

ERIE COUNTY WATER AUTHORITY
AUTHORIZATION FORM
For Approval/Execution of Documents
(check which apply)

Contract: _____ **Project No.:** 202100009
Project Description: Water Distribution System – Replacements and Improvements
May 1, 2021 through April 30, 2023

Item Description:



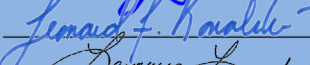


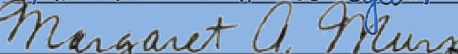

☐ Agreement ☐ Professional Service Contract ☐ Amendment ☐ Change Order
☐ BCD ☐ NYSDOT Agreement ☒ Contract Documents ☐ Addendum
☐ Recommendation for Award of Contract ☐ Recommendation to Reject Bids
☐ Request for Proposals
☐ Other _____

Action Requested:

☐ Board Authorization to Execute ☒ Legal Approval
☐ Board Authorization to Award ☐ Execution by the Chairman
☒ Board Authorization to Advertise for Bids ☐ Execution by the Secretary to the Authority
☐ Board Authorization to Solicit Request for Proposals
☐ Other _____

Approvals Needed:

APPROVED AS TO CONTENT:

<input checked="" type="checkbox"/> Sr. Distribution Engineer		Date: 1/26/2021
<input checked="" type="checkbox"/> Chief Operating Officer		Date: 1/21/2021
<input checked="" type="checkbox"/> Executive Engineer		Date: 01/26/2021
<input checked="" type="checkbox"/> Director of Administration		Date: 1/26/2021
<input checked="" type="checkbox"/> Risk Manager		Date: 1/27/2021
<input checked="" type="checkbox"/> Chief Financial Officer		Date: 01/22/2021
<input checked="" type="checkbox"/> Legal		Date: 1/21/2021

APPROVED FOR BOARD RESOLUTION:

☒ Secretary to the Authority  Date: 1-27-21

Remarks: Unit price contract.

Resolution Date: _____

Item No: _____



ERIE COUNTY WATER AUTHORITY

INTEROFFICE MEMORANDUM

January 20, 2021

To: Terrence D. McCracken, Secretary to the Authority

From: William W. Wheeler, Distribution Engineer

A handwritten signature in blue ink, appearing to be "WW", enclosed within a blue circular scribble.

Subject: Water Distribution System
Replacements and Improvements
May 1, 2021 to April 30, 2023
ECWA Project No. 202100009

This two-year contract will allow the Authority to replace existing distribution mains to provide hydraulic improvements or watermain replacements required to maintain system pressures and redundancies. The projects would be classified as non-emergency unplanned improvements that arise during the year but for various reasons, should not be delayed until a future distribution system capital project. The Work is to be performed in the entire Erie County Water Authority's franchised area and all water districts that the Authority operates under a leased managed contract. The work is located in Erie County and potentially includes the Towns of Alden, Amherst, Aurora, Boston, Cheektowaga, Clarence, Concord, Eden, Evans, Hamburg, Lancaster, Marilla, Newstead, Orchard Park, and West Seneca; the Villages of Blasdell, Depew, Hamburg, Orchard Park, Lancaster, Sloan, and Williamsville; and the Cities of Lackawanna and Tonawanda. In the past, projects of this type were either completed under an emergency declaration or by the Authority's Large Service Contractor.

Funds for this program have been allocated in the 2021 budget under Unit 2090, Distribution Main, Item 100586 Misc. Distribution Mains. Funds for the 2022 year will be similarly budgeted at that time.

The following documents are attached:

- Blue Authorization Form - this form provides the project name and project number, the action that is being requested of the Board, and it provides a list of approvals that are required prior to being acted on by the Board.
- One (1) set of Contract Documents.

WWW:jmf

Attachments

cc: L.Kowalski

M. Quinn

J. Sylvester

A. Massaro

ECWA-928-2101-X-12

Project Manual

Water Distribution System Replacements and Improvements May 1, 2021 to April 30, 2023

Project No. 202100009

?????????, 2021

Erie County Water Authority
3030 Union Road
Cheektowaga, New York 14227



**ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK**

**WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023**

ECWA PROJECT No: 202100009

??????????????????, 2021

**ERIE COUNTY WATER AUTHORITY
3030 Union Road
Cheektowaga, New York 14227**

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

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ERIE COUNTY WATER AUTHORITY
3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

NOTICE TO BIDDERS

The Erie County Water Authority will receive separate, sealed bids for the furnishing of all labor, plant, tools, equipment and specified materials or services for the ERIE COUNTY WATER AUTHORITY Water Distribution System Replacements and Improvements Contract, May 1, 2021 to April 30, 2023. The Work consists of furnishing crew or crews, labor, equipment, and materials (as required) to replace and make improvements to water service lines, distribution mains, and to provide associated restoration.

Bids must be received by the Erie County Water Authority no later than (Time) a.m. EST, on (Day of week, Date) at the Service Center Front Desk, Erie County Water Authority, 3030 Union Road, Cheektowaga, New York 14227.

All bid openings are recorded and posted on the ECWA website, along with the bids results.

When permitted, members of the public may be present to observe the bid opening. All attendees must bring a government-issued photo identification (driver's license preferred) and check-in with the ECWA receptionist before being allowed entry to the bid opening.

Whenever the Erie County Water Authority is operating under a Declaration of Emergency due to a pandemic or other general state of emergencies, members of the public may be precluded from being present at such bid opening.

ANYONE ENTERING THE SERVICE CENTER OR OTHER AUTHORITY FACILITIES IS SUBJECT TO SUCH RESTRICTIONS OR LIMITATIONS IN PLACE AT THE TIME OF ENTRY.

All bids being mailed (including FedEx, UPS, Priority Mail, etc.) or delivered shall be directed to the "SERVICE CENTER FRONT DESK" at the address listed above in a sealed envelope and be clearly marked on the outside of the mailing or hand-delivered envelope "BID ENCLOSED-ECWA WATER DISTRIBUTION SYSTEM REPAIRS AND REPLACEMENTS CONTRACT, MAY 1, 2021 TO APRIL 31, 2023".

Beginning at 9:00 a.m., on (Day of week, Date), Project Manuals and accompanying drawings, if applicable, may be obtained by writing the Service Center Front Desk at the above address or calling 716-684-1510, between the hours of 9:00 a.m. and 4:00 p.m. Contract Documents will be mailed to prospective bidders wishing to obtain a set upon receipt of prospective bidder's charge number for UPS or FedEx. The mailing date will be considered the bidder's date of receipt. Partial sets of documents will not be available.

Each bid shall be accompanied by a certified check or bid bond in the amount of five percent (5%) of the amount of the bid.

In accordance with State Finance Law §§139-j and 139-k, all questions about meaning or intent of the bidding documents shall be submitted to the designated contact person in writing. The designated contact is Adam R. Massaro, Distribution Engineer, Erie County Water Authority, 3030 Union Road, Cheektowaga, New York 14227, telephone: 716-685-8251, email: amassaro@ecwa.org.

The Erie County Water Authority reserves the right to reject any and all bids or to accept any bid deemed to be for the best interest of the Water Authority even though the proposal chosen may result in the award of the contract to a bidder whose bid is not mathematically lowest.

ERIE COUNTY WATER AUTHORITY

TERRENCE D. McCRACKEN
Secretary to the Authority

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 31, 2023
PROJECT NO: 202100009

SECTION 00200

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 - DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.
- 1.02 Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.
- A. Bidder: The individual or entity who submits a Bid directly to OWNER.
 - B. Issuing Office: The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - C. Successful Bidder: The Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER'S evaluation as hereinafter provided) makes an award. Also known as CONTRACTOR.
 - D. ENGINEER: As defined in the Agreement, Section 00500, under Article 2.

ARTICLE 2 - BIDS RECEIVED

- 2.01 Refer to Notice to Bidders for information on receipt of Bids.

ARTICLE 3 - LOCATION AND SCOPE OF WORK

- 3.01 Refer to Section 01100 of the General Requirements for the location and scope of the Work.

ARTICLE 4 - COPIES OF BIDDING DOCUMENTS

- 4.01 Refer to Notice to Bidders for information on examination and procurement of Bidding Documents.
- 4.02 The Issuing Office is the Service Center Front Desk of the Erie County Water Authority, 3030 Union Road, Cheektowaga, New York 14227.
- 4.03 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER, nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 4.04 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant permission for any other use.

ARTICLE 5 - QUALIFICATIONS OF BIDDERS

- 5.01 Bidders shall be experienced in the kind of Work to be performed, shall have the necessary equipment therefore, and shall possess sufficient capital to properly execute the Work within the time allowed. Bids received from Bidders who have previously failed to complete work within the time required, or who have previously performed similar work in an unsatisfactory manner, may be rejected. A Bid may be rejected if Bidder cannot show that Bidder has the necessary ability, plant and equipment to commence the Work at the time prescribed and thereafter to prosecute and complete the Work at the rate or within the time specified. A Bid may be rejected if Bidder is already obligated for the performance of other work which would delay the commencement, prosecution or completion of the Work.
- 5.02 To demonstrate qualifications to perform the Work, Bidder shall complete and submit with its Bid the Bidder Qualifications Statement which is bound in the Project Manual. Bidders may be asked to furnish additional data to demonstrate their qualifications.
- 5.03 Bidders shall be qualified to do business in the state where the Project is located or covenant to obtain such qualification prior to signing the Agreement.

ARTICLE 6 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

6.01 Subsurface and Physical Conditions

- A. The Supplementary Conditions identify:
1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site which have been utilized by ENGINEER in preparation of the Bidding Documents.
 2. 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 that have been utilized by ENGINEER in preparation of the Bidding Documents.
- B. Copies of the reports and drawings referenced in the Supplementary Conditions will be made available by ENGINEER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified and established in paragraph SC-4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion drawn from any “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

6.02 Underground Facilities - Physical Conditions

- A. 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, including OWNER, or others.

6.03 Hazardous Environmental Condition

- A. OWNER has no actual knowledge of a hazardous environmental condition at the Site.

6.04 Provisions concerning responsibilities for the adequacy of data, if any, furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unforeseen conditions appear in paragraphs 4.02, 4.03 and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Bidding Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the Scope of Work appear in paragraph 4.06 of the General Conditions.

6.05 On request, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former conditions upon completion of such explorations, investigations, tests and studies.

6.06 On request, OWNER will conduct a Site visit during OWNER'S normal business hours.

6.07 Reference is made to the Supplementary Conditions for identification of the general nature of other work that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, and if available, OWNER will provide to Bidder, for examination, access to or copies of the contract documents for such other work.

6.08 It is the responsibility of Bidder, before submitting a Bid to:

- A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
- B. Visit the Site and become familiar with and satisfy Bidder as to the general, local and Site conditions that may affect cost, progress and performance of the Work;
- C. Become familiar with and satisfy Bidder as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work;

- D. Carefully study 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 the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and to carefully study all reports and drawings of a Hazardous Environmental Condition identified at the Site, if any, which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;
 - E. Obtain and carefully study (or assume responsibility for having done so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
 - F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for the performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
 - G. Become aware of the general nature of work (if any) to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
 - H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies and data with the Bidding Documents;
 - I. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and
 - J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 6.09 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 6, that without exception the Bid is premised upon performing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences or procedures of construction 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 are acceptable to Bidder, and that the

Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing the Work.

ARTICLE 7 - PRE-BID CONFERENCE

- 7.01 A pre-bid conference will be held if so indicated in the Notice to Bidders, and will be as follows. Representatives of the OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate at the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions raised at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 8 - SITE AND OTHER AREAS

- 8.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment, to be incorporated into the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

ARTICLE 9 - INTERPRETATIONS AND ADDENDA

- 9.01 All questions about the meaning or intent of the Bidding Documents shall be submitted to ENGINEER in writing. In order to receive consideration, questions must be received by ENGINEER at least ten (10) days prior to the date for the opening of Bids. Interpretations, clarifications, and/or supplemental instructions considered necessary by ENGINEER in response to such questions will be issued by Addenda, mailed either by Registered or Certified mail, with return receipt requested, to all parties recorded by ENGINEER as having received the Bidding Documents, for receipt not later than three (3) days prior to the date for the opening of Bids. Failure of any Bidder to receive such Addendum or interpretation shall not relieve any bidder from any obligation under his bid submitted. All Addenda so issued shall become part of the Contract Documents. All Addenda must be submitted with the bid proposal and be properly signed by the Bidder as part of the Bid Documents. Only questions answered by Addenda will be binding. The OWNER will not be responsible for any other explanations or interpretation of such documents which anyone presumes to make on behalf of the OWNER before expiration of the time set for the receipt of Bids. No interpretation of the meaning of the plans, specifications or other Contract Documents will be made to any bidder orally. Oral and other interpretations or clarifications will be without legal effect.
- 9.02 Addenda may also be issued to clarify, correct or change the Bidding Documents as deemed advisable by OWNER or ENGINEER. Such Addenda, if any, will be issued in the manner and within the time period stated in paragraph 9.01.

ARTICLE 10 - BID SECURITY

- 10.01 A Bid must be accompanied by Bid security made payable to the OWNER in the amount of five percent of Bidder's maximum Bid price and in the form of certified check or Bid Bond.
- 10.02 Bid Bond shall be on the form bound in the Project Manual. Bid Bond shall be issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions. The Bid Bond must contain original signatures in ink. Pencil, stamped, thermal faxed, Xeroxed, or any other copies of the signature shall be grounds for voiding the Bid.
- 10.03 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to sign and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited to the OWNER as liquidated damages for such failure.
- 10.04 The Bid security of the three lowest bidders may be retained by OWNER until the earlier of the seventh day after the Effective Date of the Agreement or the forty-first day after the Bid opening whereupon the Bid security furnished by such Bidders will be returned. The Bid security of Bidders whom OWNER believes do not have a reasonable chance of receiving an award will be returned within seven days of the Bid opening.

ARTICLE 11 - CONTRACT TIMES

- 11.01 The number of days within which the Work is to be substantially completed and also completed and ready for final payment (the Contract Times) are set forth in the Agreement.

ARTICLE 12 - LIQUIDATED AND SPECIAL DAMAGES

- 12.01 Provisions for liquidated and special damages, if any, are set forth in the Agreement.

ARTICLE 13 - SUBSTITUTE AND "OR EQUAL" ITEMS

- 13.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submittal of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions which may be supplemented in the General Requirements.

- 13.02 Refer to Section 01630 of the General Requirements for the period of time after the Effective Date of the Agreement during which the ENGINEER will accept applications for substitute or “or-equal” items of material or equipment.

ARTICLE 14 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 14.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening submit to OWNER a list of all such Subcontractors, Suppliers, other individuals or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualifications for each such Subcontractor, Supplier, individual or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual or entity, OWNER may, before the Notice of Award is given, request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price.
- 14.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers and other individuals or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.
- 14.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual or entity against whom CONTRACTOR has reasonable objection.

ARTICLE 15 - PREPARATION OF BID

- 15.01 A Bid must be made on the Bid form bound in the Project Manual. The Bid form shall not be separated from the Project Manual nor shall it be altered in any way.
- 15.02 All blanks in the Bid Form shall be completed by printing in black ink or by typewriter. A Bid price shall be indicated in both words and numbers for each Bid item listed therein or the words “No Bid”, or “Not Applicable” entered. In case of discrepancy between the words and the numerals, the words shall govern. Ditto marks are not considered writing or printing and shall not be used.

15.03 A Bid shall be executed as stated below.

- A. A Bid by an individual shall show the Bidder's name and official address.
- B. A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title shall appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.
- C. A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture shall be shown below the signature.
- D. A Bid by a corporation shall be executed in the corporate name by an officer of the corporation and shall be accompanied by a certified copy of a resolution of the board of directors authorizing the person signing the Bid to do so on behalf of the corporation. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The state of incorporation and the official corporate address shall be shown below the signature.
- E. A Bid by a limited liability company shall be executed in the name of the firm and signed by a member accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.
- F. All names shall be typed or printed in black ink below the signature.
- G. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided, if applicable.

15.04 The Bid shall contain an acknowledgment of the receipt of all Addenda in the space provided on the Bid form.

15.05 The address and telephone number for communications regarding the Bid shall be shown.

15.06 In addition to the Bid Form, the following listed documents, which are bound in the Project Manual in Section 00430 - Bid Form Supplements and Section 00450 – Bidder's Qualification Statement, shall be submitted with the Bid. Each document shall be executed in the manner described in paragraph 15.03 unless another manner is indicated.

- A. Bid Security Form.
- B. Section 2875 of the Public Authorities Law.
- C. Section 2876 of the Public Authorities Law.

- D. Section 2878 of the Public Authorities Law, Non-collusive Bidding Certification.
- E. State Finance Law Requirements.
- F. Section 139-L of the State Finance Law, Statement relating to Sexual Harassment Policy.
- G. Bidder's Qualification Statement, including Attachments A, B, C and D and Bidder's "Experience in The Installation of Tapping Sleeves & Valves on Prestressed Concrete Cylinder Pipe", if applicable.
- H. All Addenda.

ARTICLE 16 - BASIS OF BIDS; COMPARISON OF BIDS

16.01 Lump Sum and Unit Price

- A. Bidder shall submit its Bid on the basis of each lump sum item and unit price item as set forth in the Bid Form. For each unit price item on the Bid form, Bidder shall enter the unit price Bid, and shall enter the computation of the respective quantity times the Bidder's unit price for that item. Bidder shall compute and enter in the space provided on the Bid form, the total of all lump sum items and the total of the products of quantity and unit price Bid for each unit price item.
- B. For determination of the apparent low Bidder, Bids will be evaluated on the basis of the total of all lump sum items and the total of the products of the estimated quantity of each item and unit price Bid for that item.
- C. The quantities for the unit price items are unpredictable and the ENGINEER has inserted certain quantities in the Bid Form to be used solely for purpose of comparison bids.
- D. Fixed minimum unit prices may have been established for some of the items in the Bid. The prices represent the minimum amounts which will be paid the CONTRACTOR for these items. If in the opinion of the Bidder these prices do not reflect the actual value of the work involved the Bidder may void the given fixed minimum unit price for that specific item and enter a higher unit price in the spaces provided in the Bid Sheets.

16.02 Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 17 - SUBMITTAL OF BID

- 17.01 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Notice to Bidders. The entire Project Manual must be submitted with all proper forms completed and signed as required.
- 17.02 Bid shall be enclosed in an opaque sealed envelope plainly marked on the outside with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) the name and address of the Bidder and its license or registration number, if applicable. Bid shall be accompanied by Bid security and other required documents.
- 17.03 All bids being mailed (including FedEx, UPS, Priority Mail, etc.) or hand-delivered to the Erie County Water Authority shall follow the procedure as defined in Section 00100, Notice To Bidders.

ARTICLE 18 - MODIFICATION OR WITHDRAWAL OF BID

- 18.01 Withdrawal Prior to Bid Opening:
- A. A Bid may be withdrawn by an appropriate document duly executed, in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time fixed for the opening of Bids. Upon receipt of such written notice, the unopened Bid will be returned to the Bidder.
- 18.02 Modification Prior to Bid Opening:
- A. If a Bidder wishes to modify its Bid, Bidder must withdraw its initial Bid in the manner specified in paragraph 18.01.A and submit a new Bid.
- 18.03 No Bids may be withdrawn after the time set for the Bid Opening.

ARTICLE 19 - OPENING OF BIDS

- 19.01 Bids will be opened at the time and place where Bids are to be submitted and, unless obviously non-responsive, read aloud publicly. An abstract of the Bids will be made available to Bidders after the opening.
- 19.02 Bids received by mail or otherwise after the date and time specified for the opening of Bids will not be accepted and will be returned to the Bidder unopened.
- 19.03 Bid results are available on the Erie County Water Authority website, www.ecwa.org (under Doing Business tab, select option Business Opportunities). No bid results will be given over the telephone.

ARTICLE 20 - DISQUALIFICATION OF BIDDERS

- 20.01 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

ARTICLE 21 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 21.01 All Bids shall remain subject to acceptance for forty-five days after the day of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.
- 21.02 In the event that the OWNER requires more than 45 calendar days after the actual date of the Bid Opening to award the contract, Bidders shall, when requested, provide to ENGINEER a written extension of time for OWNER to award the contract. Bidders shall also provide, to ENGINEER, written Consent of Surety for extension of the bid bond.
- 21.03 In the event that the OWNER requires more than 45 calendar days after the actual date of the Bid Opening to award the contract, and the lowest qualified bidder does not grant an extension of time for the OWNER to award the contract, the OWNER reserves the right to award to the second lowest qualified bidder.

ARTICLE 22 - AWARD OF CONTRACT

- 22.01 OWNER reserves the right to reject any or all Bids, including without limitation the right to reject any or all nonconforming, non-responsive or conditional Bids. Bids may be rejected if they show any omissions, alterations of form, additions not called for, conditional or alternate bids other than are provided for in the Bid Form, bids containing escalation clauses or irregularities of any kind. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER also reserves the right to waive any informality not involving price, time or changes in the Work, if it is deemed to be in the best interest of the OWNER. The Bidder will not be allowed to take advantage of any error or omission.
- 22.02 OWNER reserves the right to reject any Bid not accompanied by specified documentation and Bid security. In the event that OWNER requires more than 45 calendar days after the actual Bid opening date to award the contract, Bidders shall provide to ENGINEER written Consent of Surety of the Bid Bond.
- 22.03 OWNER reserves the right to reject any Bid that, in its sole discretion, is considered to be unbalanced or unreasonable as to the amount bid for any lump sum or unit price item.

- 22.04 In evaluating Bidders, OWNER will consider their qualifications whether or not their Bids comply with the prescribed requirements, the alternatives, if any, the lump sum and unit prices, and other data as may be requested in the Bid Form or prior to the Notice of Award.
- 22.05 OWNER may consider the qualifications and experience of Subcontractors, Suppliers and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 22.06 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications and financial ability of the Bidders to perform the Work in accordance with the Contract Documents. OWNER reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to OWNER'S satisfaction.
- 22.07 OWNER reserves the right to accept any Bid deemed to be in its best interests even though the Bid chosen may result in the award of the Contract to a Bidder whose Bid is not, on a mathematical basis alone, the low Bid.
- 22.08 The OWNER may elect not to award a contract at this time due to budgetary or other considerations. OWNER reserves the right to reject any or all proposals and to re-bid the contract if the OWNER deems it in the public interest to do so.
- 22.09 Contracts shall be awarded only pursuant to resolution.
- 22.10 OWNER reserves the right to reject any bids from Bidders who are in arrears to, or in litigation with, the Erie County Water Authority or the County of Erie upon any debt or contract, or in default as surety or otherwise upon any obligation of the Erie County Water Authority or the County of Erie.

ARTICLE 23 - CONTRACT SECURITIES

- 23.01 Performance Bond shall be in the form of Engineers Joint Contract Documents Committee (EJCDC) "Construction Performance Bond", 1910-28-A. Payment Bond shall be in the form of EJCDC "Construction Payment Bond", 1910-28-B. The amounts of and other requirements for Performance and Payment Bonds are stated in paragraph 5.01 of the General Conditions. The requirements for delivery of Bonds are stated in paragraph 2.01 of the General Conditions. Additional requirements may be stated in the Supplementary Conditions.
- 23.02 Successful Bidder shall within five days from the date of the Notice of Award deliver to OWNER, for OWNER'S review and approval, the Performance Bond and the Payment Bond CONTRACTOR proposes to furnish at the time of the execution of the Agreement.

ARTICLE 24 – CONTRACTOR’S INSURANCE

- 24.01 The requirements for CONTRACTOR’S insurance and delivery of insurance certificates are stated in Article 5 of the General Conditions and in the Supplementary Conditions.

ARTICLE 25 - SIGNING OF AGREEMENT

- 25.01 When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents, which are identified in the Agreement as attached thereto. Within five days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER.

ARTICLE 26 - NOTICE TO PROCEED

- 26.01 Issuance of the Notice to Proceed shall be as stated in Article 2 of the General Conditions.

ARTICLE 27 - PARTNERING (NOT USED)

ARTICLE 28 - SALES AND USE TAXES

- 28.01 Refer to Supplementary Conditions paragraph SC-6.10 for information on OWNER’S exemption from sales and use taxes on materials and equipment to be incorporated into the Work. Do not include said taxes in Bid.

ARTICLE 29 - ADDITIONAL REQUIREMENTS

- 29.01 Refer to Supplementary Conditions Paragraph SC-18.03 for information on OWNER’S Women and Minority Business Enterprise requirements.
- 29.02 Refer to Supplementary Conditions Paragraph SC-18.06 for information on OWNER’S Apprenticeship policy.

END OF SECTION

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

SECTION 00360

PERMIT APPLICATIONS

ARTICLE 1 - GENERAL

- 1.01 OWNER shall apply for and CONTRACTOR is responsible for complying with all requirements of the following permits.
1. New York State Department of Transportation.
 2. Erie County Highway Department.
 3. New York State Thruway Authority.
 4. Railroad Permits
- 1.02 CONTRACTOR shall apply for and is responsible for complying with all requirements of the following.
- A. Applicable local highway departments.
- 1.03 CONTRACTOR shall include all costs for all permit requirements and conditions including preparation of maintenance and protection of traffic plans; implementing said maintenance and protection of traffic; notifications; off hours work; lights; special signage; etc. in his unit bid prices for the project and will not receive separate payment for any permit conditions.
- 1.04 Although OWNER obtains some of the permits, CONTRACTOR remains responsible to abide by all permit requirements and pay all costs associated with permits conditions. All such costs shall be included in unit bid prices for the project and shall not result in additional cost to OWNER.

ARTICLE 2 - SAMPLE PERMIT APPLICATIONS

- 2.01 Sample permit applications and requirements are bound in this Project Manual in the Appendix.

END OF SECTION

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

(This Bid Form shall not be detached from the Project Manual. The entire Project Manual shall be returned with the executed Bid.)

SECTION 00410

BID FORMS

BID FOR:

Erie County Water Authority
Water Distribution System Repairs and Replacements Contract
May 1, 2021 to April 3, 2023
Project No. 202100009

BID TO:

Service Center Front Desk
Erie County Water Authority
3030 Union Road
Cheektowaga, New York 14227

BID FROM: _____

(Print or Type Name of Bidder)

(/A Corporation/A Partnership/A Limited Liability Company/An
Individual/A Joint Venture/[Bidder to strike out inapplicable terms.]

Gentlemen:

- 1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the price(s) and within the times indicated in this Bid and in accordance with the Bidding Documents.

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2.01 Bidder accepts all of the terms and conditions of the Notice to Bidders and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain open subject to acceptance for the time period set forth in the Instruction to Bidders. Bidder will sign the Agreement and will furnish the required contract security, and other required documents within the time periods set forth in the Bidding Documents.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, if any, and the following Addenda receipt of all of which is hereby acknowledged.

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

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance for the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or 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 the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition identified at the Site, if any, which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may effect cost, progress or performance of the Work or which relate to any aspect

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of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance of the Work at the price(s) and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents and all additional examinations, investigations, explorations, tests, studies and data with the Bidding Documents.
- I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. The quantities for the unit price items are unpredictable and the ENGINEER has inserted certain quantities in the proposal to be used solely for purpose of comparison of bids.
- L. Fixed minimum unit prices may have been established for some of the items in the Bid. The prices represent the minimum amounts, which will be paid the CONTRACTOR for these items. The Bidder shall include a price not less than the stated minimum. If in the opinion of the Bidder these prices do not reflect the actual value of the work involved, the Bidder may void the given fixed minimum unit price for that specific item and enter a higher unit price in the spaces provided in the Bid Form sheets. Bidder's Proposals received which include a unit price less than the stated minimum shall be adjusted to meet the fixed minimum unit price.

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4.01 Bidder further represents that this Bid is genuine and is not made in the interest of or on behalf of any undisclosed individual or entity 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 individual or entity to refrain from bidding; Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER; and that no person or persons acting in any official capacity for the OWNER are directly or indirectly interested in this Bid, or in any portion of the profit thereof.

5.01 Bidder will complete the Work in accordance with the Contract Documents for:

<u>Description</u>	<u>Estimated Quantities</u>	<u>Computed Totals</u>
Item 1 - Watermain		
Item 1A – 4-inch to 8-inch Watermain (PVC or DIP)		
Item 1A1- For installing 4-inch to 8-inch Watermain, 6-feet or less of cover, at the Unit Price of _____ Dollars and _____ Cents (\$ _____) Per Linear Foot	3,500 LF	\$ _____
Item 1A2- For installing 4-inch to 8-inch Watermain, greater than 6-feet of cover, at the Unit Price of _____ Dollars and _____ Cents (\$ _____) Per Linear Foot	50 LF	\$ _____

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Item 1B – 10-inch to 12-inch Watermain (PVC or DIP)

Item 1B1- For installing 10-inch to 12-inch
Watermain, 6-feet or less of cover, at the Unit Price
of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

300 LF \$ _____

Item 1B2- For installing 10-inch to 12-inch
Watermain, greater than 6-feet of cover, at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

50 LF \$ _____

Item 1C – High Density Polyethylene (HDPE) – **HDD USE ONLY**

Item 1C1- For furnishing and installing 10-inch
DR9 DIPS High Density Polyethylene (HDPE)
Watermain for 8-inch watermain supply at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

2,000 LF \$ _____

Item 1C2- For furnishing and installing 12-inch
DR9 DIPS High Density Polyethylene (HDPE)
Watermain for 10-inch watermain supply at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

100 LF \$ _____

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Item 1C3- For furnishing and installing 16-inch
DR9 DIPS High Density Polyethylene (HDPE)
Watermain for 12-inch watermain supply at the Unit
Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

50 LF \$ _____

Item 2 - Valves

Item 2A – Gate Valve

Item 2A1- For installing 4-inch to 8-inch Gate Valve
at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

20 Ea \$ _____

Item 2A2- For installing 10-inch to 12-inch Gate
Valve at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

5 Ea \$ _____

Item 2B – Butterfly Valve

Item 2B1- For installing 12-inch Butterfly Valve at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

10 Ea \$ _____

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Item 2C – Air Release Valve

Item 2C1 - For furnishing and installing
Air Release Valve with Concrete Chamber
at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

1 Ea \$ _____

Item 2C2 - For furnishing and installing
Manually Operated Air Release Assembly
at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

5 Ea \$ _____

Item 2D – Existing Valve Abandonment

Item 2D1 - For Existing Valve Abandonment -
Complete (All Sizes) at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

5 Ea \$ _____

Item 3 – Existing Watermain Connections (Interconnections)

Item 3A – Inline Connection

Item 3A1- For 4-inch to 8-inch Inline Connection –
Complete at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

30 Ea \$ _____

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Item 3A2- For 10-inch to 12-inch Inline Connection
– Complete at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

5 Ea \$ _____

Item 3B – Tapping Sleeve and Valve (Hot Tap)

Item 3B1- For installing 4-inch to 8-inch Tapping
Sleeve and Valve – Complete at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

1 Ea \$ _____

Item 3B2- For installing 10-inch to 12-inch Tapping
Sleeve and Valve – Complete at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

1 Ea \$ _____

Item 3C – Cut-in Tee with Valve Cluster

Item 3C1- For installing 4-inch to 8-inch Cut-in Tee
with Valve Cluster – Complete at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

5 Ea \$ _____

Item 3C2- For installing 10-inch to 12-inch Cut-in
Tee with Valve Cluster – Complete at the Unit Price
of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

1 Ea \$ _____

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Item 4 – Fire Hydrants

Item 4A – New Fire Hydrant Assembly

Item 4A1 – For installing New Fire Hydrant
Assembly – Complete at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

5 Ea \$ _____

Item 4B – Existing Fire Hydrant Abandonment

Item 4A1 – For Existing Fire Hydrant Abandonment
– Complete at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

5 Ea \$ _____

Item 5 – Ductile Iron (DI) Fittings

Item 5A –Ductile Iron (DI) Fittings

Item 5A1 – For installing 4-inch to 8-inch Ductile
Iron (DI) fittings with restraints per Section 15106,
not included under Existing Watermain Connections
(Item 3) at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

100 Ea \$ _____

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Item 5A2 – For installing 10-inch to 12-inch Ductile Iron (DI) fittings with restraints per Section 15106, not included under Existing Watermain Connections (Item 3) at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

20 Ea \$ _____

Item 5A3 – For installing Joint Restraints per Section 15106 on existing 4-inch to 8-inch watermain at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

10 Ea \$ _____

Item 5A4 – For installing Joint Restraints per Section 15106 on existing 10-inch to 12-inch watermain at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

10 Ea \$ _____

Item 6 – Polyethylene Encasement

Item 6A – Polyethylene Encasement for Ductile Iron Pipe and Fitting

Item 6A1 – For installing Polyethylene Encasement for Ductile Iron Pipe and Fitting (Fixed Minimum Unit Price of \$0.35 per LF) at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

3,000 LF \$ _____

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Item 7 – Rock Excavation, Test Pit Excavation/Backfill, and Extra Excavation/Backfill

Item 7A – Rock Excavation

Item 7A1 – For Rock Excavation per Section 02317,
(Fixed Minimum Unit Price of \$50.00 per CY) at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Cubic Yard

20 CY \$ _____

Item 7B – Test Pit Excavation and Backfill

Item 7B1 – For Test Pit Excavation and Backfill
(Fixed Minimum Unit Price of \$200.00 per Each) at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Each

10 Ea \$ _____

Item 7C – Extra Excavation and Backfill

Item 7C1 – For Extra Excavation and Backfill, at the
Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Cubic Yard

50 CY \$ _____

Item 8 – Special Backfill

Item 8A – Select Backfill

Item 8A1 – For furnishing and installing Select
Backfill at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Cubic Yard

1,800 CY \$ _____

ERIE COUNTY WATER AUTHORITY
WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
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Item 8B – Rip-Rap Backfill

Item 8A1 – For furnishing and installing Rip-Rap
Backfill at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Cubic Yard

50 CY \$ _____

Item 9 – Water Service Connections and Blow-offs

Item 9A – Service Replacement/Installation

Item 9A1 – For installing ¾-inch to 1-inch Copper
Service Replacement/Installation at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

20 Ea \$ _____

Item 9A2 – For installing 1 ½-inch and 2-inch
Copper Service Replacement/Installation at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

5 Ea \$ _____

Item 9A3 – For furnishing and installing ¾-inch to
1-inch _____ Polyethylene _____ Service
Replacement/Installation at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

5 Ea \$ _____

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Item 9A4 – For furnishing and installing 1 ½-inch
and 2-inch Polyethylene Tubing
Replacement/Installation at the Unit Price of
_____ Dollars

and _____ Cents
(\$ _____) Per Each

5 Ea \$ _____

Item 9B – Additional Copper and Polyethylene Tubing

Item 9B1 – For installing ¾-inch to 1-inch
Additional Copper Tubing at the Unit Price of
_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

10 LF \$ _____

Item 9B2 – For installing 1 ½-inch and 2-inch
Additional Copper Tubing at the Unit Price of
_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

10 LF \$ _____

Item 9B3 – For furnishing and installing ¾-inch to
1-inch Additional Polyethylene Tubing at the Unit
Price of
_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

10 LF \$ _____

Item 9B4 – For furnishing and installing 1 ½-inch
and 2-inch Additional Polyethylene Tubing at the
Unit Price of
_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

10 LF \$ _____

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Item 9C – Blow-off Assemblies

Item 9C1 – For installing Permanent 2-inch Blow-off Assembly at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

1 Ea \$ _____

Item 9C2 – For installing Temporary 2-inch Blow-off Assembly at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

10 Ea \$ _____

Item 9C3 – For installing Permanent 4-inch Blow-off Assembly at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

1 Ea \$ _____

Item 9C4 – For installing Temporary 4-inch Blow-off Assembly at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

5 Ea \$ _____

Item 9C5 – For installing Permanent 8-inch Blow-off Assembly at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Each

1 Ea \$ _____

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Item 10 – Casing Pipe

Item 10A – Trenchless Casing Pipe Installation

Item 10A1 – For furnishing and installing 18-inch
Diameter Casing Pipe for 8-inch Carrier Pipe at the
Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

350 LF \$ _____

Item 10A2 – For furnishing and installing 20-inch
Diameter Casing Pipe for 10-inch Carrier Pipe at the
Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

200 LF \$ _____

Item 10A3 – For furnishing and installing 24-inch
Diameter Casing Pipe for 12-inch Carrier Pipe at the
Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

50 LF \$ _____

Item 10B – Open-cut Casing Pipe Installation

Item 10B1 – For furnishing and installing 18-inch
Diameter Casing Pipe for 8-inch Carrier Pipe at the
Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) Per Linear Foot

20 LF \$ _____

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Item 10B2 – For furnishing and installing 20-inch
Diameter Casing Pipe for 10-inch Carrier Pipe at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

20 LF \$ _____

Item 10B3 – For furnishing and installing 24-inch
Diameter Casing Pipe for 12-inch Carrier Pipe at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

20 LF \$ _____

Item 10C – Additional for Trenchless Casing Pipe Installation in Rock

Item 10C1 – For Trenchless Casing Pipe Installation
in Rock, 16-inch to 18-inch, at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

10 LF \$ _____

Item 10C2 – For Trenchless Casing Pipe Installation
in Rock, 20-inch to 24-inch, at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) Per Linear Foot

10 LF \$ _____

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Item 11 – Horizontal Directional Drilling (HDD)

Item 11A – Horizontal Directional Drilling (HDD)

Item 11A1 – Horizontal Directional Drill for
installing 4-inch to 10-inch watermain at the Unit
Price of

_____ Dollars

and _____ Cents
(\$ _____) per Linear Foot

1,800 LF \$ _____

Item 11A2 – Horizontal Directional Drill for
installing 12-inch to 16-inch watermain at the Unit
Price of

_____ Dollars

and _____ Cents
(\$ _____) per Linear Foot

300 LF \$ _____

Item 12 – Testing and Disinfection

Item 12A – Testing and Disinfection of Watermain Lengths 200-feet or Less

Item 12A1 – For Testing and Disinfection of 4-inch
Watermain (includes 6-inch HDPE) at the Unit Price
of

_____ Dollars

and _____ Cents
(\$ _____) per Linear Foot

50 LF \$ _____

Item 12A2 – For Testing and Disinfection of 6-inch
Watermain (includes 8-inch HDPE) at the Unit Price
of

_____ Dollars

and _____ Cents
(\$ _____) per Linear Foot

50 LF \$ _____

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Item 12A3 – For Testing and Disinfection of 8-inch
Watermain (includes 10-inch HDPE) at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Foot

350 LF \$ _____

Item 12A4 – For Testing and Disinfection of 10-
inch Watermain (includes 12-inch HDPE) at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Foot

100 LF \$ _____

Item 12A5 – For Testing and Disinfection of 12-
inch Watermain (includes 16-inch HDPE) at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Foot

250 LF \$ _____

Item 12B – Testing and Disinfection of Watermain Lengths greater than 200-feet

Item 12B1 – For Testing and Disinfection of 8-inch
Watermain (includes 10-inch HDPE) at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Foot

4,300 LF \$ _____

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Item 12B2 – For Testing and Disinfection of 10-inch
Watermain (includes 12-inch HDPE) at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Foot

1,200 LF \$ _____

Item 12B5 – For Testing and Disinfection of 12-inch
Watermain (includes 16-inch HDPE) at the Unit
Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Foot

300 LF \$ _____

Item 13 – Pavement, Sidewalk, Driveway, Lawn, and Landscape Restoration

Item 13A – Clearing and Grubbing

Item 13A1 – For Additional Clearing and Grubbing,
width greater than 15-feet at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

50 SY \$ _____

Item 13B – Pavement Restoration

Item 13B1 – For Asphalt Pavement Restoration at
the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

600 SY \$ _____

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Item 13B2 – For Concrete Pavement Restoration at
the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

20 SY \$ _____

Item 13B3 – For Concrete with Asphalt Top
Pavement Restoration at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

300 SY \$ _____

Item 13B4 – For Asphalt Shoulder Restoration at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

20 SY \$ _____

Item 13B5 – For Concrete Gutter Restoration at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Feet

20 LF \$ _____

Item 13B6 – For Concrete Curb Restoration at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Feet

20 LF \$ _____

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Item 13B7 – For Granite Curb Restoration at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Linear Feet

20 LF \$ _____

Item 13B8 – For Cold Milling and Asphalt Top at 1-
inch to 2-inch depth, at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

200 SY \$ _____

Item 13B9 – For Cold Milling and Asphalt Top at
each 1-inch over 2-inch depth, at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

100 SY \$ _____

Item 13B10 – For Cold Patch (high performance
patching material) per 3-inch depth at the Unit Price
of

_____ Dollars

and _____ Cents

(\$ _____) per Square Yard

50 SY \$ _____

Item 13B11 – For Traffic Loop Installation at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each Lane

5 Ea \$ _____

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Item 13C – Sidewalk Restoration

Item 13C1 – For Asphalt Sidewalk Restoration at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Square Yard

10 SY \$ _____

Item 13C2 – For Concrete Sidewalk Restoration at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Square Yard

400 SY \$ _____

Item 13D – Driveway Restoration

Item 13D1 – For Asphalt Driveway Restoration at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Square Yard

200 SY \$ _____

Item 13D2 – For Concrete Driveway Restoration at
the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Square Yard

100 SY \$ _____

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Item 13E – Asphalt Sealant

Item 13E1 – For Asphalt Sealant for driveway and
sidewalks (Fixed Minimum Unit Price of \$0.50 per
SY) at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Square Yard

500 SY \$ _____

Item 13F – Lawn Restoration

Item 13F1 – For Lawn Restoration at the Unit Price
of

_____ Dollars

and _____ Cents
(\$ _____) per Square Yard

3,200 SY \$ _____

Item 13G – Landscaping Restoration

Item 13G1 – For Deciduous Trees, 3-feet to 4-feet
(balled), at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Each

1 Ea \$ _____

Item 13G2 – For Deciduous Trees, 1 ½-inch to 2-
inch caliper (balled), at the Unit Price of

_____ Dollars

and _____ Cents
(\$ _____) per Each

1 Ea \$ _____

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Item 13G3 – For Deciduous Trees, 4-inch to 4 ½-inch caliper (balled), at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each

1 Ea \$ _____

Item 13G4 – For Deciduous Shrubs, 3-feet to 4-feet (bare root), at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each

1 Ea \$ _____

Item 13G5 – For Evergreen Trees, 5-feet to 6-feet (balled), at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each

1 Ea \$ _____

Item 13G6 – For Evergreen Shrubs, 2 ½-feet to 4-feet (balled), at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each

1 Ea \$ _____

Item 13G7 – For Repairing Damaged Trees, pruning and wrapping, at the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each

1 Ea \$ _____

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Item 13G8 – For Fertilizing Existing Trees at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Each

1 Ea \$ _____

Item 14 – Crew Rate and Construction Allowance

Item 14A – Crew Labor and Equipment

Item 14A1 – For Crew Labor and Equipment (Fixed
Minimum Unit Price of \$100.00 per hour) at the
Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Hour

200 Hrs \$ _____

Item 14A2 – For Survey Crew Labor and Equipment
(Unit Price shall not be less than prevailing wage) at
the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Hour

50 Hrs \$ _____

Item 14A3 – For Vacuum Truck and Crew Labor
(Fixed Minimum Unit Price of \$125.00 per hour) at
the Unit Price of

_____ Dollars

and _____ Cents

(\$ _____) per Hour

50 Hrs \$ _____

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Item 14B – Construction Allowance

Item 14B1 – For General Construction Allowance

One Hundred Fifty Thousand Dollars

and Zero Cents

(\$ 150,000.00) Allowance

Allowance \$ 150,000

Item 14B2 – For Maintenance and Protection of
Traffic (State and County Roads) Allowance

Fifty Thousand Dollars

and _____ Cents

(\$ 50,000.00) Allowance

Allowance \$ 50,000

TOTAL BID AMOUNT (This total is for convenience in
comparing Bids and is not an official part of this Bid.)

\$ _____
(Figures)

_____ Dollars and _____ Cents
(Written Amount)

ERIE COUNTY WATER AUTHORITY
WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
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Unit prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities of items of Unit Price Work are not guaranteed and final payment will be based on actual quantities of Unit Price Work performed as provided in the Contract Documents.

6.01 Bidder agrees that the Work will be substantially complete and completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated and special damages in the event of failure to complete the Work within the times specified above.

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the amount of _____ Dollars (\$_____).
- B. Section 2875 of the Public Authorities Law.
- C. Section 2876 of the Public Authorities Law.
- D. Section 2878 of the Public Authorities Law, Non-Collusive Bidding Certification.
- E. State Finance Law Requirements
- F. Section 139-L of the State Finance Law, Statement relating to Sexual Harassment Policy.
- G. Required Bidder Qualifications Statement with supporting data.
- H. All addenda

8.01 The terms used in this Bid will have the meanings indicated in the Instructions to Bidders and the General Conditions and Supplementary Conditions.

Respectfully submitted on _____, 20__.

ERIE COUNTY WATER AUTHORITY
WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
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If Bidder is:

An Individual

By _____

(Individual's Signature)

(Printed or Typed Name of Individual)

Doing business as _____

License or Registration Number: _____

Business Address: _____

Phone No.: _____ FAX No.: _____

A Partnership

By _____

(Firm Name)

(General Partner's Signature)

(Printed or Typed Name of General Partner)
(Attach evidence of authority to sign.)

License or Registration Number: _____

Business Address: _____

Phone No.: _____ FAX No.: _____

ERIE COUNTY WATER AUTHORITY
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A Corporation

By _____
(Corporation Name)

(State of Incorporation)

By _____
(Signature of Officer Authorized to Sign)

(Printed or Typed Name and Title of Officer Authorized to Sign)
(Attach evidence of authority to sign.)

(CORPORATE
SEAL)

Attest _____
(Secretary)

License or Registration Number: _____

Business Address: _____

Phone No.: _____ FAX No.: _____

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Limited Liability Company

By _____
(Firm Name)

(State of Formation)

By _____
(Signature of Member/Authorized to Sign)

(Printed or Typed Name and Title of Member Authorized to Sign)
(Attach evidence of authority to sign.)

License or Registration Number: _____

Business Address: _____

Phone No.: _____ FAX No.: _____

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A Joint Venture

Joint Venture Name: _____

By _____

(Signature)

(Printed or Typed Name)

(Title)

(Address)

By _____

(Signature)

(Printed or Typed Name)

(Title)

(Address)

Phone and FAX number and address for receipt of communications to joint venture:

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation or limited liability company that is a party to the joint venture shall be in the manner indicated above).

END OF BID FORM

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
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SECTION 00430

BID FORM SUPPLEMENTS

Bid Security Form

Section 2875 of the Public Authorities Law

Section 2876 of the Public Authorities Law

Section 2878 of the Public Authorities Law

State Finance Law Requirements

Section 139-L of the State Finance Law

BID SECURITY FORM

BIDDER (Name and Address):

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

OWNER:

Erie County Water Authority
295 Main Street, Room 350
Buffalo, New York 14203

BID

BID DUE DATE: _____

PROJECT:

Water Distribution System Replacements and Improvements Contract
May 1, 2021 to April 30, 2023
Project No: 202100009

BOND

BOND NUMBER: _____

DATE: (Not later than Bid due date): _____

PENAL SUM: _____

(Words)

(Figures)

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

BIDDER

SURETY

_____(Seal)

Bidder's Name and Corporate Seal

By: _____

Signature and Title

Attest: _____

Signature and Title

_____(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

Attest: _____

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

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

3.01 This obligation shall be null and void if:

- A. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or
- B. All Bids are rejected by OWNER, or
- C. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5.01 hereof).

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

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

6.01 No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4.01 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7.01 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.

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

9.01 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.

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

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

END OF BID BOND

SECTION 2875 OF THE PUBLIC AUTHORITIES LAW

§2875. GROUND FOR CANCELLATION OF CONTRACT BY PUBLIC AUTHORITY.

A clause shall be inserted in all specifications or contracts hereafter made or awarded by any public authority or by any official of any public authority created by the state or any political subdivision, for work or services performed or to be performed or goods sold or to be sold, to provide that upon the refusal of a person, when called before a grand jury, head of a state department, temporary state commission, or other state agency, the organized crime task force in the department of law, head of a city department, or other city agency, which is empowered to compel the attendance of witnesses and examine them under oath, to testify in an investigation concerning any transaction or contract had with the state, any political subdivision thereof or of a public authority, to sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant question concerning such transaction or contract.

