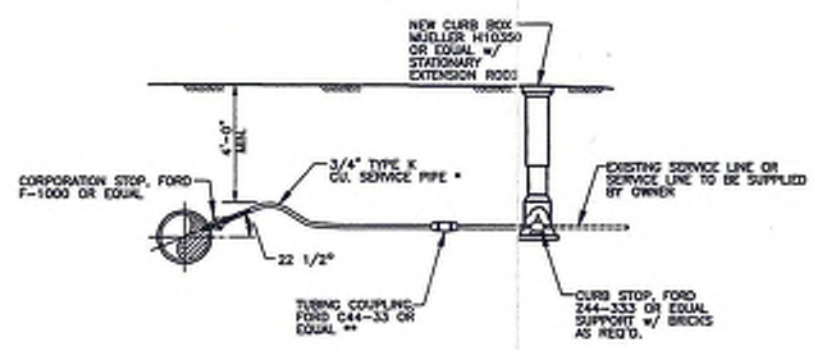
GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY
GREENCASTLE, PENNSYLVANIA

WATER MAIN TRENCHES, SIDEWALK, AND CURB DETAILS

JOB NO.	SHEET NO.
	W1
DATE	
NOVEMBER 2000	

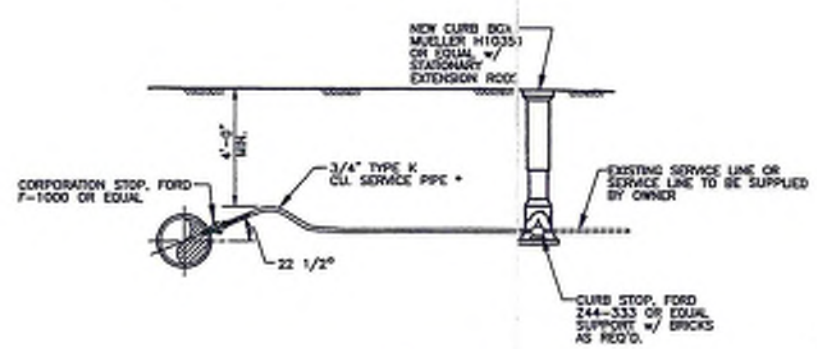


BLOWOFF HYDRANT DETAIL
NO SCALE



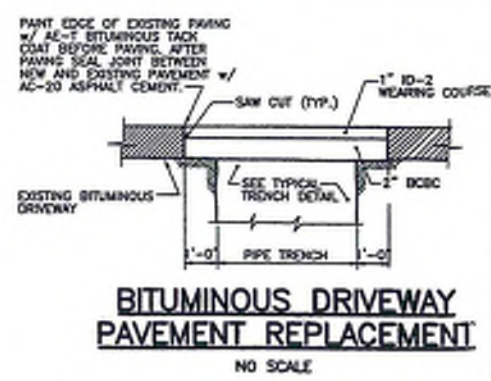
TYPICAL SERVICE RECONNECTION DETAIL
NO SCALE

* PLASTIC PIPE MAY BE USED, 3/4" POLYETHYLENE, PE 3408, SDR9, NSF
** TUBING COUPLING, (C24-33 FOR PVC TO COPPER)

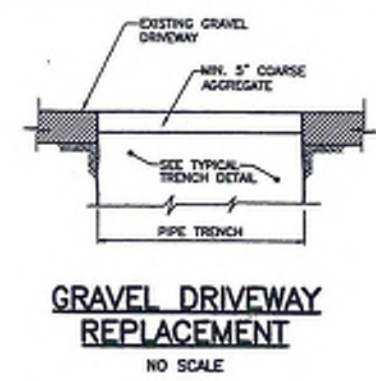


TYPICAL SERVICE CONNECTION DETAIL
NO SCALE

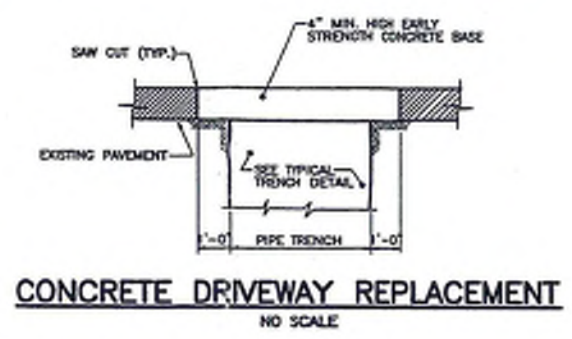
* PLASTIC PIPE MAY BE USED, 3/4" POLYETHYLENE, PE 3408, SDR9, NSF



BITUMINOUS DRIVEWAY PAVEMENT REPLACEMENT
NO SCALE



GRAVEL DRIVEWAY REPLACEMENT
NO SCALE



CONCRETE DRIVEWAY REPLACEMENT
NO SCALE

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DATE: 01/13/2001 TIME: 7:12:45 AM
THIS DRAWING IS THE PROPERTY OF GANNETT FLEMING, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF GANNETT FLEMING, INC. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

NO.	DESCRIPTION	DATE	BY

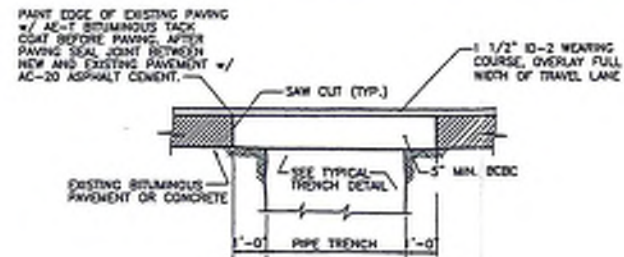
DESIGNED	GAG	SCALE
CHECKED	APPROVES	AS NOTED

Gannett Fleming
HARRISBURG, PENNSYLVANIA

GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY
GREENCASTLE, PENNSYLVANIA

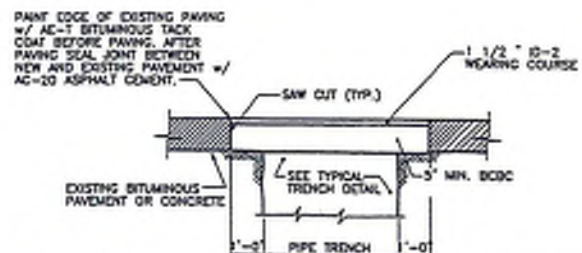
FIRE HYDRANT, DRIVEWAY AND SERVICE CONNECTION DETAILS

JOB No.	SHEET No.
	W3
DATE	
NOVEMBER 2000	



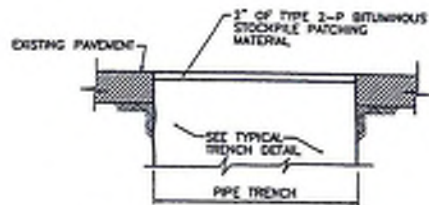
**PENNDOT HIGHWAY
PAVEMENT REPLACEMENT**