(a) Such person, and any firm, partnership or corporation of which he is a member, partner, director or officer shall be disqualified from thereafter selling to or submitting bids to or receiving awards from or entering into any contracts with any public authority or official thereof, for goods, work or services, for a period of five years after such refusal, and to provide also that;

(b) any and all contracts made with any public authority or official thereof, since the effective date of this law, by such person and by any firm, partnership or corporation of which he is a member, partner, director or officer may be canceled or terminated by the public authority without incurring any penalty or damages on account of such cancellation or termination, but any monies owing by the public authority for goods delivered or work done prior to the cancellation termination shall be paid.

This is to CERTIFY that neither the undersigned nor any member, partner, director, or officer of the firm has refused to sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant question concerning a transaction or contract with the state, any political subdivision thereof, a public authority or with a public department, agency or official of the state or of any political subdivision thereof or of a public authority, when called before a grand jury, head of a state department, temporary state commission, or other state agency, the organized crime task force in the department of law, head of a city department, or other city agency, which is empowered to compel the attendance of witnesses and examine them under oath.

(Name of Individual, Partnership or Corporation)

By _____
(Person authorized to sign)

(SEAL)

SECTION 2876 OF THE PUBLIC AUTHORITIES LAW

§2876. DISQUALIFICATION TO CONTRACT WITH PUBLIC AUTHORITY

Any person who, when called before a grand jury, head of a state department, temporary state commission or other state agency, the organized crime task force in the department of law, head of a city department or other city agency, which is empowered to compel the attendance of witnesses and examine them under oath to testify in an investigation concerning any transaction or contract had with the state, any political subdivision thereof, a public authority or with a public department, agency or official of the state or of any political subdivision thereof or of a public authority, refuses to sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant questions concerning such transaction or contract, and any firm, partnership or corporation of which he is a member, partner, director or officer shall be disqualified from thereafter selling to or submitting bids to or receiving awards from or entering into any contracts with any public authority or any official of any public authority created by the state or any political subdivision, for goods, work or services, for a period of five years after such refusal or until a disqualification shall be removed pursuant to the provisions of section twenty-six hundred three of this article.

It shall be the duty of the officer conducting the investigation before the grand jury, the head of a state department, the chairman of the temporary state commission or other state agency, the organized crime task force in the department of law, the head of a city department or other city agency before which the refusal occurs to send notice of such refusal, together with the names of any firm, partnership or corporation of which the person so refusing is known to be a member, partner, officer or director, to the commissioner of transportation of the state of New York, or the commissioner of general services as the case may be, and the appropriate departments, agencies and officials of the state, political subdivisions thereof or public authorities with whom the persons so refusing and any firm, partnership or corporation of which he is a member, partner, director or officer, is known to have a contract. However, when such refusal occurs before a body other than a grand jury, notice of refusal shall not be sent for a period of ten days after such refusal occurs. Prior to the expiration of this ten day period, any person, firm, partnership or corporation which has become liable to the cancellation or termination of a contract or disqualification to contract on account of such refusal may commence a special proceeding at a special term of the supreme court, held within the judicial district in which the refusal occurred, for an order determining whether the questions in response to which the refusal occurred were relevant and material to the inquiry. Upon the commencement of such proceeding, the sending of such notice of refusal to answer shall be subject to order of the court in which the proceeding was brought in a manner and on such terms as the court may deem just. If a proceeding is not brought within ten days, notice of refusal shall thereupon be sent as provided herein.

SECTION 2878 OF THE PUBLIC AUTHORITIES LAW

§2878. STATEMENT OF NON-COLLUSION IN BIDS OR PROPOSALS TO PUBLIC AUTHORITY.

(1) Every bid or proposal hereafter made to a public authority or to any official of any public authority created by the state or any political subdivision, where competitive bidding is required by statute, rule, regulation or local law, for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed by the bidder and affirmed by such bidder as true under the penalties of perjury:

NON-COLLUSIVE BIDDING CERTIFICATION

(a) By submission of this bid, EACH BIDDER AND EACH PERSON SIGNING ON BEHALF OF ANY BIDDER CERTIFIES, AND IN THE CASE OF A JOINT BID EACH PARTY THERETO CERTIFIES AS TO ITS OWN ORGANIZATION, under penalty of perjury, that to the best of his knowledge and belief: (1) the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

(b) A bid shall not be considered for award nor shall any award be made where (a) (1) (2) and (3) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (a) (1) (2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the state, public department or agency to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items to be procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of subparagraph one (a).

The undersigned CERTIFIES, under penalty of perjury, that he is authorized to make this bid and execute this statement of non-collusion; that each of the statements contained in (1), (2) and (3) of paragraph (a) are true; that he is familiar with the statements and restrictions contained in paragraph (b) and the paragraph regarding the publication of price lists, etc. and such statements and restrictions are true and have been complied with by the bidder.

(Name of Individual, Partnership, or Corporation)

By _____

(SEAL)

FORMS A, B, and C

STATE FINANCE LAW REQUIREMENTS

The Erie County Water Authority (the “Authority”) is a government entity, as that term is defined in State Finance Law §§ 139-j(1)(a) and 139-k(1)(a). When the Authority seeks to procure goods or services by means of an Invitation or Notice to Bid, or a Request for Proposals, the State Finance Law imposes certain restrictions on anyone who may wish to offer goods or services to the Authority as an Offerer, as that term is defined in §§ 139-j(1)(h) and 139-k(1)(h).

During the Restricted Period, as defined in §§ 139-j(1)(f) and 139-k(1)(f), when bids or proposals are being solicited, the Authority will designate a contact person with whom the Offerer may contact for information and other authorized purposes as set forth in §139-j of the State Finance Law. The designated contact is identified in the Notice to Bidders, or in the Request for Proposal. An Offerer is authorized to contact the Authority’s designated contact for such purposes as set forth in § 139-j(3).

Pursuant to the State Finance Law, the Authority is also required to make certain findings before making any determinations as to the qualifications and eligibility of those seeking a procurement contract, as that term is defined in State Finance Law §§ 139-j(1)(g) and 139-k(1)(g). Certain findings of non-responsibility can result in rejection for contract award and in the event of two findings of non-responsibility occurring within a 4-year period, the Offerer will be debarred from obtaining procurement contracts with the Authority. Further information about these requirements can be found in §§139–j and 139–k of the New York State Finance Law and the Erie County Water Authority’s Procurement Disclosure Policy.

The following forms will be used by the Authority to make such findings:

Form A - Offerer’s Affirmation of Understanding of, and Agreement to Comply with, the Authority’s Permissible Contact Requirements During the Restricted Period.

Form B - Offerer’s Certification of Compliance with State Finance Law.

Form C - Offerer’s Disclosure of Prior Non-Responsibility Determinations.

FORM A

Offerer's Affirmation of Understanding of, and Agreement to Comply with, the Permissible Contact Requirements During the Restricted Period

Instructions:

The Erie County Water Authority (the "Authority") is a government entity, as that term is defined in State Finance Law §§ 139-j(1)(a) and 139-k(1)(a). The Authority must obtain a written affirmation of understanding and agreement to comply with procedures regarding permissible contacts with the Authority in the restricted period for a procurement contract in accordance with State Finance Law §139-j and §139-k. It is required that this affirmation be obtained as early as possible in the procurement process, but no later than when the Offerer submits its proposal.

Offerer affirms that it understands and agrees to comply with the procedures of the Authority relative to permissible contacts as required by State Finance Law §139-j(3) and §139-j(6)(b).

By: _____ Date: _____

Name: _____

Title: _____

Contractor Name: _____

Contractor Address: _____

FORM B

Offerer's Certification of Compliance With State Finance Law §139-k(5)

Instructions:

The Erie County Water Authority (the "Authority") is a government entity, as that term is defined in State Finance Law §§ 139-j(1)(a) and 139-k(1)(a). The Authority must obtain a Certification that the information submitted for a procurement contract is complete, true, and accurate regarding any prior findings of non-responsibility, such as non-responsibility pursuant to State Finance Law §139-j. The Offerer must agree to sign the Certification, under penalty of perjury, and to provide the Certification to the Authority. The Certification should be obtained as early as possible in the process, but no later than when an Offerer submits its proposal.

Offerer Certification:

I certify that all information provided to the Authority relating to the awarding of a procurement contract is complete, true, and accurate.

By: _____ Date: _____

Name: _____

Title: _____

Contractor Name: _____

Contractor Address: _____

FORM C**Offerer's Disclosure of Prior
Non-Responsibility Determinations****Background:**

The Erie County Water Authority (the "Authority") is a government entity, as that term is defined in State Finance Law §§ 139-j(1)(a) and 139-k(1)(a). New York State Finance Law §139-k(2) obligates the Authority to obtain specific information regarding prior non-responsibility determinations with respect to State Finance Law §139-j. In accordance with State Finance Law §139-k, an Offerer must be asked to disclose whether there has been a finding of non-responsibility made within the previous four (4) years by any Governmental Entity due to: (a) a violation of State Finance Law §139-j; or (b) the intentional provision of false or incomplete information to a Government Entity.

The terms "Offerer" and "Governmental Entity" are defined in State Finance Law §§139-j(1) and §139-k(1). These sections also set forth detailed requirements about the restrictions on contacts during the procurement process. A violation of State Finance Law §139-j includes, but is not limited to, an impermissible contact during the restricted period (for example, contacting a person or entity other than the designated contact person, when such contact does not fall within one of the exemptions).

As part of its responsibility determination, State Finance Law §139-k(3) mandates consideration of whether an Offerer fails to timely disclose accurate or complete information regarding the above non-responsibility determination. In accordance with law, no Procurement Contract shall be awarded to any Offerer that fails to timely disclose accurate or complete information under this section, unless a finding is made that the award of the Procurement Contract to the Offerer is necessary to protect public property or public health safety, and the Offerer is the only source capable of supplying the required Article of Procurement, as that term is defined in State Finance Law §§ 139-j(1)(b) and 139-k(1)(b), within the necessary timeframe. See State Finance Law §139-j(10)(b) and §139-k(3).

Instructions:

The Authority must include a disclosure request regarding prior non-responsibility determinations in accordance with State Finance Law §139-k in its solicitation of proposals or bid documents or specifications or contract documents, as applicable, for procurement contracts. The attached form is to be completed and submitted by the individual or entity seeking to enter into a Procurement Contract. It shall be submitted to the Authority conducting the Governmental Procurement no later than when the Offerer submits its proposal.

FORM C (Continued)**Offerer's Disclosure of Prior Non-Responsibility Determinations**

Name of Individual or Entity Seeking to Enter into the Procurement Contract:

Address: _____

Name and Title of Person Submitting this Form: _____

Contract Procurement Number: _____

Date: _____

1. Has any Governmental Entity made a finding of non-responsibility regarding the individual or entity seeking to enter into the Procurement Contract in the previous four years? (Please circle):
- No Yes

If yes, please answer the next questions:

2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law §139-j (Please circle):
- No Yes
3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity? (Please circle)
- No Yes
4. If you answered yes to any of the above questions, please provide details regarding the finding of non-responsibility below.

Governmental Entity: _____

Date of Finding of Non-Responsibility: _____

Basis of Finding of Non-Responsibility: _____

(Add additional pages as necessary)

Governmental Entity: _____

Basis of Termination or Withholding:

(Add additional pages as necessary)

CONTRACT TERMINATION PROVISION

Instructions:

A Contract Termination Provision will be included in each procurement contract governed by State Finance Law §139-k. New York State Finance Law §139-k(5) provides that every procurement contract award subject to the provisions of State Finance Law §§139-k and 139-j shall contain a provision authorizing the governmental entity to terminate the contract in the event that the certification is found to be intentionally false or intentionally incomplete. This statutory contract language authorizes, but does not mandate, termination. “Government Entity” and “procurement contract” are defined in State Finance Law §§ 139 j(1) and 139-k(l).

This required clause will be included in a covered procurement contract.

A sample of the Termination Provision is included below. If a contract is terminated in accordance with State Finance Law §139-k(5), the Erie County Water Authority, as a governmental entity, is required to include a statement in the procurement record describing the basis for any action taken under the termination provision.

Sample Contract Termination Provision

The Erie County Water Authority, as a governmental entity, reserves the right to terminate this contract in the event it is found that the certification filed by the Offerer in accordance with New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, the Authority may exercise its termination right by providing written notification to the Offerer in accordance with the written notification terms of this contract.

SECTION 139-L OF THE STATE FINANCE LAW
STATEMENT RELATING TO SEXUAL HARASSMENT POLICY

1. "Bidder" has the same meaning as the term, "Offerer," as that term is defined in State Finance Law § 139-k(1)(h), and includes anyone who submits a bid or proposal.
2. Every proposal or bid hereafter made and submitted to the Erie County Water Authority, where competitive bidding or a sealed proposal is required by statute, rule or regulation, for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed by the Bidder and affirmed by such Bidder as true under penalty of perjury:

SEXUAL HARASSMENT BIDDING CERTIFICATION

- (a) "By submission of this bid/proposal, EACH BIDDER AND EACH PERSON SIGNING ON BEHALF OF ANY BIDDER CERTIFIES, AND IN THE CASE OF A JOINT BID EACH PARTY THERETO CERTIFIES AS TO ITS OWN ORGANIZATION, under penalty of perjury, that the Bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees. Such policy shall, at a minimum, meet the requirements of Section two hundred one-g of the Labor Law."
3. A bid/proposal shall not be considered for award nor shall any award be made to a Bidder who has not complied with subdivision one of this section; provided, however, that if in any case the Bidder cannot make the foregoing certification, the Bidder shall so state and shall furnish with the bid/proposal a signed statement which sets forth in detail the reasons therefore.

The undersigned CERTIFIES, under penalty of perjury, that he is authorized to make this bid/proposal and execute this statement on sexual harassment; that he is familiar with the statements contained in ¶2(a) of this document, as well as the provisions of State Finance Law §139-L and Labor Law §201-g, and such statements are true and have been complied with by the Bidder.

(Name of Individual, Partnership or Corporation)

By _____
(Person authorized to sign)

(SEAL)

END OF BID FORM SUPPLEMENTS

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

SECTION 00450

BIDDER'S QUALIFICATION STATEMENT

(Completion of this statement is required in advance of
consideration for award of Contract.)

SUBMITTED TO:

Service Center Front Desk
Erie County Water Authority
3030 Union Road
Cheektowaga, New York 14227

SUBMITTED FOR:

Erie County Water Authority
Water Distribution System Replacements and Improvements Contract
May 1, 2021 to April 30, 2023
Project No: 202100009

SUBMITTED BY:

Name of Organization: _____
(Print or Type Name of Bidder)

Name of Individual: _____

Title: _____

Business Address: _____

Telephone No.: _____

Fax No.: _____

Gentlemen:

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter.

(Note: Attach additional sheets as required.)

1.0 Bidder's General Business Information

1.1 Check if:

☐ Corporation ☐ Partnership ☐ Joint Venture ☐ Sole Proprietorship

If Corporation:

A. Date and State of Incorporation:

B. List of Executive Officers:

Name	Title
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

If Partnership:

A. Date and State of Organization:

B. Names of Current General Partners:

C. Type of Partnership

☐ General ☐ Publicly Traded
☐ Limited ☐ Other (described): _____

If Joint Venture:

A. Date and State of Organization:

B. Name, Address and Form of Organization of Joint Venture Partners: (Indicate managing partner by an asterisk *):

If Sole Proprietorship:

A. Date and State of Organization:

B. Name and Address of Owner or Owners:

2.0 How many years has your organization been in business as a general contractor? _____

3.0 Has your organizational structure changed within the past five years? ☐ Yes ☐ No

If the answer to this question is “yes”, provide data as listed above in Item 1.0 for your previous organization.

4.0 We normally perform _____ percent of the work with our own forces. List work normally subcontracted.

- 5.0 Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated work on a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contract for which they furnished a bond on your behalf?

☐ Yes ☐ No

If the answer to any portion of this question is “yes”, furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

- 6.0 Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond?

☐ Yes ☐ No

If the answer to any portion of this question is “yes”, furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

- 7.0 In the last five years, has your organization, or any predecessor organization, failed to substantially complete a project in a timely manner?

☐ Yes ☐ No

If the answer to this question is “yes”, furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

- 8.0 On Schedule A, attached, list name, location and description of project, owner, architect or engineer, contract price, percent complete and scheduled completion of the major

construction projects your organization has in progress on this date. Provide name, address and telephone number of a reference for each project listed.

9.0 On Schedule B, attached, list name, location and description of project, owner, architect or engineer, contract price, date of completion and percent of work with your own forces of major projects of the same general nature as this project which your organization has completed in the past five years. Provide name, address and telephone number of a reference for each project listed.

10.0 On Schedule C, attached, list name and construction experience of the principal individuals of your organization directly involved in construction operations.

10.1 On Schedule D, attached, list OSHA Information requested.

11.0 List the states and categories of construction in which your organization is legally qualified to do business.

12.0 Provide the following for your surety:

12.1 Surety Company: _____

12.2 Agent: _____

A. Address: _____

B. Telephone No.: _____

12.3 What is your approximate total bonding capacity?

- ☐ \$500,000 to \$2,000,000
- ☐ \$2,000,000 to \$5,000,000
- ☐ \$5,000,000 to \$10,000,000
- ☐ \$10,000,000 or more

13.0 Provide the following with respect to an accredited banking institution familiar with your organization.

13.1 Name of Bank: _____

13.2 Address: _____

13.3 Account Manager: _____

13.4 Telephone No.: _____

14.0 Provide the name, address and telephone number of an individual who represents a major equipment/material supplier whom the Owner may contact for a financial reference:

15.0 Attach a financial statement, prepared on an accrual basis, in a form which clearly indicates Bidder's assets, liabilities and net worth.

15.1 Date of financial statement: _____

15.2 Name of firm preparing statement: _____

16.0 Dated at _____, this _____ day of _____, 20_____.

Bidder: _____
(Print or Type Name of Bidder)

By: _____

Title: _____

Attachments A, B, C, and D

(Seal, if corporation)

------(Affidavit for Individual)-----

_____ being duly sworn, deposes and says that:
a) the financial statement, taken from his/her books, is a true and accurate statement of his/her financial condition as of the date thereof; and b) all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Partnership)-----

_____ being duly sworn, deposes and says that:
a) he/she is a member of the partnership of _____;
b) he/she is familiar with the books of said partnership showing its financial condition; c) the financial statement, taken from the books of said partnership, is a true and accurate statement of the financial condition of the partnership as of the date thereof; and d) all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Corporation)-----

_____ being duly sworn, deposes and says that:
a) he/she is _____ of _____;
(Full name of Corporation)
b) he/she is familiar with the books of said corporation showing its financial condition; c) the financial statement, taken from the books of said corporation, is a true and accurate statement of the financial condition of said corporation as of the date thereof; and d) that all of the foregoing qualification information is true, complete, and accurate.

------(Acknowledgment)-----

_____ being duly sworn, deposes and says
that he/she is _____ of _____;
(Name of Bidder)
that he/she is duly authorized to make the foregoing affidavit and that he/she makes it on behalf of
() himself/herself; () said partnership; () said corporation.

Sworn to before me this _____ day of _____, 20____, in the
County of _____, State of _____.

(Notary Public)

My commission expires _____

(Seal)

END OF BIDDER QUALIFICATIONS STATEMENT

ATTACHMENT A

SCHEDULE A PROJECTS IN PROGRESS

<u>Name, Location and Description of Project</u>	<u>Owner</u>	<u>Architect or Engineer</u>	<u>Contract Price</u>	<u>Percent Complete</u>	<u>Scheduled Completion</u>	<u>Reference/Contract Include Address and Phone</u>
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ATTACHMENT B

SCHEDULE B PROJECTS COMPLETED

<u>Name, Location and Description of Project</u>	<u>Owner</u>	<u>Architect or Engineer</u>	<u>Date Completed</u>	<u>Contract Price</u>	<u>Percent with Own Forces</u>	<u>Reference/Contract Include Address and Phone</u>
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ATTACHMENT C

SCHEDULE C PERSONNEL

<u>Name</u>	<u>Position</u>	<u>Date Started With This Organization</u>	<u>Date Started In Construction</u>	<u>Prior Positions and Experience In Construction</u>
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ATTACHMENT D
SCHEDULE D
OSHA INFORMATION

List all Occupational Safety and Health Administration Citations for the last three years, including date, subject matter, and penalty.

Attach copies of all determined Citations and Notification of Penalty, Form OSHA 2.

Describe all pending cases, giving pertinent information such as apparent violations, location of project, type of project, and present status. _____

List any additional information on the back or attach a separate sheet if necessary.

EXPERIENCE IN THE INSTALLATION OF
TAPPING SADDLES & VALVES
ON
PRESTRESSED CONCRETE CYLINDER PIPE

When this Contract includes the Installation of Tapping Saddles and Valves on Prestressed Concrete Cylinder Pipe, the Bidder is required to complete one of the following to the satisfaction of the ENGINEER:

A. I have had experience* in the above as follows:

1. _____
2. _____
3. _____

B. The above noted work will be done by a subcontractor

Who has the following experience*:

1. _____
2. _____
3. _____

C. I will have a representative of a manufacturer of prestressed concrete cylinder pipe

_____ do the above noted work.
(Insert manufacturer's name)

* List size and type (SP-5 or SP-12) of main tapped along with location, year and who the work was done for.

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

SECTION 00500

AGREEMENT

THIS AGREEMENT is dated as of the _____ day of _____ in the year _____, by and between the ERIE COUNTY WATER AUTHORITY (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

WITNESSETH: OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

1.01 CONTRACTOR shall at its own cost and expense furnish all labor, services, tools, materials, equipment and incidentals necessary to complete all Work as specified or indicated in the Contract Documents to perform all specified work required for installation of water distribution system repairs and replacements. The Work includes all road cuts, watermain, valves, hydrants, interconnections, abandonments, service reconnections/replacements, restoration, and all related work as shown on the drawings, described in the specifications and as directed by the OWNER. The Work is generally described in Section 01100 of the General Requirements.

ARTICLE 2 - ENGINEER

2.01 The Project has been designed by the OWNER, who is hereinafter called ENGINEER. The ENGINEER will assume all duties and responsibilities and have the rights and authority assigned to ENGINEER by OWNER in connection with completion of the work and in accordance with the Contract Documents.

ARTICLE 3 - CONTRACT TIMES

3.01 Time of the Essence

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

- B. Each watermain replacement/improvement shall be substantially complete within forty-five (45) calendar days of written notification by OWNER that the project is ready to begin. If additional time is required due to the length or complexity of the project the CONTRACTOR shall submit a detail schedule for written approval by OWNER. All work must be continuous once construction has begun.
- C. The CONTRACTOR is required to complete all watermain replacements/improvements authorized by OWNER.
- D. The CONTRACTOR is required to complete the restoration, required as a result of the Work, as follows:
 - 1. The CONTRACTOR shall perform compaction of backfill material to avoid settlement.
 - 2. Lawn restoration shall be performed between May 1st and October 15th, or at other such times as weather permits or as directed by ENGINEER.
 - 3. Asphalt, concrete, and other restorations shall be performed between April 15th and November 30th, or at other such times as weather permits or as directed by ENGINEER.
 - 4. All restorations are to be completed within six weeks of the watermain replacement/improvement within seasonal period outlined above.
 - 5. All restorations for various types required, where watermain replacements/improvements were out of season, shall be completed by May 15th for lawns and May 1st for others.
 - 6. Restoration warranty repairs are to be completed within 12 days of release.
- E. The Contract expires on April 30, 2023.

3.02 Substantial Completion and Final Payment

- A. Each watermain replacement/improvement shall be deemed substantially complete at such time as the installation is completed, backfilled, tested, disinfected, services transferred/connected (as necessary and required), Erie County Water Authority and/or Health Department approval given, and is placed into operation.
- B. Final Payment shall be made after all work of the Contract is completed and in accordance with Paragraph 14.07 of the General Conditions. Any watermain replacement/improvement not installed by the last day of the contract term shall be turned back to the Authority, and the CONTRACTOR shall receive no compensation or have any claim with respect to such watermain replacement/improvement.

ARTICLE 4 - LIQUIDATED AND SPECIAL DAMAGES

4.01 Liquidated Damages

- A. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and OWNER will suffer financial loss, apart from the costs described in paragraph 4.02.A, if the Work is not substantially completed within the time specified in Article 3 for Substantial Completion, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. OWNER and CONTRACTOR also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially 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 two hundred and fifty dollars (\$250.00) for each day that expires after the time specified in Article 3 for Substantial Completion (adjusted for any changes thereof made in accordance with Article 12 of the General Conditions) until the Work is substantially complete; fifty dollars (\$50.00) per day that lawn/grass restoration at each Work location is not completed; and one hundred dollars (\$100.00) per day that sidewalk/driveway/roadway restoration at each Work location is not completed as outlined in Article 3.01.
- B. OWNER and CONTRACTOR agree that as liquidated damages for failure to provide a Weekly Report per Section 01321, Construction Schedules (but not as a penalty), CONTRACTOR shall pay OWNER one hundred dollars (\$100.00) for each day that the Weekly Report is not submitted per the requirements of Section 01321.
- C. OWNER and CONTRACTOR agree that as liquidated damages for failure to provide Maintenance and Protection of Traffic (MPT) that is in compliance with Section 01550, Maintenance and Protection of Traffic (but not as a penalty), CONTRACTOR shall pay OWNER five hundred dollars (\$500.00) for each day the MPT is not in compliance with Section 01550. This is applicable to each Work location that has been assigned by the ENGINEER. The ENGINEER has the sole discretion in determining what is not in compliance with Section 01550.

4.02 Special Damages:

- A. In addition to the amount provided for liquidated damages, CONTRACTOR shall pay OWNER the actual costs reasonably incurred by OWNER for engineering and inspection forces employed for the Work for each day that expires after the days specified in Article 3 for Substantial Completion (adjusted for any changes thereof made in accordance with Article 12 of the General Conditions) until the Work is substantially complete.

- B. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER the actual costs reasonably incurred by OWNER for engineering and inspection forces employed for the Work for each day that expires after the time specified in Article 3 for Work to be completed and ready for final payment (adjusted for any extensions thereof made in accordance with Article 12 of the General Conditions) until the Work is completed and ready for final payment.
- 4.03 OWNER may deduct liquidated damages and special damages as determined by the provisions of this Article 4 from progress payments due CONTRACTOR under this Agreement.

ARTICLE 5 - CONTRACT PRICE

- 5.01 OWNER shall pay CONTRACTOR, in current funds, for completion of the Work in accordance with the Contract Documents the prices stated in CONTRACTOR'S Bid, which Bid is attached hereto and identified as Exhibit 1 of this Agreement. As provided in paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03 of the General Conditions.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed as provided in the General Conditions.

6.02 Progress Payments; Retainage

- A. OWNER shall make monthly progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER. CONTRACTOR'S Applications for Payment will be due on the last day of the month. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work, based on the number of units completed and accepted) or, in the event there is no schedule of values, as provided in the General Requirements. A progress payment will not be made whenever the value of the Work completed since the last previous progress payment is less than ten thousand dollars (\$10,000).

1. Prior to Substantial Completion

- a. Progress payments will be made in the amount of 95 percent of the Work completed, (with the balance being retainage), less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions; and
- b. 95 percent of the cost of materials and equipment not incorporated in the Work but suitably stored (with the balance being retainage).

2. Upon Contract Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 100 percent of the Work completed, less such amounts as ENGINEER shall determine in accordance with paragraph 14.02.B.5 of the General Conditions and less 200 percent of ENGINEER'S estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment:

- A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

ARTICLE 7 - INTEREST

- 7.01 All moneys not paid when due hereunder shall bear interest at the maximum rate allowed by law at the place of the Project.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 As part of the inducement for OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. 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, and performance for the Work.
- C. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

- D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or 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 the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition identified at the Site, if any, which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies or data are necessary for the performance of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.
- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. CONTRACTOR has 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.
- I. 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.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 The Contract Documents consist of the following:

- A. This Agreement (10 pages).
- B. Performance Bond (2 pages).
- C. Payment Bond (2 pages).
- D. General Conditions (42 pages).
- E. Supplementary Conditions (9 pages).
- F. Specifications, as listed in the table of contents of the Project Manual.
- G. Appendix A - Women and Minority Business Enterprise Policy.
- H. Appendix B - Insurance Requirements.
- I. Appendix C - Prevailing Wage Rate Schedule.
- J. Appendix D - Highway Permits Application Forms.
- K. Appendix E – Standard Details – Erie County Water Authority
- L. Addenda consisting of Numbers ____ to ____, inclusive.
- M. Exhibits to the Agreement enumerated as follows:
 - 1. Exhibit 1, Bid Form (31 pages).
- N. The following, which may be delivered or issued on or after the Effective Date of the Agreement, and are not attached hereto:
 - 1. Notice to Proceed
 - 2. Written Amendments
 - 3. Work Change Directives
 - 4. Change Order(s)

9.02 The documents listed in paragraph 9.01 above are attached to this Agreement (except as expressly noted otherwise above). Documents not attached are incorporated by reference. There are no Contract Documents other than those listed in this Article 9.

9.03 The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, 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.

10.03 Successors and Assigns

- A. 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.

10.04 Severability

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

10.05 Waiver

- A. The waiver by the OWNER of any breach or violation of any term, covenant, or condition of this Agreement or of any Law or Regulation shall not be deemed to be a waiver of any other term, covenant, condition, or Law or Regulation or of any subsequent breach or violation of the same or of any other term, covenant, condition, or Law or Regulation. The subsequent payment of any monies or fee by the OWNER which may become due hereunder shall not be deemed to be a waiver of any preceding breach or violation by CONTRACTOR of any term, covenant, condition of this Agreement or of any applicable Law or Regulation.

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

This Agreement will be effective on _____, 20_____.

OWNER: Erie County Water Authority CONTRACTOR: _____

By: _____ By: _____

Title: _____ Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest _____ Attest _____

Address for giving notices

Address for giving notices

(If OWNER is a corporation, partnership, or limited liability company, attach evidence of authority to sign) (If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement.)

License No. _____
(where applicable)

Agent for service of process: _____

(If CONTRACTOR is a corporation, partnership, or limited liability company, attach evidence of authority to sign.)

Designated Representative:

Name: _____

Title: _____

Address: _____

Phone No.: _____

Fax No.: _____

Designated Representative:

Name: _____

Title: _____

Address: _____

Phone No.: _____

Fax No.: _____

END OF AGREEMENT

Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

Erie County Water Authority
295 Main Street, Room 350
Buffalo New York 14203

CONTRACT

Date:

Amount:

Description: ERIE COUNTY WATER AUTHORITY
WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: (Corp. Seal)

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

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. 1910-28-A (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

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 Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR 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 the addresses described in paragraph 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 Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, 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 Contract. 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:

3.3.1. The Surety in accordance with the terms of the Contract; or

3.3.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.

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

4.1. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract 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 Contract, 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 Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR 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 paragraph 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 Contract, 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 Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a 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 Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional and delay costs resulting from the CONTRACTOR'S Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, 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 Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Contract 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 or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum 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 signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here-from 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 Contract 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 Contract.

12.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

12.3. CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY - Name, Address and Telephone)
AGENT or BROKER: OWNER'S REPRESENTATIVE (Engineer):

Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

Erie County Water Authority
295 Main Street, Room 350
Buffalo New York 14203

CONTRACT

Date:

Amount:

Description: ERIE COUNTY WATER AUTHORITY
WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: (Corp. Seal)

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

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. 1910-28-B (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

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 Contract, 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 Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) 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 addresses described in paragraph 12) 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 had 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 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 paragraph 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 paragraph 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 45 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.

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 Contract shall be used for the performance of the Contract 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 Contract 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 Contract. 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 Contract 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 paragraph 4.1 or paragraph 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 Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. 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 signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract 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 of 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 Contract. 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 Contract, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR'S Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2 Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

15.3 OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY - Name, Address and Telephone)
AGENT or BROKER: OWNER'S REPRESENTATIVE (Engineer):

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

SECTION 00700

GENERAL CONDITIONS

Adapted with permission from Standard General Conditions of the
Construction Contract, EJCDC No. 1910-8 (1996 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the 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. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

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*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR'S Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER'S written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR 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 Substantial Completion; and (ii) 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.A 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. *ENGINEER'S Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER'S independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *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.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *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 in connection with the Work.

24. *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.

25. *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.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *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.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *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.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *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.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *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.

36. *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.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *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.

39. *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.

40. *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.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *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.

43. *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.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *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 any Subcontractor.

46. *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.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed 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.

49. *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.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms “as ordered,” “as directed,” “as required,” “as allowed,” “as approved,” or terms of like effect or import are used to authorize an exercise of professional judgment by the ENGINEER, or 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 completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 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 9.10 or any other provision of the Contract Documents.

B. Day

1. The word “day” shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. 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 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).

D. Furnish, Install, Perform, Provide

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, “provide” is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which 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

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run.

No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *CONTRACTOR'S Review of Contract Documents:* 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 may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, 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 knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its 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 Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and
3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

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

2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by 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.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten 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.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and 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 Shop Drawing and Sample 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 called for by one is as binding as if called for 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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended 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, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER'S Consultants, agents, or employees 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. 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 any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. 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; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known 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, code, or instruction (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 in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) 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: (i) a Field Order; (ii) ENGINEER'S

approval of a Shop Drawing or Sample; or (iii) ENGINEER'S written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not 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 ENGINEER'S Consultant, including electronic media editions; and (ii) shall not reuse any of 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 adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL 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, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. 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 of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general 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, ENGINEER, or any of ENGINEER'S Consultants 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 at or contiguous to the Site 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 9.08 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 in respect of 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 within the time and 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, OWNER, ENGINEER, and ENGINEER'S Consultants 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.

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; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of the 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 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:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general 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, ENGINEER or any of ENGINEER'S Consultants 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); 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.

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 to CONTRACTOR written notice: (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, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER'S Consultants, and the officers, directors, partners, employees, agents, other 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.G shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to 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 CONTRACTOR'S obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents, except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current 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 must be accompanied by a certified copy of such agent's authority to act.

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 within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02. *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured 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. OWNER shall deliver to CONTRACTOR, with copies to each additional insured 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.

5.04 *CONTRACTOR'S Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other 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: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) 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 so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER'S Consultants, 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, partners, employees, agents, and other 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 completed operations insurance;
4. include contractual liability insurance covering CONTRACTOR'S indemnity obligations under paragraphs 6.07, 6.11, and 6.20;
5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty 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);
6. 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
7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 *OWNER'S Liability Insurance*

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER'S option, may purchase and maintain at OWNER'S expense OWNER'S own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance (See Supplementary Conditions)*

5.07 (Not Used)

5.08 (Not Used)

5.09 (Not Used)

5.10 *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 2.05.C. 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.

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, but 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. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR'S representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work 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, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER'S written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, 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 warranties and guarantees specifically called for 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. 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 (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

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: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; and CONTRACTOR;

b. Certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, 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 that 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 procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first 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 shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR'S achievement of Substantial Completion on time, whether or not 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 work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also 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, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and 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 procedure for review by ENGINEER will be similar to that provided in subparagraph 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 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 either a Change Order for a substitute or 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 time required by ENGINEER and ENGINEER'S Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in Water Distribution System Replacements & Improvements, 2021-2023,

the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER'S Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR'S Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR'S expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER'S acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR'S own acts and omissions. Nothing in the Contract

Documents 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 shall it 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 an additional insured 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, ENGINEER'S Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the

performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER'S Consultants, and the officers, directors, partners, employees or agents, and other consultants 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. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR'S compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR'S primary 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.

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, ENGINEER, ENGINEER'S Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR'S performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR

shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work, CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, 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. 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. 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 ENGINEER'S Consultant, 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). CONTRACTOR'S duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall

give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The 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.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, 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.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

- a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have 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.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR'S obligations under the Contract Documents with respect to CONTRACTOR'S review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. ENGINEER'S Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample 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 of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER'S attention to each such variation at the time of each submittal as required by paragraph 6.17.D.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 approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. 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, ENGINEER, and ENGINEER'S Consultants that all Work will be in accordance with the Contract Documents and will not be defective. 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.

B. 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 acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. any correction of defective Work by OWNER.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER'S Consultants, and the officers, directors, partners, employees, agents, and other 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:

1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of real or personal property (other than the Work itself), including the loss of use resulting therefrom; and
2. is caused in whole or in part by any 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, regardless of whether or not caused in part by an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws or Regulations.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees 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 be limited in any way by the amount or types of insurance provided by CONTRACTOR under Article 5 of the General Conditions.

D. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the sole negligence or willful misconduct of OWNER, ENGINEER or ENGINEER'S Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

ARTICLE 7 - OTHER WORK

7.01 Related Work at Site

A. OWNER may perform other work related to the Project at the Site by OWNER'S employees, or let 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 and each utility owner (and OWNER, if OWNER is performing the other work with OWNER'S employees) proper and safe access to the Site and a reasonable

opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, 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 their work and will only cut or alter their 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.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Furnish Data*

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

8.03 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.04 *Lands and Easements; Reports and Tests*

A. OWNER'S duties in respect of 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 in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.05 *Insurance*

A. OWNER'S responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.06 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.07 *Inspections, Tests, and Approvals*

A. OWNER'S responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.08 *Limitations on OWNER'S Responsibilities*

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

8.09 *Undisclosed Hazardous Environmental Condition*

A. OWNER'S responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.10 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER'S obligations under the Contract Documents, OWNER'S responsibility in respect thereof will be as set forth in the Supplementary Conditions.

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 and will not be changed without written consent of OWNER and ENGINEER.

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 9.10, and 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 responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. 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 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. 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, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *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 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, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or 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.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER'S authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER'S authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER'S authority as to Applications for Payment, see Article 14.

9.08 *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.

9.09 *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. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, 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. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER'S Authority and Responsibilities*

A. Neither ENGINEER'S authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or

responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR'S means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR'S failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER'S review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER'S Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement 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 Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times,

or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) 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 notice 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) is required by the provisions of any Bond to be given to a surety, 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 and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 20 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 45 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, dispute, or other matter). 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 Time 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).

B. *ENGINEER'S Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER'S written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER'S decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER'S written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a

decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH 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 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 include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

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 at the Site. 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, 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, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, 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, 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 and 11.01.B.

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 Cash 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 as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR'S costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the 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.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. 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 9.08.

B. 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.

C. For provisions for an adjustment of a unit price for an increase or decrease in the quantity of Unit Price Work, if any, see General Requirements Section 01270, Measurement and Payment.

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 or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR'S fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR'S Fee:* The CONTRACTOR'S fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR'S fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR'S fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier

Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR'S fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR'S fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) 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 (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR'S Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) 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.

12.04 *Delays Within CONTRACTOR'S Control*

A. The Contract Times (or Milestones) will not be extended due to 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.

12.05 *Delays Beyond OWNER'S and CONTRACTOR'S Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR'S sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

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. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER'S Consultants, 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, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR'S Site 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 said paragraph 13.04.B; 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, it must, if requested by ENGINEER, be uncovered 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. If it is found that such 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. If, however, such 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 Milestones), 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. 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).

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 Laws or Regulations or 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: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) 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. If CONTRACTOR does not promptly comply with the terms of such 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, and 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.

B. 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 or by Written Amendment.

C. 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.

D. CONTRACTOR'S obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER'S recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER'S evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and 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 and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and 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 (or Milestones) 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 10 days before the date established 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 and other arrangements to protect OWNER'S interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR'S legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER'S reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER'S recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER'S observations on the Site 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to 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: (i) 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 (ii) that 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 to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR'S failure to comply with Laws and Regulations applicable to CONTRACTOR'S performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or 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 referred to 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 Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. Payment Becomes Due

1. Sixty 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 must 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 corrects to OWNER'S satisfaction the reasons for such action.

3. If it is subsequently determined 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.

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. Promptly thereafter, 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. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and 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. 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.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER'S option of 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, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. 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. 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.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of the Supplementary Conditions 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: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) 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 or OWNER'S property might in any way be responsible 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. *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 10 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. Sixty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

D. *Final Completion Delayed*

1. 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 and recommendation of ENGINEER, and without terminating the Agreement, 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.

14.08 *(Not Used)*

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 writing which are 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 allowed 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 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 the surety, if any) seven days written notice, terminate the services of CONTRACTOR, 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), 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 finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. 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.

C. 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.

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, elect to terminate the Contract. In

such case, CONTRACTOR shall be paid (without duplication of any items):

1. for 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. for 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. for 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. for 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, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 60 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. 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 60 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. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

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 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 if 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, and 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 Agreement.

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. The Article and paragraph headings are inserted for convenience only and do not constitute part of these General Conditions.

END OF GENERAL CONDITIONS

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

WATER DISTRIBUTION SYSTEM REPLACEMENTS AND IMPROVEMENTS CONTRACT
MAY 1, 2021 TO APRIL 30, 2023
PROJECT NO: 202100009

SECTION 00800

SUPPLEMENTARY CONDITIONS

SCOPE

These Supplementary Conditions amend or supplement the General Conditions. All provisions of the General Conditions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

SC-1.01.A.7. Modify paragraph 1.01.A.7. by changing the word “Advertisement” in the first sentence to “Notice”.

SC-1.01.A.43 Add the following to Paragraph 1.01.A.43:

Substantial Completion for a watermain shall be achieved at such time as the watermain, or portion thereof, has been installed, tested, disinfected, issuance of Completed Works Approval by the Erie County Water Authority, all of the services transferred, if applicable, all the hydrants installed, all of the interconnections made, and all of the abandonments performed.

SC-4.01 Add new paragraph immediately after paragraph 4.01.B which is to read as follows:

SC-4.01.C The Erie County Water Authority will provide easements as necessary to complete the work required to complete each project.

SC-4.02 Add new paragraph immediately after paragraph 4.02.B which is to read as follows:

SC-4.02.C In the preparation of the Drawings and Specifications, ENGINEER did not utilize any report or drawing related to subsurface and physical conditions.

SC-4.06.A Add a new paragraph immediately after paragraph 4.06.A which is to read as follows:

SC-4.06.A.1 In the preparation of the Drawings and Specifications, ENGINEER did not utilize any report or drawing related to a Hazardous Environmental Condition identified at the Site except as identified in SC-4.02.

SC-5.01.A Modify the first part of the second sentence of paragraph 5.01.A of the General Conditions to read:

The payment Bond shall remain in effect for one year and the performance Bond shall remain in effect for two years after....

SC-5.04 through 5.10. Delete paragraph 5.04 through 5.10, inclusive, in their entirety.

SC-5.04 Add a new paragraph immediately after Paragraph 5.03, which is to read as follows:

“SC-5.04 *Insurance Requirements*

SC-5.04.A CONTRACTOR shall procure and maintain insurance in accordance with Insurance Requirements, as set forth in the attached Appendix B-1 and hereby made a part of these General Conditions.

SC-5.04.B CONTRACTOR shall require all direct and indirect subcontractors to procure and maintain insurance in accordance with the Insurance Requirements, as set forth in the Addendum Agreement attached as Appendix B-2 and hereby made a part of these General Conditions.”

SC-6.02.B Add new paragraphs immediately after paragraph 6.02.B which are to read as follows:

“SC-6.02.B.1 Except where otherwise prohibited by Laws or Regulations, regular working hours are defined as up to 8 hours per day, beginning no earlier than 7:00 am and ending no later than 6:00 pm.

SC-6.02.B.2 Maintenance and cleanup activities may be performed during hours other than regular working hours provided that such activities do not require the startup or operation of construction equipment.

SC-6.02.B.3 If it shall become absolutely necessary to perform Work at night or on Saturdays, Sundays or legal holidays, written notice shall be submitted to OWNER and ENGINEER at least two days in advance of the need for such Work. OWNER will only consider the performance of such Work as can be performed satisfactorily under the conditions. Sufficient lighting and all other necessary facilities for carrying out and observing the Work shall be provided and maintained where such Work is being performed at night.”

- SC-6.06.G Modify paragraph 6.06.G. by changing paragraph reference 5.06 to SC-5.04.
- SC-6.06.H Add the following new paragraph immediately following paragraph 6.06.G, which is to read as follows:
- “SC-6.06.H Before WORK commences, the OWNER must review and approve any proposed subcontracting agreement prior to its execution. All WORK performed by any SUBCONTRACTOR must be performed under the supervision and control of the Contractor. As used in this paragraph, a SUBCONTRACTOR is defined in GC 1.01.A.42. Any subcontracting agreement must contain an Addendum Agreement, in the form set forth in Appendix B-2.”
- SC-6.06.I Add the following new paragraph immediately following paragraph 6.06.H, which is to read as follows:
- “SC-6.06.I The CONTRACTOR shall perform with the CONTRACTOR’S own organization, contract work amounting to not less than fifty percent of the original total contract price. The term “the CONTRACTOR’S own organization” shall be construed to include only workmen employed and paid directly by the CONTRACTOR, and equipment owned or rented by the CONTRACTOR, with or without operators.”
- SC-6.09.B. Add a new paragraph immediately after paragraph 6.09.B which is to read as follows:
- “SC-6.09.C Refer to Article SC-18 for Laws and Regulations which, by terms of said Laws and Regulations are to be included in the Contract Documents. The failure to include in Article SC-18 any Law or Regulation applicable to the performance of the Work does not diminish CONTRACTOR’S responsibility to comply with all Laws and Regulations applicable to the performance of the work.”
- SC-6.10. Add a new paragraph immediately after paragraph 6.10.A, which is to read as follows:
- “SC-6.10.B OWNER is exempt from payment of sales and compensating use taxes of the State of New York and of cities and counties on all materials to be incorporated into the Work.
1. OWNER will furnish the required certificates of tax exemption to CONTRACTOR for use in the purchase of supplies and materials to be incorporated into the Work.
 2. OWNER’S exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by CONTRACTOR, or to supplies or materials not incorporated into the Work.”

SC-6.15.A. Add a new paragraph immediately after paragraph 6.15.A, which is to read as follows:

“SC-6.15.B 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 all Laws and regulations. CONTRACTOR shall provide a centralized location for the maintenance of the material safety data sheets or other hazard communication information required to be made available by any employer on the Site. Location of the material safety data sheets or other hazard communication information shall be readily accessible to the employees of any employer on the Site.”

SC-7.01 Add a new paragraph immediately after Paragraph 7.01 which is to read as follows:

“SC-7.02 *Separate Contractor Claims*

- A. Should CONTRACTOR cause damage to the work or property of any other contractor at the Site, or should any claim arising out of CONTRACTOR’S performance of the Work be made by any other contractor against CONTRACTOR, OWNER, or ENGINEER, CONTRACTOR shall promptly settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.
- B. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, and the officer, directors, partners, employees, agents, and other consultants or 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 directly, indirectly, or consequentially out of or relating to any claim or action, legal or equitable, brought by any other contractor against OWNER, ENGINEER, to the extent based upon CONTRACTOR’S performance of the Work.
- C. Should another contractor cause damage to the Work or property of CONTRACTOR at the Site or should the performance of work by any other contractor give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER, ENGINEER, on account of any such damage or claim.

D. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of another contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of time in accordance with paragraph 10.05. Notwithstanding any other provision of the Contract Documents, an extension of the Contract Times shall be CONTRACTOR'S sole and exclusive remedy with respect to OWNER, ENGINEER, for any delay, disruption, interference or hindrance caused by any other contractor."

SC-9.03 Add a new paragraph immediately after paragraph 9.03.A which is to read as follows:

"SC-9.03.B. Resident Project Representative (RPR) will be OWNER'S agent at the Site, will act as directed by and under the supervision of OWNER, and will confer with OWNER AND ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site Work shall in general be with OWNER and CONTRACTOR keeping ENGINEER advised as necessary. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR."

SC-13.07 Modify paragraphs 13.07.A. and C. by changing the words "one year" in the first line to "two years".

SC-14.02.A. Add a new paragraph immediately after paragraph 14.02.A.3. which is to read as follows:

"4. Each Application for Payment shall be accompanied by a copy of the certified payroll record."

SC-14.07.A. Add a new paragraph immediately after paragraph 14.07.A.3. which is to read as follows:

"4. The Final Application for Payment shall be accompanied by a copy of the certified payroll record."

SC-14.07.A.2 Modify paragraph 14.07.A.2 by changing the words "subparagraph 5.04.B.7" to "SC-5.04".

SC-17.06 Add new paragraphs immediately after paragraph 17.06.A. which are to read as follows:

"ARTICLE SC-18 - STATUTORY REQUIREMENTS

SC-18.01 This Article contains portions of certain Laws or Regulations which, by provision of Law or Regulations, are required to be included in the Contract Documents. The material included in this Article may not be complete or current.

CONTRACTOR'S obligation to comply with all Laws and Regulations applicable to the Work is set forth in paragraph 6.09 of the General Conditions.

SC-18.02 Non-Discrimination in Employment:

- A. During the performance of this contract, CONTRACTOR agrees as follows:
1. CONTRACTOR will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, color or national origin. Such action shall be taken with reference but not limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.
 2. CONTRACTOR will send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the CONTRACTOR'S agreement under clauses 1. through 8. hereinafter called "non-discrimination clauses". If the CONTRACTOR was directed to do so by the OWNER as part of the Bid or negotiation of this contract, CONTRACTOR shall request labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, color or national origin and that such labor union or representative either will affirmatively cooperate within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this contract shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request, that it furnish such a statement, CONTRACTOR shall promptly notify the State Commission for Human Rights of such failure or refusal.
 3. CONTRACTOR will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses 1. through 2. and such provisions of the State's Laws against discrimination as the State Commission for Human Rights shall determine.
 4. CONTRACTOR will state, in all solicitations or advertisements for employees placed by or on behalf of CONTRACTOR, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color or national origin.
 5. CONTRACTOR will comply with the provisions of the Executive Law, Human Rights Law, Article 15, will furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive Law, and will permit access to his books, records and accounts by the State Commission for Human Rights, the Attorney General, District Commissioner of Housing and Community Renewal and the Industrial

- Commission for purposes of investigation to ascertain compliance with these non-discrimination clauses of the Executive Law, Human Rights Law, Article 15.
6. This contract may be forthwith canceled, terminated or suspended, in whole or in part, by the OWNER upon the basis of a finding made by the State Commission for Human Rights that CONTRACTOR has not complied with these non-discrimination clauses, and CONTRACTOR may be declared ineligible for future contracts made by or on behalf of the State or a public authority or agency of the State or housing authority, or an urban renewal agency, or contracts requiring the approval of the Commissioner of Housing and Community Renewal, until he has satisfied the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to CONTRACTOR and an opportunity has been afforded him to be heard publicly before three members of the Commission. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.
 7. If this contract is canceled or terminated under clause 6., in addition to other rights of the OWNER provided in this contract upon its breach by CONTRACTOR, CONTRACTOR will hold the OWNER harmless against any additional expenses or costs incurred by the OWNER in completing the Work or in purchasing the services, materials, equipment or supplies contemplated by this contract, and the OWNER may withhold payments from CONTRACTOR in an amount sufficient for this purpose and recourse may be had against the surety on the Performance Bond if necessary.
 8. CONTRACTOR will include the provisions of clauses 1. through 2. in every subcontract or purchase order altered only to reflect the proper identity of the parties in such a manner that such provisions will be binding upon each Subcontractor or vendor as to operations to be performed within the State of New York. CONTRACTOR will take such actions in enforcing such provisions of such subcontract or purchase order as the OWNER may direct, including sanctions or remedies for non-compliance. If CONTRACTOR becomes involved in or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the OWNER, the CONTRACTOR shall promptly so notify the Attorney General, requesting him to intervene and to protect the interest of the State of New York.

SC-18.03 Affirmative Action Requirements:

- A. During the performance of this Contract, the CONTRACTOR agrees that it will abide by and will require its subcontractors to abide by the AUTHORITY'S Affirmative Action Requirements and Women and Minority Business Enterprise Policy, as set forth in the attached Appendix A and hereby made a part of these General Conditions.

SC-18.04 Prevailing Rate Schedule:

- A. The labor on this contract shall be performed in accordance with the requirements of Article 8 (Sections 220-223) of the New York State Labor Law. The supplements to be provided and wages to be paid to workers, laborers and mechanics employed on this contract, determined pursuant to Section 220 of the Labor Law, are set forth in Appendix C, Prevailing Rate Schedule, attached to and hereby made a part of these General Conditions.
- B. CONTRACTOR shall note that the wage rates and supplemental benefits shown in the attached schedules are subject to change. The wage rates and supplemental benefits to be paid and provided shall be those prevailing at the time the contract is being performed.

SC-18.05 Payments to Subcontractors:

- A. In accordance with N.Y. State General Municipal Law, Section 106-b, CONTRACTOR shall:
 - 1. Within fifteen calendar days of the receipt of any payment from the OWNER, the CONTRACTOR shall pay each of his Subcontractors and materialmen the proceeds from the payment representing the value of the work performed and/or materials furnished by the Subcontractor and/or materialman and reflecting the percentage of the Subcontractor's work completed or the materialman's material supplied in the requisition approved by the OWNER and based upon the actual value of the subcontract or purchase order less an amount necessary to satisfy any claims, liens or judgments against the Subcontractor or materialman which have not been suitably discharged and less any retained amount as hereafter described. The CONTRACTOR shall retain not more than five per centum of each payment to the Subcontractor and/or materialman except that the CONTRACTOR may retain in excess of five per centum but not more than ten per centum of each payment to the Subcontractor provided that prior to entering into a subcontract with the CONTRACTOR, the Subcontractor is unable or unwilling to provide a Performance bond and a Labor and Material bond both in the full amount of the subcontract at the request of the CONTRACTOR. However, the CONTRACTOR shall retain nothing from those payments representing proceeds owed the Subcontractor and/or materialman from OWNER'S payments to the CONTRACTOR for the remaining amounts of the contract balance after the work or portions thereof are substantially complete. Within fifteen calendar days of the receipt of payment from the CONTRACTOR, the Subcontractor and/or materialman shall pay each of his Subcontractors and materialmen in the same manner as the CONTRACTOR has paid the Subcontractor. Nothing provided herein shall create any obligation on the part of the OWNER to pay or to see to the payment of any moneys to any Subcontractor or materialman from any CONTRACTOR nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the Subcontractor or materialman and the OWNER.

SC-18.06 Erie County Water Authority Apprenticeship Policy

- A. During the performance of this Contract, the CONTRACTOR, its assigns, and designees, agree that it will abide by and will require its Subcontractors to abide by the Erie County Water Authority's Apprenticeship Policy, as stated in paragraph B of this Section.
- B. That pursuant to New York State Labor Law §816-B, the Erie County Water Authority hereby mandates that all contractors and subcontractors entering into any construction contracts with the Erie County Water Authority shall have established apprenticeship agreements appropriate for the type and scope of work to be performed under the contract, that have been approved by the New York State Commissioner of Labor and shall require the employment of apprentices on Erie County Water Authority construction projects.

END OF SUPPLEMENTARY CONDITIONS

SECTION 01100

SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION AND SCOPE OF WORK

- A. The Work consists of watermain replacements/improvements which includes but is not limited to the installation of varying sized watermains, valves, hydrants, interconnections, trenchless pipeline installation (augur bore or horizontal directional drilling), roadway/railroad/creek crossings, service reconnections/installations, testing and disinfection, and restoration.
- B. The Work is to be performed in the entire Erie County Water Authority's franchised area and all water districts that the Authority operates under a leased managed contract. The work is located in Erie County and includes the towns of Alden, Amherst, Aurora, Boston, Cheektowaga, Clarence, Concord, Eden, Evans, Hamburg, Lancaster, Marilla, Newstead, Orchard Park, and West Seneca; the Villages of Blasdell, Depew, Hamburg, Orchard Park, Lancaster, Sloan, and Williamsville; and the Cities of Lackawanna and Tonawanda.
- C. The summary of the Work described in the Section 01100 is an overall summary of the responsibilities of the CONTRACTOR and his relation to the OWNER. It does not supersede the specific requirements of the other Contract Documents.

1.02 CONTRACTS

- A. The Work shall be constructed under one prime contract.

1.03 WORK BY OTHERS

- A. Work by OWNER:
 - 1. The Authority will operate all utility water system valves and hydrants of existing watermains and of newly installed watermains once placed into service.

1.04 OWNER FURNISHED PRODUCTS

- A. Products furnished by OWNER are as follows:
 - 1. All watermain piping (excluding HDPE piping), fittings, valves, tapping valves, tapping sleeves, tees, fittings, fire hydrants, valve boxes, couplings, retainer glands, tie rods, service tubing, corporation stops, curb stops, curb boxes, service saddles, polyethylene tubing, polyethylene

encasement for ductile iron pipe and fittings, magnetic tape (excluding tracer wire), and other related appurtenances or accessories.

- B. CONTRACTOR shall be responsible to obtain all OWNER furnished materials from the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York, between the hours of 9:00 a.m. and 3:00 p.m.
- C. Materials shall not be available any sooner than 48 hours before the Work is scheduled to be performed.
- D. The CONTRACTOR shall inspect the materials and give written acceptance of the same on the materials requisition slip of the Authority. The CONTRACTOR will be responsible for all material until installed in the finished work and accepted by the Authority. Upon completion of the work, he shall return all surplus to the place of origin where it shall be received, inspected, and credit issued to him for the returned material. Any loss of material which has not been returned or is in unsatisfactory condition shall be charged to the CONTRACTOR. Short lengths of pipe less than thirty (30) inches in length shall not be returned for credit. All jointing material not used on the job and not returned shall be charged against the CONTRACTOR at the cost per unit.

1.05 CONTRACTOR FURNISHED PRODUCTS

- A. Products to be furnished by CONTRACTOR are as follows:
 - 1. HDPE piping, precast chambers/vaults, concrete, concrete blocking, select backfill, rip-rap backfill, bedding, temporary construction, testing needs, casing pipe and accessories, restoration items (temporary and permanent), and all other items necessary to complete the Work including any temporary construction work.
 - 2. Tapping equipment, boring equipment, and all other equipment necessary to install watermain, services, and appurtenances under this Contract.

1.06 SEQUENCE OF WORK

- A. General
 - 1. The Work generally shall be constructed without disruption to the normal operation of the Authority, except as noted in Section 01311, and 01731, and as otherwise approved by the OWNER.
 - 2. It is hereby understood that Time is of Essence in performing all work, but especially in the time that service is interrupted to the customer. Disruption of water service to customers shall be minimized and shall not exceed four hours in duration for service installations.

3. Work performed in the vicinity of existing restaurants, police stations, health care facilities, municipal buildings, places of worship, and schools must be performed in the least disruptive time (off hours) and must be coordinated with the affected establishment and the ENGINEER prior to work being performed.
 4. Prior to any interconnection or abandonment, the CONTRACTOR shall schedule a water shut-down with the Erie County Water Authority through the ENGINEER.
- B. Customer Notification
- The CONTRACTOR is responsible to notify all customers 48 hours in advance of when work is to take place at their address. The Authority shall also be notified 72 hours in advance in accordance with Sections 01731 and 15051. The CONTRACTOR is required to complete a Customer Notification Form conforming to the requirements of Erie County Water Authority.
- C. Construct the Work in the following sequence:
1. Complete and submit shop drawings to ENGINEER, as required.
 2. Complete and submit Maintenance and Protection of Traffic plan to ENGINEER, as defined under Section 01550.
 3. Obtain all necessary permits and submit copies to the ENGINEER.
 4. The CONTRACTOR is advised that the WORK shall follow the sequence as specified or as required. Work in a specific area shall be performed in a manner such that once started, progress shall continue to a point where the testing, disinfection, acceptance by Erie County Water Authority or Health Department, and general cleanup has been completed prior to starting work on another area.
 5. The CONTRACTOR shall dig test pits as shown on the plans or required to verify pipe outside diameter, depth, condition, and location of joints. Test pits shall be backfilled, compacted, and temporary restoration (including pavement) shall be installed prior to applicable Work being performed on various mains.
 6. CONTRACTOR and/or OWNER shall order any “special” fittings/materials that take extensive time to acquire.
- D. Weekly Status Reports:
1. CONTRACTOR shall submit weekly reports, in a form acceptable to ENGINEER.
 2. Reports shall be submitted to the ENGINEER by 9:00 a.m. every Monday during the months when Work is being performed.

3. Unsatisfactory Work that needs to be redone must be identified on a separate listing to be included with the weekly report.
4. Record Documents shall be provided on a weekly basis complying to Section 01780 and submitted with the weekly reports.
5. Service Record Forms:

The CONTRACTOR shall be required to record all dimensions of new services and/or service replacements on a form provided by the Authority or conforming to the Authority's requirements.

1.07 CONTRACTOR'S USE OF PREMISES

- A. CONTRACTOR'S use of the premises shall be confined to the areas shown.
- B. The full use of the premises for storage, the operations of workmen and all other required construction activities will not be available to the CONTRACTOR.
- C. CONTRACTOR must share use of the premises with the OWNER and other contractors specified in Article 1.03.
- D. CONTRACTOR shall:
 1. Assume full responsibility for protection and safekeeping of products stored on or off premises.
 2. Move stored products that interfere with the operations of OWNER or other contractor.
 3. Obtain and pay for all additional storage or work areas required for his operations.
 4. Obtain and pay for all permits and satisfy all permit requirements.
 5. Comply with all requirements defined in other specification sections.
- E. Limits on CONTRACTOR'S use of site are:
 1. OWNER will designate the area available for field offices.
- F. See General Conditions for additional requirements.
- G. CONTRACTOR shall minimize disturbance of the existing conditions of lawn, pavement, sidewalk, driveway, etc. during the course of the Work.
- H. The CONTRACTOR shall be responsible to verify the location of the right-of-way line for all watermain replacements/improvements. Under no circumstances

shall curb box be installed in a sidewalk. If the right-of-way line falls within the sidewalk, the curb box shall be installed outside of the sidewalk. Any curb box installed in a sidewalk shall be moved and sidewalk replaced by the CONTRACTOR at his cost.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01140

USE OF OWNER'S FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR may use existing facilities or equipment in the new Work for construction purposes only if the OWNER'S written permission is obtained.
- B. Restore existing facilities and equipment used for temporary purposes to original condition in a manner satisfactory to OWNER.
- C. CONTRACTOR shall assume full responsibility for any damage that may result to existing or new facilities or equipment used for construction purposes and shall repair or replace any damaged facilities or equipment at CONTRACTOR'S cost.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01210

ALLOWANCES

PART 1 - GENERAL

1.01 SCOPE

- A. This Section includes administrative and procedural requirements governing the following types of allowances:
 - 1. Cash allowances.
 - 2. Contingency allowances.
- B. Authorization of Allowances:
 - 1. Work that will be done and paid under an allowance will be authorized in OWNER'S written instruction to CONTRACTOR.
 - 2. Do not provide Work under an allowance without written authorization of OWNER.

1.02 CASH ALLOWANCES

- A. Cash allowances are stipulated amounts for purchase of products, systems, or services. In addition to this Section, refer to General Conditions, as may be modified by the Supplementary Conditions; and individual Specification Sections for CONTRACTOR'S costs to be covered by allowances, and CONTRACTOR'S costs, including overhead and profit, to be included elsewhere in the Contract Price.
- B. At earliest practical date after Notice to Proceed, advise ENGINEER of date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- C. Consult with ENGINEER in selecting suppliers and obtain proposals for price and time from selected suppliers. Submit proposals to ENGINEER along with recommendations relevant to furnishing and installing products covered in the allowance.
- D. Purchase products or systems from suppliers selected by ENGINEER.
- E. Submit invoices or delivery slips to show actual cost and quantity of products or systems delivered to Site and used in fulfilling each allowance.
- F. Properly dispose of unused products and systems purchased under cash allowance.
- G. For each allowance, submit to ENGINEER a Change Order proposal to adjust Contract Price for difference between specified allowance amount and actual cost.

Prepare Change Order proposal in accordance with General Conditions as may be modified by the Supplementary Conditions, except that payment within limit of a cash allowance shall exclude cost of bond and insurance premiums. No subcontractor markup is allowed under allowance work.

1.03 CONTINGENCY ALLOWANCE

- A. Contingency allowances are stipulated amounts available as reserve for sole use by OWNER to cover unanticipated costs.
- B. When authorization of Work under contingency allowance is contemplated by OWNER for a defined scope, submit Change Order proposal to ENGINEER. Prepare Change Order proposal in accordance with the General Conditions as may be modified by the Supplementary Conditions, except that payments within limit of contingency allowance shall exclude cost of bond and insurance premiums.
- C. For each allowance, submit to ENGINEER a Change Order proposal to adjust Contract Price for difference between specified allowance amount and actual cost. Prepare Change Order in accordance with General Conditions as may be modified by the Supplementary Conditions, except that payment within limit of a cash allowance shall exclude cost of bond and insurance premiums.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALLOWANCES

- A. Contingency Allowances: Include a stipulated contingency allowance of \$150,000.00 for Bid Item 7, Contingency Allowance, for use in accordance with the OWNER'S instruction to perform miscellaneous work.
- B. Maintenance and Protection of Traffic (State and County Roads) Allowances: Include a stipulated cash allowance of \$50,000 for Bid Item 14A2, Maintenance and Protection of Traffic (State and County Roads) Allowances as defined in Section 01270, Measurement and Payment. Work zone safety equipment rental and setup work will be by US Traffic Control, Inc or by an approved equal.

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The items listed below beginning with Article 1.05, refer to and are the same pay items listed in the Bid Form. They constitute all of the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory works, plant, services, ENGINEER'S and/or CONTRACTOR'S field offices, layout surveys, job signs, sanitary requirements, permits, testing, safety devices, shop drawings and samples, approval and record drawings, water supplies, power, maintaining traffic, removal of waste, watchmen, bonds, insurance, test pits and all other requirements of the General Conditions, Supplementary Conditions, and the General Requirements. Compensation for all such services, things and materials shall be included in the prices stipulated for the lump sum and unit price pay items listed herein.
- B. The lump sum and unit bid prices 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.
- C. The CONTRACTOR shall furnish all labor, materials, tools, equipment, services, and all appurtenances necessary to perform all work required, at the unit or lump sum prices for the items listed in the Bidder's Proposal. Each bid item shall include all costs to perform all work to complete each item. Work shall include, but is not necessarily limited to clearing and grubbing, earth excavation, rock excavation, disposal of excess excavated material, handling of all water, dewatering, earth backfill, select backfill, pipe bedding and encasement, concrete cradle, concrete encasement, concrete cover, concrete anchor collars, concrete blocking, piping, service tubing and accessories, saddles, curb stops, curb boxes, bends, reducers, tees, valves, mechanical thrust restraints valve boxes, hydrants, and all other fittings, traffic control, permits, test pits, replacement of sidewalks, driveways, and pavements, curbs, underdrains, drainage, curb receivers, ditches, rip rap, driveway culverts, headwalls, temporary resurfacing, all final restoration, connections to existing watermains, testing, disinfection, all abandonments, and maintaining water service to customers.
- D. Each of the bid items shall also include the cost required in supporting and protecting existing utilities while working under, over, or alongside or near the utility. Also included, is the protection of overhead telephone, cable, electric power or other lines and the supporting of poles, if required.
 - 1. The utilities likely to be encountered include:
 - a. Storm and sanitary sewers.

- b. Gas, water, electric, telephone, fiber optic, and cable TV house service connections.
 - c. Overhead and underground telephone, fiber optic, cable TV and electric power lines.
 - d. Other watermains.
 - 2. The cost of repairing any damage to the various utilities done during the installation of the work shall be included in the various bid items.
- E. Where fixed minimum unit prices are called for under an item heading, the bidder shall include a price not less than the stated minimum. Bidder's Proposals received which include a unit price less than the stated minimum shall be adjusted to meet the minimum unit price.

1.02 ENGINEER'S ESTIMATE OF QUANTITIES

- A. ENGINEER'S estimated quantities for unit price pay items, as listed in the Bid Form, are approximate only and are included solely for the purpose of comparison of Bids. OWNER does not expressly or by implication agree that the nature of the materials encountered or the actual quantities of material encountered or required will correspond therewith and reserves the right to increase or decrease any quantity or to eliminate any quantity as OWNER may deem necessary. Except as provided in Article 1.03, CONTRACTOR or OWNER will not be entitled to any adjustment in a unit bid price as a result of any change in an estimated quantity and agrees to accept the aforesaid unit bid prices as complete and total compensation for any additions caused by changes or alterations in the Work ordered by OWNER.

1.03 ADJUSTMENT OF UNIT PRICES FOR INCREASE OR DECREASE OF ESTIMATED QUANTITIES

- A. For bid items paid for on a unit price basis, increases or decreases in the quantity of an item of Work will be determined by comparing the total payable quantity of Work with ENGINEER'S estimated quantity as shown in the Bid Form. Increase or decreases will only be considered if the Schedule of Values as required in Section 01290 has been prepared, submitted, and approved.
- B. If the total payable quantity of any unit price item of Work, which has an as-bid computed total value of five percent or more of the sum of the as-bid computed total values of all items bid, varies from ENGINEER'S estimate of quantity therefore by more than 50 percent, the unit price of that item will be a subject of review by ENGINEER. If warranted, an equitable adjustment will be made by means of a Change Order to credit OWNER with any reduction in cost or to compensate CONTRACTOR for any increase in cost resulting from the change in quantity. This review of the adjustment will be made at a time ENGINEER deems reasonable and proper.

- C. Payment for any unit price item of Work, which has an as-bid computed total value of less than five percent of the sum of the as-bid computed total values of all items bid, will be made at the unit price bid regardless of an increase or decrease in quantity.

1.04 RELATED PROVISIONS

- A. Payments to CONTRACTOR: Refer to General Conditions and Agreement.
- B. Changes in Contract Price: General Conditions.
- C. Schedule of Values: Section 01290.

1.05 BID ITEMS

A. ITEM 1 - WATERMAIN

1. PVC and DIP Watermain (Items 1A and 1B)

a. Work Included:

- 1) This item includes all labor, materials, equipment, and incidentals required to install PVC or DIP watermain of the size, class, depth and materials shown on the drawings and specified herein, except that specifically included under other items of the Contract. Earth excavation, and disposal of excess excavated material required for this project are included in this item.
- 2) PVC and DIP materials shall be furnished by OWNER. This item also includes hauling, storing and distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.
- 3) This item includes pipe bedding, thrust blocks, temporary and permanent blocking, magnetic pipe marking tape, backfilling, compaction, sampling points, clearing and grubbing (to widths 15-feet or less), topsoil stripping, tree trimming as required for equipment access to perform work adjacent to existing trees, tree removal and disposal, dewatering, shoring, sheeting, tree boring (including casing pipe, annular fill stone, skids and spacers), and all other materials and requirements not specifically defined in other bid items.
- 4) This item does not include fittings, such as tees, elbows, reducer, bevels, and shorts.
- 5) This item does not include polyethylene encasement for ductile iron pipe and fittings, which is included for payment under Item 6.
- 6) This item includes temporary support of nearby utility poles.

- 7) This item does not include select backfill, which is included for payment under Item 8A.
 - 8) This item includes furnishing and installing temporary sample points. Also included is the removal of the temporary sample points after completion of test and replacing the corporation stop with plug.
 - 9) This item includes installation of watermain at all depths where shown on the Drawings.
 - 10) This item includes all excavation required and saw-cutting of existing streets, driveways, and sidewalks to complete the watermain installation.
 - 11) This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
 - 12) Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
 - 13) This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
- b. Measurement:
- 1) The quantity of watermain in place paid for under this item shall be the number of linear feet of each size installed within the limits shown, specified, or directed. The lengths shall be measured along the centerline of the pipe without deduction for line valves and or fittings. The depth of pipeline shall be measured from existing grade to the top of pipe. A depth change must be constant for greater than 10-feet in length otherwise the installation cost will be paid at the lower installation cost.
- c. Payment:
- 1) The unit prices bid per linear foot shall be full compensation for furnishing all labor, materials, equipment, and incidentals necessary to install and place into service the watermain as shown, specified, or directed.
 - 2) The subdivisions of this item are:
 - 1A 4-inch to 8-inch Watermain (PVC or DIP)
 - 1A1 6-feet or less of cover
 - 1A2 Greater than 6-feet of cover
 - 1B 10-inch to 12-inch Watermain (PVC or DIP)
 - 1B1 6-feet or less of cover
 - 1B2 Greater than 6-feet of cover

2. HDPE Watermain – **HDD USE ONLY** (Item 1C)

a. Work Included:

- 1) This item includes all labor, materials, equipment, and incidentals required to furnish, stringing, and fusion of HDPE watermain of the size, class, shown on the drawings and specified herein, except that specifically included under other items of the Contract. Earth excavation, and disposal of excess excavated material required for this project are included in this item.
- 2) HDPE materials shall be furnished by CONTRACTOR
- 3) This item includes pipe rollers, anchor blocks, temporary and permanent blocking, tracer wire, backfilling, compaction, sampling points, clearing and grubbing (to widths 15-feet or less), topsoil stripping, tree trimming as required for equipment access to perform work adjacent to existing trees, tree removal and disposal, dewatering, and all other materials and requirements not specifically defined in other bid items.
- 4) This item includes fittings, such as transition couplings, wall anchors, and reducer.
- 5) This item does not include polyethylene encasement for ductile iron fittings, which is included for payment under Item 6.
- 6) This item includes temporary support of nearby utility poles.
- 7) This item does not include select backfill, which is included for payment under Item 8A.
- 8) This item includes furnishing and installing temporary sample points. Also included is the removal of the temporary sample points after completion of test and replacing the corporation stop with plug.
- 9) This item includes all pipe preparation required for HDD pull back.
- 10) This item includes all excavation required and saw-cutting of existing streets, driveways, and sidewalks to complete the HDD watermain installation.
- 11) This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
- 12) Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
- 13) This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550.

Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.

b. Measurement:

- 1) The quantity of watermain in place paid for under this item shall be the number of linear feet of each size installed within the limits shown, specified, or directed. The lengths shall be measured along the centerline of the pipe without deduction for line valves and or fittings.

c. Payment:

- 1) The unit prices bid per linear foot shall be full compensation for furnishing all labor, materials, equipment, and incidentals necessary to install and place into service the watermain as shown, specified, or directed.
- 2) The subdivisions of this item are:
 - 1C High Density Polyethylene (HDPE) – **HDD USE ONLY**
 - 1C1 10-inch DR9 DIPS HDPE
 - 1C2 12-inch DR9 DIPS HDPE
 - 1C3 16-inch DR9 DIPS HDPE

B. ITEM 2 - VALVES

1. Work Included:

- a. This item includes all labor, material, equipment and incidentals required to install, flush, test, disinfect, and place into service the valves and appurtenances as shown, specified, or directed.
- b. Valves and appurtenance materials shall be furnished by OWNER. This item also includes hauling, storing and distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.
- c. Valves for hydrant assemblies are not included herein, but included for payment under Item 4, Fire Hydrants.
- d. This item includes all excavation required and the furnishing and installing of earth backfill, bedding stone, and concrete blocks to complete the valve or appurtenances installation.
- e. For air release valves with or without concrete chambers, this item includes furnishing and installing all materials and work necessary to install the components as shown on the Drawings.
- f. For existing valve abandonment, this item includes the removal of existing valve box and closure of valve as shown on the Drawings.
- g. This item does not include select backfill, which is included for payment under Item 8A.
- h. This item includes installation or abandonment of valves at all depths where shown on the Drawings.
- i. This item includes temporary support of nearby utility poles.
- j. This item includes all excavation required and saw-cutting of existing streets, driveways, and sidewalks to complete the valve installation or abandonment.

- k. This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
 - l. Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
 - m. This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
 - 2. Measurement:
 - a. The quantity to be paid for under this item shall be the actual number of valves of various types and sizes installed as shown, specified, or directed.
 - 3. Payment:
 - a. The unit prices bid for this item shall be full compensation for furnishing all labor, materials, equipment, and incidentals to install, and place into service the valves of various types and sizes installed as shown, specified, or directed.
 - b. The subdivisions of this item are:
 - 2A Gate Valve
 - 2A1 4-inch to 8-inch
 - 2A2 10-inch to 12-inch
 - 2B Butterfly Valve
 - 2B1 12-inch
 - 2C Air Release Valves
 - 2C1 Air Release Valve with Concrete Chamber
 - 2C2 Manually Operated Air Release Assembly
 - 2D Existing Valve Abandonment
 - 2D1 Existing Valve Abandonment – Complete

C. ITEM 3 – EXISTING WATERMAIN CONNECTIONS
(INTERCONNECTIONS)

- 1. Work Included:
 - a. This item includes all labor, materials, equipment, and incidentals required to install, disinfect and place into service the interconnections between the proposed system and the existing system as shown, specified, or directed.
 - b. All materials to complete interconnections shall be furnished by OWNER. This item also includes hauling, storing and distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.
 - c. Pipe used at the interconnection shall be paid for under the watermain item for the appropriate pipe size and type.
 - d. This item includes all cost related to installing couplings, concrete blocking/anchor collars, removals, plugging, harnessing, dewatering, etc.

- e. Tapping sleeves and valves shall include the installation of tapping sleeve and valve and all operations required to tap the main.
 - f. Cut in tees with valve cluster includes the cutting of existing watermain and the installation of tee, spool pieces, up to three valve, couplings, blocking, and accessories to complete the interconnection.
 - g. This item does not include the cutting and removal of existing asbestos watermain. The CONTRACTOR shall coordinate with ECWA for the cutting and removal of asbestos piping 48-hours prior to interconnection. The CONTRACTOR will have the existing main exposed to the limits required for the interconnection. Upon completion of cutting and removal of asbestos watermain, the CONTRACTOR will complete the interconnection and backfill as required.
 - h. This item also includes abandoning existing main line valves and valve boxes as shown, specified, or directed.
 - i. Where valves, etc., are to be removed, they shall be removed and properly stored, protected, and delivered to the Erie County Water Authority, if required and the cost shall be included herein.
 - j. This item includes temporary support of nearby utility poles.
 - k. This item does not include select backfill, which is included for payment under Item 8A.
 - l. This item includes interconnections at all depths where shown on the Drawings.
 - m. This item includes all excavation required and saw-cutting of existing streets, driveways, and sidewalks to complete the interconnection.
 - n. This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
 - o. Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
 - p. This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
 - q. This item includes all costs for working at night or on off-hours. Included herein is all lighting, traffic protection, etc.
 - r. The interconnection items include all costs to comply with permits, regulatory agencies, etc., not included in other bid items.
- 2. Measurement:
 - a. The quantity to be paid for under this item shall be for the completed interconnections as shown, specified, or directed.
 - 3. Payment:
 - a. The lump sum price bid for each interconnection shall be full compensation for furnishing all labor, material equipment, and

incidentals required to furnish, install, test, disinfect and place into service the interconnection as shown, specified, or directed.

b. The subdivisions of this item are as follows:

3A Inline Connections

3A1 4-inch to 8-inch Inline Connections

3A2 10-inch to 12-inch Inline Connections

3B Tapping Sleeve and Valve

3B1 4-inch to 8-inch Tapping Sleeve and Valve – Complete

3B2 10-inch to 12-inch Tapping Sleeve and Valve – Complete

3C Cut in Tee with Valve Cluster

3C1 4-inch to 8-inch Cut in Tee with Valve Cluster – Complete

3C2 10-inch to 12-inch Cut in Tee with Valve Cluster – Complete

D. ITEM 4 - FIRE HYDRANTS

1. Work Included:

- a. The new fire hydrant item includes all labor, materials, equipment, and incidentals required to install and place into service new fire hydrants and appurtenances as shown, specified, or directed.
- b. Hydrant assembly, valves, and appurtenance materials shall be furnished by OWNER. This item also includes hauling, storing and distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.
- c. The new fire hydrant item begins at the mainline tee and will include all excavation, backfill, washed No. 1 stone for weep hole drainage, piping, valves, blocking, and hydrant assembly. The mainline tee is included under item 5.
- d. This item does not include polyethylene encasement for ductile iron fittings, which is included for payment under Item 6.
- e. The fire hydrant abandonment item includes all labor, materials, equipment, and incidentals to remove existing fire hydrants and hydrant valve boxes as shown, specified, or directed.
- f. This item shall include field painting of hydrants after installation, and the installation of vertical extensions where required.
- g. This item includes temporary support of nearby utility poles.
- h. This item does not include select backfill, which is included for payment under Item 8A.
- i. This item includes hydrants at all depths where shown on the Drawings.
- j. This item includes all excavation required and saw-cutting of existing streets, driveways, and sidewalks to complete the interconnection.

- k. This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
 - l. Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
 - m. This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
 - n. This item includes all required culverts as shown on drawings or specified herein.
 - o. This item includes the removal and return of all abandoned hydrants to the Erie County Water Authority as directed. This includes calling 24 hours in advance to schedule the delivery, careful handling to prevent damage to hydrants, proper trucking to the delivery site, and unloading of hydrants at the designated location at the Erie County Water Authority.
 - p. This item includes the removal of hydrant markers from existing hydrants and reinstallation of these markers on new or relocated hydrants.
2. Measurement:
- a. The quantity to be paid for under this item shall be the actual number of fire hydrants installed, removed, or relocated and reconnected as shown, specified, or directed.
3. Payment:
- a. The unit price bid per this item shall be full compensation for all labor, materials, equipment, and incidentals required to furnish, install, disinfect, test, and place into service the fire hydrants including gate valves for fire hydrant shut-off; to remove, relocate, reconnect, test, and place into service existing fire hydrants; and to abandon existing fire hydrants (including capping and plugging) as shown, specified, or directed.
 - b. The subdivisions of this item are:
 - 4A New Fire Hydrant Assemblies
 - 4A1 New Fire Hydrant Assemblies
 - 4B Existing Fire Hydrant Abandonment
 - 4B1 Existing Fire Hydrant Abandonment

E. ITEM 5 – DUCTILE IRON (DI) FITTINGS

1. Work Included:
- a. This item includes all labor, materials, equipment, and incidentals required to install, disinfect and place into service the ductile iron fitting. All fittings shall be installed with polyethylene encasement and shall be installed with a concrete thrust block in addition to the required restraining devices on each side of the fitting.
 - b. Fittings, restraints, and appurtenance materials shall be furnished by OWNER. This item also includes hauling, storing and

distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.

- c. This item includes all gaskets, glands, restraining devices at fittings, associated pipe harnessing included on both sides of the fitting along pipeline for distances shown, thrust blocks, bolts, nuts, and other appurtenances required to install the fittings.
 - d. The fitting and piping shall be harnessed for the lengths as shown on the limits shown on the harnessing table on drawings, specified herein, or ordered by the Engineer.
 - e. For joint restraints on existing watermains all labor, materials, equipment, and incidentals required to excavate existing pipeline and install joint restraints to the limits shown on the harnessing table on drawings, specified herein, or ordered by the Engineer.
 - f. This item does not include polyethylene encasement for ductile iron fittings, which is included for payment under Item 6.
 - g. This item includes temporary support of nearby utility poles.
 - h. This item does not include select backfill, which is included for payment under Item 8A.
 - i. This item includes fittings and joint restraints at all depths where shown on the Drawings.
 - j. This item includes all excavation required and saw-cutting of existing streets, driveways, and sidewalks to complete the interconnection.
 - k. This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
 - l. Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
 - m. This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
2. Measurement:
- a. The quantity to be paid for installing fittings shall be the actual number of fittings installed with all required joint restraints to the limits specified, glands, bolts, gaskets, etc. as shown, specified, or directed.
 - b. The quantity to be paid for installing joint restraints on existing watermains shall be the actual number of joints restrained as shown, specified, or directed.
3. Payment:
- a. The unit price bid for each fitting and joint restraints shall be full compensation for furnishing all labor, material equipment, and incidentals required to furnish, install, test, disinfect and place into service the interconnection as shown, specified, or directed.

- b. The unit price bid for each fitting and joint restraints installed on existing watermain shall be full compensation for all labor, materials, equipment and incidentals install, test, disinfect and place fittings into service as shown, specified, or directed.
- c. The subdivisions of this item are:
 - 5A Ductile Iron (DI) Fittings
 - 5A1 4-inch to 8-inch DI Fitting with joint restraints
 - 5A2 10-inch to 12-inch DI Fitting with joint restraints
 - 5A3 Joint Restraints on 4-inch to 8-inch Existing Watermain
 - 5A3 Joint Restraints on 10-inch to 12-inch Existing Watermain

F. ITEM 6 – POLYETHYLENE ENCASEMENT

1. Work Included:

- a. This work shall consist of furnishing all labor, materials, equipment and incidentals for the installation of polyethylene encasement on all new ductile iron pipe, fittings, and restraints as shown, specified and directed.
- b. Polyethylene encasement materials shall be furnished by OWNER. This item also includes hauling, storing and distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.
- c. This item does not include the installation of pipe, fittings, or restraints, which are included under various other payment items.
- d. This item includes polyethylene encasements at all depths where shown on the Drawings.
- e. This item does not include temporary support of nearby utility poles.
- f. This item does not include select backfill, which is included for payment under Item 8A.
- g. This item does not include excavation required; saw-cutting of existing streets, driveways, and sidewalks; and restoration for the installation of polyethylene encasement.
- h. This item does not include any items and work necessary for the proper maintenance and protection of traffic for the installation of polyethylene encasement.

2. Measurement:

- a. The quantity to be paid for under this item shall be the amount of polyethylene encasement installed per linear foot on ductile iron pipe, fittings, or restraints as shown, specified or directed.

3. Payment:

- a. The unit price bid per linear foot shall be full compensation for furnishing all labor, materials, equipment and incidentals required to install polyethylene encasement as shown, specified or directed.
- b. The subdivisions of this item are:
 - 6A Polyethylene Encasement

6A1 Polyethylene Encasement for DI Pipe and Fittings

G. ITEM 7 – ROCK EXCAVATION, TEST PIT EXCAVATION AND BACKFILL, AND EXTRA EXCAVATION AND BACKFILL

2. Rock Excavation (Item 7A)

a. Work Included:

- 1) This work shall consist of furnishing all labor, materials, equipment and incidentals to remove rock by such methods as drilling, jacking, hammering and mechanical excavation to the lines and grades as shown, specified and directed.
- 2) This item includes disposal of rock removed from the trench, which is unsuitable for backfill.
- 3) Rock that can be removed by normal excavation equipment shall not be measured for rock excavation.

b. Measurement:

- 1) The quantity to be paid for under this item shall be the amount of rock in cubic yards removed from within the pay limits as shown, specified or directed.
- 2) The rock shall be uncovered prior to removal in sections acceptable to the ENGINEER, so that it may be measured prior to removal.

c. Payment:

- 1) The unit price bid per cubic yard shall be full compensation for furnishing all labor, materials, equipment and incidentals required to remove rock as shown, specified or directed.
- 2) The subdivisions of this item are:
7A Excavation
7A1 Rock Excavation

3. Test Pit Excavation (Item 7B)

a. Work Included:

- 1) This work shall include all labor, materials, equipment and incidentals required to perform test pit excavations (and backfill same) at the locations shown, specified, or directed unless specially included for payment elsewhere.
- 2) This item includes furnishing and installing temporary restoration for all disturbed streets, driveways, and sidewalks, including select backfill and temporary pavement to maintain pedestrian and vehicular traffic.
- 3) Permanent restoration is included for payment elsewhere.
- 4) The cost for a test pit for service replacements/installations are not included in this bid item since the costs for any test pits required at those locations shall be included in the service replacement/installation bid item.
- 5) This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550.

Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.

- b. Measurement:
 - 1) Test pit excavations which shall be paid for under this item shall be the actual number of test pit excavations performed as shown, specified, or directed.
 - 2) The test pit shall be five (5) feet by five (5) feet by all depths.
- c. Payment:
 - 1) The unit price bid for test pit excavation and backfill shall be full compensation for all labor, materials, equipment and incidentals necessary to perform test pit excavations and backfill as shown, specified, or directed.
 - 2) The subdivisions of this item are:
 - 7B Test Pit Excavation and Backfill
 - 7B1 Test Pit Excavation and Backfill

H. ITEM 8 – SPECIAL BACKFILL

- 1. Work Included:
 - a. This item includes all labor, material sampling and testing, plant equipment, and incidentals required to furnish and install the select backfill or rip-rap backfill material as shown, specified, or directed.
 - b. Select backfill and rip-rap materials shall be furnished by CONTRACTOR.
 - c. This item does not include pipe bedding and encasement, since the cost for pipe bedding and encasement shall be included under the watermain bid items.
 - d. This item does not include select backfill or rip-rap backfill at water service boring/receiving pits, since the cost of backfill at these locations are included under the Water Service Connections bid item.
- 2. Measurement:
 - a. The quantity to be paid for under this item shall be the number of cubic yards of select backfill placed as shown, specified, or directed to the limits shown on the trench detail.
 - b. Measurement shall not be based upon loose or truck-ticket quantities.
- 3. Payment:
 - a. The unit prices bid per cubic yard for this item shall be full compensation for all labor, material, plant, sampling and testing, equipment, compaction, and incidentals necessary to furnish and install the select backfill material within the pay limits shown on the drawing as shown, specified, or directed.
 - b. The subdivisions of this item are:
 - 8A Select Backfill
 - 8A1 Select Backfill

8B Rip-Rap Backfill
8B1 Rip-Rap Backfill

I. ITEM 9 - WATER SERVICE CONNECTIONS AND BLOW-OFFS

1. Work Included:

- a. This item includes all labor, equipment and incidentals required to install, test, disinfect and place into service Water Service Connections and Blow-off of the size, class, depth and materials shown on the drawings and specified herein, except that specifically included under other items of the Contract.
- b. Water Service Connection and Blow-off materials shall be furnished by OWNER with the exception of polyethylene tubing which will be provided by the CONTRACTOR. This item also includes hauling, storing and distributing all materials by CONTRACTOR from OWNER'S Service Center to the site of work.
- c. The work shall include all exploratory excavations, to locate the existing services, clearing and grubbing, earth backfill, tapping the main, installing saddles, installing the service corporation stops, installing type K copper or polyethylene (when approved) service piping with flared fittings (as required) and connecting the new service to the watermain by installing a new curb stop and box. Exploratory excavations to locate existing services shall not be consider test pitting and will not be paid as such.
- d. When the push/drill method is used, all labor, material and equipment required to install the services, including pushing/drilling and receiving pits, shall be included in this item. No extra payment will be made if rock, boulders or other obstacles are encountered during the pushing/drilling operation or if multiple pushes/drills are necessary to install a proper service.
- e. This item includes all costs for locating all underground utilities via exploratory excavations (water, sewer, gas, storm drains, electric, etc.,) working under, over, alongside, near all existing utilities and all other work required for a complete installation.
- f. This item includes flushing the entire service as required and cleaning the existing meter and also demonstrating that all system components properly operate.
- g. This includes all backfilling and maintenance of such backfill until temporary or permanent restoration is accomplished.
- h. Temporary and permanent restoration of sidewalk, driveways, pavement, and landscaping, which are included for payment under Item 13.
- i. This item includes all cost associated with performing work in accordance with the requirements of the Town, County or State agencies having jurisdiction.
- j. Select backfill along the length of the service piping is included for payment elsewhere. No separate payment will be made for select

- backfill for pushing/boring pits and receiving pits.
- k. Rock Excavation and Restoration is included for payment elsewhere.
- l. This item includes all cost to connect to lead or galvanized service and shall not result in additional costs to the OWNER.
- 2. Measurement:
 - a. The quantity to be paid for under this item shall be the actual number of Water Service Connections or Blow-offs installed as shown, specified or directed.
 - b. Each Water Service Installation shall include the first 10-feet of copper or polyethylene tubing at the unit price bid for Items 9A. Additional copper and polyethylene tubing beyond 10-feet shall be measured for payment at the unit price bid per linear foot for Items 9B.
 - c. Each Blow-off shall include all mainline connection, piping, valves, and appurtenances at the unit price bid for Items 9C.
- 3. Payment:
 - a. The unit price bid for this item shall be full compensation for furnishing all labor, equipment and materials not furnished by OWNER required to install, test, disinfect and place into service the Water Service Connections and Blow-offs.
 - b. The subdivisions of this item are:
 - 9A Water Service Connections
 - 9A1 ¾-inch to 1-inch Copper Service
 - 9A2 1 ½-inch to 2-inch Copper Service
 - 9A3 ¾-inch to 1-inch Polyethylene Service
 - 9A4 1 ½-inch to 2-inch Polyethylene Service
 - 9B Additional Copper and Polyethylene Tubing
 - 9B1 ¾-inch to 1-inch Copper Service
 - 9B2 1 ½-inch to 2-inch Copper Service
 - 9B3 ¾-inch to 1-inch Polyethylene Service
 - 9B4 1 ½-inch to 2-inch Polyethylene Service
 - 9C Blow-off Assemblies
 - 9C1 2-inch Blow-off Assembly
 - 9C2 2-inch Temporary Blow-off Assembly
 - 9C3 4-inch Blow-off Assembly
 - 9C4 4-inch Temporary Blow-off Assembly
 - 9C5 8-inch Blow-off Assembly

J. ITEM 10 - CASING PIPE

- 1. Work Included:
 - a. This item includes all labor, material, equipment and incidentals required to furnish and install casing pipes as shown, specified or directed. This item also includes annular fill within the casing pipe, brick bulkheads, anodes for cathodic protection, excavation of receiving pits and boring pits, sheeting, dewatering, skids or spacers, protection of existing structures and utilities and all other

- work required for a complete installation.
- b. Casing pipe, end seals, isolators, cathodic protection, annular fill, etc. materials shall be furnished by CONTRACTOR with the carrier pipe being supplied by the OWNER.
 - c. All sheeting and shoring necessary to construct the boring and receiving pits shall be included in the price bid for this item. This shall include any sheeting and shoring directed to be left in place by the ENGINEER or by the agency having jurisdiction over the R.O.W., or any left in place for the convenience of the CONTRACTOR.
 - d. Select Backfill for the boring pit and receiving pit shall be included for payment under Item 10A.
 - e. Item 10C includes payment of additional cost for furnishing all additional labor, materials, equipment, and incidentals required to perform boring of casing pipes to advance the casing pipe in rock to the lines and grade as shown, specified, or directed.
 - f. Test Pit Excavations required to determine the locations and elevation of existing utilities and obstacles, shall be included in the cost of this item. Where directed by the ENGINEER, these excavations shall be backfilled with select fill which cost shall also be included in this item.
 - g. Installation of the carrier pipe shall be paid for under Item 1A. Rock Excavation shall be included for payment under Item 7A.
 - h. This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
2. Measurement:
- a. The quantity to be paid for under Items 10A and 10B shall be the linear foot of casing pipe installed as shown, specified, or directed.
 - b. The quantity to be paid for under Item 10C shall be the actual amount of rock boring in linear feet, necessary and required to advance the casing in rock to the limits as shown, specified, or directed. The lengths shall be measured along the centerline of the casing and only for the length in rock.
3. Payment:
- a. The unit price bid per linear foot for this item shall be the full compensation for furnishing all labor, material, equipment, and incidentals required to furnish and install casing pipe.
 - b. The unit price bid per linear foot for Item 10C shall be full compensation for furnishing all additional labor, materials, equipment, and incidentals required to perform rock boring to advance casing pipe in rock as shown, specified, or directed.
 - c. The subdivisions of this item are:

10A Trenchless Casing Pipe Installation
10A1 18-inch Diameter

- 10A2 20-inch Diameter
- 10A3 24-inch Diameter
- 10B Open-cut Casing Pipe Installation
 - 10B1 18-inch Diameter
 - 10B2 20-inch Diameter
 - 10B3 24-inch Diameter
- 10C Additional for Trenchless Casing Pipe Installation in Rock
 - 10C1 16-inch to 18-inch Diameter
 - 10C2 20-inch to 24-inch Diameter

K. ITEM 11 – HORIZONTAL DIRECTIONAL DRILLING (HDD)

1. Work Included:
 - a. This item includes all labor, materials, equipment and incidentals required to perform the HDD include centralizers (as required) as shown and specified.
 - b. This item includes rock drilling.
 - c. Pipe installed through the HDD shall be paid under Item 1, DIP and HDPE only. PVC shall not be utilized within the HDD limits.
 - d. This item includes earth excavation and backfill for the boring and receiving pits.
 - e. Rock excavation for boring and receiving pits shall be paid for under Item 7A.
 - f. Select backfill shall be paid for under Item 8A.
 - g. Temporary and permanent restoration shall be paid under Item 13.
 - h. This item includes all items and work necessary for the proper maintenance and protection of traffic of City, Town, and Village roads as defined in Section 01550. Maintenance and protection of traffic for County and State roads will be paid under Item 14B2.
 - i. This item includes coordination with 3rd party utility companies.
 - j. This item includes the electrical bonding of all joint, as required.
2. Measurement:
 - a. The quantity to be paid for under this item shall be for the completed HDD as shown, specified, or directed
3. Payment:
 - a. The unit prices bid per linear foot shall be full compensation for furnishing all labor, materials, equipment, and incidentals necessary to install and place into service the HDD as shown, specified, or directed.
 - b. The subdivisions of this item are:
 - 11A HDD
 - 11A1 4-inch to 10-inch watermain
 - 11A2 12-inch to 16-inch watermain

L. ITEM 12 - TESTING AND DISINFECTION

1. Work Included:
 - a. This item includes flushing, sampling and testing, pressure and leakage testing, and disinfection of the watermain and fittings prior

to placing the watermain into service. The watermain and valves are not considered pressure or leakage tested until the pipe complies with the specifications. All necessary retesting will be at the CONTRACTOR'S expense. The CONTRACTOR shall adhere to the application procedures outlined in the specification for disinfection and flushing. All sampling and testing shall be at the points specified and in accordance with the latest Health Department requirements.