NO SCALE



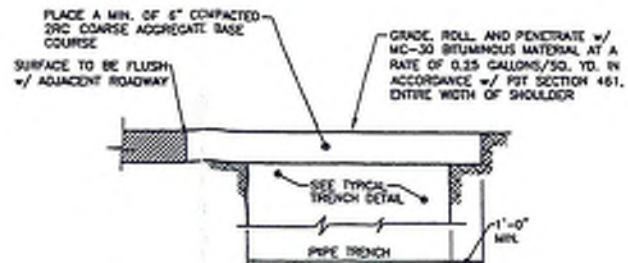
**TOWNSHIP HIGHWAY/BOROUGH STREETS
PAVEMENT REPLACEMENT**

NO SCALE



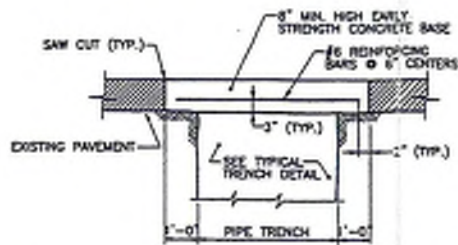
**TEMPORARY PAVEMENT
REPLACEMENT**

NO SCALE



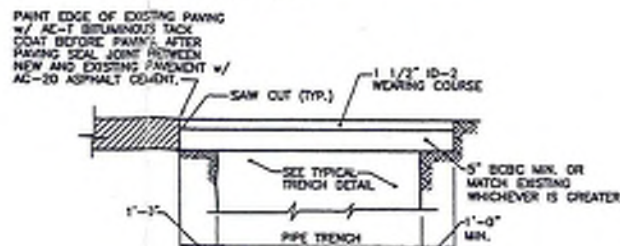
STABILIZED SHOULDER DETAIL

NO SCALE



CONCRETE PAVEMENT REPLACEMENT

NO SCALE



TYPE 6-I SHOULDER DETAIL

NO SCALE

FILE: 01311667/064271/00000001316664.DWG
DATE: 06/18/2000 TIME: 12:16:27 pm

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NO.	DESCRIPTION	DATE	BY

DESIGNED	CHECKED	SCALE
		AS NOTED

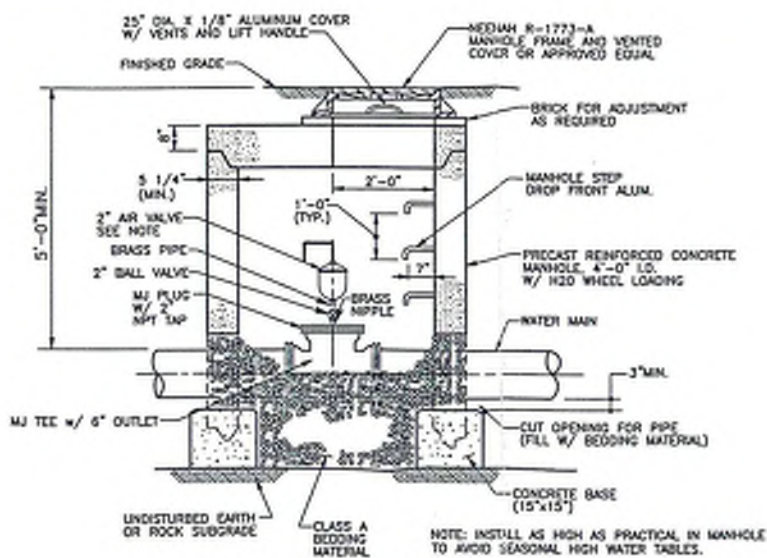
Gannett Fleming
HARRISBURG, PENNSYLVANIA

GREENCASTLE AREA, FRANKLIN
COUNTY, WATER AUTHORITY
GREENCASTLE, PENNSYLVANIA

PAVEMENT REPLACEMENT AND
SHOULDER REPLACEMENT

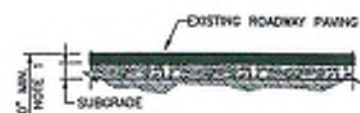
DATE
NOVEMBER 2000

SHEET No.
W4



AIR VALVE MANHOLE DETAIL

NO SCALE



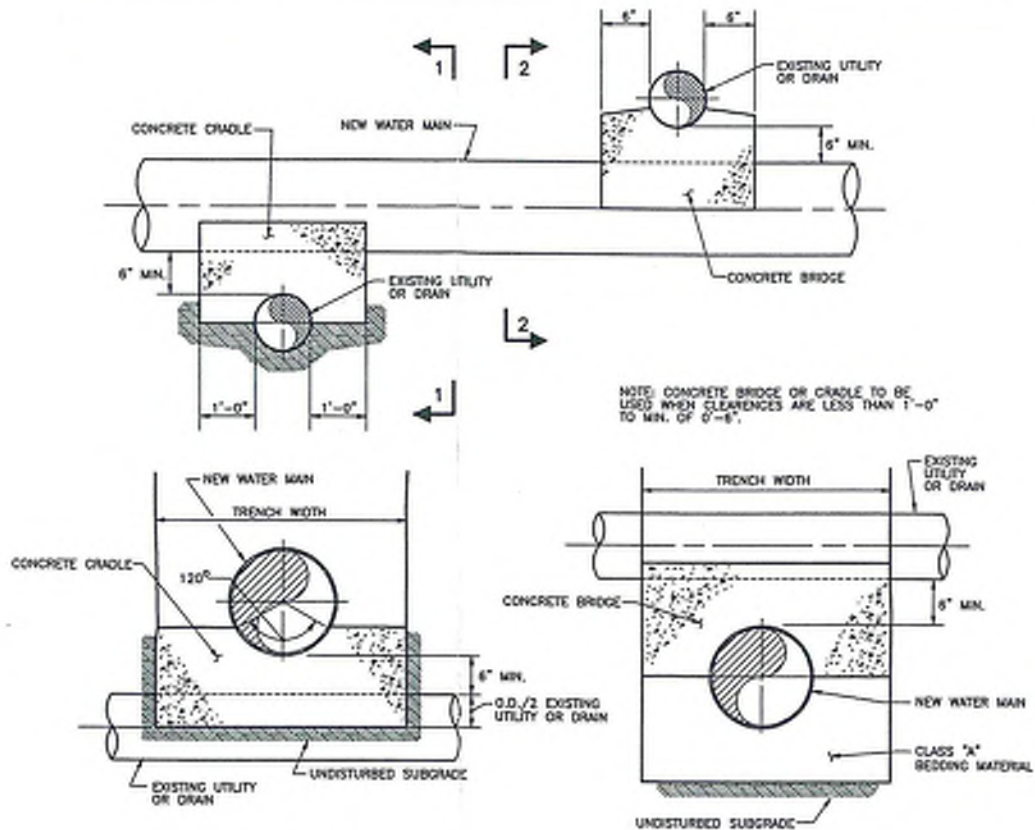
SECTION BORING DETAIL

SECTION BORING DETAIL

NO SCALE

NOTE:

1. FOR BORINGS AT RAILROADS DEPTH IS 5'-8" MINIMUM TO TOP OF CASING PIPE.



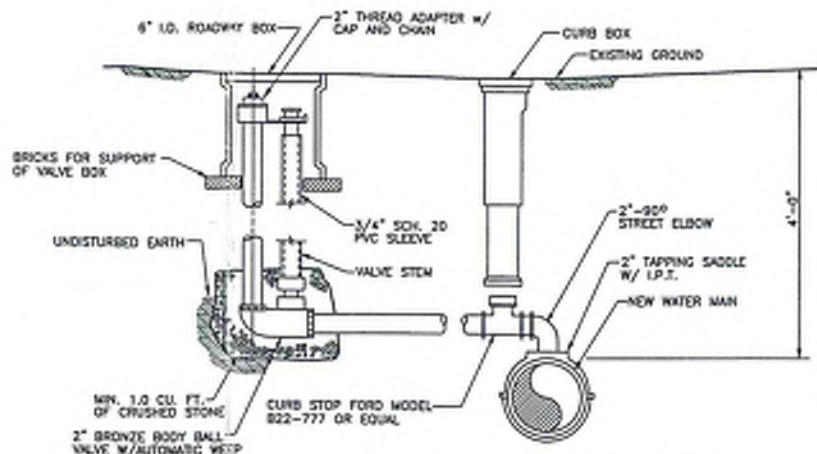
SECTION 1

SECTION 2

CONCRETE CRADLE AND CONCRETE BRIDGE DETAIL

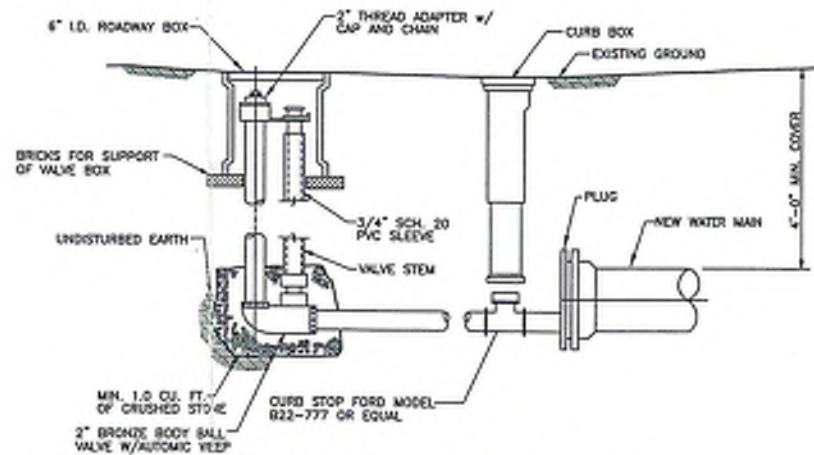
NO SCALE

NOTE: CONCRETE BRIDGE OR CRADLE TO BE USED WHEN CLEARANCES ARE LESS THAN 1'-0" TO MIN. OF 0'-6".



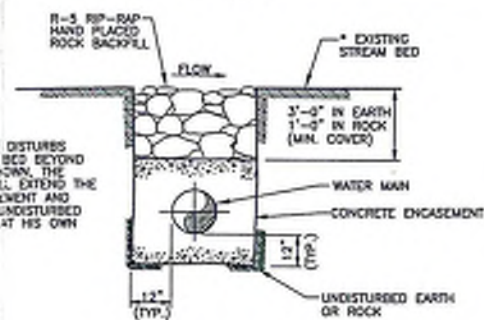
2" MANUAL AIR RELEASE VALVE DETAIL

NO SCALE



2" BLOW-OFF HYDRANT DETAIL

NO SCALE



CONCRETE ENCASEMENT DETAIL AT STREAM CROSSING

NO SCALE

*12"-16"
No
Concrete
Under 12"
Needs Concreted
Nothing less
Than 6"*

FILE: 0:\PC\405\31668\ORIG\1\CONCRETE\31668.DWG
DATE: 04/18/2001 TIME: 2:31:48 pm

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NO.	DESCRIPTION	DATE	BY

DESIGNED	CHECKED	SCALE
		AS NOTED
APPROVED	DATE	BY



GREENCASTLE AREA, FRANKLIN COUNTY, WATER AUTHORITY
GREENCASTLE, PENNSYLVANIA

STANDARD DETAILS
MISCELLANEOUS ITEMS

JOB NO.	SHEET NO.
	W5
DATE	APRIL 2001