- b. CONTRACTOR shall submit all required information under Section 154140 prior to commencement of the WORK.

2. Measurement:

- a. The quantity of disinfection and testing shall be the number of linear feet of watermain installed within the limits shown, specified, or directed. The length shall be measured along the centerline of the pipe without regard for valves, fittings or hydrant assemblies.

3. Payment:

- a. The unit prices bid for testing and disinfection items shall be at the fixed minimum unit price established by the OWNER or as modified by CONTRACTOR, whichever is greater, as stated in the Bidder's Proposal and shall be full compensation for all labor, materials, equipment, sampling, testing, and incidentals necessary to test and place into service new watermain as shown, specified, or directed.

- b. The subdivisions of this item are:

12A Testing and Disinfection of Watermain Lengths of 200-feet or less

12A1 4-inch Watermain (includes 6-inch HDPE)

12A2 6-inch Watermain (includes 8-inch HDPE)

12A3 8-inch Watermain (includes 10-inch HDPE)

12A4 10-inch Watermain (includes 12-inch HDPE)

12A5 12-inch Watermain (includes 16-inch HDPE)

12B Testing and Disinfection of Watermain Lengths of greater than 200-feet

12B1 8-inch Watermain (includes 10-inch HDPE)

12B2 10-inch Watermain (includes 12-inch HDPE)

12B3 12-inch Watermain (includes 16-inch HDPE)

M. ITEM 13 - RESTORATION

1. Work Included:

- a. This item includes all labor, materials, equipment, sampling, testing and incidentals necessary to restore asphalt, concrete, stone or gravel surfaces, landscaping, curbs/gutters, lawn areas, and other features disturbed, damaged or destroyed during the performance of the work.

- b. Restoration materials shall be furnished by CONTRACTOR

- c. For additional clearing and grubbing, this item includes clearing beyond 15-feet in width as shown, specified, or directed.
- d. For asphalt restoration, this item shall include the application of a bituminous tack coat at all sawcut areas and between asphalt pavement layers as shown, specified or directed.
- e. This item shall include any sawcutting of asphalt or concrete as shown, specified, or requested.
- f. This item shall include the proper consolidation of subgrade before installing pavement or sidewalk.
- g. This item shall include the maintenance of temporary restoration until final restoration has been completed. This includes but is not limited to settlement, erosion, ponding, etc.
- h. This item shall include the permanent and final repaving of all streets, driveways and similar surfaces, where pavement has been removed, disturbed, settled or damaged by or as a result of performance of this Contract. This item shall also include the application of permanent pavement markings as required by the appropriate highway jurisdiction.
- i. This item shall include the cost to remove, restore, and/or replace traffic signal equipment as necessary for the installation of the water system improvements.
- j. For cold milling, this item shall include cold milling of the existing asphalt pavement to the limits and depths detailed on the Contract Drawings.
- k. For cold milling, this item shall include the application of a bituminous tack coat on all cold milled areas as shown, specified or directed.
- l. For asphalt sealant, this item includes the sealing of asphalt driveways and sidewalks the limits of repair plus 3-feet outside the repair edge.
- m. This item shall include maintenance of all lawn areas until establishment of a good stand of grass and the first mowing.
- n. Restoration of all areas outside the payment limits is the responsibility of the CONTRACTOR and shall conform to the Contract Requirements which apply.
- o. For tree and shrub replacement, item includes all costs for tree planting with trees and shrubs in like and kind as shown, specified or directed.
- p. For repairing damaged trees, item includes all costs for tree repair including but not limited to pruning and wrapping within the construction limits.

2. Measurement:

- a. The quantity of concrete restoration (except for curb/gutter restoration) and asphalt restoration for which payment will be made will be computed using the payment dimension on the trench payment limits detail without regard to the actual dimension or

quantities required and the number of linear feet of watermain installed as measured along the centerline of the pipe without regard for valves or fittings. The area shall be figured on the basis of square yardage within the trench limits as shown, specified, or directed.

- b. The quantity of cold milling shall be the number of square yards of pavement surface milled to a depth as detailed on the plans or as directed. In no case will a deduction be made for minor unmilled areas due to catch basins, manholes or minor low areas in pavement from the measured surface areas that has been milled. Minor unmilled or low areas are those areas of 3 square yards or less.
- c. The quantity of concrete curb/gutter restoration shall be the number of linear feet of curb/gutter installed within the limits shown, specified, or directed.
- d. The quantity of landscape restoration shall be the number of linear feet of watermain installed within the limits shown, specified, or directed. The length shall be measured along the centerline of the pipe without regard for valves or fittings.
- e. The quantity of tree and shrub replacement shall be the actual number by type of tree replacement within work limits.
- f. The quantity of repairing damage trees shall be the actual number of tree repairs within work limits.
- g. The quantity of fertilizing existing trees shall be the actual number of trees fertilizing within work limits.

3. Payment:

- a. The unit prices bid for restoration items shall be at the fixed minimum unit price established by the OWNER where shown in the Bid Proposal or as modified by the CONTRACTOR, whichever is greater, as stated in the Bidder's Proposal. The prices bid for these items shall be full compensation for all labor, material, equipment, sampling, testing and incidentals necessary for restoration as shown, specified, or directed and within the pay limits shown specified, or directed.
- b. The unit prices bid for restoration items that are not at fixed minimum unit prices shall be full compensation for furnishing all labor, materials, and equipment required to furnish and install restoration items within the pay limits as shown, specified, or directed.
- c. The subdivisions of this item are:
 - 13A Clearing and Grubbing
 - 13A Clearing and Grubbing
 - 13B Pavement Restoration
 - 13B1 Asphalt Pavement Restoration
 - 13B2 Concrete Pavement Restoration
 - 13B3 Concrete wit Asphalt Top Pavement Restoration

- 13B4 Asphalt Shoulder Restoration
- 13B5 Concrete Gutter Restoration
- 13B6 Concrete Curb Restoration
- 13B7 Granite Curb Restoration
- 13B8 Cold Milling of Asphalt Top at 1-inch to 2-inch depth
- 13B9 Cold Milling of Asphalt Top at each 1-inch depth over 2-inch depth
- 13B10 Cold Patch (high performance) per 3-inch depth
- 13B11 Traffic Loop Installation
- 13C Sidewalk Restoration
 - 13C1 Asphalt Sidewalk Restoration
 - 13C2 Concrete Sidewalk Restoration
- 13D Driveway Restoration
 - 13D1 Asphalt Driveway Restoration
 - 13D2 Concrete Driveway Restoration
- 13E Asphalt Sealant
 - 13E1 Asphalt Sealant for driveway and sidewalks
- 13F Lawn Restoration
 - 13F1 Lawn Restoration
- 13G Landscaping Restoration
 - 13G1 Deciduous Trees, 3-feet to 4-feet (balled)
 - 13G2 Deciduous Trees, 1 ½-inch to 2-inch caliper (balled)
 - 13G3 Deciduous Trees, 4-inch to 4 ½-inch caliper (balled)
 - 13G4 Deciduous Shrubs, 3-feet to 4-feet (bare root)
 - 13G5 Evergreen Trees, 5-feet to 6-feet (balled)
 - 13G6 Evergreen Shrubs, 2 ½ feet to 4-feet (balled)
 - 13G7 Repairing Damaged Trees
 - 13G8 Fertilizing Existing Trees

N. ITEM 14 – CREW RATE AND CONSTRUCTION ALLOWANCE

1. Crew and Survey Crew Labor and Equipment (Item 14A)
 - a. Work included:
 - 1) This item includes providing a crew consisting of labor and equipment to be used when ordered by ENGINEER to perform water service related work in addition to work covered elsewhere by unit price items.
 - 2) The crew included under Item 14A1 shall consist of, at a minimum, two skilled laborers; one supplemental laborer; one wheeled loader/backhoe; one tandem dump truck; and, one fully equipped tool and equipment truck with trailer.
 - 3) The crew include under Item 14A2 shall consist of, at a minimum, instrument person; safety road signage; and survey equipment.
 - 4) The crew include under Item 14A3 shall consist of, at a minimum, two skilled laborers; vacuum truck; and safety road signage.

- 5) Additional payment shall not be made if CONTRACTOR provides additional labor or equipment beyond what is specified herein or ordered.
 - 6) This item includes all related costs of CONTRACTOR, including, but not limited to, supervision, wages, benefits, operating costs, overhead, profit, fuel, insurance, permits, licenses, home office costs, maintenance and protection of traffic, permit conditions, etc.
 - 7) The use of crew labor and equipment will be ordered by ENGINEER when, at a specific site that is scheduled for water system improvements, it is so determined that it would be in the best interest to the Authority that related work be performed.
 - 8) This item may also be used by ENGINEER to order other Work when not covered by other unit price items.
 - 9) OWNER shall furnish CONTRACTOR all waterline materials for Work when so ordered under this item. It shall be the CONTRACTOR'S responsibility to obtain these materials at no additional cost to OWNER and the cost shall be included herein. The CONTRACTOR shall furnish and install select backfill and cold patch and the cost shall be included herein.
 - 10) For vacuum truck and crew, the CONTRACTOR shall include the cost of the vacuum truck and crew. All backfill materials and restoration materials will be paid under various Items herein.
 - 11) Final restoration shall be performed by the CONTRACTOR.
- b. Measurement:
- 1) The quantity to be paid for under this item shall be the actual number of crew labor and equipment hours performed by CONTRACTOR as ordered by ENGINEER.
 - 2) Payment for Item 14A1, Item 14A2, and Item 14A3 shall start when the crew and equipment arrives at the site and ends when the crew and equipment leaves the site when the Work is completed or when ENGINEER orders the crew time ended. There shall be no payment for travel time to or from the CONTRACTOR'S place of business. Payment will be made for travel time between two Work sites for the equipment necessary for the second or succeeding work.
 - 3) The OWNER reserves the right to dismiss the crew from a site when it is determined that it is no longer needed. The CONTRACTOR may elect, for his own convenience, to keep the dismissed labor and equipment on the site or return them to his place of business when the job is done, but no payment shall be made for them.

- c. Payment:
 - 1) The unit price bid for this item shall be full compensation for furnishing all labor, equipment, and incidentals required to perform Crew and Survey Crew Labor and Equipment as ordered or necessary.
 - 2) The subdivisions of this item are:
 - 14A Crew Labor and Equipment
 - 14A1 Crew Labor and Equipment
 - 14A2 Survey Crew Labor and Equipment
 - 14A3 Vacuum Truck and Crew Labor
- 2. Construction Allowance (Item 14B)
 - a. Work Included:
 - 1) Section 01210, Allowances, includes a stipulated amount available as reserve for sole use by OWNER to cover unanticipated costs.
 - b. Measurement:
 - 1) For General Construction Allowance work will consist of approved water system improvements not covered in other bid items and as specified or directed by ENGINEER.
 - 2) For Maintenance and Protection of Traffic (State and County Roads) Allowance work will consist of providing the services of a work zone safety equipment rental and setup firm to provide Maintenance and Protection of Traffic throughout the Erie County Water Authority Service Area along State and County Roads as maybe required to perform water system improvements and restoration activities.
 - c. Payment:
 - 1) Payment of Work authorized under this Item will be full compensation for providing all Work authorized under the contingency allowance, complete as specified or directed by ENGINEER. Work authorized under contingency allowance may include in subsequent Application(s) for Payment, as applicable, following authorization and performance of contingency work.
 - 2) The subdivisions of this item are as follows:
 - 14B Construction Allowance
 - 14B1 General Construction Allowance
 - 14B2 Maintenance and Protection of Traffic (State and County Road) Allowance

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01290

SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Schedule of Values is an itemized list that establishes the value or cost of each part of the Work. It shall be used as the basis for preparing progress payments and may be used as a basis for negotiations concerning additional work or credits, which may arise during the construction. Quantities and unit prices may be included in the schedule when approved by or required by the ENGINEER.

1.02 PREPARATION

- A. Schedule shall show breakdown of labor, materials, equipment, and other costs used in preparation of the Bid.
- B. Costs shall be in sufficient detail to indicate separate amounts for each Section of the Specifications.
- C. CONTRACTOR may include an item for bond, insurance, temporary facilities and job mobilization on lump sum project only. This item will be included for payment at a rate of 25 percent per month for the first four months.
- D. Schedule of Values shall be prepared on 8-1/2-inch by 11-inch white paper.
- E. Use Table of Contents of the Specifications as basis for Schedule format and identify each item with number and title in the Table of Contents. List sub-items of major products or systems as appropriate or when requested by ENGINEER.
- F. When requested by ENGINEER, support values with data that will substantiate their correctness.
- G. The sum of the individual values shown on the Schedule of Values must equal the total Contract Price.
- H. Each item shall include a directly proportional amount of the CONTRACTOR'S overhead and profit.
- I. Schedule shall show the purchase and delivery costs for materials and equipment that the CONTRACTOR anticipates he shall request payment for prior to their installation.

- J. Included in the detailed breakdown shall be a line item for “record documents”. This amount is for preparing and supplying required information and documentation as described in Section 01720, Survey Data.

1.03 SUBMITTAL

- A. Submit two copies of Schedule to ENGINEER for approval at least 20 days prior to submitting first application for a progress payment but no later than 10 days after date of execution of agreement. After review by ENGINEER, revise and resubmit Schedule as required until it is approved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01310

PROJECT COORDINATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. As more fully set forth in Article 6 of the General Conditions, CONTRACTOR shall be solely responsible for coordination of all of the Work. He shall supervise, direct and cooperate fully with all Subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies and all others whose services, materials or equipment are required to ensure completion of the Work within the Contract Time.
- B. As more fully set forth in Article 7 of the General Conditions, CONTRACTOR shall cooperate with and coordinate his Work with the work of any other contractor, utility service company or OWNER'S employees performing additional work related to the Project at the site.
- C. CONTRACTOR shall not be responsible for damage done by contractors not under his jurisdiction. He will not be liable for any such loss or damage unless it is through the negligence of CONTRACTOR.
- D. CONTRACTOR shall maintain sufficient competent personnel, drafting equipment and supplies at the site for the purpose of preparing layout and coordination drawings. These drawings shall supplement the contract documents, and the Shop Drawings, as necessary to correlate the work of various trades. Where such drawings are to be prepared by the mechanical, electrical, or plumbing Subcontractors, CONTRACTOR will ensure that each Subcontractor maintains the required personnel and facilities at the site.
- E. CONTRACTOR shall also coordinate his Work with the work of others to assure compliance with schedules.
- F. CONTRACTOR shall attend and participate in all project coordination or progress meetings and report on the progress of all Work and compliance with schedules.

PART 2 - PRODUCT (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01311

COORDINATION WITH OWNER'S OPERATIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall carry out all operations to avoid interference with the operations of the existing facilities.
- B. The CONTRACTOR shall not have exclusive possession of the sites of the work to be done under this contract.
- C. In the performance of the work, the CONTRACTOR shall schedule and cooperate fully with the OWNER and other Contractors, affording them facilities for the performance of their work even though it interferes with his own.
- D. Related Work Specified Elsewhere:
 - 1. Section 01731, Connections to Existing Facilities.
 - 2. Divisions 2-15, Technical Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01312

PRECONSTRUCTION CONFERENCE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Date, Time, and Location: Conference(s) will be held before construction is started for each assignment. ENGINEER will fix the date, time and location of the meeting in accordance with the General Conditions.
- B. ENGINEER shall prepare agenda, preside at meeting, and prepare and distribute a transcript of proceedings to all parties.
- C. CONTRACTOR(S) shall provide data required, contribute appropriate items for discussion, and be prepared to discuss all items on agenda.
- D. CONTRACTOR shall prepare and distribute a preliminary construction schedule.

1.02 REQUIRED ATTENDANCE

- A. CONTRACTOR(S) and major Subcontractors.
- B. OWNER'S representative.
- C. ENGINEER.
- D. Representatives of governmental agencies having any degree of control or responsibility, if available.

1.03 AGENDA

- A. Agenda will include, but will not necessarily be limited to, the following:
 - 1. Designation of responsible personnel.
 - 2. Subcontractors.
 - 3. Coordination with other contractors.
 - 4. Construction schedule.
 - 5. Review preliminary construction schedule.
 - 6. Processing of Shop Drawings.
 - 7. Schedule of Shop Drawing submittals.
 - 8. Processing of Field Orders and Change Orders.
 - 9. Requirements for copies of Contract Documents.
 - 10. Insurance in force.
 - 11. Schedule of Values.
 - 12. Processing of progress payments.
 - 13. Cash flow.

14. Use of premises.
15. CONTRACTOR(S) responsibility for safety and first aid procedures.
16. Security.
17. Housekeeping.
18. Field Offices.
19. Record Drawings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01313
PROGRESS MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Date and Time:
 - 1. Regular bi-weekly meetings: As mutually agreed upon by OWNER, ENGINEER, and CONTRACTOR.
 - 2. Other Meetings: On call.
 - 3. Final Inspection on project completion.
- B. Place: ENGINEER'S field office or OWNER'S Conference Room office at Project site or other mutually agreed upon location.
- C. ENGINEER shall prepare agenda, preside at meetings, and prepare and distribute a transcript of proceedings to all parties.
- D. CONTRACTOR shall provide data required and be prepared to discuss all items on agenda.

1.02 MINIMUM ATTENDANCE

- A. CONTRACTOR:
 - 1. When needed for the discussion of a particular agenda item, CONTRACTOR shall require representatives of Subcontractors or suppliers to attend a meeting.
- B. ENGINEER.
- C. OWNER'S representative, if required.
- D. Others as appropriate.
- E. Representatives present for each party shall be authorized to act on their behalf.

1.03 AGENDA

- A. Agenda will include, but will not necessarily be limited to, the following:
 - 1. Transcript of previous meeting.
 - 2. Progress since last meeting.
 - 3. Planned progress for next period.
 - 4. Problems, conflicts and observations.
 - 5. Change Orders.
 - 6. Status of Shop Drawings.
 - 7. Quality standards and control.

8. Schedules, including off-site fabrication and delivery schedules. Corrective measures, if required.
9. Coordination between parties.
10. Safety concerns.
11. Other business.

1.04 FINAL INSPECTION

- A. A Final Inspection shall not be scheduled until the ENGINEER is satisfied that all requirements of the contract have been met and the Work is acceptable.
- B. ENGINEER shall schedule final inspection at least 72 hours in advance, and shall notify CONTRACTOR and OWNER.
- C. The ENGINEER, OWNER and CONTRACTOR shall be present during the final inspection.
- D. CONTRACTOR shall provide sufficient manpower during final inspection.
- E. CONTRACTOR shall furnish necessary equipment to demonstrate the new Work; including for new watermain, all new pipeline, hydrants, valves, curb stops, etc., to ENGINEER and OWNER for approval.
- F. ENGINEER shall itemize deficiencies and provide list to OWNER and CONTRACTOR.
- G. CONTRACTOR shall rectify any items identified by ENGINEER prior to final payment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01321
CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. For each individual project completed under this contract, provide construction schedule, which conforms to the requirements below, unless otherwise approved by ENGINEER.
- B. Update schedules every month and for progress meetings unless otherwise specified or directed by ENGINEER.
- C. Submit cash flow schedule with each updated construction schedule.

1.02 CONTENT

- A. Shop Drawing submittal dates and required approval dates.
- B. Product delivery dates.
- C. Factory and field testing dates.
- D. Dates for beginning and completing each phase of the Work by activity and by trades.
- E. Cash flow schedule shall be based on monthly cash flow.

1.03 FORMAT

- A. Schedule will be created on computer using Microsoft Project, latest version.
- B. Type: Horizontal bar chart.
- C. Sheet Size: 8-1/2" x 11".
- D. Time Scale: Indicate first date in each work week.
- E. Organization:
 - 1. Group Shop Drawing submittals and reviews into a separate subschedule.
 - 2. Group product deliveries into a separate subschedule.
 - 3. Group construction work into a separate subschedule by activity.
 - 4. Group critical activities which dictate the rate of progress into a separate subschedule.
 - 5. Organize each subschedule by Specification Section number.

- F. Activity Designations: Show title and related Specification Section number.
- G. Provide electronic copies of project schedule to ENGINEER, as requested.

1.04 SUBMITTALS

- A. Submit initial schedule no later than 10 days after the Preconstruction Conference. Subsequent schedule updates shall be submitted concurrently with weekly progress reports.
- B. Submit updated schedules at progress meetings. If a schedule remains unchanged from one period to the next, submit a written notice to that effect. Updated schedules shall show progress completed to date.
- C. Make submittals to ENGINEER, three copies of all requirements.
- D. Unless otherwise specified, submit four sepia copies of each schedule and one CD. One copy each will be reviewed by the OWNER and ENGINEER and returned. The other copy will be retained by the ENGINEER.
- E. Attach a letter of transmittal to each submittal and include the following information in the letter:
 - 1. A listing of items which have changed since the last submittal.
 - 2. Discussion of problems causing delays, anticipated length of delays, and proposed countermeasures.
- F. Submit updated cash flow schedule based on each updated schedule.
- G. Payment of partial estimates shall not be made unless the CONTRACTOR has, in force, an approved construction schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01322

CONSTRUCTION PHOTOGRAPHS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall retain a qualified individual to perform the services specified below.
- B. Obtain ENGINEER'S approval of the photographer selected prior to taking first photographs.
- C. Digital photography will be accepted if evidence of quality is provided to ENGINEER.
- D. All photographs taken are to be in color.

1.02 PRECONSTRUCTION PHOTOGRAPHS

- A. CONTRACTOR shall be responsible for taking a sufficient number of preconstruction photographs so as to resolve any disputes which may arise regarding the conditions prior to and subsequent to construction.
- B. If a dispute arises where no preconstruction photographs were taken, the disputed area shall be restored by the CONTRACTOR to the extent directed by the ENGINEER and to the complete satisfaction of the ENGINEER, at no additional cost to the OWNER.
- C. The CONTRACTOR must furnish one set of color prints of the preconstruction photographs to the ENGINEER and must make others available for review in settling any disputes.
- D. The ENGINEER may, at his option, take additional preconstruction photographs which may be used to settle disputes, but he will not be required to make these photographs available to the CONTRACTOR.
- E. Preconstruction photographs taken by the CONTRACTOR will not be considered as part of the required number of construction photographs required in Paragraph 1.03 below.

1.03 PHOTOGRAPHS

- A. Take a minimum of 25 color, glossy finish photographs during the construction period.

- B. Photographs shall be taken approximately twice each month and when requested by the ENGINEER.
- C. ENGINEER will approve the views to be taken and select the time at which they will be taken.
- D. A minimum of 5 photographs will be taken each time the photographer is at the site.
- E. For outside construction projects, take photographs in good weather with sufficient ambient light. For inside construction projects, use a flash as necessary in low-light conditions.
- F. A minimum of three (3) photographs shall be taken for each interconnection and abandonment (prior to backfilling) showing the pipe connections established.

1.04 PRINTS

- A. Furnish three prints and negatives of each photograph to the ENGINEER as soon as they are available from the photographer.
- B. Furnish additional photographs or prints requested by ENGINEER at cost.
- C. Provide high quality 5-inch by 7-inch standard weight prints with a glossy finish.
- D. Place the following information on the back of each print:
 - 1. Date photograph was taken.
 - 2. Title of Project.
 - 3. Description of view shown in photograph.
 - 4. Name and address of photographer.
 - 5. Photographer's numbered identification of exposure.

1.05 DIGITAL PHOTOS (IF ACCEPTED AS ALTERNATE)

- A. If acceptable to OWNER and ENGINEER, CONTRACTOR shall provide digital, color photographs having a minimum resolution of 12 megapixels each.
- B. CONTRACTOR shall furnish a compact disk (CD) with each photograph in JPEG (Joint Photographic Experts Group) format and project title identified.
- C. Filenames of digital photographs will be the project number followed by date and by either a sequential number or description of view.
- D. A log will be included identifying for each photo:
 - 1. Filename.
 - 2. Date photograph was taken.
 - 3. Description of view shown in photograph.
 - 4. Name and address of photographer.

1.06 VIDEO

- A. Provide two video disks, in DVD format, of the construction area both prior to and post construction. Each video must be minimum 15 minutes long with verbal narration while walking the project site to depict the existing or new condition of all areas affected by the construction.
- B. Submit two copies of each video to ENGINEER for review.
- C. CONTRACTOR shall be responsible for taking video, which includes all areas of construction so as to resolve any disputes, which may arise regarding the conditions prior to and subsequent to the construction.
- D. For outside construction projects, take videos in good weather with sufficient ambient light.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01331

SHOP DRAWING PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Shop Drawing procedures shall conform to requirements of General Conditions and as described in this Section.

1.02 PROCEDURE

- A. Submittals of Shop Drawings shall be made to the ENGINEER at the address listed in the Notice to Bidders.
- B. A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.
- C. When requested, copies of submittals shall be sent to the ERIE COUNTY WATER AUTHORITY at the Service Center Address at 3030 Union Road, Cheektowaga, New York 14227.
- D. At the beginning of each letter of transmittal provide a reference heading indicating the following:
 - 1. OWNER'S Name _____
 - 2. Project Name _____
 - 3. Contract No. _____
 - 4. Transmittal No. _____
 - 5. Section No. _____
- E. If a Shop Drawing deviates from the requirements of the Contract Documents, CONTRACTOR shall specifically note each variation in his letter of transmittal.
- F. All Shop Drawings submitted for approval shall have a title block with complete identifying information satisfactory to ENGINEER.
- G. All Shop Drawings submitted shall bear the stamp of approval and signature of CONTRACTOR as evidence that they have been reviewed by CONTRACTOR. Submittals without this stamp of approval will not be reviewed by ENGINEER and will be returned to CONTRACTOR. CONTRACTOR'S stamp shall contain the following minimum information:

Project Name: _____

CONTRACTOR'S Name: _____

Date: _____

-----Reference-----

Item: _____

Specifications:

Section: _____

Page No.: _____

Para. No.: _____

Drawing No.: _____ of _____

Location: _____

Submittal No.: _____

Approved By: _____

- H. A number shall be assigned to each submittal by CONTRACTOR starting with No. 1 and thence numbered consecutively. Resubmittals shall be identified by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.
- I. The CONTRACTOR shall initially submit to ENGINEER a minimum of 4 copies of all submittals that are on 8-½-inch by 11-inch or smaller sheets, and one unfolded sepia and 2 prints made from that sepia for all submittals on sheets larger than 8-½-inch by 11-inch. The OWNER and ENGINEER shall receive one copy only of each submittals which will be stamped "Preliminary - Not For Construction."
- J. After ENGINEER completes his review, Shop Drawings will be marked with one of the following notations:
1. Approved.
 2. Approved as Corrected.
 3. Revise and Resubmit.
 4. Not Approved.
 5. Submitted for Information.
- K. If a submittal is acceptable, it will be marked "Approved" or "Approved as Corrected". Four prints or copies of the submittal will be returned to CONTRACTOR.

- L. Upon return of a submittal marked “Approved” or “Approved as Corrected”, CONTRACTOR may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- M. If a Shop Drawing marked “Approved as Corrected” has extensive corrections or corrections affecting other drawings or Work, ENGINEER may require that CONTRACTOR make the corrections indicated thereon and resubmit the Shop Drawings for record purposes. Such drawings will have the notation, “Approved as Corrected - Resubmit.”
- N. If a submittal is unacceptable, 2 copies will be returned to CONTRACTOR with one of the following notations:
 - 1. “Revise and Resubmit”
 - 2. “Not Approved”
- O. Upon return of a submittal marked “Revise and Resubmit”, CONTRACTOR shall make the corrections indicated and repeat the initial approval procedure. The “Not Approved” notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, CONTRACTOR shall repeat the initial approval procedure utilizing acceptable material or equipment.
- P. Any related Work performed or equipment installed without an “Approved” or “Approved as Corrected” Shop Drawing will be at the sole responsibility of the CONTRACTOR.
- Q. Shop Drawings shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. CONTRACTOR shall assume the risk for all materials or equipment, which are fabricated or delivered prior to the approval of Shop Drawings. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.
- R. ENGINEER will review and process all submittals promptly, but a reasonable time should be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to CONTRACTOR.
- S. It is CONTRACTOR’S responsibility to review submittals made by his suppliers and Subcontractors before transmitting them to ENGINEER to assure proper coordination of the Work and to determine that each submittal is in accordance with his desires and that there is sufficient information about materials and equipment for ENGINEER to determine compliance with the Contract Documents. Incomplete or inadequate submittals will be returned for revision without review.
- T. CONTRACTOR shall furnish required submittals with complete information and accuracy in order to achieve required approval of an item within three submittals.

All costs to ENGINEER involved with subsequent submittals of Shop Drawings, Samples or other items requiring approval, will be backcharged to CONTRACTOR, at the rate of 3.0 times direct technical labor cost, by deducting such costs from payments due CONTRACTOR for Work completed. In the event that CONTRACTOR requests a substitution for a previously approved item, all of ENGINEER'S costs in the reviewing and approval of the substitution will be backcharged to CONTRACTOR unless the need for such substitution is beyond the control of CONTRACTOR.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01410

OPERATIONS IN HIGHWAY RIGHTS-OF-WAY

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall obtain all necessary permits, arrange all inspections required by the state and pay all charges. He shall conform with all applicable State, County, City, Town, and Village Highway Department rules and regulations.
- B. Work may be installed by the open cut method where shown or directed, however, traffic flow shall be maintained. A minimum of two lanes of traffic shall be kept flowing at all times.
- C. CONTRACTOR shall comply with all current New York State Department of Transportation requirements for traffic protection and all requirements in Section 01550, Maintenance and Protection of Traffic.
- D. Work shall be located as shown, and CONTRACTOR shall install materials, pipe, fittings, and adapters that are required to implement crossings of existing pipe lines, utilities or other structures. A supply of pipe fittings, adapters and short lengths shall be on hand to expedite the crossings.
- E. Pavement: When backfill is stabilized in accordance with State Highway Department requirements and these Specifications, CONTRACTOR shall replace the street pavement and base with pavement of similar type and equal thickness to the pavement which was removed. This pavement and base shall be constructed in complete accordance with the requirements of the State, County and local municipal jurisdiction.
- F. Copies of Permit Application Forms for the State, County of Erie, and Local Municipal Highway Permit Application is included in the Appendix.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01421

REFERENCE STANDARDS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The latest provisions of applicable standards shall apply to the Work, unless otherwise specified. Reference standards include, but are not necessarily limited to, the following:
1. American Association of State Highway and Transportation Officials.
 2. American Concrete Institute.
 3. American Gear Manufacturers Association.
 4. American Institute of Steel Construction.
 5. American Iron and Steel Institute.
 6. American National Standards Institute.
 7. American Society of Heating, Refrigerating and Air Conditioning Engineers.
 8. American Society of Mechanical Engineers.
 9. American Society for Testing and Materials.
 10. American Water Works Association.
 11. American Welding Society.
 12. Concrete Reinforcing Steel Institute.
 13. Factory Mutual Research Corporation.
 14. Institute of Electrical and Electronics Engineers.
 15. National Electrical Manufacturer's Association.
 16. Occupational Safety and Health Administration.
 17. National Fire Protection Association.
 18. Prestressed Concrete Institute.
 19. Underwriters' Laboratories, Inc.
 20. NSF International.
 21. International Organization for Standardization (ISO).
 22. SSPC: The Society for Protective Coatings.
 23. American Petroleum Institute.
 24. NACE International.
 25. All other applicable standards listed in the Specifications, and the standards of utility service companies, where applicable.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01422

ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.01 ABBREVIATIONS

A. Common abbreviations which may be found in the Specifications are:

alternating current	a-c	gallons per minute	gpm
ante meridiem	am	gallons per second	gps
ampere	A	gram	g
average	avg		
		Hertz	Hz
biochemical oxygen demand	BOD	hour	hr
brake horsepower	bhp	horsepower	hp
British thermal unit	Btu		
		inch	in.
Centigrade	°C	inch-pound	in.-lb
Company	Co	inside diameter	id
cubic inch	cu in		
cubic foot	cu ft	kilovolt-ampere	kva
cubic yard	cu yd	kilowatt	kw
cubic feet per minute	cfm	kilowatt-hour	hwhr
cubic feet per second	cfs		
		linear foot	lin ft
decibel	db	liter	l
degree Centigrade			
(or Celsius) (say)	20°C	maximum	max
degree Fahrenheit (say)	68°F	mercury	Hg
diameter	diam	milligram	mg
direct current	d-c	milligrams per liter	mg/l
dollars	\$	milliliter	ml
		millimeter	mm
each	ea	million gallon	mil
efficiency	eff	million gallons per day	mgd
		minimum	min
Fahrenheit	EF		
feet	ft	net positive suction head	npsh
feet per hour	fph	number	No.
feet per minute	fpm	National Pipe Threads	NPT
feet per second	fps		
Figure	Fig	ounce	oz
flange	flg	outside diameter	od
foot-pound	ft-lb		
gallon	gal	parts per million	ppm

post meridiem	pm	square foot	sq ft
pound	lb	square inch	sq in
pounds per square foot	psf	square yard	sq yd
pounds per square inch		standard	std
absolute	psia	standard cubic feet	
pounds per square inch		per minute	scfm
gage	psig		
		total dynamic head	tdh
revolutions per minute	rpm	totally-enclosed-	
		fan-cooled	tefc
second	sec		
specific gravity	sp gr	volt	v
square	sq		

1.02 ORGANIZATION ABBREVIATIONS

A. Abbreviations of organizations which may be used in these Specifications are:

ACS	American Chemical Society
ACI	American Concrete Institute
AGMA	American Gear Manufacturers Association
AICHE	American Institute of Chemical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APHA	American Public Health Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASTM	American Society for Testing and Materials
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
AWWA	American Water Works Association
AWS	American Welding Society
CRSI	Concrete Reinforcing Steel Institute
ECWA	Erie County Water Authority
EPA	Environmental Protection Agency
FM	Factory Mutual Research Corporation
HEW	Department of Health, Education and Welfare
HUD	Department of Housing and Urban Development
IEEE	Institute of Electrical and Electronic Engineers
IRI	Industrial Risk Insurance
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International
NARUC	National Association of Railroad and Utilities Commissioners
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association

NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PCI	Precast Concrete Institute
SMACNA	Sheet Metal and Air Conditioning National Association
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories, Inc.
USGS	United States Geological Survey
USPHS	United States Public Health Service
WWEMA	Water and Wastewater Equipment Manufacturers Association

1.03 MISCELLANEOUS ABBREVIATIONS

ACP	Asbestos Cement Pipe
DIP	Ductile Iron Pipe
mj	mechanical joint
PCCP	Prestressed Concrete Cylinder Pipe
pe	plain end
PVC	Polyvinyl Chloride Pipe
s	spigot
w/	with

1.04 SYMBOLS

- A. Refer to Drawings for symbols used on the Contract Drawings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01450

TESTING LABORATORY SERVICES FURNISHED BY CONTRACTOR

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall employ and pay for an independent testing laboratory to perform the specified services. Laboratory selected shall be subject to approval by the ENGINEER.
- B. Inspection, sampling and testing shall be as specified in the Technical Sections.

1.02 QUALIFICATIONS OF LABORATORY

- A. Where applicable, meet "Recommended Requirements for Independent Laboratory Qualification", latest edition, published by American Council of Independent Laboratories and the basic requirements of ASTM E329, Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
- B. The laboratory shall be certified by New York State for testing potable water. A NYS ELAP number shall be referenced on all test results.
- C. Submit copies of ELAP certificates for all potable water testing.
- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of any deficiencies reported by inspection.
- E. Testing Equipment:
 - 1. Calibrated at maximum 12 month intervals by devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.
 - 2. Submit copy of certificate of calibration, made by accredited calibration agency.

1.03 LABORATORY DUTIES

- A. Cooperate with ENGINEER and provide qualified personnel promptly on notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction; comply with applicable standards; ascertain compliance with requirements of Contract Documents.
- C. Promptly notify ENGINEER and CONTRACTOR of irregularities or deficiencies of Work, which are observed during performance of services.

- D. Promptly submit 5 copies of reports of inspections and tests to ENGINEER including:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name and address.
 - 4. Name and signature of inspector.
 - 5. Date of inspection or sampling.
 - 6. Record of temperature and weather.
 - 7. Date of test.
 - 8. Identification of product and Specification Section.
 - 9. Location in Project.
 - 10. Type of inspection or test.
 - 11. Results of tests and observations regarding compliance with Contract Documents.
- E. Perform additional tests and services as required to assure compliance with the Contract Documents.

1.04 CONTRACTOR'S COORDINATION WITH LABORATORY

- A. Cooperate with laboratory personnel, provide access to Work and to manufacturer's operations.
- B. Provide to laboratory, representative samples of materials to be tested, in required quantities.
- C. Furnish labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the site.
 - 3. To facilitate inspections and tests.
 - 4. For laboratory's exclusive use for storage and curing of test samples.
 - 5. Forms for preparing concrete test beams and cylinders.
- D. Notify laboratory and ENGINEER sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
- E. Arrange with laboratory and pay for, additional samples and tests required for CONTRACTOR'S convenience.

1.05 PRODUCT TEST REPORTS

- A. Furnish copies of product test reports where required by the Specifications or requested by ENGINEER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01520

TEMPORARY CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall be responsible for all temporary construction facilities required for the Work. CONTRACTOR shall make all arrangements with utility service companies for temporary services and shall pay all costs associated therewith.
- B. Temporary construction facilities include:
 - 1. Water.
 - 2. Electricity and Lighting.
 - 3. Telephone.
 - 4. Heat, Weather Protection and Ventilation.
 - 5. Fire Protection.
 - 6. Sanitary and First Aid Facilities.
- C. CONTRACTOR shall abide by all rules and regulations of the utility service company, OWNER or authority having jurisdiction. CONTRACTOR shall coordinate and schedule all utilization and tie-in work of existing electric, lighting and water service and shall provide OWNER and ENGINEER written notice at least 48 hours before utilizing existing electric, lighting and water service. CONTRACTOR shall carry out all operations to avoid interference with operations of the existing facilities.
- D. Sufficient temporary heat and ventilation shall be provided to assure safe working conditions and that no damage will occur to any of the Work.
- E. Provide all materials, equipment and power required for temporary electricity and lighting. Include continuous power for construction site offices. Provide all outlets with circuit breaker protection and comply with ground fault protection requirements of NEC. Provide minimum of one 300 watt lamp each 20 feet in work areas.
- F. Suitably enclosed chemical or self-contained toilets shall be provided for the use of the men employed on the Work. Toilets shall be located near the Work site and secluded from observation insofar as possible. Toilets shall be serviced at regular intervals, kept clean and supplied throughout the course of the Work.
- G. CONTRACTOR shall furnish and maintain a safe drinking water supply readily available to all workers.

- H. CONTRACTOR shall be responsible for all utility service costs if constructing a building or facility until the Work is substantially complete. Included are all fuel, power, light, heat and other utility services necessary for execution, completion, testing, and initial operation of the Work.
- I. CONTRACTOR shall:
1. Comply with applicable requirements specified in the Technical Specifications.
 2. Maintain and operate systems to assure continuous service.
 3. Modify and extend systems as Work progress requires.
 4. Completely remove temporary materials and equipment when their use is no longer required.
 5. Clean and repair damage caused by temporary installations or use of temporary facilities.
 6. Restore existing facilities used for temporary services to specified or to original condition.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01525

EMERGENCY TELEPHONE NUMBERS

PART 1 - GENERAL

1.01 EMERGENCY TELEPHONE NUMBERS

- A. The CONTRACTOR shall, at the CONTRACTOR'S expense, furnish to the ENGINEER an emergency phone number list for 24-hour contact during the construction period. Include numbers for office phones, pagers, and cellular phones, as applicable.
- B. The list should include, but not be limited to:
 - 1. CONTRACTOR'S office representative,
 - 2. CONTRACTOR'S field superintendent,
 - 3. CONTRACTOR'S foreman,
 - 4. OWNER'S main office,
 - 5. OWNER'S 24 hour emergency number,
 - 6. PROJECT ENGINEER,
 - 7. PROJECT INSPECTOR,
 - 8. Utility companies such as gas, water, sewer, oil, telephone, cable, TV, etc.,
 - 9. Highway Departments,
 - 10. Fire Departments serving the project limits,
 - 11. Police Emergency number,
 - 12. New York State Department of Environmental Conservation (NYSDEC) Spill Response Hotline,
 - 13. Other involved agencies.
- C. CONTRACTOR shall add names and numbers given to him by ENGINEER and resubmit to ENGINEER as requested.
- D. Emergency phone list must be submitted and considered acceptable to ENGINEER and OWNER prior to the start of construction.
- E. Phone list must be neatly typed or word processed and submitted on 8-½ x 11 inch paper.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01550

MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
The work specified shall include all labor, material, equipment, services and incidentals necessary to maintain and protect vehicular and pedestrian traffic through all construction areas.
- B. Related Work Specified Elsewhere
 - 1. Division 2-15, Technical Specifications,
 - 2. Section 15051 - Buried Piping Installation

1.02 QUALITY ASSURANCE

- A. Reference Standards
New York State Department of Transportation Standard Specifications, latest revision.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. This work shall consist of maintaining traffic and protecting the public from damage to person and property within the limits of and for the duration of the Contract.
- B. All existing site roads, streets, sidewalks, and traffic ways shall be kept open for the passage of traffic and pedestrians during the construction period unless otherwise approved by the OWNER, ENGINEER or authority having jurisdiction over same.
- C. When required to cross, obstruct or temporarily close an existing site road, street, sidewalk or trafficway, CONTRACTOR shall provide and maintain suitable detours or other approved temporary expedient for the accommodation of traffic. Closings shall be for the shortest time practical, and passage shall be restored immediately after completion of backfill and temporary paving or bridging.
- D. CONTRACTOR shall give 48 hours advance notice to the fire and police departments of his proposed operations including temporary shutdowns.

- E. CONTRACTOR shall provide signs, signals, barricades, flares, lights and all other equipment, service and personnel required to regulate and protect all traffic and warn of hazards. All such work shall conform to requirements of the OWNER or authority having jurisdiction. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.
- F. Traffic shall be maintained over a reasonably smooth traveled way which shall be so marked by signs, delineators, guiding devices and other methods, that a person who has no knowledge of conditions may safely, and with a minimum of discomfort and inconvenience, ride, drive or walk, day or night, over all or any portion of the street under construction where traffic is to be maintained. All work shall conform to the requirements of the current New York State Manual of Uniform Traffic Control Devices.
- G. CONTRACTOR shall control dust and keep the traveled way free from materials spilled from hauling equipment.
- H. CONTRACTOR shall provide the necessary traffic control equipment and flagmen for adequate traffic control on the traveled way. Flaggers shall be used where opposing traffic is restricted to one (1) lane or where other conditions require, or as required by permit conditions.
- I. CONTRACTOR shall provide ingress and egress to and from intersecting streets, homes, businesses and commercial establishments.
- J. CONTRACTOR shall provide adequate protection for pedestrian traffic during all phases of construction.
- K. CONTRACTOR shall maintain existing bus stops, if any, so passengers are reasonably accommodated.
- L. CONTRACTOR shall make the necessary repairs to existing pavement as required to provide a reasonable smooth traveled way where vehicle operation is maintained.
- M. The CONTRACTOR'S responsibility to the public is to protect the public from damage to person and property, which may result directly or indirectly from any construction operation.
- N. The CONTRACTOR shall provide temporary markings in accordance with provisions of the New York State Manual of Uniform Traffic Control Devices, as required by the agency having jurisdiction, as shown in the plans and specifications and/or as ordered by the ENGINEER
- O. The CONTRACTOR shall schedule work to keep to a minimum and consistent with the physical requirements of the contract, the amount of existing pavement and/or facilities that are destroyed or substantially torn up at any one time.

- P. The CONTRACTOR shall at all times conduct his operations in a manner to insure the convenience of the motorist, the pedestrians and the abutting property owners and their safety as well as the safety of his own employees.
- Q. The CONTRACTOR shall furnish, install, move, remove and maintain all signs and barricades and lighting for construction barricades as shown on the plans or as ordered by the ENGINEER, and in accordance with the NYS Manual of Uniform Traffic Control Devices.
- R. The CONTRACTOR shall provide and maintain delineation and guiding devices which shall include: delineators, barrels, flashers, railing, temporary curb of any kind, pavement markings, and other similar materials or methods acceptable to the ENGINEER
- S. The CONTRACTOR shall construct, move or remove, as directed, temporary structures, approaches, detours, pavements and necessary appurtenances.
- T. The CONTRACTOR will be responsible to prepare a maintenance and protection of traffic plan and submit the plan to the ENGINEER for information and the Erie County Highway Department and/or NYS DOT (as required) for approval. The maintenance and protection of traffic plan shall be prepared by an engineer licensed to practice in the State of New York.

3.02 PARKING CONTROL

- A. Control all CONTRACTOR related vehicular parking within the limits of the Work to preclude interference with public traffic or parking, access by emergency vehicles, OWNER'S operations, or construction operations. Provide temporary parking facilities as may be required because of construction or operations.
- B. Monitor parking of all construction and private vehicles:
 - 1. Maintain free vehicular access to and through parking areas.
 - 2. Prohibit parking on or adjacent to access roads, or in non-designated areas.
 - 3. Parking will not be allowed in areas which limit sight distance of passing motorists.
 - 4. CONTRACTOR is responsible for his vehicles while on-site.

3.03 HAUL ROUTES

- A. Consult with governing authorities and establish thoroughfares which will be used as haul routes and site access.
- B. Provide traffic control of haul routes to expedite traffic flow and to minimize interference with normal traffic.

3.04 ADDITIONAL REQUIREMENTS

- A. The CONTRACTOR shall maintain the traveled way reasonable smooth and hard at all times, and shall be well drained and free of potholes, bumps, irregularities and depressions that hold or retain water. Construction operations shall be conducted to insure a minimum of delay to traffic. Stopping traffic for more than five minutes shall not be permitted unless specifically authorized, in writing, by the ENGINEER. The necessary equipment and personnel to attain and maintain a satisfactory riding surface shall be available and used as needed at all times when work is under way and when work is temporarily suspended for any period of time. Special attention to maintenance of a satisfactory traveled way shall be given during weekends, holidays and the winter season.
- B. The CONTRACTOR shall provide a sufficient number of competent flagmen in areas where traffic exists, particularly where construction equipment is operating. Each flagger shall use an orange safety vest. The vest shall be worn outside all other clothing worn by the flagger.
- C. Traffic shall be maintained in accordance with the details shown in conformance with the New York State Manual of Uniform Traffic Control Devices.
- D. Fencing
 - 1. The CONTRACTOR shall completely enclose all open excavations and all other potentially hazardous location, at the end of each working day by temporary fences. Fencing shall be not less than four feet in height, mounted in steel angles or other satisfactory means of support rigidly driven into the ground and spaced at intervals not to exceed eight feet. A minimum of one flasher per fifteen feet of fencing will be required. In areas where an excavation is to remain open in excess of 14 calendar days, rigid fencing will be required having supports at intervals not to exceed four feet. Snow fence, cyclone fence, or wire fabric with rectangular mesh are considered minimally acceptable fencing materials.
 - 2. The ENGINEER in charge may limit, extend, include or exclude areas to be fenced as conditions warrant.
- E. Where sidewalk has been removed by the CONTRACTOR, he will be responsible for establishing a temporary stabilized walk for pedestrian traffic within 24 hours after removal of the sidewalk. This sidewalk may be located in the location of the original sidewalk or adjacent to the original sidewalk, providing there is an adequate right-of-way and the new location is safe for pedestrian traffic. The minimum width of the walkway is 4 feet. No additional Payment will be made for installing and/or maintaining this walkway by the CONTRACTOR.
- F. All existing highway signs and supports within the Contract limits are to remain and are to be maintained for the duration of the Contract by the CONTRACTOR.

- G. On postal routes, mailboxes serviced from motor vehicles shall be maintained by the CONTRACTOR in a usable location during construction. The CONTRACTOR should not move any mailbox which contains mail. He will advise the property owner to remove such mail before he moves the box. Before acceptance of the work, any mailbox which has been disturbed or removed shall be replaced in size, kind and type by the CONTRACTOR in a location acceptable to the property owner and the ENGINEER.
- H. CONTRACTOR must provide access to all school buses and emergency vehicles including ambulances, police cars, fire engines, etc., traveling through or stopping at any part of the construction site. At his expense, CONTRACTOR will yield to these vehicles and cease construction activities, as necessary.

END OF SECTION

SECTION 01561

SECURITY

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall safely guard all Work, materials, equipment and property from loss, theft, damage and vandalism. CONTRACTOR'S duty to safely guard property shall include the OWNER'S property and other private property from injury or loss in connection with the performance of the Contract.
- B. He shall employ watchmen as needed to provide the required security and prevent unauthorized entry.
- C. CONTRACTOR may make no claim against the OWNER for damage resulting from trespass.
- D. Party responsible for security shall make good all damage to property of OWNER and others arising from failure to provide adequate security.
- E. If existing fencing or barriers are breached or removed for purposes of construction, CONTRACTOR shall provide and maintain temporary security fencing equal to the existing in a manner satisfactory to the ENGINEER and OWNER.
- F. Security measures taken by the CONTRACTOR shall be at least equal to those usually provided by OWNER to protect his existing facilities during normal operation.
- G. Maintain security program throughout construction until OWNER'S acceptance and occupancy precludes need for CONTRACTOR'S security program.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01562

PROTECTION OF THE WORK AND PROPERTY

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Conditions and herein.
- B. In order to prevent damage, injury or loss, CONTRACTOR'S actions shall include, but not be limited to, the following:
 - 1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the Work of any other contractor or utility service company.
 - 2. Provide suitable storage facilities for all materials which are subject to injury by exposure to weather, theft, breakage, or otherwise.
 - 3. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
 - 4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the Work shall present a safe, orderly and workmanlike appearance.
 - 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.
- C. CONTRACTOR shall not, except after written consent from proper parties, enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.
- D. CONTRACTOR shall assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at his expense, to a condition equal to that existing before the damage was done

1.02 BARRICADES AND WARNING SIGNALS

- A. Where Work is performed on or adjacent to any roadway, right-of-way, or public place, CONTRACTOR shall provide barricades, fences, lights, warning signs, danger signals, watchmen, and shall take other precautionary measures for the protection of persons or property and of the Work. Barricades shall be painted to be visible at night. From sunset to sunrise, CONTRACTOR shall furnish and

maintain at least one light at each barricade. Sufficient barricades shall be erected to keep vehicles from being driven on or into Work under construction. CONTRACTOR shall furnish watchmen in sufficient numbers to protect the Work. CONTRACTOR'S responsibility for the maintenance of barricades, signs, lights, and for providing watchmen shall continue until the Project is accepted by OWNER.

1.03 TREE AND PLANT PROTECTION

- A. CONTRACTOR shall protect existing trees, shrubs and plants on or adjacent to the site that are shown or designated to remain in place against unnecessary cutting, breaking or skinning of trunk, branches, bark or roots.
- B. Materials or equipment shall not be stored or parked within the drip line.
- C. Temporary fences or barricades shall be installed to protect trees and plants in areas subject to traffic.
- D. Fires shall not be permitted under or adjacent to trees and plants.
- E. Within the limits of the work, water trees and plants that are to remain, in order to maintain their health during construction operations.
- F. Cover all exposed roots with burlap that shall be kept continuously wet. Cover all exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, run-off or noxious materials in solution.
- G. If branches or trunks are damaged, prune branches immediately and protect the cut or damaged areas with a nursery product specifically for horticultural use in a manner approved by the ENGINEER.
- H. All damaged trees and plants that die or suffer permanent injury shall be removed when ordered by the ENGINEER and replaced by a specimen of equal or better quality.
- I. Coordinate work in this section with requirements of Division 2 Technical Specifications.

1.04 PROTECTION OF EXISTING STRUCTURES

- A. Underground Structures:
 - 1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.
 - 2. All underground structures known to ENGINEER except water, sewer, electric, and telephone service connections are shown. This information is

shown for the assistance of CONTRACTOR in accordance with the best information available, but is not guaranteed to be correct or complete.

3. CONTRACTOR shall explore ahead of his trenching and excavation Work and shall uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption to the services which such structures provide. If CONTRACTOR damages an underground structure, he shall restore it to original condition at his expense.
4. Necessary changes in the location of the Work may be made by ENGINEER, to avoid unanticipated underground structures.
5. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, ENGINEER will direct CONTRACTOR in writing to perform the Work, which shall be paid for under the provisions of Article 11 of the General Conditions.

B. Surface Structures:

1. Surface structures are defined as all existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

C. Protection of Underground and Surface Structures:

1. CONTRACTOR shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, CONTRACTOR shall satisfy the ENGINEER that the methods and procedures to be used have been approved by the party owning same.
2. CONTRACTOR shall assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. CONTRACTOR shall be responsible for all damage and expense for direct or indirect injury caused by his Work to any structure. CONTRACTOR shall repair immediately all damage caused by his work, to the satisfaction of the owner of the damaged structure.

- D. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at CONTRACTOR'S expense.

1.05 PROTECTION OF FLOORS, ROOFS, AND CEILINGS

- A. CONTRACTOR shall protect floors, roofs and ceilings during the entire construction period.
- B. Proper protective covering shall be used when moving heavy equipment, handling materials or other loads, when painting, handling mortar and grout and when cleaning walls and ceilings.
- C. Use metal pans to collect all oil and cuttings from pipe, conduit, or rod threading machines and under all metal cutting machines.
- D. Roofs and ceilings shall not be loaded without written permission of the ENGINEER.

1.05 PROTECTION OF INSTALLED PRODUCTS AND LANDSCAPING

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to completion of Work.
- B. Control traffic to prevent damage to equipment, materials and surfaces.
- C. Provide coverings to protect equipment and materials from damage.
 - 1. Cover projections, wall corners, and jambs, sills and soffits of openings, in areas used for traffic and for passage of products in subsequent work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01563

TEMPORARY CONTROLS

PART1 - GENERAL

1.01 DESCRIPTION

- A. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and adjacent areas. Remove physical evidence of temporary facilities at completion of Work.

1.02 NOISE CONTROL

- A. CONTRACTOR'S vehicles and equipment shall be such as to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards and in no case will noise levels be permitted which interfere with the work of the OWNER or others.

1.03 DUST CONTROL

- A. CONTRACTOR shall be responsible for controlling objectionable dust caused by his operation of vehicles and equipment, clearing or for any reason whatever. CONTRACTOR shall apply water or use other methods subject to the ENGINEER'S approval which will keep dust in the air to a minimum.

1.04 PEST AND RODENT CONTROL

- A. Provide rodent and pest control as necessary to prevent infestation of construction or storage area.
 - 1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

1.05 WATER CONTROL

- A. Provide methods to control surface water and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties
 - 1. Control fill, grading and ditching to direct water away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff courses so as to prevent any erosion, damage or nuisance.
- B. Provide, operate and maintain equipment and facilities of adequate size to control surface water.

- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.

1.06 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
 - 1. Excavate and dispose of any contaminated earth offsite, and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 - 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants into the atmosphere.
- E. All CONTRACTOR'S equipment used during construction shall conform to all current federal, state and local laws and regulations.
- F. The CONTRACTOR is responsible to abide by the Storm Water Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) prepared by ENGINEER to the New York State Department of Environmental Conservation (NYSDEC) prior to the start of construction of this project. Certifications are to be signed by the CONTRACTOR and all subcontractors. The SWPPP and a copy of the NOI shall be submitted to the Highway Department of jurisdiction along with a Highway Permit Application for approval.

1.07 EROSION CONTROL

- A. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 - 1. Hold the areas of bare soil exposed at one time to a minimum.
 - 2. Provide temporary control measures such as berms, dikes, and drains.
- B. Construct fills and waste areas by selective placement to eliminate surface silts or clays, which will erode.
- C. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01575

RESPIRABLE CRYSTALLINE SILICA

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified.
The work specified shall include all labor, materials, tools, equipment, services, and incidentals necessary to work around respirable crystalline silica (RCS).
- B. Related Work Specified Elsewhere.
 - 1. Section 03300 – Concrete
 - 2. Section 03480 – Precast Concrete Vault
 - 3. Section 15051 – Buried Piping Installation
 - 4. Section 15104 – Working with Asbestos Cement Pipe (ACP)
 - 5. Section 15106 – Ductile Iron Pipe
 - 6. Section 15109 – Prestressed Concrete Cylinder Pipe
 - 7. Section 15140 – Testing and Disinfection

1.02 QUALITY ASSURANCE

- A. Reference Standards.
 - 1. Code of Federal Regulations U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1926.1153, Respirable Crystalline Silica.
 - 2. New York State Department of Labor, Public Employee Safety and Health Bureau, PESH Act.
 - 3. AWWA Manual M28, Rehabilitation of Water Mains.
 - 4. AWWA Manual M9, Concrete Pressure Pipe.
 - 5. NSF/ANSI Standard 61.
 - 6. Underwriter's Laboratories (UL).
 - 7. International Organization for Standardization (ISO).
 - 8. Factory Mutual Research Corporation.
 - 9. Clean Air Act (CAA).
 - 10. Safe Drinking Water Act (SDWA).
 - 11. ANSI Z88.2-80, Practices for Respiratory Protection.
 - 12. 29 CFR 1910.1200, "Hazard Communication" (OSHA).
 - 13. 29 CFR 1910.134, "Respiratory Protection" (OSHA).
 - 14. 29 CFR 1926, "Construction Industry" (OSHA).
 - 15. Occupational Safety and Health Administration.
 - 16. United States Department of Transportation (USDOT).
 - 17. New York State Department of Environmental Conservation (NYSDEC).
 - 18. New York State Department of Health (NYSDOH).
 - 19. New York State Department of Labor (NYSDOL).
 - 20. New York State Department of Transportation (NYSDOT).

1.03 SUBMITTALS

- A. CONTRACTOR shall submit the following prior to the start of work:
 - 1. A letter from the CONTRACTOR, on company letterhead, stating that they are knowledgeable of all current local, state, and federal requirements regarding respirable crystalline silica, that all work will meet those requirements, and that all workers shall be protected against exposure as defined by OSHA. Letter shall have an original signature, signed by an officer of the company.
 - 2. Written exposure control plan, as defined in 29 CFR 1926.1153(g) which includes at minimum the following items:
 - a. A description of the tasks in the workplace that involve exposure to respirable crystalline silica.
 - b. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
 - c. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica.
 - d. A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employees or sole proprietors.

1.04 COMPETENT PERSON

- A. Prior to the start of work on any given day, CONTRACTOR shall designate one individual on site as the Competent Person.
- B. *Competent Person* means, in addition to the definition in 29 CFR 1926.1153(b), one who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace who has the authorization to take prompt corrective measures to eliminate or minimize them.
- C. The Competent Person shall have the knowledge and ability necessary to fulfill the responsibilities set forth under 29 CFR 1926.1153(g).
- D. The Competent Person shall be responsible for worker and job site safety as required by all relevant respirable crystalline silica regulations and OSHA requirements.
- E. The name(s) and contact phone number of the competent person shall be given to the ENGINEER and OWNER before the work is to begin.

1.05 PERMITS AND COMPLIANCE

- A. The CONTRACTOR shall assume full responsibility and liability for compliance with all applicable federal, state, and local laws, rules, and regulations pertaining

to work practices, protection of workers, authorized visitors to the site, and persons and property adjacent to the work areas.

1.06 PERSONAL PROTECTIVE EQUIPMENT

- A. All use of Personal Protective Equipment (PPE) shall be in compliance with applicable OSHA regulations and procedures.

1.07 SIGNS AND LABELS

- A. Provide warning signs and barrier tapes at all approaches to the Work area. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.

1.08 OTHER PRODUCTS OR MATERIALS

- A. Other products or materials that are required for use during work activities shall comply with local, state, and federal codes and regulations, if applicable. The CONTRACTOR is expected to furnish and utilize industry standard equipment and materials. The CONTRACTOR shall not furnish equipment or materials that have been altered in such a manner that violates local, state, and/or federal codes and regulations, or presents unnecessary health and safety risk.

PART 2 – MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 WORK PROCEDURES

- A. The Competent Person shall be on site at all times Work is progressing.
- B. All Work shall be performed in such a manner as to minimize the risk of exposure to personnel and to minimize the risk of release of respirable crystalline silica or respirable crystalline silica-containing debris to the environment.
- C. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. The information contained within this specification section will be considered part of the Project Documents. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent procedure(s) shall apply.
- D. The CONTRACTOR shall take notice, and make employees aware, of occupational safety hazards associated with the work being performed on-site.

3.02 PROHIBITED WORK PRACTICES AND ENGINEERING CONTROLS

- A. CONTRACTOR shall not use procedures that subject silica sources to forces that will crumble, pulverize, or reduce to powder the silica sources.
- B. The following work practices and engineering controls shall **not** be used on silica sources during construction:
 - 1. High-speed abrasive disc saws and sanders not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
 - 2. Carbide-tipped cutting blades.
 - 3. Electrical drills, chisels, and rasps used to make field connections in concrete pipe.
 - 4. Shell cutters used to cut entry holes in concrete pipe.
 - 5. A hammer and chisel without using wet techniques to remove pipe connections.
 - 6. Compressed air used to remove dust or other debris containing respirable crystalline silica.
 - 7. Dry sweeping, dry shoveling, or other dry clean-up of dust.
 - 8. Employee rotation as a means of reducing employee exposure to respirable crystalline silica.
 - 9. Fans or other air handling techniques used to deliberately move the respirable crystalline silica to other locations or away from the work site.

3.03 PAYMENT

- A. All costs for work involving respirable crystalline silica are included in the various bid items of the Contract.

END OF SECTION

SECTION 01630

SUBSTITUTIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Requests for review of a substitution shall conform to the requirements of the General Conditions and shall contain complete data substantiating compliance of proposed substitution with Contract Documents.

1.02 CONTRACTOR'S OPTIONS

- A. For materials or equipment (hereinafter products) specified only by reference standard, select product meeting that standard, by any manufacturer, fabricator, supplier or distributor (hereinafter manufacturer). To the maximum extent possible, provide products of the same generic kind from a single source.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equal", submit a request for a substitution for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is permitted, there is no option and no substitution will be allowed.
- E. Where more than one choice is available as a CONTRACTOR'S option, select product which is compatible with other products already selected or specified.

1.03 SUBSTITUTIONS

- A. During a period of 30 days after date of commencement of Contract Time, ENGINEER will consider written requests from CONTRACTOR for substitution of products or manufacturers, and construction methods (if specified).
 - 1. After end of specified period, requests will be considered only in case of unavailability of product or other conditions beyond control of CONTRACTOR.
- B. Submit 5 copies of request for substitution. Submit separate request for each substitution. In addition to requirements set forth in Article 6.05 of General Conditions, include in request the following:
 - 1. For products or manufacturers:
 - a. Product identification, including manufacturer's name and address.

- b. Manufacturer's literature with product description, performance and test data, and reference standards.
 - c. Samples, if appropriate.
 - d. Name and address of similar projects on which product was used, and date of installation.
 - 2. For construction methods (if specified):
 - a. Detailed description of proposed method.
 - b. Drawings illustrating method.
 - 3. Such other data as the ENGINEER may require to establish that the proposed substitution is equal to the product, manufacturer or method specified.
- C. In making request for substitution, CONTRACTOR represents that:
 - 1. CONTRACTOR has investigated proposed substitution, and determined that it is equal to or superior in all respects to the product, manufacturer or method specified.
 - 2. CONTRACTOR will provide the same or better guarantees or warranties for proposed substitution as for product, manufacturer or method specified.
 - 3. CONTRACTOR waives all claims for additional costs or extension of time related to proposed substitution that subsequently may become apparent.
- D. A proposed substitution will not be accepted if:
 - 1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
 - 2. It will delay completion of the Work, or the work of other contractors.
 - 3. It is indicated or implied on a Shop Drawing and is not accompanied by a formal request for substitution from CONTRACTOR.
- E. If the ENGINEER determines that a proposed substitute is not equal to that specified, CONTRACTOR shall furnish the product, manufacturer or method specified at no additional cost to OWNER.
- F. Approval of a substitution will not relieve CONTRACTOR from the requirement for submission of Shop Drawings as set forth in the Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01640

TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall make all arrangements for transportation, delivery and handling of equipment and materials required for prosecution and completion of the Work. Included in CONTRACTOR'S work shall be acceptance of consignment and coordination of equipment deliveries for equipment purchased by OWNER.
- B. Shipments of materials to CONTRACTOR or Subcontractors shall be delivered to the site only during regular working hours. Shipments shall be addressed and consigned to the CONTRACTOR giving name of Project, street number and city. Shipments shall not be delivered to OWNER except where otherwise directed.
- C. If necessary to move stored materials and equipment during construction, CONTRACTOR shall move or cause to be moved materials and equipment without any additional compensation.

1.02 DELIVERY

- A. Arrange deliveries of products in accordance with construction schedules and in ample time to facilitate inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with Work and conditions at site and to accommodate the following:
 - 1. Work of other contractors, or OWNER.
 - 2. Limitations of storage space.
 - 3. Availability of equipment and personnel for handling products.
 - 4. OWNER'S use of premises.
 - 5. Work under other construction projects on OWNER'S site.
- C. Do not have products delivered to project site until related Shop Drawings have been approved by the ENGINEER.
- D. Do not have products delivered to site until required storage facilities have been provided.
- E. Have products delivered to site in manufacturer's original, unopened, labeled containers. Keep ENGINEER informed of delivery of all equipment to be incorporated in the Work.

- F. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.
- G. Immediately on delivery, inspect shipment to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Containers and packages are intact, labels are legible.
 - 4. Products are properly protected and undamaged.

1.03 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.
- E. Materials and equipment shall at all times be handled in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01720

SURVEY DATA

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall keep neat legible notes of all measurements and calculations made by him while surveying and laying out the Work. Furnish copies of notes to ENGINEER every two weeks or as requested.
- B. When any survey monument or property marker, whether of stone, concrete, wood, or metal, or a mark on the pavement, designating the lines of private property, is in the line of any trench or other construction work and may have to be removed, the CONTRACTOR shall notify the ENGINEER in writing at least 24-hours in advance of removal. Under no circumstances shall such monument or marker be removed or disturbed by the CONTRACTOR or by any of his subcontractors, employees, or agents, without a written order from the ENGINEER. The CONTRACTOR shall furnish the necessary labor and materials required in resetting any monument or property marker under the direct supervision of the ENGINEER. Should any monument be destroyed through accident, neglect or other cause, the CONTRACTOR will be required at his own expense to employ a licensed surveyor acceptable to the ENGINEER to reestablish the monument or marker.

1.02 PIPELINE ELEVATIONS

- A. CONTRACTOR shall take survey elevation of the top of the newly installed pipeline at all tees; changes in vertical alignment; and, at 100 foot intervals.
- B. Survey elevations shall be performed to NAD83 datum.

1.03 SUBMITTALS

- A. One copy of all notes shall be furnished to the ENGINEER and one copy furnished to the OWNER with Record Drawings.

PART 2 - MATERIALS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01731

CONNECTIONS TO EXISTING FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Perform all construction necessary to complete connections and tie-ins to existing facilities.
- B. Keep existing facilities in operation unless otherwise specifically permitted in these Specifications or approved by OWNER.
- C. CONTRACTOR shall perform all construction activities so as to avoid interference with operations of the facility and the work of others, and the safety and quality of the finished water.
- D. Related work specified elsewhere:
 - 1. Section 01311, Coordination with OWNER'S Operations.
 - 2. Divisions 2-15, Technical Specifications.

1.02 GENERAL INFORMATION

- A. Construction of interconnections is subject to CONTRACTOR'S submittal of materials, detailed procedures, schedules, etc. required by the contract. The following is for information only and the CONTRACTOR is responsible for all interconnections and abandonments.
- B. The CONTRACTOR shall not operate existing valves. Once a new watermain is placed into service, CONTRACTOR shall not operate those valves.
- C. The OWNER only shall operate existing valves. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed. The CONTRACTOR shall consider this in his bid.
- D. The CONTRACTOR shall perform test pits at existing pipes, valves, etc. as shown on the drawings or directed. Watermain installation and the pipe laying schedule should reflect the field information obtained by the test pits. The stationing of tees, fittings and valves should be coordinated with the test pit information in order to facilitate construction of the new watermains and construction of the interconnections.
- E. The CONTRACTOR shall submit to the ENGINEER his proposed interconnection details, procedures and schedules.

- F. The CONTRACTOR shall notify all affected customers of any shut-down at least 48 hours in advance.
- G. The CONTRACTOR shall notify appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any hydrant not in service shall be bagged in burlap.
- H. Any shut-down shall be limited to 4 consecutive hours.
- I. The CONTRACTOR shall have all equipment, manpower, and materials required for the construction on site and ready for use and/or prior to commencing any shut-down or removing any existing facilities.
- J. The CONTRACTOR shall schedule and coordinate his work with others in accordance with the specifications and shall coordinate all proposed shut-downs with the ENGINEER and OWNER. The work shall be scheduled through the ENGINEER so that the OWNER has a minimum of three (3) working days advance notice.
- K. Only one interconnection will be allowed until the proposed watermain and end of line valves (if applicable) have been installed, tested and disinfected and the ENGINEER authorizes the interconnections.
- L. Caps (or plugs) on iron pipe shall be mechanically restrained watertight caps (or plugs) compatible with the pipe being capped and suitable to resist thrusts due to operating pressures.
- M. Temporary caps shall be watertight and shall remain in place until the actual interconnections are made.
- N. In unpaved areas, all interconnection joints shall remain exposed and tested under operating pressure for a 24-hour period.
- O. If no leaks occur, the exposed interconnection piping can, upon ENGINEER'S authorization, be backfilled.
- P. The CONTRACTOR shall dewater trenches, existing mains, etc. as required to perform the interconnections.
- Q. The CONTRACTOR shall submit his detailed procedures for his interconnection sequence to the ENGINEER.
- R. If the CONTRACTOR wishes to propose construction of several interconnections at one time, he shall submit a written, detailed proposal to the ENGINEER.
- S. No work shall begin on the interconnections until the ENGINEER authorizes the work.

- T. Firms performing taps on existing waterlines shall be acceptable to the OWNER.
- U. All joints at interconnections shall be mechanically restrained.
- V. New hydrants shall remain bagged in burlap (except for flushing and/or testing) until placed into service.
- W. The interconnections and abandonment items include all costs to comply with permits, regulatory agencies, etc., not included under other bid items.
- X. Removals shall be made with caution to prevent damage to hydrants, valves, etc., being removed.
- Y. At all valves being abandoned: locate the valve, close the valve, remove the valve box, backfill and restore as required.
- Z. CONTRACTOR will provide a temporary bypass for water service for all businesses, schools, and other establishments as defined by ENGINEER. No disruption in water service for these establishments will be permitted at any time during construction.

1.03 SCHEMATIC DRAWINGS

- A. The schematic drawings included on the plans are not to scale and only indicate the general arrangement of the interconnections and abandonments.
- B. In general, heavy lines indicate proposed improvements, pipe, fittings, etc. and light lines indicate existing facilities.
- C. The schematic drawings do not show other features (such as other underground utilities, etc.) which could affect the work.
- D. The CONTRACTOR shall, at his expense, verify all field conditions.
- E. Restrained mechanical joint solid sleeves or restrained flexible sleeve type couplings will be required to connect the proposed pipe to existing pipe, where applicable.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01780
RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall assist the ENGINEER in generating record documents as specified below, except where otherwise specified or modified in Divisions 2-15.
- B. Maintenance of Documents:
 - 1. Maintain in CONTRACTOR'S field office in clean, dry, legible condition complete sets of the following: Drawings, Specifications, Addenda, approved Shop Drawings, Samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR'S Work.
 - 2. Provide files and racks for proper storage and easy access. File in accordance with filing format of Construction Specification Institute (CSI), unless otherwise approved by ENGINEER.
 - 3. Make documents available at all times for inspection by ENGINEER and OWNER.
 - 4. Record documents shall not be used for any other purpose and shall not be removed from the CONTRACTOR'S office without ENGINEER'S approval.
 - 5. Record Drawings may be reviewed anytime by the ENGINEER and processing of Application may be withheld if documents are not current.
- C. Marking System: Provide colored pencils or felt tipped pens for marking changes, revisions, additions and deletions, to the record set of Drawings. Use following color code unless otherwise approved by the ENGINEER:
 - 1. Process and Mechanical: Red
 - 2. Architectural: Blue
 - 3. Structural: Purple
 - 4. Plumbing: Brown
 - 5. HVAC: Green
 - 6. Other Printed Notations: Black
- D. Recording:
 - 1. Label each document "PROJECT RECORD" in 2-inch high printed letters.
 - 2. Keep record documents current.
 - 3. Do not permanently conceal any Work until required information has been recorded.

4. Drawings: Legibly mark to record actual construction including:
 - a. Depths of various elements of foundation in relation to datum.
 - b. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - d. Field changes of dimensions and details.
 - e. Changes made by Change Order or Field Order.
 - f. Details not on original Drawings.
 5. Specifications and Addenda: Legibly mark up each Section to record:
 - a. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - b. Changes made by Change Order or Field Order.
 - c. Other matters not originally specified.
- E. Submittal:
1. Upon Substantial Completion of the Work, CONTRACTOR will deliver record documents to ENGINEER. Final payment to the CONTRACTOR will not be made until satisfactory record documents are received and approved by the ENGINEER.
 2. CONTRACTOR shall submit to ENGINEER, accompanied with a transmittal letter, the following:
 - a. Date.
 - b. Project title and number.
 - c. CONTRACTOR'S name and address.
 - d. Title and number of each record document.
 - e. Certification that each document as submitted is complete and accurate.
 - f. Signature of CONTRACTOR, or his authorized representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 02080

FIRE HYDRANTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
The work specified shall include all labor, material, equipment, tools, services and incidentals necessary to furnish and install hydrants and valve assemblies as shown, specified and required.
- B. Related Work Specified Elsewhere
 - 1. Section 02316 - Select Granular Materials
 - 2. Section 02351 - Excavation, Backfill and Trenching
 - 3. Section 15051 - Buried Piping Installation
 - 4. Section 15106 - Ductile Iron Pipe, Fittings and Accessories
 - 5. Section 15110 - Valves and Appurtenances
 - 6. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

- A. Manufacturer's Qualifications
 - 1. Manufacturer shall have a minimum of 5 years experience producing fire hydrants and shall show evidence of at least 5 installations in satisfactory operation.
- B. Parts Interchangeability
 - 1. Hydrants and appurtenances provided under this Section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service for at least five years.
 - 2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers.
- C. Reference Standards
 - 1. ASTM A307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
 - 2. ASTM A354, Specification for Quenched and Tapered Alloy Steel Bolts, Studs, and Externally Threaded Fasteners
 - 3. AWWA C502, Standard for Dry-Barrel Fire Hydrants
 - 4. NSF/ANSI Standard 61
 - 5. Underwriter's Laboratories (UL)
 - 6. International Organization for Standardization (ISO)
 - 7. Factory Mutual Research Corporation

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 - 1. Manufacturer's literature, illustrations, specifications, detailed drawings, data and descriptive literature on all fire hydrant materials.
 - 2. Engineering data including dimensions, materials, size and weight.
- B. Operation and Maintenance Data: Submit complete manuals including:
 - 1. Copies of all Shop Drawings, test reports, maintenance data and schedules, description of operation, and spare parts information.
- C. Certificates:
 - 1. Where specified or otherwise required by ENGINEER, submit test certificates.
 - 2. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.
 - 3. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this Section, including interior coatings, by an independent, authorized laboratory.
- D. Delivery Tickets:
 - 1. Furnish delivery tickets indicating the manufacturer, identifying that the fire hydrant was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the materials. Do not drop or roll materials off trucks. All hydrants and valves shall be handled with padded slings or other appropriate equipment. The use of cables, hooks or chains will not be permitted.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, dented or otherwise damaged will not be accepted.
- D. Interiors of hydrants and valves shall be kept free from dirt and foreign matter.
- E. Store all hydrants, valves and appurtenances on heavy wood blocking or platforms so they are not in contact with the ground.
- F. Hydrants shall be unloaded opposite to or as close to the place where they are to be laid as is practical to avoid unnecessary handling.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General

1. All products, including interior coatings, shall be suitable for use in a potable water system.
2. Interior coating shall be certified to meet NSF/ANSI Standard 61.
3. All materials shall be suitable for use in potable water systems.
4. All hydrants shall have manufacturer's name cast in raised letters on hydrant body.
5. All bolts required to connect buried valves shall be Type 304 stainless steel or fluorocarbon coated, high strength corrosion resistant low alloy steel.
6. All other bolts, nuts and studs shall, unless otherwise specified, conform to ASTM A307, Grade B; or ASTM A354.
7. Bolts and nuts shall have hexagon heads and nuts.
8. Gasket material and installation shall conform to manufacturer's recommendations.
9. Hydrant shut-off gate valve (auxiliary valve) shall be resilient seat as specified in Section 15110, Valves and Appurtenances.
10. All hydrants, valves, and appurtenances must be new materials in first-class condition. Used or recycled materials will not be allowed, regardless of condition.

B. Hydrants

1. Hydrant shall be cast iron body, break-away type barrel, "O" ring operating stem seal and a 300 psi test pressure with a minimum 150 psi working pressure, in accordance with AWWA Standard C-502, latest revision.
2. All operating parts, including brass valve seat, shall be removable through the barrel without excavation.
3. Hydrant shall be compression type, with valve opening not less than 5-¹/₄ inches, with readily removable brass seats and non-rising stems. Valve shall open against pressure and shall close with pressure. Valve opening limit stops shall be in the shoe of the hydrant.
4. Hydrant shall have two 2-¹/₂-inch hose nozzles and one 4-¹/₂-inch steamer connection with National Standard threads and operating nuts.
5. Hydrants shall be designed to allow 5 feet of cover on the branch and allow 15-inches to 18-inches between the centerline of the lowest nozzle and the surface of the ground.
6. Operating nuts and caps shall be 1-³/₈ inch square and shall turn right (clockwise) to close. Nozzle caps shall be chained to the barrel.
7. Hydrant piping shall be 6-inch restrained ductile iron pipe mechanical joint or anchor pipe unless otherwise specified.

8. Weep holes shall be provided for drainage and remain unplugged. If required by the OWNER, weep holes are to be plugged and the hydrant pumped dry after all flushing, testing, and other filling operations.

C. Acceptable Manufacturers

1. Kennedy - Guardian,
2. Mueller - Centurion,
3. Clow-Medallion,
4. American AVK Model 2780.

2.02 PAINT

- A. All interior wetted surfaces of fire hydrants except finished or bearing surfaces shall be shop painted in accordance with NSF/ANSI Standard 61 specifications for potable water and applied in accordance with the manufacturer's recommendations. Exterior surfaces shall be factory painted with touch-up paint applied in field, as necessary, meeting the following criteria:

1. OSHA safety yellow.
2. Conforming to Federal lead standards.
3. Polyurethane modified alkyd.
4. Solids by weight 67.5%.
5. Solids by volume 46%.
6. Paint shall not be supplied in spray-can container.
7. Manufacturers: Dutch Standard DEF1-Rust Enamel #448, Rust-Oleum #944, Pennsbury Hydrant-Hide #9032, Con-Lux Steel Guard #8504 Caution Yellow and Bruning Silathane #52035 Yellow, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Install all hydrants and components in accordance with manufacturer's instructions.
2. The hydrant shall be set plumb with the center of the lowest nozzle between 15 inches and 18 inches above the finished grade or as specified by the ENGINEER. The pumper nozzle shall be oriented normal to the near edge of pavement.
3. The auxiliary valve shall be located as close to the main line as possible and at no time shall the center of the hydrant to the center of the auxiliary valve be less than 36 inches. The valve shall not be placed in pavement.
4. No part of the hydrant shall be closer than 2 feet to the face of the curb or 5 feet to the edge of the pavement where no curb exists or as per governing municipalities requirements.
5. All pipe connecting the main to the hydrant stem shall be 6 inch ductile iron pipe, fully restrained by use of anchor pipe or mechanical restraints as

specified. Use of tie-rods shall be restricted to restraining existing conditions.

6. A drain pocket of clean No. 1 stone shall be provided as shown on the Drawings.
 - a. The granular material shall be extended above the hydrant drain.
7. Grease all hydrant nozzle threads after installation. The upper stem shall be lubricated with oil or grease. If grease is used, provide alemite fittings. Lubricate areas to be sealed from wet areas with "O" rings. Grease used shall be a food grade compound specially formulated for fire hydrants.
8. Install concrete block during hydrant installation for thrust restraint.

B. Inspection

1. All hydrants and valves will be inspected by the ENGINEER prior to installation. Damaged or defective materials will be rejected whether previously incorporated into the work or not.
2. Prior to the work in this section, the CONTRACTOR shall inspect the installation area to determine if the work of other trades has progressed to the point where the installation may properly commence.
3. The CONTRACTOR shall verify that the installation can proceed in accordance with all pertinent codes and regulations, the original design and the referenced standards.

C. Discrepancies

1. If the above referenced inspection reveals discrepancies, the CONTRACTOR shall notify the ENGINEER immediately.
2. The CONTRACTOR shall not proceed with the installation in areas of discrepancy until said discrepancy is resolved.

3.02 PAINTING

- A. All interior wetted surfaces of fire hydrants except finished or bearing surfaces shall be shop painted in accordance with NSF/ANSI Standard 61 for potable water and applied in accordance with the manufacturers recommendations. Exterior surfaces shall be factory painted yellow and shall be repainted yellow in the field after installation with paint meeting the requirements of this specification.

3.03 TESTING

- A. All parts and components shall be adjusted as required to provide correct operation.
- B. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment required shall be provided by the CONTRACTOR.

- C. CONTRACTOR will replace fire hydrant assemblies, which are leaking or are considered suspect by the ENGINEER.

END OF SECTION

SECTION 02316

SELECT GRANULAR MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
Select granular materials shall be used in bedding, pipe encasement, or backfill and as specified or as directed by the ENGINEER.
- B. Related Work Specified Elsewhere
 - 1. Section 02351 - Excavation, Backfill and Trenching
 - 2. Section 15051 - Buried Piping Installation

1.02 QUALITY ASSURANCE

- A. Reference Standards
 - 1. NYSDOT Standards, latest revision

1.03 SUBMITTALS

- A. The CONTRACTOR shall furnish representative samples, sieve analysis and certification of specification compliance for the select granular materials to the ENGINEER and advise on the location of the source.
- B. The CONTRACTOR shall submit copies of proposed materials, methods and operations of backfilling and compaction to the ENGINEER for review prior to the start of work. A list of equipment to be used in CONTRACTOR'S Methods and Operations must be included.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Bedding and Pipe Encasement
 - 1. NYSDOT No. 1 Crushed Stone or Crushed Gravel – bedding for PVC, DIP, HDPE, and PCCP watermain.
Thoroughly washed, clean, sound, tough, hard, crushed limestone conforming to the requirements of NYSDOT Item No. 703.0201 or crushed gravel conforming to the requirements of NYSDOT Item No. 703.0202, having the following gradation by weight:

<u>% Passing</u>	<u>Sieve</u>
100	1-inch
90 - 100	1/2-inch
0 - 15	1/4-inch

2. NYSDOT No. 2A Crushed Stone or Crushed Gravel – bedding for DIP and PCCP watermain.
Shall be a No. 1 and No. 2 blend, thoroughly washed, clean, sound, tough, hard, crushed limestone conforming to the requirements of NYSDOT Item No. 703.0201 or crushed gravel conforming to the requirements of NYSDOT Item No. 703.0202, having the following gradation by weight:

<u>% Passing</u>	<u>Sieve</u>
100	1-1/2-inch
93-100	1-inch
27-58	1/2-inch
0-8	1/4-inch

3. NYSDOT Concrete Sand – bedding for copper and polyethylene tubing.
Washed, fine aggregate sand shall conform to the requirements of NYSDOT Item No. 703.07, having the following gradation by weight:

<u>% Passing</u>	<u>Sieve</u>
100	3/8-inch
90 - 100	No. 4
75 - 100	No. 8
50 - 85	No. 16
25 - 60	No. 30
10 - 30	No. 50
1 - 10	No. 100
0 - 3	No. 200

B. Select Backfill

1. NYSDOT Subbase Type 2 Crusher Run Stone or Crusher Run Gravel.
Material shall conform to the requirements of NYSDOT Item No. 304.12, having the following gradation by weight:

<u>% Passing</u>	<u>Sieve</u>
100	2-inch
25 - 60	1/4-inch
5 - 40	No. 40
0 - 10	No. 200

- C. Peagravel
1. NYSDOT Type 1A Screened Gravel for the annular space between the carrier pipe and the casing pipe.
Screened gravel shall conform to the requirements of NYSDOT Item No. 703.0203 and have the following gradation by weight:

<u>% Passing</u>	<u>Sieve</u>
100	1/2-inch
90 - 100	1/4-inch
0 - 15	1/8-inch

- D. Follow NYSDOT Standard Specifications if gradation data varies from those listed above.
- E. Recycled concrete or asphalt pavement shall not be allowed.
- F. Slag of any type shall not be allowed.
- G. Flowable fill shall not be allowed.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General
1. Select granular material as specified or directed for watermain bedding or encasement shall be placed in accordance with Section 02351 - Excavation, Backfill and Trenching and Section 15051 - Buried Piping Installation.
 2. Select backfill where specified or directed shall be placed in accordance with the backfilling provisions of Section 02351 - Excavation, Backfill & Trenching.

3.02 DISPOSAL OF DISPLACED MATERIALS

- A. Materials displaced through the use of the above materials shall be wasted or disposed of by the CONTRACTOR and the cost of such disposal shall be included in the appropriate bid item.

END OF SECTION

SECTION 02317

ROCK EXCAVATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
 1. The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals necessary for rock excavation for construction of structures and pipelines as shown and specified. Disposal of excess and unsuitable excavated rock material is included in this item.
 2. This item includes backfill of rock excavations with acceptable materials as defined in other Related Work.
- B. Related Work Specified Elsewhere
 1. Section 02316 - Select Granular Materials
 2. Section 02351 - Excavation, Backfill and Trenching
 3. Section 15051 - Buried Piping Installation

1.02 SUBMITTALS

- A. Before any rock removal begins, the CONTRACTOR shall obtain all permits and licenses required by governing authorities having jurisdiction and supply certified copies to the ENGINEER.
- B. Submit procedures and list equipment to be used.

PART 2 - PRODUCTS

2.01 DEFINITIONS

- A. Rock shall be defined as hard cap rock or boulders exceeding one (1) cubic yard in volume and solid ledge rock which, in the opinion of the ENGINEER, requires drilling and blasting or jackhammering for its removal.
- B. The following materials will not be measured nor allowed for payment as rock excavation:
 1. Soft, weathered or disintegrated rock which can be removed by normal excavation equipment.
 2. Loose or previously blasted rock.
 3. Broken stone in rock fills.
 4. Any rock which may fall into the excavation trench from outside the limits of excavation specified.

PART 3 - EXECUTION

3.01 GENERAL

A. Limits of Rock Excavation

1. Structures:

- a. The lowest elevation of the structure, manhole, pump station, plus bedding etc. at each location or as directed by the ENGINEER.
- b. Vertical planes located 12 inches outside the footing or as shown on the Contract Drawings.
- c. As ordered by ENGINEER.

2. Pipe Trenches: The width of trenches shall be the outside diameter of the pipe plus 2 feet, exclusive of bells, branches, hubs, spurs or cradles. The sides of the trench shall be vertical.

- a. The depth of the trench shall be the depth on the bottom of the pipe exclusive of bells and branches plus bedding.
- b. The length shall be equal to the laid length of pipe, measured horizontally.
- c. Additional width in pipe trenches at field joints or beyond the lines described above will be considered outside the limits described.
- d. As ordered by the ENGINEER.

B. When there is a separate pay bid item for rock excavation, the rock shall be uncovered prior to removal in sections acceptable to the ENGINEER so that it may be measured.

C. When there is not a separate pay bid item for rock excavation, the rock shall be uncovered prior to removal in sections acceptable to the ENGINEER for observation and for record.

3.02 METHODS OF REMOVAL

A. Hand removal

1. The CONTRACTOR shall remove rock by hand methods such as drilling, jack-hammering and mechanical excavation.
2. Under no circumstances will blasting be allowed. Explosive materials used primarily for blasting operations are not allowed on site.

3.03 DISPOSAL

A. Backfill

1. Pieces of rock larger than 4 inches shall not be used in backfilling pipe trenches.
2. Rock backfill shall not be placed within two feet of the outside diameter of pipes.
3. The quantity of rock used in any backfill location shall not be so great as to result in voids, as determined by the ENGINEER.

4. Rock backfill shall not be placed within 18 inches of the surface of finish grade.
 5. Excess or unacceptable rock may be disposed of on the site only where shown or specified by the ENGINEER. Rock which cannot be disposed of on the site shall be removed and disposed of off the site at the CONTRACTOR'S expense and in compliance with all applicable federal, state and local regulations.
- B. The rock excavated, which cannot be incorporated into the backfill material, as specified, shall be disposed of as spoil and shall be replaced with the quantity of acceptable material for backfilling.

END OF SECTION

SECTION 02351

EXCAVATION, BACKFILL, AND TRENCHING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
 - 1. The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals necessary for excavation, trenching, backfill, and compaction as shown and specified. Disposal of excess and unsuitable excavated material is included.
 - 2. Backfill of excavations with acceptable materials as specified in other Sections.
- B. Related Work Specified Elsewhere
 - 1. Section 02316 - Select Granular Materials
 - 2. Section 02317 - Rock Excavation
 - 3. Section 02900 - Restoration
 - 4. Section 15051 - Buried Piping Installation

1.02 QUALITY ASSURANCE

- A. Reference Standards
 - 1. ASTM A36, Structural Steel
 - 2. ASTM A328, Steel Sheet Piling
 - 3. ASTM D422, Particle-Size Analysis of Soils
 - 4. ASTM D698, Moisture-Density Relations of Soils, using 5.5 lb. Rammer and 12-inch Drop
 - 5. ASTM D1556, Density of Soil in Place by the Sand-Cone Method
 - 6. ASTM D1557, Moisture-Density Relations of Soils, using 10 lb. Rammer and 18-inch Drop
 - 7. ASTM D2321, Recommended Practices for Underground Installation of Pipe for Sewers and Other Gravity Flow Applications
 - 8. ASTM D2922, Density of Soil and Soil-Aggregate in Place by Nuclear Method (Shallow Depth)
 - 9. AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings
 - 10. Occupational Safety and Health Administration (OSHA) Regulations
 - 11. Industrial Code Rule 23

1.03 SUBMITTALS

- A. Before any excavation begins, the CONTRACTOR shall obtain all permits and licenses required by governing authorities having jurisdiction and submit certified copies to ENGINEER prior to work being performed.

- B. The CONTRACTOR shall submit drawings submitted with a PE stamp, for information only, for the following items as required:
1. Sheeting, shoring and bracing
 2. Dewatering systems
 3. Cofferdams
 4. Additional protection systems required
 5. Underpinning
 6. Underdraining
 7. Sediment and Erosion control
 8. Boring and Receiving Pits.
- C. The CONTRACTOR shall submit proposed materials, methods and operations of backfilling and compaction to the ENGINEER for review prior to the start of work. A list of equipment to be used in CONTRACTOR'S methods and operations must be included.
- D. All drawings shall be prepared and sealed by an independent professional engineer recognized as an expert in the specialty involved and licensed to practice in the State of New York. The drawings shall be submitted to the ENGINEER to establish compliance with the terms of the Contract Documents. Calculations shall not be submitted. Drawing submissions will not be checked and will not imply approval by the ENGINEER of the work involved. CONTRACTOR shall be wholly responsible for designing, installing, and operating whatever system is necessary to accomplish satisfactory sheeting, bracing, protection, underpinning, and dewatering.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Bedding and Select Backfill
1. Bedding and select backfill material shall be in accordance with Section 02316 - Select Granular Materials.
- B. Backfill and Fill Materials
1. Excavated materials may be used for backfill provided:
 - a. Material is sandy, loamy or similar to bank run gravel.
 - b. Material is free of debris, hazardous materials, frozen materials, organic or other deleterious materials. Material greater than 4-inches in any direction is unacceptable. Material greater than 2-inches in any direction is unacceptable for backfill directly against the watermain.
 - c. Maximum dry density and optimum moisture content are determined in accordance with the above.
 - d. Material is reviewed and deemed acceptable by the ENGINEER.
 2. Use select granular backfill within 5 feet or within a 1 on 1 slope from the trench to the edge of pavement of all roadways.

- C. Topsoil
 - 1. Topsoil shall be furnished and installed and coordinated with Section 02900, Restoration.
- D. Explosives
 - 1. Explosives are not allowed to be used nor allowed on site.
- E. Sheeting, Shoring & Bracing
 - 1. Used material shall be in good condition, not damaged or excessively pitted. Unless otherwise specified, all sheeting to remain in place shall be new. New or used sheeting may be used for temporary work.
 - 2. All timber used for breast boards (lagging) shall be new or used, meeting the requirements for Douglas Fir Dense Construction grade or Southern Pine No. 2 Dense S3. Where close or tight sheeting is required, wood sheeting shall be tongued and grooved.
 - 3. All steel work for sheeting, shoring, bracing, cofferdams, etc. shall be designed in accordance with the provisions of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", of the AISC except that field welding will be permitted.
 - 4. Steel sheet piling shall be manufactured from steel conforming to ASTM A328. Steel soldier piles, wales and braces shall be new or used and shall conform to ASTM A36.
 - 5. Steel sheeting shall have a minimum thickness of $\frac{3}{8}$ -inch in web, unless otherwise specified.

PART 3 - EXECUTION

3.01 INSPECTION

- A. The CONTRACTOR shall provide the ENGINEER with sufficient time and means to examine the areas and conditions under which excavating, filling and grading are to be performed. The CONTRACTOR shall notify the ENGINEER of conditions detrimental to the proper and timely completion of work. The CONTRACTOR shall not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the ENGINEER.

3.02 TEST PITS

- A. Where shown or ordered by the ENGINEER, the CONTRACTOR shall excavate and backfill test pits in advance of construction to determine conditions or location of existing facilities. The CONTRACTOR shall perform all work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, backfilling and restoring the surface for the test pits.
- B. Test pits which the CONTRACTOR excavates that are not shown on the Drawings or specified or ordered shall be at the CONTRACTOR'S expense.

- C. No test pits will be dug prior to utility company stakeout.
- D. Cold patch for temporary repair shall be placed as directed by the ENGINEER.

3.03 EROSION CONTROL

- A. All necessary precautions shall be taken to preclude the contamination of any wetland or waterway by suspended solids, sediment, fuels, solvents, lubricants, epoxy coatings, paints, concrete leachate or any other environmentally deleterious substance associated with the project.
- B. All necessary precautions shall be taken to prevent the entry of raw concrete or concrete liquors into the waters and/or wetlands of the State of New York. Equipment washwater from this project shall not be allowed to enter any waterway or wetland.
- C. All sediments are to be retained on the project site through the use of hay bales, silt fences or other barriers, as specified or approved by the local authority having jurisdiction, to prevent erosion.
- D. All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with hay or straw within one week of final grading. Mulch shall be maintained until a suitable vegetative cover has been established.
- E. Pumped groundwater collected from excavations shall not be allowed to be discharged directly to any wetland, waterway, or other water body.
- F. Contamination of any wetland, waterway, or other water body shall be cleaned and/or restored to the satisfaction of the ENGINEER and governing authorities at the expense of the CONTRACTOR.

3.04 EXCAVATION

- A. The CONTRACTOR shall perform all excavation required to complete the work as shown and specified. Excavations shall include earth, sand, clay, gravel, hardpan, boulders and ledge rock, decomposed rock, pavements, rubbish and all other materials within the excavation limits, except rock. Where the excavation is in rock meeting the definition in Section 02317 - Rock Excavation (requiring drilling, jack-hammering and hand removal), the rock shall be removed as specified in Section 02317.
- B. Excavations for pipelines, utilities and structures shall be open excavations, shored and braced where necessary, according to OSHA standards, to prevent possible injury to workmen and to new and existing structures or pipelines.
- C. Where the pipeline, utility or structure is to be placed below the ground water table, well-points, cofferdams or other acceptable methods shall be used to permit

construction under dry conditions. Dry conditions shall prevail until concrete has reached sufficient strength to withstand earth and hydrostatic loads and until the pipelines are properly jointed, tested and backfilled.

- D. Pumping in excavations shall be done in such a manner so as to prevent damage to the existing subgrade, and to prevent the carrying away of unsolidified concrete materials.
- E. Excavations for pipelines shall be made sufficiently wide to permit proper laying and jointing of the pipe. The trench width at the top of the pipe should not be greater than the outside diameter of the pipe barrel plus 2 feet, but shall be sufficient to allow thorough compacting of earth refill adjacent to the bottom half of the pipe. The depth of trench shall be sufficient to allow a minimum cover over the top of the pipe as shown on the drawings. The use of excavating equipment which requires the trench to be excavated to an excessive width will not be allowed. All trenches for buried piping shall be excavated at least 6 inches below the bottom of the pipe and backfilled with pipe bedding material as specified in Section 02316 – Select Granular Materials.
- F. Acceptable excavated materials shall be stockpiled in specified areas until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
 - 1. Locate and retain soil materials away from edge of excavations.
 - 2. Unsuitable backfill material shall be kept separate from all other material and shall be disposed of as specified hereinafter. Disposal of unsuitable and excess excavated material shall be accomplished immediately upon removal from the excavation.
 - 3. Stockpiles shall not be located such that they interfere with traffic or access to public or private property. If necessary, the CONTRACTOR shall maintain additional stockpile areas located elsewhere on the site, and shall transport the suitable backfill material to and from such stockpile areas as required for the work.
 - 4. In built-up districts and in streets where traffic conditions render it necessary, the material excavated from the initial opening shall be removed by the CONTRACTOR as soon as excavated, and the material subsequently excavated, if suitable for the purpose, shall be used to backfill the trenches in which pipe has been laid or structures have been built, and neither the excavated material nor materials of construction shall be stored on the streets or sidewalks.
- G. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with select granular material.
- H. Unless otherwise directed or permitted, not more than 100 feet of trench in advance of the end of the completed pipe or structure therein shall be opened at any time. Every trench in rock shall be fully opened at least 30 feet in advance of any place

where masonry or pipe is being laid. Any time when the CONTRACTOR'S crews are not on the job working, a trench length equal to or less than one-half of the last length of pipe installed may be left open, but properly covered or barricaded to protect the public.

- I. At such locations where two pipes may be installed in parallel in a common trench, and where specified, the CONTRACTOR shall install the pipes a minimum of 2 feet apart as measured horizontally from the outside diameter of pipe.

3.05 UNAUTHORIZED EXCAVATION

- A. All excavation outside the lines and grades shown and not specified, together with the removal and disposal of the associated material shall be at the CONTRACTOR'S expense. The unauthorized excavation shall be filled as directed by the ENGINEER with select compacted backfill at the CONTRACTOR'S expense. Claims and damages resulting from the CONTRACTOR'S unauthorized excavation will be his sole responsibility.

3.06 DRAINAGE AND DEWATERING

- A. General
 1. Prevent surface and subsurface water from flowing into excavations and from flooding adjacent areas.
 2. Remove water from excavation as fast as it collects.
 3. Maintain the ground water level at least 2 feet below the bottom of the excavation to provide a stable surface for construction operations and to prevent damage to the work during all stages of construction.
 4. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations.
 5. Provide sediment traps when water is conveyed into water courses.
 6. Notify the ENGINEER before shutting down dewatering systems for any reason.
 7. Standing water shall not be permitted in the excavation at any time. If the material at the design grade becomes unsuitable or contaminated due to the actions of the CONTRACTOR, the CONTRACTOR shall excavate additional material to the depth necessary and shall backfill to the proposed grade with select fill or crushed stone.
 8. 100% stand-by pumps (gasoline powered) shall be maintained at the site at all times.
 9. Any hardships created by the temporary dewatering for this Contract which adversely affects the water supply to local property owners, shall be satisfactorily resolved by the CONTRACTOR, including the provision of temporary water service, if required, at no additional cost to the OWNER.
 10. Obtain required permits from agencies of jurisdiction, NYSDEC, and USACOE, for any water being discharged into rivers, streams, or water courses.

- B. Disposal of Water Removed by Dewatering Systems
1. Dispose of all water removed from the excavation in such a manner as not to endanger public health, property, or any portion of the work under construction or completed.
 2. Dispose of water in such a manner as to cause no inconvenience to the owner or others on or adjacent to the site.
 3. Convey water from the excavation in a closed conduit. Do not use trench excavations as temporary drainage ditches.
 4. Disposal of water shall be by specified methods and shall not cause erosion or sedimentation to occur in existing drainage systems. All sedimentation or blocking of existing systems shall be thoroughly cleaned and returned to original condition by the CONTRACTOR at his expense.
 5. Damage caused by the CONTRACTOR'S operations to public or private property shall be repaired by him to the satisfaction of the ENGINEER and the damaged property owner at the CONTRACTOR'S expense.
 6. The CONTRACTOR shall perform all work, furnish all materials and install all measures required to reasonably control soil erosion resulting from construction operations and prevent excessive flow of sediment from the construction site. Such work may include the installation of water diversion structures, diversion ditches and sediment basins and seeding, mulching or sodding critical areas to provide temporary protection. The CONTRACTOR shall submit a plan showing the methods to be used for controlling erosion and sedimentation during construction along with the schedule of construction operations to the ENGINEER for review.
 7. All erosion and sediment control practices shall be in place prior to any grading operations and installation of proposed structures or utilities.
 8. All erosion and sediment control practices shall be left in place until construction is completed and/or area is stabilized.
 9. Where necessary, disturbed areas shall be temporarily seeded and/or mulched until proper weather conditions exist for establishment of a permanent vegetative cover.

3.07 SHEETING, SHORING, AND BRACING

- A. General
1. Unless otherwise shown or specified, excavations shall be open, shored and braced or sheeted where necessary to prevent injury to workmen, structures, pipelines and utilities.
 2. Structures within 100 feet of sheeting installations shall be subject to a pre-construction survey to identify and record existing structural conditions. In the instance of private residencies, the homeowners shall be contacted directly. These inspections shall be carried out by a pre-inspection firm experienced in this line of work.
 3. During the actual construction process, the CONTRACTOR shall provide the monitoring and recording of the actual vibrations generated. A baseline of ambient vibration levels shall be established prior to driving sheet piling.

- a. The particle acceleration during the driving of the sheet piling shall not exceed 2.0 FPS.
- b. The CONTRACTOR will be required to change the construction methods if the work is resulting in unacceptable vibration levels.
4. All municipal, county, state, and federal ordinances, codes, regulations, and laws shall be observed. The CONTRACTOR shall provide all sheeting, shoring, and bracing which conforms to New York State Department of Labor – Industrial Code Note 23 and all applicable sections of the 1970 Occupational Safety and Health Act (OSHA), and any other requirements as necessary.
5. All municipal, county, state and federal ordinances, codes, regulations, laws and OSHA regulations shall be observed.
6. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down the shoring and bracing as excavation progresses.
7. Safe and satisfactory sheeting, shoring and bracing shall be the entire responsibility of the CONTRACTOR.
8. The CONTRACTOR shall be held accountable and responsible for the sufficiency of all shoring and bracing used and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.
9. The ENGINEER'S permission to proceed with work in either a sheeted, shored braced or open trench condition shall in no way relieve the CONTRACTOR from the above responsibilities.
10. The clearances and types of temporary structures, insofar as they affect the character of the finished work, and the design of steel sheeting to be left in place, will be subject to the review of the ENGINEER, but the CONTRACTOR shall be solely responsible for the adequacy of all sheeting, shoring, bracing, cofferdamming, etc.
11. Unless otherwise shown, specified, or ordered, all materials used for temporary construction shall be removed when work is completed. Such removal shall be made in a manner not injurious to the pipelines or structures.
12. All steel sheet piling designed to remain in place shall be new materials. New or used materials may be used for temporary work.
13. Steel sheet piling shall be manufactured from steel conforming to ASTM A328. Steel for soldier piles, wales, and braces shall be manufactured to conform to ASTM A36.

B. Sheeting Left in Place

1. Steel sheet piling shall be left in place or where conditions are such that the removal of sheeting will endanger the work or adjacent pipes or structures or when ordered in writing to be left in place by the ENGINEER. It shall consist of rolled sections of the continuous interlocking type unless otherwise specified. The type and design of the sheeting and bracing shall conform to the above specifications for all steel work for sheeting and bracing.
2. Steel sheet piling to be left in place shall be driven straight to the lines and grades as shown or directed. The piles shall penetrate into firm materials

with secure interlocking throughout the entire length of the pile. Damaged piling having faulty alignment shall be pulled and replaced by new piling.

3. The type of guide structure used and method of driving for steel sheet piling to be left in place shall be submitted to the ENGINEER for review. Jetting will not be permitted.
4. The CONTRACTOR shall cut off piling left in place at least 2 feet below road surface or to the grades shown or ordered by the ENGINEER and shall dispose of the cutoffs.
5. Portions of sheeting or soldier piles and breast boards which are in contact with concrete shall be left in place.

C. Removal of Sheeting and Bracing

1. Sheeting and bracing shall be removed from excavation unless otherwise indicated by the ENGINEER. Removal shall be done so as to not cause injury to the work.
 - a. Wood or steel sheeting shall not be removed when adjacent to structures, pavement, pipes, or any other public or private property where removal may cause damage to such property.
 - b. Fill all voids left by removal of sheeting with select fill.
2. Removal of sheet piling shall be done so as not to cause injury to the Work. Removal shall be equal on both sides of excavation to ensure no unequal loads on pipe or structures.

D. Pipeline Alignment in New York State Department of Transportation and Erie County Highway Department Right-Of-Way:

1. The New York State Department Of Transportation and Erie County Highway Department require all trenches or excavations which fall within a 1 on 1 slope as measured from the edge of pavement to be tight-sheeted with pre-driven steel sheet piling prior to excavation.
 - a. The design of the predriven steel sheet piling and bracing system is the responsibility of the CONTRACTOR. The ENGINEER may reject any materials which he regards as unsound.
 - b. A copy of all predriven steel sheet piling and bracing system designs shall be submitted to the ENGINEER for his information before installation of same. Each drawing and computation page shall display the seal and signature of a licensed New York State professional engineer. This information must also be submitted to the Agency having jurisdiction for review and must meet with that Agency's approval.
 - c. The CONTRACTOR'S submittal to the ENGINEER shall include written verification from the Agency of jurisdiction that the information being submitted to the ENGINEER has been approved by that Agency.
2. If devices other than pre-driven steel sheet piling are approved by the Agency of jurisdiction in areas designated as requiring temporary sheeting, the CONTRACTOR may (with the ENGINEER'S review) be allowed to use

them. However, the costs of furnishing and using these devices will be considered as included in the unit prices bid for the various pipe sections.

- E. In areas where the Drawings call for sheeting to remain in place, alternate sheeting methods will not be allowed. Only pre-driven, steel sheet piling systems designed for the CONTRACTOR by a professional engineer will be allowed in these areas.

3.08 BACKFILL AND COMPACTION

- A. All backfill required for trenches and structures required to provide the finished grades shown and as described herein shall be furnished, placed and compacted in 6 inch lifts by the CONTRACTOR. Unless otherwise specified or required, fill shall be obtained from the excavated materials. All materials used for filling and backfilling shall be soil of acceptable quality, free from boulders, frozen lumps, wood, stumps, sludge, or other organic matter or other deleterious or hazardous materials. Excavated materials meeting these requirements and approved by the ENGINEER may be used as backfill.
- B. Rock and/or earth material may be encountered during the work that is unsuitable for backfilling. When this material is encountered, it shall be disposed of in the specified manner, possibly resulting in a shortage of suitable backfill material. In this event, the CONTRACTOR shall be responsible for furnishing, delivering and installing clean earth or select backfill materials to properly and completely backfill the excavation. Backfill material for these situations may be obtained from other areas of the project where suitable material is available or from offsite locations as approved by the ENGINEER. All backfill material is subject to the ENGINEER'S review and must meet the minimum requirements of the specifications above.
- C. Backfill excavations as promptly as work permits, but not until completion of the following:
 - 1. Inspection by the ENGINEER of all work within the excavation.
 - 2. Inspection, testing approval, and recording of locations of underground utilities, connections, branches, structures and other facilities.
 - 3. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in a manner to prevent settlement of the structure or utilities, or leave in place if required.
 - 4. Removal and proper disposal of trash and debris.
- D. Excavation shall be kept dry during backfilling operations. Backfill around piping and structures shall be brought up evenly on all sides.
- E. The minimum density to be obtained during backfilling operations shall be 95 percent and is a percentage of the maximum density obtained in the laboratory as defined in ASTM D698 Method C including Note 2. This percentage is of modified Proctor density. In-place density determinations shall be made using a sand density cone or equivalent method as specified by ASTM D1556. If any bricks, bottles,

pieces of metal, debris or other foreign matter larger than $\frac{3}{4}$ -inch size are encountered in the density test hole, a different test location shall be chosen. The ENGINEER will determine the frequency of field testing required to determine the density of the fill and shall direct the number and location of density tests. All equipment necessary to determine fill density, including nuclear density meters, shall be supplied by the CONTRACTOR.

- F. The water content of fill material shall be controlled during placement within the range necessary to obtain the density specified. In general, the moisture content of the fill shall be within 5 percent dry and 2 percent wet of the optimum moisture content for the specified density as determined by laboratory tests. The CONTRACTOR shall perform all necessary work to adjust the water content of the material to within the range necessary to permit the density specified. No fill material shall be placed and no compaction of fill will be permitted when there is any standing water in the trenches or when the fill material or the ground the fill is to be placed on is frozen.
- G. The CONTRACTOR is not allowed to access any part of an existing water supply system (fire hydrants, etc.) as a source of water for any reason during construction activities, including the use of water for backfilling to obtain the proper moisture content.
- H. If the specified densities are not obtained because of the CONTRACTOR'S improper control of placement or compaction procedures, or because of inadequate or improperly functioning equipment, the CONTRACTOR shall perform whatever work is required to provide the specified densities. This work shall include complete removal of unacceptable fill areas, replacement and recompaction until acceptable fill is provided.
- I. All backfill in pipe trenches shall be placed in horizontal layers not exceeding 6 inches in depth and thoroughly compacted before the next layer is placed.
- J. Where pipe is laid in rock excavation, crushed stone or gravel fill shall be carefully placed and tamped over the rock before the pipe is laid. After laying, pipe, the balance of the backfill shall be placed as described herein above.
- K. Placement:
 - 1. Place pipe bedding, select backfill and/or earth backfill or borrow materials, as specified herein and in Section 15051- Buried Piping Installation.
 - 2. Trenches under roadways shall be backfilled with select backfill material for the entire length of the open cut crossing plus 5 feet back from the edge of pavement or a distance equal to a 1 on 1 slope to the invert, whichever is greater.
 - 3. Where shoulders are excavated, the trench shall be backfilled with select granular material.

4. The entire trench area under driveways, parking areas, and sidewalks, shall be backfilled with select granular material in accordance with the Contract Drawings and Specifications.
 5. Prior to commencing with the backfilling operation, the CONTRACTOR shall submit information to the ENGINEER such as catalog cuts, specification sheets, etc., describing the type of compaction equipment he intends to use.
- L. Pipe Trench Preparation
1. Braced trench width shall be minimized to greatest extent practical but shall conform to the following:
 - a. Trench width shall be sufficient to provide room for installing, jointing and inspecting piping, as shown on Contract Drawings.
 - b. Enlargements at pipe joints may be made if required and specified by the ENGINEER.
 - c. Trench width shall be sufficient for sheeting, bracing, sloping, and dewatering.
 - d. Trench width shall be sufficient to allow thorough compacting of backfill.
 - e. Do not use excavating equipment which requires the trench to be excavated to excessive width.
 2. Depth of trench shall be as shown. If required, depths may be revised as specified by the ENGINEER.
- M. The CONTRACTOR shall repair any settlement that occurs at no additional cost to the OWNER.

3.09 GRADING

- A. General
Uniformly grade areas within limits of grading under this Section including adjacent transition areas. Smooth subgrade surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Turfed Areas
Finish areas to receive topsoil to within not more than 1 inch above or below the required subgrade elevation.
- C. Walks and Pavements
Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than $\frac{1}{2}$ inch above or below the required subgrade elevation.
- D. Slabs
Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 3 inch when tested with a 10 foot straightedge.

- E. Compaction
After grading, compact subgrade surfaces to the depth and percentage of maximum density required.
- F. All existing drainage swales and ditches, if disturbed, shall immediately, upon completion of pipe installation, be restored to proper lines and grades. CONTRACTOR shall ensure the final drainage facilities are in working condition and acceptable to the agency of jurisdiction.

3.10 PAVEMENT SUBBASE COURSE

- A. General
Place subbase material, in layers of specified thickness, over ground surface to support the pavement base course.
- B. Grade Control
During construction, maintain lines and grades including crown and cross-slope of subbase course.
- C. Shoulders
Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials as specified, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least 12 inch width of shoulder simultaneously with compacting and rolling of each layer of subbase course.
- D. Placing
Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations. When a compacted subbase course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

3.11 DISPOSAL OF EXCAVATED MATERIALS

- A. Material removed from the excavations which does not conform to the requirements for fill or is in excess of that required for backfill shall be hauled away by the CONTRACTOR and disposed of in compliance with Municipal, County, State, Federal or other applicable regulations at no additional cost to the OWNER.
- B. The CONTRACTOR shall not dispose waste excavated material in any of the following locations:
 - 1. Wetland areas.
 - 2. Flood plains.
 - 3. Any area where excess siltation will damage or pollute receiving water.

4. Disposal of excess materials shall only be allowed at locations approved by NYSDEC Region 9.

3.12 RESTORATION AND CLEAN-UP

- A. Following installation, the CONTRACTOR shall restore all areas to their original condition to the requirements of Section 02900 - Restoration, and to the satisfaction of the ENGINEER.

END OF SECTION

SECTION 02900

RESTORATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, material, equipment, services and incidentals necessary to restore surfaces, pavements, sidewalks, driveways, curbs, gutters, lawns, culverts, and other features disturbed, damaged, or destroyed during the performance of the work under or as a result of the operations of the Contract.

B. Related Work Specified Elsewhere

1. Section 02316 - Select Granular Materials
2. Section 02317 - Rock Excavation
3. Section 02351 - Excavation, Backfill, and Trenching
4. Section 03300 - Concrete
5. Section 15051 - Buried Piping Installation

1.02 QUALITY ASSURANCE

A. The quality of materials and the performance of work used in the restoration shall produce a surface or feature equal to the condition of each before the work began.

B. Reference Standards

1. American Association of Nurserymen (AAN)
2. ASTM D698, Standard Compaction Test
3. ASTM D2487, Classification of Soils for Engineering
4. ASTM D2974, Standard Test Method for Moisture, Ash and Organic Matter of Peat and Other Organic Soils
5. New York State Department of Transportation Standard Specifications, latest revision

1.03 SUBMITTALS

A. CONTRACTOR shall submit the following submittals:

1. The location of source and data for off-site topsoil.
2. Analysis of the seed.
3. Should a hydroseeder be used, the CONTRACTOR shall submit all data including material and application rates.
4. Mix designs for asphalt.

1.04 SCHEDULE OF RESTORATION

- A. A schedule of restoration operations shall be submitted by the CONTRACTOR for review.
 - 1. After an accepted schedule has been agreed upon it shall be adhered to unless otherwise revised by the ENGINEER.
- B. In general, permanent restoration of traveled surfaces will not be permitted until one month time has elapsed after excavations have been completely backfilled as specified.
- C. The replacement of surfaces at any time, as scheduled or as directed, shall not relieve the CONTRACTOR of responsibility to repair damages by settlement or other failures.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil shall be unfrozen friable clayey loam free from clay lumps, stones, roots, sticks, stumps, brush, hazardous materials, or foreign objects.
- B. Fertilizer shall be a standard quality commercial carrier of available plant food elements. A complete prepared and packaged material containing a minimum of 10 percent nitrogen, 10 percent phosphoric acid and 10 percent potash.
 - 1. Each bag of fertilizer shall bear the manufacturer's name and guaranteed statement of analysis.
- C. Seed mixtures shall be of commercial stock of the current season's crop and shall be delivered in unopened containers bearing the guaranteed analysis of the mix.
 - 1. All seed shall meet the New York State Department of Transportation 713-04 standard specifications for germination and purity.

- D. Seed Mixtures:

<u>Species</u>	<u>Lawn Areas*</u>	<u>Non-maintained Areas*</u>
Kentucky Bluegrass	50	20
Creeping Red Fescue	30	20
Manhattan or Pennfine Ryegrass	20	60
* % by weight		

- E. Mulch shall be stalks of oats, wheat, rye or other acceptable crops which are free from noxious weeds.

2.02 MATERIALS

- A. Paving Materials: The source and gradation of materials shall be acceptable to the ENGINEER. Materials shall be as defined on contract drawings, and if not defined on contract drawings shall conform to the following:
1. Pavement Sub-Base Course Material: The sub-base course materials shall be select backfill material as specified in Section 02316 of the Specifications.
 2. Tack Coat: The tack coat shall be NYSDOT Section 702, Item 702-3401 Asphalt Emulsion (HFMS-2H).
 3. Bituminous Base Course: Base course where required shall be placed in accordance with the NYSDOT Specifications, Section 402 – Hot Mix Asphalt Concrete Pavement. The material shall be NYSDOT, Item 402.378903, 37.5 F9 Base Course HMA, 80 Series Compaction.
 4. Bituminous Binder Course: Binder course pavement where required shall be placed in accordance with NYSDOT Specifications, Section 402 – Hot Mix Asphalt Concrete Pavement. The binder course pavement material shall be NYSDOT Item No. 402.198903 19 F9 Binder Course HMA, 80 Series Compaction.
 5. Bituminous Surface Course: The bituminous concrete surface course shall be a hot mix bituminous material consisting of a mixture of mineral aggregate and asphalt cement as approved by ENGINEER. The surface course shall be NYSDOT Item No. 402.098203 9.5 F2 Top Course HMA, 80 Series Compaction.
- B. Concrete Materials: Concrete used for road bases, roads, driveways, sidewalks, curbs, or similar items shall be a 4,000 psi mix. Concrete and reinforcing materials shall be as specified in Section 03300 of these Specifications.

2.03 MATERIALS TESTING.

- A. All materials must be tested and approved prior to delivery to the site. Samples of materials proposed for use shall be submitted by the CONTRACTOR to the ENGINEER and the testing laboratory. Samples of the materials shall be submitted at least ten days in advance of its anticipated use.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Temporary Pavement
1. Immediately upon completion of backfilling of the trench or excavation, the CONTRACTOR shall place a temporary pavement over all disturbed areas of streets, driveways, sidewalks, and other traveled places where the original surface has been disturbed as a result of his operations.

2. The temporary pavement shall consist of compacted select backfill surfaced with cold patch to such a depth as required to withstand the traffic to which it will be subjected.
3. The surface of the temporary pavement shall conform to the slope and grade of the area being restored.
4. For dust prevention, the CONTRACTOR shall treat all surfaces, not covered with cold patch, as frequently as may be required
5. The temporary pavement shall be maintained by the CONTRACTOR in a safe and satisfactory condition until such time as the permanent paving is completed. The CONTRACTOR shall immediately remove and restore all pavement as shall become unsatisfactory.

B. Permanent Pavement Replacement

1. The permanent and final re-paving of all streets, driveways and similar surfaces where pavement has been removed, disturbed, settled or damaged by or as a result of performance of the Contract shall be repaired and replaced by the CONTRACTOR, by a new and similar pavement, consisting of base, binder, and/or top courses each having the same depth as existing pavement or as required by the local community or Highway Permit.
 - a. The top surface shall conform with the grade of existing adjacent pavement and the entire replacement shall meet the current specifications of the local community for the particular types of pavement.
 - b. Where the local community has no specification for the type of pavement, the work shall be done in conformity with the New York State Department of Transportation Standard which conforms the closest to the type of surfacing being replaced, as determined by the ENGINEER and with the following specifications:
 - 1) Unless specified otherwise, replacement of existing roads under the jurisdiction of New York State, Counties or Cities, shall be constructed to the following requirements:
 - a) Pavement subbase as outlined under Section 02316.
 - b) Base Course Pavement – 8 inches minimum compacted thickness or combination of concrete base where encountered.
 - c) Binder Course Pavement – 1-1/2 inches minimum compacted thickness.
 - d) Surface Course Pavement – 1 inch minimum compacted thickness.
 - 2) Unless specified otherwise, replacement of existing roads under the jurisdiction of Towns or Villages shall be constructed to the following requirements:
 - a) Pavement subbase as outlined under Section 02316.

- b) Binder Course Pavement – 4 inches minimum compacted thickness.
- c) Surface Course Pavement – 2 inches minimum compacted thickness.
- c. All required permits for local governing bodies shall be obtained.
- d. Install or reinstall pavement striping in accordance with NYSDOT Standard Specifications.

C. Preparation for Permanent Pavement

- 1. When scheduled and within the time specified, the temporary pavement shall be removed and base prepared, at the depth required by the local community or Highway Permit, to receive the permanent pavement.
 - a. The base shall be brought to the required grade and cross-section and thoroughly compacted before placing the permanent pavement.
 - b. Any base material which has become unstable for any reason shall be removed and replaced with compacted base materials.
 - c. Cuts which are not straight will require another saw-cutting further from the trench. Additional select backfill and pavement needed for restoration outside the defined pay limits will be installed and paid for by the CONTRACTOR.
- 2. Prior to placing the permanent pavement, all service boxes, manhole frames and covers and similar structures within the area shall be adjusted to the established grade and cross-section.
- 3. The edges of existing asphalt pavement shall be cut a minimum of one foot beyond the excavation or disturbed base whichever is greater.
 - a. All cuts shall be parallel or perpendicular to the centerline of the street.
 - b. All cuts will be made in straight continuous lines by saw-cutting or other acceptable technique.
 - c. Additional one-foot saw cut may be required for top course if shown on the drawings or required by permit.
- 4. Install or reinstall traffic inductance loops in accordance with NYSDOT Standard Specifications by a firm which is qualified by the NYSDOT.

D. Bituminous Tack Coat

- 1. The tack coat shall be uniformly applied by a pressure distributor to a prepared clean pavement. The tack coat shall be applied as approved by the ENGINEER to offer the least inconvenience to traffic and to permit one-way traffic, where practical, to prevent pickup or tracking of the bituminous material.
- 2. Tack coat shall not be applied on a wet pavement surface or when the surface temperature is below 45 degrees F. The temperature and areas to be treated shall be approved by the ENGINEER prior to application. The application rate shall be 0.03 to 0.07 gallons per square yard as approved by the ENGINEER.

E. Asphalt Pavement

1. The permanent asphalt pavement replacement for streets, driveways and parking area surfaces shall be replaced with bituminous materials of the same depth and kind as the existing unless otherwise specified.
2. Prior to placing of any bituminous pavement tack coat shall be applied to the edges of the existing pavement and other features.
3. The furnishing, handling and compaction of all bituminous materials shall be in accordance with the New York State Department of Transportation Standards latest edition.

F. Cold Milling

1. Cold milling of existing surfaces shall follow New York State Department of Transportation Standard Specifications, latest edition.
2. Material removed during the milling process will become the property of the CONTRACTOR and shall be disposed of at an acceptable location off-site.
3. CONTRACTOR must maintain drainage into all gutters and catch basins during the milling operation.

G. Concrete Pavement and Pavement Base

1. Concrete pavements and concrete bases for asphalt, brick or other pavement surfaces shall be replaced with Class "A" concrete, air-entrained as specified in Section 03300.
2. Paving slabs or concrete bases shall be constructed to extend one foot beyond each side of the trench and be supported on undisturbed soil. Where such extension of the pavement will leave less than two feet of original pavement slab or base, the repair of the pavement slab or base shall be extended to replace the slab to the original edge of the pavement or base unless otherwise indicated on the Contract Drawings.
3. Where the edge of the pavement slab or concrete base slab falls within the excavation, the excavation shall be backfilled with Select Backfill compacted to 95 percent maximum dry density as determined by ASTM D698 up to the base of the concrete.
4. The new concrete shall be of the same thickness as the slab being replace and shall contain reinforcement equal to the old pavement.
 - a. New concrete shall be placed and cured in accordance with the applicable provisions of the State Department of Transportation Standards.

H. Stone or Gravel Pavement

1. All pavement and other areas surfaced with stone or gravel shall be replaced with material to match the existing surface unless otherwise specified.
 - a. The depth of the stone or gravel shall be at least equal to the existing or at least 6 inches.

- b. After compaction, the surface shall conform to the slope and grade of the area being replaced.
- c. Stone material used shall comply with the New York State Department of Transportation Standard Specifications, latest edition.

I. Driveways

1. Asphalt Driveways

- a. After the watermain has been installed and the trench properly backfilled, the CONTRACTOR shall cut back the drive one foot each side of the trench. The asphalt shall be cut with carborundum saw or other device to give a uniform and continuous straight edge. Where watermain or service piping are installed under drive aprons the ENGINEER may specify the replacement of the entire apron and the CONTRACTOR shall remove and replace same to its base.
- b. The cut edge shall be painted with a bituminous seal coat and asphalt shall then be replaced to equal or exceed the existing asphalt in quality and depth.
 - 1) In no case shall the finished thickness of the asphalt driveway be less than four (4) inches, a minimum of three (3) inches of binder and one (1) inch of top to match the existing driveway.
 - 2) Courses shall be laid in one (1) inch lifts and compacted with a minimum two (2) ton roller or other mechanical means specified by the ENGINEER.
 - 3) If the existing drive was in the opinion of the ENGINEER recently sealed, then the CONTRACTOR shall apply one (1) coat of coal tar emulsion sealer over the top lift. In no case shall cold patch be considered pavement, but may be used temporarily as an expedient, the cost of which will be borne by the CONTRACTOR.

2. Concrete Driveways

- a. The CONTRACTOR shall be responsible for the proper consolidation of the sub-grade before laying the new driveway, and any settlement or failure of the new driveway shall be repaired or replaced by the CONTRACTOR to the satisfaction of the ENGINEER.
- b. Where drives are encountered, the CONTRACTOR shall cut the concrete each side of the trench limits using a concrete saw at breaks in the drive or at expansion joints at the direction of the ENGINEER. Any concrete broken beyond the cut or break line will be replaced at the CONTRACTOR'S expense.

- c. The drive shall then be replaced to equal or exceed the existing drive in quality and depth.
 - 1) Reinforcing shall be installed in all replacements, tying it to existing reinforcing where it protrudes from the cut edge. 6 x 6 x 6 welded wire mesh or equal shall be used. The CONTRACTOR shall then install Transit Mix Concrete meeting NYSDOT specifications to the depth of the original base, or a minimum of six (6") inches, whichever is more.
 - 2) The surface shall be finished to match the existing surface. The CONTRACTOR shall properly cure all concrete after placing and shall protect it from damage from all types of traffic and harm prior to final setting.

J. Concrete Walks, Curbs and Gutter Replacement

1. Concrete walks, curbs and gutters removed or damaged in connection with or as a result of the construction operations shall be replaced with new construction.
 - a. The minimum replacement will be a flag or block of sidewalk and five feet of curb or gutter.
2. Walks shall be constructed of concrete, air-entrained with NYSDOT No.1 stone aggregate on a 4-inch base of compacted gravel or stone.
 - a. The walk shall be not less than 4 inches in thickness or to match the thickness of the replaced walk, shall have construction joints spaced to match the existing walks, and shall have expansion joints spaced not more than 50 feet apart and shall be sloped at right angles to the longitudinal centerline approximately $\frac{1}{8}$ -inch per foot of width.
3. One-half inch expansion joint material shall be placed around all objects within the sidewalk area as well as objects to which the new concrete will abut, such as valve boxes, manhole frames, curbs, buildings and others.
4. Walks shall be hand-floated and broom-finished, edged and grooved at construction joints and at intermediate intervals matching those intervals of the walk being replaced.
 - a. The intermediate grooves shall be scored a minimum of $\frac{1}{4}$ of the depth of the walk.
 - b. The lengths of blocks formed by the grooving tool, and distances between construction and expansion joints shall be uniform throughout the length of the walk in any one location.
5. The minimum length of curb or gutter to be left in place or replaced shall be 5 feet. Where a full section is not being replaced, the existing curb or gutter shall be saw cut to provide a true edge.
 - a. The restored curb or gutter shall be the same shape, thickness and finish as being replaced and shall be built of the same concrete and

have construction and expansion joints as stated above for sidewalks.

6. All concrete shall be placed and cured as specified in Section 03300, Concrete.

K. Lawns and Improved Areas

1. The area to receive topsoil shall be graded to a depth of not less than 4 inches or as specified, below the proposed finished surface. If the depth of existing topsoil prior to construction was greater than 4 inches, topsoil shall be replaced to that depth.
 - a. All debris and inorganic material shall be removed and the surface loosened for a depth of 2 inches prior to the placing of the topsoil.
 - b. The topsoil shall not be placed until the subgrade is in suitable condition and shall be free of excessive moisture and frost.
 - c. Topsoil placed in areas of earth excavation will not be placed until suitable earth compaction has been performed.
2. Satisfactory topsoil removed from the excavations shall be placed on the prepared subgrade to the depth required.
 - a. In the event the topsoil removed during excavation is unsatisfactory or inadequate to obtain the required finish grades, the CONTRACTOR shall furnish the required quantity of satisfactory topsoil from specified sources off site.
 - b. All topsoil shall be free from stones, roots, sticks and other foreign substances and shall not be placed in a frozen or muddy condition.
 - c. The finished surface shall conform to the lines and grades of the area before disturbed or as shown on the Contract Drawings. Any irregularities shall be corrected before the placement of fertilizer and seed.
3. The fertilizer shall be applied uniformly at the rate of 20 pounds per 1000 square feet.
 - a. Following the application of the fertilizer and prior to application of the seed, the topsoil shall be scarified to a depth of at least 2 inches with a disc or other suitable method traveling across the slope if possible.
4. When the topsoil surface has been fine graded, the seed mixture shall be uniformly applied upon the prepared surface with a mechanical spreader at a rate of not less than 5 pounds per 1000 square feet.
 - a. The seed shall be raked lightly into the surface and rolled with a light hand lawn roller.
 - b. Seeding and mulching shall not be done during windy weather.
5. The mulch shall be hand or machine spread to form a continuous blanket over the seed bed, approximately 2 inches uniform thickness at loose measurement. Excessive amounts or bunching of mulch will not be permitted.
 - a. Mulch shall be anchored by an acceptable method.

- b. Unless otherwise specified, mulch shall be left in place and allowed to disintegrate.
 - c. Any anchorage or mulch that has not disintegrated at time of first mowing, shall be removed. Anchors may be removed or driven flush with ground surface.
- 6. Seeded areas shall be watered as often as required to obtain germination and to obtain and maintain a satisfactory sod growth. Watering shall be in such a manner as to prevent washing out of seed. Any washout or damage which occurs shall be regraded and reseeded until a good sod is established.
- 7. Hydroseeding may be accepted as an alternative method of applying fertilizer, seed and mulch. The CONTRACTOR must submit all data regarding materials and application rates to the ENGINEER for review.
- 8. The CONTRACTOR shall maintain the newly seeded areas, including regrading, reseeding, watering and mowing, in good condition, until the development of an established cover.

L. Cultivated Area Replacement

- 1. Areas of cultivated lands shall be graded to a depth to receive topsoil of not less than the depth of the topsoil before being disturbed. All debris and inorganic material shall be removed prior to placing of the topsoil.
- 2. After the topsoil has been placed and graded, the entire area disturbed during construction shall be cultivated to a minimum depth of 12 inches with normal farm equipment.
 - a. Any debris or inorganic materials appearing shall be removed.
 - b. The removal of stones shall be governed by the adjacent undisturbed cultivated area.
- 3. Grass areas shall be re-seeded using a mixture equal to that of the area before being disturbed, unless otherwise specified.

M. Other Types of Restoration

- 1. Shrubs and landscape items damaged or destroyed as a result of the construction operations shall be replaced in like species and size.
 - a. All planting and care thereof shall meet the standards of the American Association of Nurserymen.
- 2. Water courses shall be reshaped to the original grade and cross-section and all debris removed. Where required to prevent erosion, the bottom and sides of the water course shall be protected.
- 3. Culverts destroyed or removed as a result of the construction operations shall be replaced in like size and material and shall be replaced at the original location and grade. When there is minor damage to a culvert and with the consent of the ENGINEER, a repair may be undertaken, if satisfactory results can be obtained.
- 4. Should brick pavements be encountered in the work, the restoration shall be as set forth in the General Requirements or as directed.

5. Items removed for construction such as mailboxes, signposts, reflector markers, and the like shall be replaced in as good or better condition than existing. Items damaged by the CONTRACTOR shall be replaced at his expense. Privately owned items, such as mailboxes, shall be reinstalled to the satisfaction of the OWNER and ENGINEER.

N. Lawn Maintenance

1. All lawn areas shall be mowed by the CONTRACTOR before the new grass reaches a height of 4 inches.
 - a. Following the establishment of a good stand of grass and the first mowing, the CONTRACTOR'S obligation shall end except for the repair of settlement or damage
2. Any lawn area which does not develop an established cover shall be re-seeded and maintained at the CONTRACTOR'S expense until an established cover is present.

O. Tree Plantings

1. Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required, to minimize possibility of damage to underground utilities. Maintain grade stakes until removal is mutually agreed upon by all parties concerned.
2. Trees replaced by the CONTRACTOR will be of the same species, and will be a minimum of 6 feet high and 2 inches in trunk diameter. CONTRACTOR must fertilize and water tree appropriately after planting and will guarantee tree for a period of one year. All issues regarding tree planting including type, size, and final location must be approved by the ENGINEER prior to payment.

END OF SECTION

SECTION 03300

CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
 - 1. All cast-in-place concrete used in the construction of watermains and appurtenances including cradles, encasements, thrust blocks, anchors, and manholes.
 - 2. All cast-in-place concrete used in the construction of sidewalks, gutters, curbs and other sections of restoration.
 - 3. Reinforcing steel, form work, and items of concrete accessories required for the completion of the work.
- B. Related Work Specified Elsewhere
 - 1. Section 01450 - Testing Laboratory Services Furnished by Contractor
 - 2. Section 02351 - Excavation, Backfill and Trenching
 - 3. Section 02900 - Restoration

1.02 QUALITY ASSURANCE

- A. References
 - 1. ACI 211, Proportioning Concrete Mixtures
 - 2. ACI 304, Measuring, Mixing, Transporting, and Placing Concrete
 - 3. ACI 305R, Hot Weather Concreting
 - 4. ACI 306, Cold Weather Concreting
 - 5. ACI 309R, Consolidation of Concrete
 - 6. ASTM A185, Standard Specifications for Steel Welded Wire Fabric, Plain for Concrete Reinforcement
 - 7. ASTM A615, Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - 8. ASTM C33, Standard Specifications for Concrete Aggregates
 - 9. ASTM C94, Standard Specifications for Ready-Mixed Concrete
 - 10. ASTM C150, Standard Specifications for Portland Cement
 - 11. ASTM C260, Standard Specifications for Air-Entraining Admixtures for Concrete
 - 12. ASTM C309, Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete
 - 13. ASTM C494, Standard Specifications for Chemical Admixtures for Concrete
 - 14. ASTM D1751, Standard Specifications for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction

- B. Tests
 - 1. All previous testing of non-concrete materials incorporated in the concrete mix shall be performed within the past twelve months. Make test reports available to the ENGINEER upon request.
 - 2. For each day when concrete is being placed, provide one slump test and three cylinders for compression testing. One cylinder shall be tested at 7 days and two (2) cylinders at 28 days. Submit all copies of test results to ENGINEER for review.

1.03. SUBMITTALS

- A. Name and location of concrete supplier.
- B. Concrete mix design indicating amount of all ingredients for concrete to be used in the Work.
- C. Manufacturer's literature for curing compounds, joint materials, admixtures, form coatings, manufactured form systems, ties, etc.
- D. Laboratory test results; compression cylinder test results from previous projects may be used for verification of design.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement
 - 1. Conform to ASTM C150, Type II.
 - 2. Type I or III may be employed with the ENGINEER'S approval.
- B. Fine and Coarse Aggregates
 - 1. Comply in all respects to ASTM C33.
 - 2. Maximum size of coarse aggregate: 1 – 2 inches; $\frac{3}{4}$ -inch for precast structures.
 - 3. Coarse aggregate for concrete used for sidewalks, curbs, and gutters shall be crushed limestone or approved equal.
- C. Water: Potable and complying with ASTM C94
- D. Admixtures
 - 1. Water Reducing - conform to ASTM C494, Type A.
 - 2. Air-Entraining - conform to ASTM C260.
- E. Reinforcing steel bars shall be deformed new billet steel conforming to ASTM A615, Grade 60. Welded wire fabric shall be cold drawn steel conforming to ASTM A185.

- F. Expansion joint material shall be ASTM D1751, asphalt-saturated cellulosic fiber, 1/2 inch thickness and of the width required for full depth joints.
- G. Membrane curing compound shall be pigmented and conform to the requirements of ASTM C309, Type 1, Class B.
- H. Grout - All grout shall be non-shrink, non-metallic, non-gas forming, preblended and ready for use requiring only the addition of water. Minimum 28 day compressive strength must be 5000 psi.

2.02 CONCRETE MIX DESIGN

- A. Mix design shall be established by the concrete supplier based on a proven strength record for concrete made with similar ingredients.
- B. Conform to ACI 211, except as specified herein, using approved materials.
- C. The various classes of concrete are designated as follows:

<u>Class</u>	<u>Design Compressive Strength at 28 Day, psi</u>	<u>Maximum Water/Cement Ratio by Weights</u>	<u>Minimum Weight of Cement Per Cubic Yard</u>
A (air-entrained)	4000	0.45	600 lbs

- D. Maximum Slump
 - 1. General - 4 inches
 - 2. Sidewalks, curbs and gutters - 3 inches
 - 3. Use minimum water possible subject to workability.
- E. Except where otherwise specified, all concrete shall be air-entrained in the range of 5% to 7%.

2.03 BATCHING AND MIXING

- A. Batching
 - 1. The CONTRACTOR shall have a modern and dependable batch plant within a reasonable distance from the work at his disposal.
 - 2. Comply with ACI 304.
 - 3. Use only approved materials.
- B. Mixing and Delivery
 - 1. Comply with ASTM C94, and furnish batch ticket information.

2.04 SOLID CONCRETE BLOCKS

- A. Solid concrete blocks used for support or restraint shall be of nominal sizes conforming to ASTM C55.
- B. Units shall have a minimum compressive strength of 3500 psi.

PART 3 - EXECUTION

3.01 CONCRETE PLACEMENT

- A. Forms shall be substantially free from surface defects and sufficiently tight to prevent leakage of mortar. They shall be properly braced and tied so as to maintain position and shape during and after placing of concrete.
- B. The CONTRACTOR shall build into the concrete reinforcing steel, sleeves, waterstops, etc., as shown on the Contract Drawings, or in restoration work, reinforcing steel and other embedded items equal to that found in the concrete being replaced.
- C. All concrete shall be thoroughly consolidated by the use of vibrators or by spading or puddling sticks and tampers in accordance with ACI 309R.
 - 1. No concrete shall be deposited under water without written permission of the ENGINEER and then only in accordance with proper tremie techniques.
- D. Cold weather placement: Comply with ACI 306.1.
- E. Hot weather placement: Comply with ACI 305R.
- F. At locations where replacing section of existing concrete driveway or walkway, sawcut existing concrete to provide a clean edge at the nearest adjacent construction joint, provided that the joint is beyond one foot from the edge of the trench or excavation.

3.02 FINISHING

- A. All formed concrete surfaces to be exposed shall be given a rubbed finish. In the case of restoration, the rubbed finish shall be equal to that of the concrete surface being replaced.
- B. Inverts, benchwalls, floors or structures and similar surfaces shall be given a float finish.
- C. Sidewalks and driveways shall be hand floated using a magnesium float and given a broom finish perpendicular to traffic, edges of slabs to be tooled.

3.03 CURING

- A. Concrete shall be maintained in a moist condition for seven (7) days using methods that will insure complete and continuous saturation.
- B. Sidewalks, curbs and gutters may be cured by the use of a membrane curing compound applied in accordance with the manufacturer's directions.

3.04 NON-SHRINK GROUTING

- A. For openings that are left in new concrete or where made in existing concrete for the insertion of wall castings, pipes or other fixtures, the space around these items shall be made watertight by completely filling with a non-shrink grout unless another means is specified elsewhere in the Contract Documents.
- B. All work shall be done in strict accordance with the manufacturer's recommendations.

3.05 QUALITY CONTROL

- A. The CONTRACTOR shall be solely responsible for the quality control of all concrete.
- B. Concrete which does not meet the requirements of these specifications may be rejected by the ENGINEER.
- C. Field Inspection: Testing shall be performed in accordance with Section 01450, Testing Laboratory Services Furnished by Contractor.

END OF SECTION

SECTION 03480

PRECAST CONCRETE VAULTS AND CHAMBERS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish valve and meter vaults, air release manholes, surface water inlets, and similar structures, complete with frames and covers, manhole steps and appurtenances as shown on the Contract Drawings.

B. Related Work Specified Elsewhere

1. Section 02316 - Select Granular Materials
2. Section 02351 - Excavation, Backfill, and Trenching
3. Section 03300 - Concrete
4. Section 15051 - Buried Piping Installation
5. Section 15106 - Ductile Iron pipe, Fittings, and Accessories
6. Section 15110 - Valves and Appurtenances
7. Section 15120 - Piping Specialties and Accessories

1.02 QUALITY ASSURANCE

A. Reference Standards

1. ASTM A48 - Standard Specification for Grey Iron Castings
2. ASTM C62 - Standard Specification for Building Brick (solid Masonry Units made from Clay or Shale)
3. ASTM C91 - Standard Specification for Masonry Cement
4. ASTM C139 - Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
5. ASTM C144 - Standard Specification for Aggregate for masonry Mortar
6. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections
7. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures
8. AWWA Standards identified in other related sections
9. ASTM Standards identified in other related sections
10. ANSI Standards identified in other related sections
11. Occupational Safety and Health Administration (OSHA)

1.03 SUBMITTALS

A. Shop Drawings

1. Prior to any field construction, the CONTRACTOR shall submit review drawings and conformance data for materials to be used in the construction of vaults and inlets for review.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE STRUCTURES

- A. General: the following requirements apply to all precast concrete structures, chambers, and vaults constructed on this project.
1. All precast concrete structures shall be designed by a licensed New York State registered Professional Engineer. Each drawing for design shall be stamped and signed by the Professional Engineer.
 2. Precast concrete structures shall be manufactured in accordance with ATM C478, latest revision, and shall be designed for HS-20 Live Load, latest revision.
 3. Precast concrete structures shall be of approved design and sufficient strength to withstand the loads to be imposed upon them. An approved watertight joint shall be provided between precast concrete sections.
 4. Mark date of manufacture and name or trademark of manufacturer on inside of precast concrete chamber section.
 5. Sizes of precast concrete structures shall be as shown on the drawings.
 6. All concrete in precast units shall be stone aggregate and develop a strength of 4,000 psi at 28 days and shall conform to the following specifications:
 - a. All concrete furnished and installed for precast concrete vaults shall be in accordance with ACI 318 Code for Reinforced Concrete.
 - b. Materials:
 - 1) Cement: Portland Cement, ASTM C150, Type I or Type II.
 - 2) Admixtures: Admixtures other than air entraining shall not be used. Air entraining admixture shall conform to ASTM C260. Air content of concrete with $\frac{3}{4}$ -inch maximum size aggregate shall be 6 percent plus or minus 1 percent volume.
 - c. Water: Clean and free from injurious amounts of oils, acids, alkalis, organic materials, or other substances.
 - d. Aggregates: aggregates shall conform to ASTM C33, latest revision. Course aggregate shall be size number 67 (nominal $\frac{3}{4}$ -inch to No. 4).
 - e. Proportions of materials in concrete and strength of concrete shall be subject to the following conditions:
 - 1) Minimum 28-day compressive strength – 4,000 psi.
 - 2) Maximum water to cement ration by weight – 0.45.
 - 3) Minimum cement content 600 lbs/cubic yard.
 7. All precast concrete shall be manufactured by wet cast methods only, and shall be approved design.
 8. All precast concrete shall be reinforced. Reinforcing shall be designed for all applicable loads and forces encountered. Steel reinforcing shall be ASTM A 496-A 615 Grade 60-60 KSI.

9. Prior to backfilling, all below grade exterior faces of the concrete structures shall be painted with two coats of sealer. The sealer shall be Bitumastic 300-M, a comparable grade of Carboline, or approved equal.

2.02 CHAMBER, VAULT, AND MANHOLE CONSTRUCTION DETAILS.

- A. Precast concrete chamber, vault, bases, and manholes shall have monolithic reinforced concrete and shall have a keyway type joint between precast concrete sections.
- B. Joint between precast concrete section shall be sealed as recommended by manufacturer and shall be watertight upon completion of joint. Joints shall be buttered inside and outside with 1 to 2 cement brick sand mortar.
- C. Where the proposed piping passes through exterior walls of precast concrete chambers and vaults, the manufacturer shall provide an oversized opening and mechanical type seal or shall provide an assembly consisting of a flexible rubber boot with clamp assembly. The boot assembly shall meet the requirements of ASTM C-923 and shall have a stainless steel power sleeve and clamps.
- D. All precast concrete chambers and vaults shall be furnished with a sump assembly as shown on the drawings.
- E. Product and manufacturer:
 1. Kistner Concrete Products.
 2. Fort Miller, Inc.
 3. Or approved equal.

2.03 PRECAST CONCRETE CATCH BASINS.

- A. In addition to the general requirements for precast concrete structures outline above, the following shall apply:
 1. Precast concrete catch basins shall be manufactured as one or two piece units with integral bottom and wall cast in one pour per piece so that there are no joints present in the sections.
 2. Catch basin base and walls shall be of acceptable design and of sufficient strength to safely support HS-20 loading.
 3. For precast concrete base section, the minimum thickness of base slab shall be 6-inch thickness.
 4. Precast concrete walls for catch basin shall be 6-inch thickness except at knockouts where the minimum thickness shall be 2 inches.
 5. Pipe connections to catch basins for storm drainage piping shall consist of a knockout in the catch basin wall for installation of the proposed piping. The void between the proposed piping and the wall of the catch basin shall be grouted with cement – mortar grout and shall be approved by the ENGINEER.

6. Product and manufacturer:
 - a. Kistner Concrete Products.
 - b. Fort Miller, Inc.
 - c. Or approved equal.

2.04 MISCELLANEOUS METALS.

A. Steps.

1. Provide approved aluminum steps as follows:
 - a. Aluminum-magnesium-silicide type alloy conforming to ASTM Specification B221.
 - b. Drop front design with grooved step surface.
 - c. Conform to details shown on Drawings.
 - d. Aluminum surfaces embedded in concrete and in contact with dissimilar materials shall be painted with an approved bitumastic paint.

B. Ladders.

1. For Venturi Vaults, provide approved ladders as follows:
 - a. Produce from ASTM A36 steel, galvanized.
 - b. Shall have 1-inch diameter rungs spaced a maximum of 12-inch on centers.
 - c. Conform to all applicable OSHA 1910.27 requirements for fixed ladders.
 - d. Designed for a single concentrated load of 200 pounds minimum.
 - e. Minimum ladder width of 16 inches.
 - f. Length as required to extend from underside of slab to top of floor.
 - g. Shall be attached to wall with galvanized steel hardware suitable for all loads imposed upon them and as recommended by the ladder manufacturer.
 - h. All ladders shall have a dismount system that enables the climber to safely dismount the vaults. The system shall be the Saf-T-Pivot Dismount as manufactured by North Safety or equal.

C. Hatch Cover Assembly (pressure reducing valve chamber and meter pits).

1. Hatch cover assembly shall be furnished with a riser for each precast concrete structure. Riser shall be manufactured from concrete meeting the requirements as outlined above for precast concrete vaults.
2. Hatch cover shall be a single leaf type assembly with extruded aluminum angle style frame and continuous anchor flange. Hatch cover and assembly shall be manufactured from 6061-T6 aluminum for bars, angles, and extrusions.
3. Hatch leaf shall be manufactured from diamond plate and shall be 5086 aluminum. Each hatch shall be furnished with an aluminum hold open arm.
4. Door lock shall open in 90° position and shall be supplied with an exposed padlock clip.

5. Hinges shall be heavy-duty type, brass alloy, with 65,000 psi tensile strength, and a 3/4-inch Grade 316 stainless steel pin.
 6. Each hatch shall be furnished with an aluminum lift handle flush with top of diamond plate leaf. All aluminum shall have mill finish.
 7. Hatch cover assembly shall be as manufactured by Bilco.
- D. Frames and Cover-Catch Basins.
1. Made from best merchantable gray cast iron, tough, even-grained, and free from all flaws and injurious or unsightly defects, ASTM A48, Class 30, cast iron.
 2. Frame and covers shall be rated for HS-20 loading, latest revisions.
 3. All covers for catch basins shall be bicycle safe type covers.
 4. Letters to be cast on every manhole cover as shown on the Drawings. If not detailed on drawings, covers for manhole vaults shall be provided with the designation "water."
 5. Machined to insure proper fit and even bearing in all positions.
 6. Properly clean castings and coat with asphaltic varnish applied by immersion, while the coating is hot.
 7. Product and manufacturer:
 - a. Provide one of the following:
 - 1) Valve Manhole Vaults
 - a) Neenah Foundry Co., Model R1916-C Watertight Manhole Frame and Cover.
 - b) Or approved equal.
 - 2) Catch Basins.
 - a) Catch Basin Frame and Cover – Grate Top – Model No. R4832B, Bicycle Proof, by Neenah Foundry Co.
 - b) Or approved equal.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Precast Sections
1. Precast section shall be installed level on a flat stable subgrade. Where an unstable condition exists, the CONTRACTOR shall excavate the unstable material and replace with compacted granular material.
 2. All joints shall be filled inside and out with mortar to provide a smooth and continuous surface.
- B. Benchwalls and Inverts
- Mortar surfaces of benchwalls and concrete floors shall be given a broom finish. Where inverts are required they shall be lined with a half section of pipe of the same type used for the sewer or shall be constructed of Class "B" concrete, shaped and troweled to produce a smooth circular cross-section.

- C. Frames and Castings
Frames and castings shall be set in a full bed of mortar a maximum of $\frac{1}{2}$ " thick. Where required to adjust the frames and castings to grade there shall be installed to a maximum of four brick courses.
- D. Steps
1. Steps shall be installed in vertical alignment spaced 12-inches on center.
2. In concrete sections the steps shall be cast into the section or secured with cadmium plated bolts to threaded inserts which are precast into the concrete.
3. In masonry construction the steps shall be built into the masonry walls.
- E. Plastering
1. Plaster shall be with mortar not less than 2-inch thick and troweled smooth.
2. Outside of masonry structures.
3. Inside and outside of brick courses under frames and castings.
- F. Sumps
Sumps of the size specified shall be built into the floors of vaults and similar structures. Floors shall be sloped to the sump.
- G. Lifting holes shall be sealed tight with a solid rubber plug driven into hole and remaining void filled with a mix of 1 part cement and 2 part sand mortar.
- H. All precast concrete structures shall be free from visible leakage: each structure shall be tested for leaks and inspected and all leaks shall be repaired in a manner subject to the ENGINEER'S approval.
- I. Grading at chambers:
1. All precast concrete structures in unpaved areas shall be constructed as shown or directed to an elevation 6 inches higher than the original ground.
2. The ground surface shall be graded to drain away from structure. Fill shall be placed around them to a level of the upper rim of the frame and cover, and the surface evenly graded on 1 to 5 slope to the existing surrounding ground. The slope shall be covered with 4 inches of topsoil, seeded, and maintained.
3. All precast structures installed with or under pavement areas shall be constructed to an elevation, which permits the frame and cover to be set flush with the final paving grade.

END OF SECTION

SECTION 15051

BURIED PIPING INSTALLATION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, material, equipment, services and incidentals necessary to furnish and install watermain, specials and fittings, install fire hydrants and to perform interconnections and abandonments as shown on the plans and specified herein.

B. Related Work Specified Elsewhere

1. Section 02080 - Fire Hydrants
2. Section 02316 - Select Granular Materials
3. Section 02351 - Excavation, Backfill, and Trenching
4. Section 15103 - High Density Polyethylene (HDPE) Pipe and Fittings
5. Section 15106 - Ductile Iron Pipe and Fittings
6. Section 15107 - Copper Pipe
7. Section 15108 - Thermoplastic Pipe
8. Section 15109 - Prestressed Concrete Cylinder Pipe
9. Section 15110 - Valves and Appurtenances
10. Section 15120 - Piping Specialties and Accessories
11. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Reference Standards

1. AWWA Standards identified in other related sections
2. ASTM Standards identified in other related sections
3. ANSI Standards identified in other related sections
4. Occupational Safety and Health Administration (OSHA)
5. 1996 Safe Drinking Water Act
6. NSF/ANSI Standard 60 and 61, as applicable
7. All other standards itemized in related work sections

1.03 SUBMITTALS

A. Shop Drawings

Prior to obtaining any products in relationship to this Section, the CONTRACTOR shall submit detailed shop drawings and data for review by the ENGINEER.

- B. Materials List
The CONTRACTOR shall submit, along with shop drawings, a materials list, which shall include full information regarding all components of the watermain. Materials of construction shall be presented in the listing.
- C. Other Submittals
 1. Prior to installation of the proposed watermain, the CONTRACTOR shall furnish the required number of the manufacturer's Operation and Maintenance Manual for each item.
 2. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.
 3. A tabulated layout schedule.
 4. Detailed procedure, schedules and list of materials for interconnection sequence.
 5. Furnish delivery tickets indicating the pipe manufacturer, pipe type and class, identifying that the pipe was new and from a manufacturer that has been submitted and approved.
- D. Certificate
 1. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage in accordance with the manufacturer's requirements; any such distortion or damage shall be basis for rejection of the materials.
- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the pipe, fittings and accessories. Do not drop or roll materials off trucks.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, chipped, gouged, dented, or otherwise damaged shall not be accepted.
- D. Interiors of pipe, fittings and specials shall be kept free from dirt and foreign matter.
- E. Store pipe and fittings on heavy wood blocking or platforms so they are not in contact with the ground.
- F. Pipe, fittings, and specials shall be unloaded opposite to or as close to the place where they are to be used as is practical to avoid unnecessary handling.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General

1. All products, including interior coatings, shall be suitable for use in a potable water system.
2. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.

B. Pipe

Materials for the piping, joints and fittings shall be as specified in other related sections or as shown in the pipe schedule or on the Contract Drawings.

1. Pipe and appurtenances shall comply with the applicable standards for its type of material.
2. All pipes, fittings, valves, hydrants, specials, and accessories must be new materials in first-class condition. Used or recycled materials shall not be allowed, regardless of condition.
3. Piping for hydrant branches shall only be Class 53 ductile iron.
4. Piping within casing pipes (except for tree bores) and beneath pavement shall be either ductile iron pipe or prestressed concrete cylinder pipe as shown and as specified.
5. Piping in non-paved areas shall be either ductile iron pipe, prestressed concrete cylinder pipe, or PVC as shown and as specified.

C. Joints

Type of joints shall be as specified in other related Sections or as shown in the pipe schedule or as on the Contract Drawings.

D. Detectable Pipe Marking Tape

Detectable pipe marking tape as manufactured by C. H. Hanson Products or approved equal shall be installed above all new watermain.

1. Tape shall be 3 inches wide consisting of two (2) exterior plies of polyethylene with an aluminum alloy foil core.
2. Tape shall be blue color and labeled: "WATER" in black letters.
3. Tape shall have a minimum thickness of 5 mils as per ASTM D2103.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Excavation and backfilling shall be in accordance with the applicable provisions of Section 02351 - Excavation, Backfill, and Trenching.
2. Blocking will not be permitted under pipe, except where the pipe is to be laid with concrete cradle or encasement.

3. Pipe shall be installed on a layer of select material as shown on the Drawings to provide an acceptable bedding. The top of this layer shall then be considered the bottom of the trench.
4. Pipe shall not be laid on bedrock without appropriate bedding stone.
5. No pipe shall be laid upon a foundation in which frost exists; or when there is danger of the formation of ice or the penetration of frost at the bottom of the excavation.
6. Bell holes shall be dug in the bottom of the trench to allow the pipe to have a firm bedding along the entire length of the pipe.
7. Temporary watertight bulkheads shall be placed in all open ends of pipe whenever pipe laying is not actively in process. The bulkheads shall be designed to prevent the entrance of dirt, debris, or water.
8. Precautions shall be taken to prevent the flotation of pipe in the event of water entering the trench.
9. Hydrant installation shall be as specified in Section 02080 - Fire Hydrants and as specified herein.

B. Location and Grade

1. Watermain and appurtenances shall be located as shown on the Contract Drawings or as directed and as established from the control survey in accordance with the General Requirements.
2. The alignment and grades shall be determined and maintained by a method acceptable to the ENGINEER.
3. Pipe shall be installed in straight horizontal trenches. "Snaking" of pipe by bending sections horizontally shall not be allowed.

C. Subgrade

The subgrade for pipelines shall be earth or bedding as specified or directed and shall be installed in accordance with Section 02351 - Excavation, Backfill and Trenching.

D. Joints

1. Joints shall be assembled using gaskets, lubricants and solvents as furnished by the pipe manufacturer and in accordance with the manufacturer's recommendations.
2. Joint deflection shall not exceed 50% of manufacturer's recommendations.

E. Bedding

Bedding shall be deposited and compacted in accordance with Section 02351 - Excavation, Backfill, and Trenching, and shall be as itemized below unless otherwise specified or directed.

1. For watermains:
 - a. The bedding shall be as specified in Section 02316, Select Granular Materials.
 - b. Bedding shall be deposited and tamped in 6-inch layers to the centerline of the pipe or to 6 inches above the pipe in paved or traveled areas.

- c. Native material placed above the centerline of the pipe shall be deposited in such a manner as to not damage the pipe. Native material shall be suitable for backfill above the centerline of the pipe provided the materials are 2 inches in size or less. Native materials shall be suitable for backfill 6 inches above the pipe in non-paved areas provided the materials are 2 to 4 inches in size, but bedding is required to 6 inches above the pipe. Native materials greater than 4 inches are unacceptable for backfill.

F. Thrust Restraints

Thrust restraints for watermain shall be accomplished by the use of both thrust blocks and mechanical restraints for sizes through 12 inches. Joints for watermain 16 inches and larger shall have thrust restraints provided by harnessed joints only. Restraints shall be in the form of retainer glands; ductile iron locking segments with spigot weldment; or anchors of the size and type specified or as required by the pressure and stability of the supporting surface.

1. Thrust restraints shall be installed at all changes in direction, changes in size, dead ends or other locations where shown or directed.
2. Valves shall be treated as a bulkhead condition and pipe joints shall be restrained on both sides of the valve.
3. Cast in place concrete used for thrust restraints shall have developed the required strength prior to testing of the watermain.
4. When approved for use by ENGINEER, tie rods and nuts for thrust restraints shall be of high tensile steel and shall have a minimum yield strength of 70,000 psi.
 - a. Tie rods and nuts installed underground shall be coated with two coats of coal tar pitch preservative coating after installation.
 - b. Oil, grease, paint, or any coating which requires drying will not be acceptable.
5. All fire hydrant branches from the mainline tee to and including valve and hydrant shall be restrained.
6. All piping installed for interconnections shall be restrained.
7. All piping installed within casing pipes shall be restrained for the full length of the pipe installed within the casing pipe.
8. All piping installed within the limits of creek crossings shall be restrained for the full length of the creek crossing limits.

G. Service Connections

1. Connections to in-service pressure watermain shall be in accordance with the applicable provisions of Section 15120, Piping Specialties and Accessories.

H. Concrete Thrust Blocks

1. Solid concrete blocks shall be used for proper blocking. Hollow concrete blocks or wooden blocking are not acceptable. Cast-in-place wet concrete mix shall be used for vertical bends and anchor collars.

- I. Detectable Pipe Marker
 - 1. Detectable pipe marker tape shall be placed above all new watermains as shown on the Drawings.
 - 2. Detectable pipe marker tape shall be tied to watermain valve boxes.
 - 3. Splices, where needed, shall be made in accordance with manufacturer's recommendations.
 - 4. At completion of the project and before final payment is made, the CONTRACTOR shall test the entire length of the pipe using pipe locating equipment. Tests shall be made only in the present of the ENGINEER. Any section of tape not continuous or that is undetectable shall be removed and replaced at the CONTRACTOR'S expense.

3.02 CUTTING AND SPECIAL HANDLING

- A. Field cuts of pipes shall be in accordance with the manufacturer's instructions.
- B. Where a pipe requires special handling or installation it shall be in accordance with the applicable referenced standard.

3.03 INTERCONNECTIONS

- A. Perform interconnections as shown on the Contract Drawings and in accordance with Section 01731, Connections to Existing Facilities.

3.04 ABANDONMENTS

- A. Hydrants and Valves
 - 1. Removal of existing and abandoned hydrants and valves shall be made with caution to prevent damage while being removed.
 - 2. Return all existing and abandoned hydrants as specified or when directed to the Erie County Water Authority at 3030 Union Road, Cheektowaga, New York.
 - 3. CONTRACTOR is responsible for unloading the abandoned hydrants at the Erie County Water Authority and placing the hydrants in the location specified by the AUTHORITY.
 - 4. CONTRACTOR must deliver the hydrants during normal business hours and must schedule the delivery at least 48 hours in advance.
 - 5. At all valves being abandoned, locate the valve, close the valve, remove the entire valve box, backfill and restore as shown on the Drawings.
- B. Existing Watermains
 - 1. No watermain abandonments shall be performed until the ENGINEER is satisfied that the new watermain is functional and meets all codes, standards, tests, and requirements.
 - 2. Abandonments shall only be allowed after all service connections have been transferred to the new watermain, when applicable.
 - 3. Perform the abandonments as shown on Contract Drawings and in accordance with Section 01731, Connections to Existing Facilities.

3.05 TREE TUNNELING

- A. Provide root protection at trees by boring casing pipe through root system.
 - 1. Use casing pipe as defined in Section 15121, Casing Pipe.
 - 2. All pipe installed in casing pipe must be restrained.
 - 3. PVC pipe may be installed in casing pipe if authorized by ENGINEER.
 - 4. Fill annular space with pea gravel to satisfaction of ENGINEER.
 - 5. The volume of pea gravel used shall be compared to the annular space volume to ensure complete filling. Incomplete filling of annular space will not be considered acceptable. CONTRACTOR shall remove pea gravel and reinstall, at his expense, if so ordered by the ENGINEER.

3.06 INSTALLATION OF PIPE UNDER CREEKS BY OPEN CUT METHOD

- A. General
 - 1. Install watermain, fittings, bedding, and rip rap within the pay limits for the creek crossings as shown and specified.
 - 2. Comply with the applicable requirements of this section as well as other sections of these specifications.
 - 3. Comply in all respects with the requirements of the applicable permits issued for this project.
 - 4. Construction of the creek crossings shall be performed within the work limits shown on the plans or specified in the permits. Any other lands, easements, or rights-of-way required by the CONTRACTOR for his operations shall be obtained by the CONTRACTOR at his expense.
 - 5. All necessary precautions shall be taken to prevent contamination of any wetland or waterway by any soils, sediments, fuels, solvents, lubricants, paints, or any other environmental deleterious materials associated with this project.
 - 6. Any material dredged in the prosecution of the Work shall be removed evenly, without leaving large refuse piles, ridges across the bed of the waterway, or deep holes that may cause damage to navigable channels or to the banks of the waterway.
 - 7. Debris or excess material dredged during construction operations shall be completely removed from the bed and banks of all water areas and sent to an approved upland area for disposal.
 - 8. All sediments are to be retained on the project site through the use of silt fences or other approved sediment traps.
 - 9. Disturbances to the bed and banks of the creek shall be limited to those areas shown on the plans and covered under the applicable permits.
 - 10. No work on creek crossings shall be performed immediately after a storm that may cause high water conditions or flooding.
 - 11. Whenever possible, creek excavation and bank grading shall be carried out by equipment operating on dry land.
 - 12. Prior to trenching through stream banks, the upland sections of the trench shall be bulkheaded or plugged to prevent drainage of turbid water into the creek.

13. Existing stream banks and vegetation shall be protected as much as possible to prevent bank collapse and erosion.
14. Watermain markers shall be provided on both sides of the creek crossings. Markers shall be flexible, impact resistant fiberglass and royal blue in color. Labels shall be self-adhesive and waterproof.
15. All other applicable requirements of this section shall apply to excavation and backfill of creek crossings.

3.07 TESTING

- A. General
Performance testing, leakage, hydrostatic, and proof-of-design tests shall be as specified in Section 15140 - Testing and Disinfection.
- B. Testing Criteria
Perform pressure testing to the criteria listed in the table as shown on the Drawings.
- C. Ultrasonic Joint Testing.
 1. Each joint shall, at the CONTRACTOR'S sole cost and expense, be tested with ultrasonic test equipment prior to being backfilled. If a leak is detected, corrective action shall be taken prior to installing the next pipe.
 2. The fact that a point (or joints) has passed the ultrasonic testing does not waive the requirements for the hydrostatic tests described in Section 15140.
 3. The testing equipment shall be as manufactured by Moffat Enterprises of Powell Butte, or equal.

3.08 DISINFECTION

- A. All watermains, hydrant branches, blow-offs, and ARV piping shall be tested and disinfected in accordance with Section 15140 - Testing and Disinfection.

3.09 GENERAL

- A. Install watermain, fittings, and accessories in accordance with applicable sections; as shown on the drawings; and, as specified, required, or directed.
- B. Tapping Information
 1. All materials as specified herein shall be installed by or under the direction of personnel who are acceptable to the Authority.
 - a. Threaded taps shall be made using a machine designed for cutting, threading and inserting the corporation without interruption of service.
 - 1) Teflon tape may be used on corporation threads.
 - b. Tapping sleeve connections shall be made using a machine to cut and remove the segment through the valve without interruption of service.

2. Valve boxes shall be set plumb and shall be independently supported on concrete blocking so no weight will be transmitted to the curb stop or watermain.
3. Service saddles and tapping saddles installed on prestressed concrete cylinder pipe shall be encased in a minimum of 2 inches of concrete mortar after installation.
4. Service saddles shall be used under the following condition:
 - a. When water services are placed on 4-inch or smaller pipes.
 - b. When water services larger than 1-inch are placed on a 6-inch pipe.
 - c. When water services larger than 1-1/2-inch are placed on an 8-inch pipe.
 - d. When water services are tapped to all plastic (PVC) pipe.
 - e. When services larger than 1-1/2-inch are placed on ductile iron pipe.
 - f. When water services are tapped to all asbestos-cement pipe.
5. CONTRACTOR is not allowed to excavate, disturb, or park any equipment beyond the Right-of-Way line without prior approval from the property owner.
6. If minimum depth is not achieved for the water service at any location, CONTRACTOR shall either excavate and lower the service or repush/drill the service to the minimum depth, at his expense, until a satisfactory service is installed.
7. Curb boxes are not allowed to be cut for any reason.
8. Repair or replace any connections, which are leaking to ensure a watertight connection.

C. Water Service Tubing

1. Copper tubing shall be installed in accordance with the applicable provisions of Section 02351 - Excavation, Backfill & Trenching, Section 15051 - Buried Piping Installation and Section 15107 - Copper Pipe.
2. Bedding for service connection tubing shall be furnished, installed and coordinated with Section 02316 - Select Granular Materials.

D. Water Service Installations

1. Existing service lines shall be maintained until such time as the proposed watermain has been installed, tested, and disinfected, and approval to place the watermain into service has been obtained. Existing services may then be transferred to the new watermain.
2. New water service installations shall be installed by boring or jacking method under existing roads and pavements. Open-cut of water services across roads will not be allowed.
3. Use tapping machines and equipment compatible with corporation stops and service saddles specified. Use tools and cutting equipment, which minimizes the amount of PVC shavings and remove shavings during tapping; retain coupon, and reduce stress during tapping. Single fluted cutters or twist drills shall not be used for tapping PVC piping.

4. Service locations shown on the drawings are shown schematically only. The actual service locations shall be determined by ENGINEER and CONTRACTOR in the field.
 5. For additional information relating to water services, refer to the Drawings.
- E. Tapping Watermain.
1. Wet tap connections to existing watermains shall be as shown on the drawings.
 2. The person or firm who will be performing the watermain tap shall be acceptable to the Authority.
 3. Prior to ordering the tapping sleeve, the CONTRACTOR shall excavate a test pit to the depth required and expose the main to be tapped to accurately measure the outside diameter of the main. No tapping sleeve shall be ordered until this information has been obtained.
 4. Tapping sleeves shall be suitable for use with the existing pipe to be tapped. Tapping sleeve shall be compatible with the tapping valve furnished.
 5. Thrust blocks shall be constructed behind the wet tap connection as shown on the drawings and specified herein.
 6. Refer to Section 15140 for additional requirements for tapping sleeve and valve testing.
 7. After each tap has been completed, the CONTRACTOR shall keep the tapping area uncovered for a minimum period of one (1) hour to determine if any leakage is occurring. If any leakage has occurred, the tap shall be made watertight in a manner approved by the ENGINEER.
 8. A full pipe coupon shall be retained as a result of the tapping operation.
 9. The valves shall be kept closed until approval from the ENGINEER is given to open the valve.
- F. Discrepancies
1. If discrepancies occur between the Drawings and field conditions, the CONTRACTOR shall notify the ENGINEER immediately.
 2. The CONTRACTOR shall not proceed with the installation in areas of discrepancy until said discrepancy is resolved.

END OF SECTION

SECTION 15054

HORIZONTAL DIRECTIONAL DRILLING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall design, furnish, and install the proposed watermain by Horizontal Directional Drilling (HDD) construction methods, as shown on the drawings and conforming to these specifications. The work includes, but is not limited to, geotechnical investigations, design, excavations, dewatering, removal of all materials encountered in the drilling operations, disposal of all material not required in the work, grouting bulkheads, testing, cleaning, and incidentals as shown on the drawings and as specified herein.
2. CONTRACTOR shall be responsible for installing the sections(s) of the watermain, as identified on the drawings, utilizing Horizontal Directional Drilling. The HDD process begins with boring a small, horizontal hole (pilot hole) under the crossing of the obstacle (i.e. creek, highway, railroad) with a continuous string of steel drill rod. The drill rod exits on the opposite side of the obstacle, at a predetermined location. Based on the diameter of the watermain and the ground conditions encountered, the CONTRACTOR shall create a bore path by connecting to the previously installed drill rods, an auger and back reamer. Various sizes may be utilized until the desired bore path size is achieved. The number of passes of the various sizes of augers and back reamers shall be as determined by CONTRACTOR. The watermain is pulled back with a special cutting tool, or “reamer”, through the borehole and exits back at the entry pit. The intent of the process shall minimize surface disruption by utilizing the cartridge installation method. This method is characterized by the assembling of flexible restrained joint pipe and pulling-back one joint at a time.
3. CONTRACTOR is responsible for any necessary geotechnical/subsurface investigations required to establish the appropriate parameters (i.e. limiting pressures, setback distances, depth of cover, etc.) for completing the design horizontal directional drilling alignment, as per the Army Corps of Engineers Recommended Guidelines for Installation of Pipelines Beneath Levees using Horizontal Directional Drilling.

B. General:

1. CONTRACTOR shall be responsible for the final design and constructed product, and for furnishing the design data, permits, qualified labor and superintendence necessary for this method of construction.

2. CONTRACTOR shall furnish all items necessary to perform the HDD operation and construct the pipe to the lines and grade shown on the drawings.
 3. The Work includes, but is not limited to, the following:
 - a. All types and sizes of horizontally drilled watermain except those specified under other sections or other contracts.
 - b. Supports, restraints, and thrust blocks.
 - c. Installation of all flexible restrained joint pipe and gasketing materials, specials, flexible couplings, mechanical couplings, harnessed and flanged adapters, sleeves, tie rods, polyethylene encasement, temporary construction, and all other Work required to complete the horizontally drilled watermain installation.
 - d. Incorporation of valves, and special items shown or specified into the piping systems as required and as specified in the appropriate Division 15 sections.
- C. Coordination:
1. Review construction sequencing and installation procedures under other sections.
 2. CONTRACTOR is responsible to coordinate between other construction contracts that may be ongoing simultaneously.
- D. Related Sections:
1. Section 02351 - Excavation, Backfill, and Trenching.
 2. Section 03300 – Concrete.
 3. Division 15

1.02 QUALITY ASSURANCE

- A. Reference Standards: comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
1. AWWA Manual of Practice M41 – Installation of Ductile Iron Pipe.
 2. AWWA C600, Disinfecting Water Mains.
 3. Latest edition of AWWA C150, AWWA C151, AWWA C105.
- B. CONTRACTOR must demonstrate expertise in Horizontal Directional Drill methods by providing a list of ten utility references for which similar work has been performed in the last two years. The reference should include a name and telephone number where contact can be made to verify the CONTRACTOR'S capability. The CONTRACTOR must provide documentation showing successful completion of the project [suited] for reference. Conventional trenching experience will NOT be considered applicable.
- C. CONTRACTOR shall have installed directionally drilled pipe at least as large as the diameter proposed herein and have performed water body crossings and crossing of flood control levees.

- D. All supervisory personnel must be adequately trained and will have at least ten (10) years of experience in directional drilling. CONTRACTOR shall submit the names and resumes of all supervisory field personnel prior to the start of construction.
- E. CONTRACTOR shall be responsible for the final design and constructed product, and for furnishing the design data, permits, qualified labor and superintendence necessary for this method of construction.

1.03 SUBMITTALS

- A. ENGINEER will base the review of submitted details and data on the requirements of the completed work, safety of the work in regards to the public, potential for damage to public or private utilities and other existing structures and facilities, and the potential for unnecessary delay in the execution of the work. Such review shall not be construed to relieve the CONTRACTOR in any way of his responsibilities under the contract. CONTRACTOR shall not commence work on any items requiring CONTRACTOR'S construction drawings or other submittals until the drawings and submittals are reviewed and accepted by the ENGINEER. A maximum thirty (30) day review period will be required.
- B. The CONTRACTOR, prior to construction, shall prepare and submit for information the following:
 - 1. Horizontal Directional Drilling Plan describing the equipment, methods, procedures (pilot hole drilling, insertion, reaming, pullback, coating protection, internal cleaning, internal gauging, dewatering, purging, grouting, etc.), monitoring procedures (pressures, depth, alignment, placement, entrance and exit points, etc.), construction sequence, construction scheduling, contingency plans, and other items of concern to be performed during the horizontal directional drilling process.
 - 2. Project Safety Plan. This includes procedures for monitoring gasses encountered and other procedures necessary to ensure safety on the site.
 - 3. Arrangement drawings and technical specifications of the drilling machine and ancillary equipment (including any modifications), three-year experience record with this type of drilling machine, and a copy of the manufacturer's operation manual for this machine.
 - 4. CONTRACTOR'S construction drawings, specifications, and contingency plans shall be submitted for the following items:
 - a. Complete details of the site clearing and equipment mobilization plan (Site Preparation Plan) including, but not limited to, the methods, procedures, and equipment arrangement to be used during the clearing and mobilization of the equipment onto the site.
 - b. Complete design details and calculations of the significant parameters and constraints associated with directional drilling operations including, but not limited to: expansion/contraction, limiting overburden/critical pressures, drilling fluid mixtures and

limiting pressures, drilling/boring speed, hydrostatic tests and cleaning procedures.

- 1) Complete details of grouting techniques of the annulus between the pipeline and the directional-drilled shaft (adjacent soil), including equipment, pumping procedures, pressures, mixtures, and plug systems.
- 2) Method of monitoring and controlling the mud and bore hole pressures during all drilling operations.
- 3) Method of monitoring and controlling the specified speed, line, and grade of excavation including, but not limited to, the methods, procedures, reliability, and necessary equipment to be used during the directional drilling operations.
- 4) Complete details of the muck/spoils containment, dewatering, drying, and removal methods, procedures, equipment, contingency plan, and off-site disposal location.
- 5) Complete details of the methods, procedures, and equipment arrangement to be used during the flexible restrained joint ductile iron (DI) or High Density Polyethylene (HDPE) pipe storage, assembly, installation, cleaning, and testing.
- 6) Proposed contingency plans for the protection of the creek, river, floodwall/levee, and other underground structures including, but not limited to, the complete details of the methods/procedures, equipment to be used, etc. for critical phases and areas of the directional drilling operations.
- 7) Statement by pipe manufacturer indicating that they have reviewed the design drawings and the CONTRACTOR'S proposed methods and agree that the pipe proposed is suitable for the application. This certification shall include recommended manufacturer's pulling loads and any other limitations or restrictions.

- c. Drawings and calculations for all sheeting and/or shoring proposed. These shall bear the seal of a Professional Engineer licensed to practice in New York State.

C. Quality Control Methods: At least 10 days prior to the start of directional drilling, CONTRACTOR shall submit a description of the quality control methods he proposes to use in the directional drilling operations to the ENGINEER. The submittal shall describe:

1. Procedures for controlling and checking line and grade.
2. Field forms for establishing and checking line and grade.

D. Safety: Procedures including, but not limited to, monitoring for gases encountered shall be submitted.

E. Hazardous chemical list as well as all MSDS and technical data sheets.

- F. CONTRACTOR is required to bring to the attention of the ENGINEER any known discrepancies with actual tunneling methods that the CONTRACTOR will be performing. This shall be stated, in writing, to ENGINEER no later than the pre-construction meeting.
- G. Record Drawings:
 - 1. CONTRACTOR required to submit certification, by a Professional Engineer licensed in the State of New York, that the directional drilling has been performed in accordance with the construction drawings, or provide signed and sealed record drawings of the installation if it varies from the design as shown in the construction drawings.
 - 2. Submit record drawings prior to the time of Substantial Completion.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the site to ensure uninterrupted progress of the Work.
- B. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- C. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the pipe, fittings, and accessories. Furthermore, all ductile iron pipe requiring polyethylene encasement, as per Section 15106, where polyethylene has been field pre-applied to the pipe shall be handled with suitably padded equipment to prevent damage to the polyethylene prior to installation. Do not drop or roll materials off trucks. All ductile iron pipe and fittings shall be handled with padded slings or other appropriate equipment. The use of cables, hooks, or chains will not be permitted.
- D. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, dented, or otherwise damaged will not be accepted.
- E. Interiors of pipe, fittings, and accessories shall be kept free from dirt and foreign matter.
- F. Store pipe and fittings on soil berms, heavy wood blocking, or platforms of other construction to they are not in contact with the ground.
- G. Pipe, fittings, and specials shall be unloaded opposite to or as close to the place where they are to be used as is practical to avoid unnecessary handling.
- H. CONTRACTOR shall at all times handle the pipe in a manner that does not overstress the pipe.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General

1. Pipe for Horizontal Directional Drilling (HDD) construction shall be Ductile Iron, Class 53, flexible restrained joint pipe with a spigot retainer weldment, in accordance with Section 15106, Ductile Iron Pipe, Fittings, and Accessories.
2. Ductile iron pipe shall be installed with a double polyethylene encasement as specified in Section 15106, Ductile Iron Pipe, Fittings, and Accessories.
3. All materials must be suitable for use in potable water systems and all surfaces that come in contact with the water stream shall be NSF 61 approved.
4. All ductile iron pipe, fittings, and accessories shall be designed for a working pressure and field hydrostatic test pressure as shown in Section 15051, Buried Piping Installation and as follows herein.
5. All ductile iron pipe, fittings, and accessories must be new materials in first-class condition. Used or recycled pipe, fittings, specials, or accessory materials shall not be allowed, regardless of condition.
6. All ductile iron pipe shall be supplied from one manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. In addition to notifying UFPO for utility markout, any utility within 10 feet of the centerline of the borepath shall be surfaced marked and “potholed” at appropriate intervals to verify the horizontal and vertical location. CONTRACTOR shall install the flexible restrained joint ductile iron pipe by means of HDD using the cartridge installation method as described in section 1.01.A.2, specified, and not exceeding the allowable pulling loads as recommended by the manufacturer.
2. CONTRACTOR shall be responsible for his means and methods of HDD construction and shall ensure the safety of the Work the CONTRACTOR’S employees, the public, and adjacent property, whether public or private.
3. CONTRACTOR shall anticipate that portions of the drilled excavation will be below the groundwater table.
4. CONTRACTOR shall comply with all local, state, and federal laws, rules, and regulations at all times to prevent pollution of the air, ground, and water.
5. If there is a conflict between manufacturer’s recommendations and the Drawings or Specification, request instructions from ENGINEER before proceeding.

B. Launching and Receiving Pits.

1. CONTRACTOR shall excavate, sheet, shore, dewater, and perform all other work necessary to provide adequate launching and receiving pits for his HDD operations.
2. All work shall be performed in strict accordance with OSHA regulations.
3. All sheeting, shoring, and bracing shall be designed by a New York State licensed Professional Engineer as specified in Section 1.03.B.4.c.
4. Temporary fencing shall be provided around each pit. Fencing shall be a minimum of 4 feet in height. Fencing materials, layout, and installation details shall be subject to approval by the ENGINEER.
5. Upon completion of HDD operations, all pits shall be backfilled and surface restored as specified in Sections 02351, Excavation, Backfill, and Trenching and 02900, Restoration.

C. Drilling Operations:

1. Directional drilling/boring shall use techniques of creating or directing a borehole along a predetermined path to a specified target location. This involves use of mechanical and hydraulic deviation equipment to change the boring course and shall use instrumentation to monitor the location and orientation of the boring head assembly along a predetermined course.
2. Drilling shall be accomplished with fluid assisted mechanical cutting. Drilling/boring fluids shall be an appropriate mixture of either bentonite and water or polymers and additives with water. Bentonite sealants and water will be used to lubricate and seal the mini-tunnel. It is mandatory that minimum pressures and flow rates be used during drilling operations so as not to fracture the sub-grade material around and above the bore (“frac-out”).
3. CONTRACTOR shall have a mobile vacuum spoils recovery system/vehicle on-site to remove the drilling spoils from the access pits. The spoils must then be transported from the job site and be properly disposed of. Under NO circumstances shall the drilling spoils be permitted to be disposed into waterways, sanitary, storm, or any other public or private drainage system.
4. The mobile drilling system shall utilize small diameter fluid jets to fracture and mechanical cutters to cut and excavate the soil as the head advances forward. Mechanical, pneumatic, or water-jetting methods will be considered unacceptable.
5. Steering shall be accomplished by the installation of an offset section of drill stem that causes the cutterhead to turn eccentrically about its centerline when it is rotating. When steering adjustments are required, the cutterhead offset section is rotated toward the desired direction of travel and the drill stem is advanced forward without rotation.
6. The position of the drill string shall be monitored by the CONTRACTOR with downhole survey instruments. The CONTRACTOR shall check the X,Y, and Z-axis relative to the ground surface, a minimum of once per length of drill pipe. Deviations from the acceptable tolerances described

in this section of the specifications shall be documented and immediately brought to the attention of the ENGINEER.

7. During the entire operation, waste and left-over drilling fluids from the pits and cuttings shall be dewatered and disposed of in accordance with all permits and regulatory requirements.
8. Technical criteria for bentonite shall be as given in API Spec. 13A, "Specification for Oil Well Drilling Fluids Materials for Fresh Water Drilling Fluids." The OWNER reserves the right to sample and monitor the waste drilling mud, cuttings, and waste.

D. Tolerances:

1. CONTRACTOR shall plot the actual horizontal and vertical alignment of the pilot bore at intervals not exceeding 20 feet. This "as-built" plan and profile shall be updated as the pilot bore is advanced.
2. Each exit point shall be located as shown with an over-length tolerances of 5 feet for directional drills of 1,000 linear feet or less and 10 feet for direction drills greater than 1,000 linear feet. Alignment tolerance of 2 feet left/right with due consideration of the position of the other exit points.
3. The CONTRACTOR shall at all times provide and maintain instrumentation that will accurately locate the pilot bore/hole and measure drilling fluid flow and pressure.
4. CONTRACTOR shall provide and grant ENGINEER access to all data and readout pertaining to the position of the bore and fluid pressures and flows. No information pertaining to the position or inclination of the pilot bore holes shall be withheld from the ENGINEER.
5. After the pipe is in place, cleaning pigs shall be used to remove residual water and debris. After the cleaning operation, the CONTRACTOR shall provide and run a sizing pig to check for anomalies in the form of buckles, dents, excessive out-of-roundness, and any other deformities. The sizing pig run shall be considered acceptable if the survey results indicates that there are no sharp anomalies greater than 5% of the normal pipe diameter. Pipe ovality shall be measured as the percent difference between the maximum and minimum pipe diameters. For ganging purposes, ovality locations are those defined above which exceed a span of five (5) feet.

E. Ream and Pullback:

1. After an initial bore has been completed, a reamer will be installed at the termination/exit pit and the pipe will be pulled back to the starting/entry pit. The reamer must also be capable of discharging liquid clay/bentonite mixture to facilitate the installation of the pipe into a stabilized and lubricated tunnel.
2. Reaming operations shall be conducted to enlarge the pilot hole after acceptance of the pilot bore. The number and size of such reaming operations shall be conducted at the discretion of the CONTRACTOR. Under no circumstances shall there be less than two progressively larger reamers enlarging the borehole prior to the final reaming/pull-back begins.

3. The pulling thrust exerted on the pipe shall be measured continuously and limited to the maximum allowed by the pipe manufacturer so that the pipe or joints are not overstressed.
 4. A swivel shall be used to connect the watermain to the drill rods to prevent torsional stresses from occurring in the pipe.
 5. The lead end of the pipe shall be closed during the pullback operation.
 6. Ductile iron pipe shall be assembled utilizing the “cartridge method”. As each section of pipe is joined and poly-wrapped, the pipe string shall be advanced into the drill hole a sufficient distance to allow joining of another length of pipe. This sequence shall be repeated as necessary until the entire pipe string has been pulled back.
 7. HDPE pipe shall be jointed to one another by means of thermal butt-fusion. HDPE pipe lengths to be joined by thermal butt-fusion shall be of the same type, grade, and class of the polyethylene compound, and supplied from the same material supplier.
 8. The watermain shall be adequately supported by rollers and/or side booms and monitored during installations so as to prevent overstressing or buckling during the pullback operation.
 9. Support/rollers shall be comprised of a non-abrasive material arranged in a manner to provide support to the bottom and bottom quarter points of the watermain allowing for free movement of the watermain during pullback.
 10. For multiple pipeline strings at one crossing the pipelines shall be pulled simultaneously.
 11. Upon completion of pullback of the entire pipe string, the CONTRACTOR shall conduct a low-pressure air test to demonstrate the integrity of the pipe joints. This test shall be 15 minutes in duration and be witnessed by the ENGINEER or his representative.
- F. Grouting (Annular space between the installed pipe and the adjacent soils):
1. Grouting of the annular space between the pipe and the adjacent soils with a cement or bentonite-cement mixture is required at both ends of the alignment.
 2. The grouting is to be completed immediately after the piping alignment is pulled back.
 3. The grouting procedure consists of inserting grout tubes at each outside quadrant of the pipe into the annular space as far as possible. The grout mixture is then pumped into the annulus until grout returns to the surface at the entry.
 4. Grouting pressures are to be lower than the overburden pressure or critical pressure required to initiate hydraulic fracturing.
 5. Grouting pressures are to be continuously monitored and carefully controlled to minimize the risk of hydrofracture.
- G. Connections to Valves:
1. Install valves as shown.
 2. Provide suitable adapters when valves and piping have different joint types.

3. Provide thrust restraint at valves and at pipeline terminations.
- H. Transitions from One Type of Pipe to Another:
1. Provide all necessary adapters, specials, and connection pieces required when connecting different types and sizes of pipe or connecting pipe made by different manufacturers.
- I. Handling Drilling Fluids and Cuttings:
1. CONTRACTOR shall make adequate provisions for handling the drilling fluids or cuttings at the entry and exit pits. Drilling fluids and/or cuttings shall not be discharged into the waterway or storm drainage.
 2. Materials shall be hauled off-site to a suitable and legal disposal site.
 3. CONTRACTOR shall conduct the directional drilling operations in such a manner that drilling fluids and cuttings are not forced into the subbottom of the waterway.
 4. Pits constructed at entry and exit point areas shall be so constructed to completely contain the drill fluid and prevent escape to the waterway or storm drainage.
 5. The CONTRACTOR shall utilize drilling tools and procedures, which will minimize the discharge of any drill fluids. CONTRACTOR shall comply with all mitigation measures listed in the required permits and elsewhere in these specifications.
 6. CONTRACTOR shall minimize drilling fluid disposal quantities by utilizing a drilling fluid plan, which allows the returned fluids to be reused.
 7. As part of the installation plan specified herein before, the CONTRACTOR shall submit a drilling fluid plan, which details types of drilling fluids, cleaning and recycling equipment, estimated flow rates, and procedures for minimizing drilling fluid escape.
 8. Upon completion of the boring and pipe installation, the CONTRACTOR will remove all spoils from the pits and site. All pits will be restored to their original conditions.

3.02 WORK AFFECTING EXISTING PIPING

- A. Location of Existing Piping:
1. Locations of existing piping shown should be considered approximate.
 2. CONTRACTOR shall determine the true location of existing piping to which connections are to be made, and location of other facilities which could be disturbed during earthwork operations, or which may be affected by CONTRACTOR'S Work in any way.
 3. Conform to applicable requirements of Division 1 pertaining to cutting and patching and connections to existing facilities.
- B. Taking Existing Pipelines Out of Service:
1. Do not take pipelines out of service unless approved by ENGINEER. See requirements of Division 1.

2. Notify ENGINEER in writing at least 48 hours prior to taking pipeline out of service.

3.03 TESTING OF PIPING

A. General:

1. Refer to Section 15140, Testing and Disinfection for hydrostatic/pressure testing specifications.

3.04 CLEANING, FLUSHING, AND ABANDONMENTS

A. General:

1. Refer to Section 15140, Testing and Disinfection for cleaning, flushing, and disinfection specifications.
2. All horizontal directionally drilled watermain shall be cleaned and hydrostatically tested prior to any tie-in connections with associated piping.

- #### B.
- The entire site shall be restored to a condition equal to or better than what existed prior to the Work.

- #### C.
- Comply with all permit requirements for post construction certification and/or inspections.

END OF SECTION

SECTION 15101

PARTIAL LEAD SERVICE REPLACEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install new service connections when the existing water service is made of lead.

B. Related Work Specified Elsewhere

1. Section 15051 - Buried Piping Installation
2. Section 15120 - Piping Specialties and Accessories
3. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Reference Standards

1. ANSI/AWWA CB10-17, Replacement and Flushing of Lead Service Lines
2. 1996 Safe Drinking Water Act
3. EPA Lead and Copper Rule (LCR)
4. New York State Department of Health, Part 5, Subpart 5.1 Public Water Systems
5. Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1025 and 29 CFR Part 1928
6. "Notification and Reporting Requirements for Partial Lead Service Line Replacement under the Lead and Copper Rule", published by the Environmental Protection Agency (EPA), April 2000
7. ASTM B32, Specification for Solder Metal
8. NSF/ANSI Standard 61
9. Underwriter's Laboratories (UL)
10. International Organization for Standardization (ISO)
11. Factory Mutual Research Corporation
12. National Fire Protection Association

PART 2 - PRODUCTS

2.01 MATERIALS

A. Refer to Section 15051 for copper piping materials.

B. Refer to Section 15105 for polyethylene piping materials.

PART 3 - EXECUTION

3.01 GENERAL

A. Lead Service Replacement Procedure.

The CONTRACTOR shall comply with the following procedure when a lead service is identified during construction.

1. Once a lead service is identified, the CONTRACTOR shall stop work on the replacement and notify both the ENGINEER and the OWNER in writing. OWNER will notify the customer of the existence of the lead service.
2. ENGINEER is responsible for documenting the lead service by taking photographs and measurements of the service location. The limits of lead piping shall also be determined and documented. ENGINEER shall provide the documentation of the lead service to the OWNER.
3. Once documentation is complete, CONTRACTOR shall carefully backfill the excavation minimizing disturbance/vibration to the lead service line.
4. CONTRACTOR shall flush the water service for at least ten (10) minutes using an external hose bib. If an external hose bib is not available, CONTRACTOR shall ask the customer if they can run the water inside the house at an upstairs sink for a minimum of ten (10) minutes for flushing purposes.
5. OWNER will advise ENGINEER and CONTRACTOR of the procedure to replace the service line to meet current ECWA and AWWA standards.

B. Payment

1. No separate payment shall be made for lead service replacements. All costs for work included herein shall be included in the various service replacement items.

END OF SECTION

SECTION 15103

HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install new high density polyethylene (HDPE) pipe and fittings as shown, specified and required.

B. Related Work Specified Elsewhere

1. Section 15051 - Buried Piping Installation
2. Section 15054 - Horizontal Directional Drilling
3. Section 15120 - Piping Specialties and Accessories
4. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Manufacturer shall have a minimum of 5 years experience producing polyethylene tubing, fittings and appurtenances, and shall show evidence of at least 5 installations in satisfactory operation.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers.

B. Reference Standards

1. AWWA C906 – Polyethylene (PE) Pressure Pipe and Fittings, 4 In (100 mm) Through 63 In (1,600 mm) for Water Distribution and Transmission.
2. ANSI Z171.1 – American National Standard for Preferred Numbers.
3. ASTM D638 – Standard Test Method for Tensile Properties of Plastics.
4. ASTM D792 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
5. ASTM D1238 – Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
6. ASTM D1505 – Standard Test Method for Density of Plastics by the Density-Gradient Technique.
7. ASTM D1598 – Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure.
8. ASTM D1599 – Standard Test Method for Short Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings.
9. ASTM D1603 – Standard Test Method for Carbon Black in Olefin Plastics.

10. ASTM D2122 – Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.
11. ASTM D2239 – Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.
12. ASTM D2737 – Standard Specification for Polyethylene (PE) Plastic Tubing.
13. ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
14. ASTM D3035 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
15. ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
16. ASTM D4218 – Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique.
17. ASTM F412 – Standard Technology Relating to Plastic Piping Systems.
18. AWWA Manual of Water Supply Practices M55: *PE Pipe – Design and Installation*.
19. CSA B137.1 – Polyethylene Pipe, Tubing and Fittings for Cold Water Pressure Services.
20. NSF/ANSI 60 – Drinking Water Treatment Chemicals – Health Effects.
21. NSF/ANSI 61 – Drinking Water System Components – Health Effects.
22. PPI TR3 – Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strengths (MRS) Ratings for Thermoplastic Piping Materials for Pipe.
23. PPI TR4 – PPI Listing of Hydrostatic Design Basis (HDB), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials for Pipe.
24. PPI TR-46, Guidelines for Use of Mini-Horizontal Directional Drilling for Replacement of High Density Polyethylene Pipe.
25. ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter.
26. Underwriter's Laboratories (UL)
27. International Organization for Standardization (ISO)
28. National Fire Protection Association
29. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

- A. The following information shall be submitted by pipe and fitting suppliers::
 1. Name of the pipe manufacturer and a list of the piping and quantities to be provided by manufacturer.
 2. Name(s) of fitting manufacturer(s) and lists of fittings and quantities to be provided by manufacturer.
 3. Pipe and fitting product data indicating conformance with this specification, applicable standards, and warranty provisions, including

written documentation regarding any intended variance from this specification and applicable standards.

4. At the time of shipment, the supplier shall provide certified documentation of pipe and fitting conformance with this specification and applicable pipe and fitting standards specified herein.

B. The following information shall be submitted by Fusion Providers.

1. Documentation that each Fusion Technician has met requirements for joining proficiency for each type of fusion joint performed by the Fusion Technician under this specification.
2. Documentation of conformance with this specification and applicable standards, including written documentation regarding any intended variance from this specification and applicable standards. This will include fusion joint warranty information and recommend project specific fusion parameters, including criteria logged and recorded by data logger.
3. The following “as-recorded data” is required from the CONTRACTOR and/or Fusion Provider:
 - a. Fusion reports for each fusion joint performed on the project, including joints that were rejected. Submittals of the Fusion Technician’s joint reports are required as requested by the OWNER or ENGINEER. Specific requirements of the Fusion Technician’s joint report shall include:
 - 1) Pipe or fitting size and DR or pressure class rating.
 - 2) Fusion equipment size and identification.
 - 3) Fusion Technician Identification.
 - 4) Job Identification Number.
 - 5) Fusion Number.
 - 6) Fusion joining parameters.
 - 7) Ambient temperature.

C. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.

D. Furnish delivery tickets indicating the pipe manufacturer, pipe type and class, identifying that the pipe was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.

B. The materials shall be inspected before unloading. Materials that are found to be cracked, gouged, chipped, dented, or otherwise damaged will not be accepted.

- C. Interiors of pipe, fittings and appurtenances shall be kept free from dirt and foreign matter.
- D. Store pipe and fittings so they are not in contact with the ground.

1.05 FUSION TECHNICIAN REQUIREMENTS

- A. Each Fusion Technician shall be separately qualified to make each type of fusion joint. Fusion joint types are butt fusion, saddle fusion, and electrofusion. Qualification to make one type of fusion joint shall not qualify a Fusion Technician to make a different type of fusion joint.
- B. Each Fusion Technician making butt fusion joints shall be qualified to make butt fusion joints in accordance with ASTM F2620. Qualification shall have occurred not more than 12 months before performing fusion joining on site in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F2620 that are proved to be satisfactory by destructive testing in accordance with ASTM F2620.
- C. Each Fusion Technician making saddle fusion joints shall be qualified to make saddle fusion joints in accordance with ASTM F2620. Qualification shall have occurred not more than 12 months before performing on-site fusion joining in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F2620 that are proved to be satisfactory by destructive testing in accordance with ASTM F2620.
- D. Each Fusion Technician making electrofusion fitting joints shall be qualified to make electrofusion fitting joints in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure. Qualification shall have occurred not more than 12 months before performing on-site fusion joining in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure that are proved to be satisfactory by destructive testing in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure.

1.06 WARRANTY

- A. Pipe and fitting suppliers shall provide a two-year warranty covering defects in products material and workmanship. A successful pressure test or pressure leak test prior to the expiration of the warranty period shall not relieve the supplier of warranty responsibility for the full warranty term.
- B. Fusion providers shall provide a two-year warranty from the date of installation acceptance covering defects in fusion joining workmanship that shall provide for remaking defective butt fusion, saddle fusion, or electrofusion joints. A successful pressure test or pressure leak test prior to the expiration of the warranty

period shall not relieve the installer of warranty responsibility for the full warranty term.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS FOR PRESSURE POTABLE WATER SERVICE

- A. PE4710 pipe and fitting material (compound).
 - 1. PE4710 material (compound) shall conform to material requirements specified in AWWA C906 as applicable for the pipe or fitting. PE4710 material shall meet the requirements of ASTM D3350 and shall meet or exceed a cell classification of 445574C per ASTM D3350.
 - 2. PE4710 material compound shall have a hydrostatic design stress (hds) rating for water at 73°F (23°C) of not less than 1000 psi.
 - 3. PE4710 material compound shall have a hydrostatic design basis (HDB) rating at 140°F (60°C) of not less than 1000 psi.
 - 4. PE4710 pipe and fitting material compound in PE4710 pipe and fittings shall contain color and ultraviolet (UV) stabilizer meeting the requirements of Code C or E per ASTM D3350. Code C material shall contain 2 to 3 percent carbon black to provide indefinite protection against UV degradation when material from the pipe is tested in accordance with ASTM D1603 or ASTM D4218. Code E material used for coextruded OD color stripes or coextruded ID color layer shall contain sufficient UV stabilizer to protect the pipe against UV degradation for at least 24 months of unprotected outdoor exposure. Coextruded color PE compound material shall be PE4710 pipe material compound, varying only by color and UV stabilizer.
 - 5. Clean rework materials derived from pipe production by the same manufacturer are acceptable as part of a blend with new material for the production of new pipe provided that the rework material is the same PE4710 material designation as the new material compound to which it is added. Finished products containing rework material shall meet the requirements of this specification.
 - 6. Qualification for potable water service. PE4710 compounds shall be tested and certified as suitable for use with potable water in accordance with requirements that are no less restrictive than the applicable requirements in NSF/ANSI61.
- B. PE4710 pipe and butt fusion fittings shall have plain ends for butt fusion.
- C. PE4710 pipe:
 - 1. Nominal straight length of 3-inch and larger pipe shall be 40 ft or 50 ft.
 - 2. Nominal coil length of 4-inch and smaller pipe shall be 500 ft. Longer or shorter coils such as 800 ft for 4-inch pipe, 1000 ft for 3-inch pipe, or 2000 ft for 2-inch or smaller pipe shall be acceptable.

3. Pipe shall be black. Coextruded OD blue stripes shall be an acceptable option.
4. Pipe shall be permanently marked using heated indent printing including:
 - a. Nominal size and sizing system, e.g., IPS or DIPS.
 - b. DR or SDR.
 - c. Standard Designation, AWWA C906, material designation, and pressure rating or pressure class for water at 73°F.
 - 1) Marking the Standard Designation on the pipe shall serve as the manufacturer's certification that the pipe has been manufactured, sampled, and tested and has been found to comply with the requirements of the standard.
 - 2) The ASTM D3035 or ASTM F714 pipe pressure rating for water at 73°F shall be "PE4710PR250" where 250 = pressure rating in psi.
 - 3) The AWWA C901 pipe pressure class for water at 73°F shall be "PE4710PC250" where 250 = pressure class in psi.
 - 4) The AWWA C906 pipe pressure class for water at 73°F shall be "PE3408PC250" where 250 = pressure class in psi.
 - d. NSF-61 or NSFpw mark certifying suitability for potable water service.
 - e. Extrusion production-record code.
 - f. Manufacturer's Trademark or trade name.

D. PE4710 fittings.

1. PE4710 butt fusion, saddle fusion, electrofusion, and fabricated fittings shall be manufactured from PE4710 material (compound) in accordance with this specification.
2. PE4710 fittings shall comply with ASTM D3261 for molded butt fusion and saddle fusion fittings, flange adapters, and MJ adapters, or shall comply with ASTM F1055 for electrofusion fittings.
3. PE4710 fittings shall comply with the marking requirements of ASTM D3261 for molded butt and saddle fusion fittings, flange adapters, and MJ adapters, or shall comply with the marking requirements AWWA C906 for fabricated butt fusion fittings, or shall comply with the marking requirements of ASTM F1055 for electrofusion fittings.
 - a. Marking shall include the NSF-61 or NSFpw mark verifying suitability for potable water service.
4. PE4710 fittings shall have pressure class rating not less than the pressure class rating of the pipe to which they are joined.

E. All polyethylene pipe shall be installed with an extra high-strength, copper clad steel tracer wire including 45 mil HDPE jacket that has a minimum average break load of at least 1,150 lbs. The jacket shall be blue for potable water.

2.03 FUSION JOINTS

- A. Unless otherwise specified, PE4710 pipe and fittings shall be assembled in the field with butt fusion, saddle fusion, or electrofusion joints. ASTM F2620 and the pipe manufacturer's recommended procedure (WL Plastics WL101) shall be observed for butt fusion and saddle fusion joints. ASTM F1290 and the electrofusion fitting manufacturer's recommended joining procedure shall be observed for electrofusion joints.
- B. Field butt fusion, saddle fusion, and electrofusion joints shall be made by Fusion Technicians that are qualified in accordance with this specification to make the specific fusion joint type.
- C. Field fusion joints shall be recorded and documented in accordance with this specification.
- D. Internal and external joint beading shall remain intact unless drawings specifically call for removal.

2.04 CONNECTIONS AND FITTINGS FOR PRESSURE APPLICATIONS

- A. Connections shall be defined in conjunction with the linking of project piping, as well as the tie-ins to other piping systems.
- B. Mechanical fittings.
 - 1. Acceptable mechanical fittings for use with PE4710 pipe and fittings shall be mechanical fittings that are qualified by the mechanical fitting manufacturer for use with HDPE pipe and fittings.
 - 2. Mechanical fittings for use with HDPE pipe shall provide restraint against longitudinal separation that is inherent to the design of the joint. Mechanical joints that do not provide restraint against pull-out or push-off are prohibited.
 - 3. Mechanical connections to non-HDPE devices and appurtenances shall be by bolted flange adapter or MJ adapter. Flange adapter and MJ adapter connections shall be assembled, installed, and tightened in accordance with flange adapter or MJ adapter manufacturer's instructions. Flange bolt tightening shall be in accordance with PPI TN-38.
- C. Gasketed, push-on fittings.
 - 1. Gasketed push-on fittings shall be fitted with external mechanical restraints that span across the joint and are assembled in accordance with restraint manufacturer's instructions.
 - a. Thrust blocking does not provide acceptable restraint and is prohibited.
 - b. Where plain-end PE4710 pipe is assembled with push-on fittings, the PE4710 pipe end shall be fitted with electrofusion restraints so that external mechanical restraint may be secured to the PE4710 pipe.

2. Where PE4710 pipe is connected to gasketed mechanical joint fittings or appurtenances, the connection shall be made by butt fusing a PE4710 MJ Adapter to the PE4710 pipe and connecting the PE4710 MJ Adapter to the mechanical joint fitting or appurtenance.
- D. Sleeve-type couplings.
 1. Sleeve-type mechanical couplings shall be manufactured for use with HDPE pipe, and shall be restrained as indicated on the drawings and in these specifications. Unrestrained sleeve-type couplings are prohibited.
 - E. Expansion and flexible couplings.
 1. Expansion-type mechanical couplings are prohibited.
 - F. Connection hardware.
 1. Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.

PART 3 - EXECUTION

3.01 DELIVERY AND OFF-LOADING

- A. All piping shall be bundled or packaged for transportation by commercial carrier to the site.
- B. Before off-loading, pipe shall be inspected for damage. Any pipe damaged in shipment shall be assessed and either accepted or rejected as directed by the OWNER or ENGINEER, and the pipe supplier shall be notified of rejected pipe within 7 days of delivery at the site. Rejected pipe shall be quarantined for disposition. Each pipe shipment shall be checked for quantity and proper pipe size, color, and type.
- C. Pipe shall be off-loaded and handled in accordance with the pipe manufacturer's instructions and AWWA M55.

3.02 HANDLING AND STORAGE

- A. Pipe lengths should be placed and stored on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.
- B. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch, or otherwise abrade the piping in any way. Use of hooks, chains, wire rope, or any other handling device which creates the opportunity to damage the surface of the pipe is strictly prohibited.

- C. Covering or shading PE4710 pipe and fittings against exposure to ultraviolet light from sunlight is required for pipe not installed within 14 days from delivery.
- D. Use of “squeeze off” tools to deform pipe are prohibited from use.

3.03 FUSION PROCESS

A. General.

1. Butt and saddle fusion of PE4710 pipe and fittings shall be in accordance with ASTM F2620 and the manufacturer’s recommended joining procedure.
2. Electrofusion of PE4710 and fittings shall be performed in accordance with ASTM F1290 and the electrofusion fitting manufacturer’s recommended procedure.
3. PE4710 pipe and fittings shall be fused by qualified fusion technicians, as documented by the fusion provider. Training records for qualified fusion technicians shall be available to OWNER and ENGINEER upon request.
4. As each fusion joint is constructed, pressure, time, and temperature parameters shall be recorded and logged by an electronic monitoring device (data logger) affixed to the fusion machine. Joint data shall be submitted as part of the As-Recorded information, in accordance with this specification.
5. Butt fusion machines shall incorporate the following properties, including the following elements.
 - a. HEAT PLATE – Heat plates and the non-stick coatings on heating surfaces shall be in good condition without heating surface gouges or scratches. The non-stick coating shall be intact, clean, and free of any contamination. Heater controls and temperature indicators shall function properly, and electrical cords and connections shall be in good condition. The heat plate shall maintain a uniform and consistent temperature on all areas of the heating surfaces on both sides of the heat plate.
 - b. CARRIAGE - Carriage shall travel smoothly with no binding at less than 50 psi for hydraulic fusion machines. Clamps shall be in good condition with proper inserts for the pipe size being fused.
 - c. GENERAL MACHINE – Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 - d. DATA LOGGER – The current version of the pipe supplier’s recommended and compatible software shall be used. Protective case shall be utilized for the hand held wireless portion of the unit. Data logger operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.

6. Other equipment specifically required for fusion processes shall include the following.
 - a. Pipe rollers shall be used to support pipe to either side of the butt fusion machine and provide for vertical and lateral pipe alignment straight through the butt fusion machine.
 - b. A protective enclosure that provides for full machine motion of the clamps, heat plate, fusion assembly, and carriage shall be provided for fusion in inclement and/or windy weather. Pipe ends shall be covered or blocked where open pipe ends could allow prevailing winds to blow through the pipe.
 - c. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
- B. Joint Recording.
 1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine that shall register and/or record the parameters required by the manufacturer and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

3.04 INSTALLATION

- A. The PE4710 pipe and fittings shall be installed such that PE4710 pipe curvature is not less than the minimum bending radius recommended by the pipe manufacturer.
- B. Direct burial installation of PE4710 pressure pipe shall be in accordance with ASTM D2774 and the pipe manufacturer's recommendations.
- C. Installation of PE4710 pipe by horizontal directional drilling shall be in accordance with ASTM F1962 or PPI TR-46 and the pipe manufacturer's recommendations.
- D. Installation of PE4710 pipe by sliplining or insertion within a casing or host pipe shall be in accordance with ASTM F585 and the pipe manufacturer's recommendations.
- E. Tracer wire – all PE4710 piping shall be installed with a continuous, insulated TW, THW, THWN, or HMWPE insulated copper, 10 gauge or thicker wire for pipeline location purposes by means of an electronic line tracer.
 1. The wires shall be installed along the entire length of the pipe.
 2. Sections of wire shall be spliced together using approved splice caps and waterproof seals. Twisting the wires together is not acceptable.
 3. Tracer wire to be installed to top of valve box and hydrant assemblies for easy connection as determined by OWNER.

3.05 PIPE SYSTEM CONNECTIONS

- A. Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's recommendations and as indicated on the drawings.

3.06 TRACER WIRE TESTING

- A. Upon completion of installation by direct burial, slipping, directional boring, or pipe bursting, the CONTRACTOR shall demonstrate that the tracer wire is continuous and unbroken through the entire run of the pipe.
 - 1. Demonstration shall include full signal conductivity (including splices) when energizing for the entire run in the presence of the ENGINEER.
 - 2. If the wire is broken, the CONTRACTOR shall repair or replace it at his cost. Pipeline installation will not be accepted until the tracer wire passes a continuity test.

3.07 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS

- A. Tapping shall be performed using standard saddle fusion fittings, electrofusion saddle fittings, or mechanical tapping saddles or sleeves designed for use on HDPE piping. Tapping by threading directly into the PE4710 pipe wall is prohibited.
- B. Branching connections requiring a larger diameter shall be made with mechanical branch connection fittings as specified and indicated on the drawings.
- C. Equipment used for tapping shall be made specifically for tapping HDPE pipe:
 - 1. Tapping bits shall be slotted "shell" style cutters, specifically made for HDPE pipe. "Hole saws" made for cutting wood, steel, ductile iron, or other materials are strictly prohibited.
 - 2. Manually operated or power operated drilling machines may be used.
- D. Taps may be performed while the pipeline is filled with water and under pressure ("wet" tap), or when the pipeline is not filled with water and not under pressure ("dry tap").

3.08 TESTING

- A. Testing shall comply with all local building codes, statutes, standards, local jurisdiction, and laws.
- B. Segments of the pipe may be tested separately in accordance with standard testing procedure, as approved by the OWNER and ENGINEER.
- C. Hydrostatic leakage testing for pressure piping.
 - 1. Hydrostatic leakage testing shall comply with ASTM F2164, AWWA C906, AWWA M55, and Section 15140. Joint leakage and any

defective materials and/or workmanship shall be repaired or replaced by the CONTRACTOR at no additional cost to the OWNER.

2. Pneumatic (compressed air) leakage testing of PE4710 pressure piping is prohibited.

D. Disinfection of the pipeline for potable water piping.

1. After installation, the pipeline, having passed all required testing, shall be disinfected prior to being put into service per AWWA C651 and Section 15140.

END OF SECTION

SECTION 15104

WORKING WITH ASBESTOS CEMENT PIPE (ACP)

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified.
The work specified shall include all labor, materials, tools, equipment, services, and incidentals necessary to modify and/or repair Asbestos Cement Pipe (ACP) as shown, specified and required.
- B. Related Work Specified Elsewhere.
 - 1. Section 15051 - Buried Piping Installation
 - 2. Section 15110 - Valves and Appurtenances
 - 3. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

- A. CONTRACTOR'S Qualifications.
 - 1. CONTRACTOR shall have a minimum of 5 years documented experience working with asbestos cement pipe.
- B. Reference Standards.
 - 1. Code of Federal Regulations U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1926.1101, Asbestos.
 - 2. Code of Federal Regulations, 40 CFR Part 763, Subpart G – Asbestos Worker Protection.
 - 3. Part 56 of Title 12 of the official compilation of Codes, Rules and Regulations of the State of New York (12 NYCRR Part 56), Industrial Code Rule 56, Asbestos, per New York State Department of Labor.
 - 4. Part 360 of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR Part 360), New York State's Solid Waste Management Facilities Regulations, per New York State Department of Environmental Conservation.
 - 5. Part 73 of Title 10 of the official compilation of Codes, Rules and Regulations of the State of New York (10 NYCRR Part 73), Asbestos Safety Training, per New York State Department of Health.
 - 6. New York State Department of Labor, Public Employee Safety and Health Bureau, PESH Act.
 - 7. AWWA Manual M28, Rehabilitation of Water Mains.
 - 8. AWWA Manual M9, Concrete Pressure Pipe.
 - 9. NSF/ANSI Standard 61.
 - 10. Underwriter's Laboratories (UL).
 - 11. International Organization for Standardization (ISO).
 - 12. Factory Mutual Research Corporation.
 - 13. Clean Air Act (CAA).

14. Safe Drinking Water Act (SDWA).
15. ANSI Z88.2-80, Practices for Respiratory Protection.
16. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems.
17. 29 CFR 1910.1001, "Asbestos" (OSHA).
18. 29 CFR 1910.1200, "Hazard Communication" (OSHA).
19. 29 CFR 1910.134, "Respiratory Protection" (OSHA).
20. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA).
21. 29 CFR 1926, "Construction Industry" (OSHA).
22. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA).
23. 40 CFR 61, Subpart A, "General Provisions" (EPA)
24. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (USEPA).
25. 49 CFR 171-172, "Transportation Standards" (USDOT).
26. Occupational Safety and Health Administration.
27. United States Department of Transportation (USDOT).
28. USEPA 530-SW-85-007, Asbestos Waste Management Guidance.
29. Guidance Document (AGD-v2.0) on 12 NYCRR, Part 56.
30. New York State Department of Environmental Conservation (NYSDEC).
31. New York State Department of Health (NYSDOH).
32. New York State Department of Labor (NYSDOL).
33. New York State Department of Transportation (NYSDOT).

1.03 SUBMITTALS

- A. CONTRACTOR shall submit the following prior to the start of work:
 1. The number of years your organization has been working with asbestos cement pipe under your present name.
 2. Any projects similar to this project completed by your organization. Include all projects completed within the last three years and all projects completed for the Authority specifically within the last five years.
 3. List the names of any company that has operated under the umbrella of your organization and the projects that they have completed.
 4. A list of current employees who have completed appropriate asbestos training and copies of their current certificates identifying their qualifications.
 5. A letter from the CONTRACTOR, on company letterhead, stating that they are knowledgeable of all current local, state, and federal requirements regarding asbestos work, that all work will meet those requirements, and that all workers shall be protected against exposure as defined by OSHA. Letter shall have an original signature, signed by an officer of the company.
 6. Written procedures for field repairs of pipe, pipe handling, and disposal.
 7. Project Close-out Submittals: Within 30 days of project completion, the CONTRACTOR shall submit 1 copy of the documents listed below to the ENGINEER and 1 set of documents shall be forwarded to the OWNER.
 - a. **Originals** of all waste disposal manifests, seals, and disposal logs.

- b. OSHA compliance air monitoring records conducted during the work.
 - c. Daily progress log, including entry/exit log.
 - d. A list of all workers used in the performance of the project, including name, NYSDOL certification number and expiration date, and NYSDOH 2832 number and expiration date.
 - e. All documentation identifying that asbestos materials have been properly handled, secured, labeled, and disposed of properly at an approved facility capable of accepting asbestos materials.
 - f. Disposal site/landfill permit from applicable regulatory agency.
 - g. Final project notifications.
8. The CONTRACTOR shall submit a site-specific Health and Safety Plan for review prior to any work activities. The Health and Safety Plan shall include, but not be limited to, Workers' 40-hour OSHA training and 8-hour refresher training certification and copies of fit testing and medical clearance records.

1.04 COMPETENT PERSON

- A. Prior to the start of work on any given day, CONTRACTOR shall designate one individual on site as the Competent Person.
- B. *Competent Person* means, in addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff set forth at 40 CFR 763.92 (a)(2).
- C. The Competent Person shall have the authority to stop the work or change the work practices, as necessary, to insure compliance with all state and federal regulations.
- D. The Competent Person shall maintain all required logs for asbestos work and submit copies of all logs to ENGINEER and OWNER as requested, or at project completion.
- E. The Competent Person shall be responsible for worker and job site safety as required by all relevant asbestos regulations and OSHA requirements.
- F. The name(s) and contact phone number of the competent person shall be given to the ENGINEER and OWNER before the work is to begin.

1.05 PERMITS AND COMPLIANCE

- A. The CONTRACTOR shall assume full responsibility and liability for compliance with all applicable federal, state, and local laws, rules, and regulations pertaining to work practices, protection of workers, authorized visitors to the site, and persons and property adjacent to the work areas.
- B. The CONTRACTOR shall perform asbestos related work in accordance with New York State (NYS) Industrial Code Rule 56, and 29 CFR 1926 as specified herein. Where more stringent requirements are specified, adherence is required to the more stringent requirements.
- C. The CONTRACTOR shall be responsible for all fees related to the asbestos abatement work, including, but not limited to, licenses; permits; project notifications; variance petitions, applications, and re-openings; and Worker certifications.
- D. The CONTRACTOR may, at their own cost, petition applicable regulatory agencies for, obtain and use site-specific variance(s) to conduct the asbestos abatement work. Should the CONTRACTOR choose to apply for any variance, all conditions and provisions of the site-specific variance are subject to the review and approval of the ENGINEER.

1.06 PROJECT LOG BOOK

- A. Provide a permanently bound project log book. The log book shall contain, on the first page, the project name; name, address, and telephone number of OWNER; name, address, and telephone number of ENGINEER; name, address, and telephone number of the CONTRACTOR; and emergency numbers, including, but not limited to, local Fire/Rescue Department.
- B. All entries into the log shall be made in non-washable, permanent ink, and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.
- C. All persons entering and exiting the Work area shall sign the log and include name, employer, NYSDOL certification number, and time of entrance and exiting.
- D. The Project Supervisor shall document all Work performed daily and note all visual assessments required by NYS Industrial Code Rule 56.

1.07 PERSONAL PROTECTIVE EQUIPMENT

- A. All use of Personal Protective Equipment (PPE) shall be in compliance with applicable OSHA regulations and procedures.
- B. The minimum PPE is Level D Modified (hard hat, safety glasses, and steel-toed boots), at all times at the project site both inside and outside the work areas.

- C. Additional PPE is required to reduce exposure to asbestos. CONTRACTOR shall comply with all OSHA regulations throughout construction operations

1.08 SIGNS AND LABELS

- A. Provide warning signs and barrier tapes at all approaches to the Work area. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.
- B. Provide danger signs, 3-inch wide red barrier tape, and asbestos danger labels on all asbestos materials as required by regulations.

1.09 POLYETHYLENE SHEETING

- A. Unless otherwise indicated, polyethylene sheeting used on this project shall be at least 6 mil fire retardant sheeting.
- B. Decontamination enclosure systems shall utilize at least 6 mil opaque fire retardant plastic sheeting.

1.10 HEPA VACUUM EQUIPMENT

- A. All vacuuming performed in association with the abatement shall be conducted using HEPA-filter equipped industrial vacuums conforming to ANSI Z9.2.

1.11 DISPOSAL BAGS, DRUMS, AND CONTAINERS

- A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall be also imprinted with USDOT required markings.

1.12 SURFACTANT (AMENDED WATER)

- A. Wet all ACM prior to removal with surfactant mix, and apply in accordance with manufacturer's printed instructions.

1.13 OTHER PRODUCTS OR MATERIALS

- A. Other products or materials that are required for use during abatement activities shall comply with local, state, and federal codes and regulations, if applicable. The CONTRACTOR is expected to furnish and utilize industry standard equipment and materials. The CONTRACTOR shall not furnish equipment or materials that have been altered in such a manner that violates local, state, and/or federal codes and regulations, or presents unnecessary health and safety risk.

PART 2 – MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 WORKING WITH ASBESTOS CEMENT PIPE (ACP)

A. Documentation.

1. The CONTRACTOR shall maintain a bound daily project log throughout the project. This daily project log will contain all of the pertinent events and daily inspections that occur throughout the project. The daily project log shall be updated daily and kept on-site throughout the project.
2. In addition to the daily project log, the CONTRACTOR shall maintain a project book, (required by ICR 56) that contains the remainder of documents that might be generated on the project including: daily sign in/out sheets; personal and environmental air sampling analysis; licenses; certifications and notifications.
3. All project documentation shall be kept on the site at all times and be made available upon verbal request of the Commissioner of Labor, their designated representatives, ENGINEER, OWNER, or any other enforcement agency that has jurisdiction over the asbestos work.

B. Setup Procedures.

1. The material is classified by definition under 40 CFR 61, Subpart M, Section 61.141 as Category II, non-friable ACM, unless, when dry, it can be crumbled, pulverized, or reduced to powder by hand pressure. At that time, it becomes classified as regulated ACM (RACM) and subject to regulation under Subpart M. It is the intent of this specification to define procedures that maintain the AC pipe in an intact state. CONTRACTORS shall not use procedures that subject the AC pipe to forces that will crumble, pulverize, or reduce to powder the AC pipe. By using procedures that have a low to no probability of fiber release, the pipe retains its classification as Category II, non-friable ACM. These procedures will protect workers from the health risk associated with airborne asbestos.
2. Prior to exposing the waterline, CONTRACTOR shall have all necessary materials for working around asbestos cement pipe on site.
3. CONTRACTOR shall properly secure the site, labeling the area and setting up a marked perimeter to minimize exposure for workers or visitors without PPE.
4. The Competent Person shall be on site at all times Work is progressing.
5. All Work shall be performed in such a manner as to minimize the risk of exposure to personnel and to minimize the risk of release of asbestos or asbestos-containing debris to the environment.
6. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. The information contained within this specification section will be considered part of the Project Documents. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent procedure(s) shall apply.

7. The CONTRACTOR shall take notice, and make employees aware, of occupational safety hazards associated with the abatement work and other work being performed on-site. The CONTRACTOR shall comply with any site-specific training that may be required by the OWNER.
8. Performance of the Work and preparation and processing of submittals shall be coordinated to comply with the overall project schedule and construction activities that are scheduled for the site, as specified in other applicable sections of the project Documents.
9. Title to Materials: ACM resulting from demolition work, except as otherwise indicated, shall remain the property of the OWNER. The CONTRACTOR is responsible for disposal, as specified, and maintaining records of disposal.

C. Removal of Asbestos-Containing Materials.

1. Perform all asbestos removal work using wet removal procedures. Mix and apply surfactant in accordance with manufacturer's written instructions. Dry removal procedures are not permitted.
2. Sufficiently wet asbestos materials with a low pressure, airless, fine spray of amended water to ensure full penetration prior to ACM removal. Re-wet materials that do not display evidence of saturation.
3. All removed material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate or whenever there is enough accumulation to fill a single bag or container. Maintain work area surfaces free of accumulation of asbestos debris.
4. Power or pressure washers are not permitted for asbestos removal or clean-up procedures.
5. All construction and demolition debris determined by the ENGINEER to be contaminated with asbestos shall be handled and disposed of as asbestos waste.
6. Should the area beyond the Work area become contaminated with ACM or elevated fiber levels, immediately stop work and institute emergency procedures. Contaminated non-work areas shall be isolated and subsequently decontaminated in accordance with procedures established for asbestos removal. All costs incurred from decontaminating such non-work areas and the contents thereof shall be borne solely by the CONTRACTOR, at no additional cost to the OWNER.
7. Spoils are to be gently placed in trucks or on ground and not dropped, to minimize dust creation.
8. The Competent Person shall oversee all work being performed and direct the work, as necessary, to insure all regulations and safety requirements are being met.
9. Backfill should be installed into the excavation carefully, to reduce dust generation. Compaction of backfill should also involve wetting, to minimize dust generation.

D. Prohibited Work Practices and Engineering Controls.

1. CONTRACTOR shall not use procedures that subject AC pipe to forces that will crumble, pulverize, or reduce to powder the AC pipe.

2. The following work practices and engineering controls shall **not** be used for work related to AC pipe or for work which disturbs ACM regardless of asbestos exposure or the results of the Initial Exposure Assessments:
 - a. High-speed abrasive disc saws and sanders not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
 - b. Carbide-tipped cutting blades.
 - c. Electrical drills, chisels, and rasps used to make field connections in AC pipe.
 - d. Shell cutters used to cut entry holes in AC pipe.
 - e. A hammer and chisel without using wet techniques to remove pipe connections.
 - f. Compressed air used to remove asbestos or material containing asbestos.
 - g. Dry sweeping, dry shoveling, or other dry clean-up of dust and ACM debris.
 - h. Employee rotation as a means of reducing employee exposure to asbestos.
- E. Decontamination Procedures.
 1. The work area shall be properly decontaminated, to minimize transfer of asbestos fibers. Drop cloths, enclosures, and workers' PPE shall be appropriately cleaned with vacuums (with HEPA filtration), wetted as necessary to minimize dust generation, removed in an appropriate decontamination area, bagged, labeled, and disposed of properly.
 2. Any asbestos materials removed from the work, (including pipe, drop cloths, used HEPA filters, etc.) shall be properly contained, labeled, and disposed of according to all state and federal regulations.
- F. Disposal of Asbestos Waste.
 1. All asbestos waste shall be stored, transported, and disposed of in accordance with the following regulations as a minimum.
 - a. NYSDEC 6 NYCRR Parts 360 and 364.
 - b. USEPA NESHAPS 40 CFR 61.
 - c. USEPA Asbestos Waste Management Guidance EPA/530-SW85.
- G. Payment.
 1. All costs for work involving asbestos cement pipe, including permitting, logging, and disposal, are included in the various pipe items.

END OF SECTION

SECTION 15105

POLYETHYLENE TUBING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install new polyethylene tubing and fittings as shown, specified and required.

B. Related Work Specified Elsewhere

1. Section 15051 - Buried Piping Installation
2. Section 15120 - Piping Specialties and Accessories
3. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Manufacturer shall have a minimum of 5 years experience producing polyethylene tubing, fittings and appurtenances, and shall show evidence of at least 5 installations in satisfactory operation.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers.

B. Reference Standards

1. AWWA C901 – Polyethylene (PE) Pressure Pipe and Tubing, ½ in. (13mm) through 3 in. (76 mm) for Water Service.
2. ANSI Z171.1 – American National Standard for Preferred Numbers.
3. ASTM D638 – Standard Test Method for Tensile Properties of Plastics.
4. ASTM D792 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
5. ASTM D1238 – Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
6. ASTM D1505 – Standard Test Method for Density of Plastics by the Density-Gradient Technique.
7. ASTM D1598 – Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure.
8. ASTM D1599 – Standard Test Method for Short Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings.
9. ASTM D1603 – Standard Test Method for Carbon Black in Olefin Plastics.
10. ASTM D2122 – Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

11. ASTM D2239 – Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.
12. ASTM D2737 – Standard Specification for Polyethylene (PE) Plastic Tubing.
13. ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
14. ASTM D3035 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
15. ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
16. ASTM D4218 – Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique.
17. ASTM F412 – Standard Technology Relating to Plastic Piping Systems.
18. AWWA Manual of Water Supply Practices M55: *PE Pipe – Design and Installation*.
19. CSA B137.1 – Polyethylene Pipe, Tubing and Fittings for Cold Water Pressure Services.
20. NSF/ANSI 60 – Drinking Water Treatment Chemicals – Health Effects.
21. NSF/ANSI 61 – Drinking Water System Components – Health Effects.
22. PPI TR3 – Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strengths (MRS) Ratings for Thermoplastic Piping Materials for Pipe.
23. PPI TR4 – PPI Listing of Hydrostatic Design Basis (HDB), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials for Pipe.
24. Underwriter’s Laboratories (UL)
25. International Organization for Standardization (ISO)
26. National Fire Protection Association
27. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 1. Detailed drawings and data on pipe, fittings and accessories.
 2. A materials list, which shall include full information regarding all components of the equipment. Materials of construction shall be presented in the listing.
 3. Any operations and maintenance information for polyethylene tubing.
- B. Submit certificates of compliance with the applicable referenced standards.
- C. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.

- D. Furnish delivery tickets indicating the pipe manufacturer, pipe type and class, identifying that the pipe was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. The materials shall be inspected before unloading. Materials that are found to be cracked, gouged, chipped, dented, or otherwise damaged will not be accepted.
- C. Interiors of pipe, fittings and appurtenances shall be kept free from dirt and foreign matter.
- D. Store pipe and fittings so they are not in contact with the ground.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All products, including interior coatings, shall be suitable for use in a potable water system.
- B. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.
- C. All polyethylene tubing shall be material code PE 4710, having a Pressure Class (PC) of 250, a Standard Dimension Ratio (SDR) of 9.0, and a Standard Internal Dimension Ratio (SIDR) of 7.0.
- D. All piping and fittings shall be designed for a working pressure and field hydrostatic test pressure as shown in Section 15051, Buried Piping Installation.
- E. All polyethylene tubing and accessories must be new materials in first-class condition. Used or recycled materials will not be allowed, regardless of condition.
- F. All polyethylene tubing shall meet the requirements of AWWA C901 and be appropriate for use in a potable water system.

2.02 MARKING

- A. All items shall be marked or labeled with the following information:
 - 1. Material designation code.
 - 2. AWWA Pressure Class.

3. Standard Dimension Ratio (SDR) and Standard Inside Dimension Ratio (SIDR).
 4. Size and schedule.
 5. ASTM specification number.
 6. Name and location of supplier.
- B. All polyethylene tubing shall include an attached metal tracer wire for locating tubing after installation.

2.03 JOINTING

- A. All joints shall conform to manufacturer's recommendations and shall be made by skilled workmen.
- B. Joints shall develop full strength and shall be stronger than the pipe joined.

PART 3 - EXECUTION

3.01 GENERAL

- A. Refer to Section 15051 for piping installation.
- B. All connections to polyethylene tubing shall be watertight at operating pressure.
- C. Polyethylene Tubing
1. Polyethylene tubing shall be installed in accordance with the applicable provisions of Section 02351, Excavation, Backfill and Trenching and Section 15051, Buried Piping Installation.
 - a. No coupling shall be allowed, especially under paved areas. Exception shall be based on the length of the service and the size of the coil of tubing provided and shall be only as allowed by ENGINEER.
 - b. Installation shall be suitable for open-cut or push or drill methods.
 - c. Install polyethylene tubing as per manufacturer's recommendations.
 2. Exposed polyethylene tubing shall be carefully erected and neatly arranged.
 - a. Polyethylene tubing shall be run parallel with walls inside structures and shall be pitched to drain.
 - b. Drain valves shall be installed at the low points of liquid filled systems.
 - c. Joints shall be fused, suitable for the pressure intended.

END OF SECTION

SECTION 15106

DUCTILE IRON PIPE, FITTINGS, AND ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, material, equipment, tools, services and incidentals necessary to furnish and install ductile iron pipe, fittings and appurtenances as shown, specified and required.

B. Pipe Schedule

1. Hydrant piping:
 - a. Pipe Class 53.
 - b. All joints are to be restrained and only as follows:
 - 1) Mechanical joint pipe and fittings utilizing wedge action retainer glands.
 - 2) Anchor pipe and anchor fittings.
2. 4-inch through 12-inch watermain (except hydrant piping):
 - a. Pipe class 52.
 - b. Non-restrained joints
 - 1) Bell and spigot push-on joint pipe.
 - c. Restrained joints utilizing one of the following:
 - 1) Mechanical joint pipe and fittings utilizing wedge action retainer glands.
 - 2) Bell and spigot push-on joint pipe with ductile iron pipe wedge action restraining devices and mechanical joint fittings utilizing wedge action retainer glands.
 - 3) Flexible restrained joint pipe and fittings utilizing patented ductile iron locking segment(s) or flex ring with factory applied spigot retainer weldment.
 - 4) Flexible restrained joint pipe utilizing patented ductile iron locking segment(s) or flex ring with factory applied spigot retainer weldment and mechanical joint fittings utilizing wedge action retainer glands.
3. 16-inch and larger watermain:
 - a. Pipe Class 54.
 - b. Non-restrained joints:
 - 1) Bell and spigot push-on joint pipe.
 - c. Restrained joints, utilizing one of the following:
 - 1) Flexible restrained joint pipe and fittings utilizing patented ductile iron locking segment(s) or flex ring with factory applied spigot retainer weldment.

- 2) Flexible restrained joint pipe utilizing patented ductile iron locking segment(s) or flex ring with factory applied spigot retainer weldment and mechanical joint fittings utilizing wedge action retainer glands.
4. Watermain installed by Horizontal Directional Drilling:
 - a. Pipe Class 53
 - b. All pipe joints are to be restrained by use of boltless and flexible restraint joint pipe utilizing patented ductile iron locking segment(s) or flex ring with factory applied retainer weldment. If fittings are part of the Horizontal Directional Drill, they shall be flexible restraint joints utilizing patented ductile iron locking segment(s) or flex ring with factory applied spigot retainer weldment.
5. Flanged pipe watermain, all sizes:
 - a. Pipe Class 53.
 - b. Flanged joints are for non-buried applications.
- C. Related Work Specified Elsewhere
 1. Section 02080 - Fire Hydrants
 2. Section 15051 - Buried Piping Installation
 3. Section 15110 - Valves and Appurtenances
 4. Section 15120 - Piping Specialties and Accessories
 5. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

- A. Manufacturer's Qualifications
 1. Manufacturer shall have a minimum of 5 years experience producing ductile iron pipe, fittings and accessories, and shall show evidence of at least 5 installations in satisfactory operation.
 2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers.
- B. Reference Standards
 1. AWWA C104, American National Standard for Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
 2. AWWA C105, American National Standard for Polyethylene Encasement for Ductile Iron Pipe Systems
 3. AWWA C110, American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, (75 mm through 1200 mm), for Water and Other Liquids
 4. AWWA C111, American National Standard for Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings
 5. AWWA C115, American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

6. AWWA C150, American National Standard for Thickness Design of Ductile-Iron Pipe
7. AWWA C151, American National Standard for Ductile Iron Pipe, Centrifugally Cast, for Water
8. AWWA C153, American National Standard for Ductile-Iron Compact Fittings. 3 In. Through 24 In. (76 mm through 610 mm) and 54 In. Through 64 In. (1400 mm through 1600 mm), for Water Service
9. ANSI B16.1, Cast Iron Pipe Flanges and Flanged Fittings
10. ANSI B1.20, Pipe, Threads, General Purpose (Inch)
11. ANSI B18.2.1, Square and Hex Bolts and Screws Inch Series, Including Hex Cap Screws and Lag Screws
12. ANSI B18.2.2, Square and Hex Nuts
13. ASTM A307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
14. ASTM A354, Specification for Quenched and Tapered Alloy Steel Bolts, Studs and Other Externally Threaded Fasteners
15. ASTM A536 Standard Specification for Ductile Iron Castings
16. NSF/ANSI Standard 61
17. Underwriter's Laboratories (UL)
18. International Organization for Standardization (ISO)
19. Factory Mutual Research Corporation
20. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 1. Detailed drawings and data on pipe, fittings and accessories.
 2. A materials list, which shall include full information regarding all components of the equipment. Materials of construction shall be presented in the listing.
- B. Laying Schedules or drawings when requested or required or when custom pieces or specially marked pipe is used. Field closures and field cuts, and manner of restrained joints shall be shown.
- C. Submit certificates of compliance with the applicable referenced standards.
- D. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.
- E. Furnish delivery tickets indicating the pipe manufacturer, pipe type and class, identifying that the pipe was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the pipe, fittings and accessories. Furthermore, all ductile iron pipe requiring polyethylene encasement as per Section 2.02.B, where the polyethylene has been field pre-applied to the pipe shall be handled with suitably padded equipment to prevent damage to the coating. Do not drop or roll materials off trucks. All ductile iron pipe and fittings shall be handled with padded slings or other appropriate equipment. The use of cables, hooks or chains will not be permitted.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, dented or otherwise damaged will not be accepted.
- D. Interiors of pipe, fittings and accessories shall be kept free from dirt and foreign matter.
- E. Store pipe and fittings on heavy wood blocking or platforms so they are not in contact with the ground.
- F. Pipe, fittings, and specials shall be unloaded opposite to or as close to the place where they are to be used as is practical to avoid unnecessary handling.

1.05 PIPE INSTALLATION SPECIALIST

- A. A factory trained and certified manufacturer's pipe installation specialist shall be present during CONTRACTOR start-up and for a total of 5 working days when pipe laying is in progress and thereafter shall be available during the course of the project to assist the OWNER, ENGINEER, and/or CONTRACTOR when requested by the OWNER, ENGINEER and/or CONTRACTOR. This field service shall be at no cost to the OWNER. This can include field review of pipe/fittings when requested by the OWNER, ENGINEER, and/or CONTRACTOR.
- B. The specialist shall submit three (3) copies of a written report to the ENGINEER presenting the findings of each visit. As a minimum, each report should include the following: date, day, time, purpose of the visit (and who initiated the visit), weather conditions, CONTRACTOR'S name, project name and the contract number, ENGINEER'S name, individuals contacted, location visited (station, street, field office, ENGINEER'S main office, OWNER'S office CONTRACTOR'S office, etc.), and any other pertinent information related to the visit (such as the results of individual pipe/fitting inspections, etc.)

PART 2 - PRODUCTS

2.01 MATERIALS

A. General

1. All products, including interior coatings shall be suitable for use in a potable water system.
2. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.
3. All ductile iron pipe, fittings and accessories shall be designed for a working pressure and field hydrostatic test pressure as shown in Section 15051, Buried Piping Installation.
4. All ductile iron pipe, fittings, and accessories must be new materials in first-class condition. Used or recycled materials shall not be allowed, regardless of condition.
5. All ductile iron pipe shall be provided from the same manufacturer.
6. Pipe shall be fully gauged.
7. Pipe shall be furnished in nominal laying lengths of 18 or 20 feet unless otherwise specified.
8. Pipe and fittings shall be lined with cement mortar lining in accordance with AWWA C104, except it shall be double thickness and a bituminous seal coat meeting NSF/ANSI Standard 61. The exterior shall be provided with a bituminous coating in accordance with AWWA C151. Fittings may be lined with an NSF/ANSI Standard 61 approved fusion bonded epoxy meeting the applicable sections of AWWA C116.
9. Bonded joints may be required in areas where the ENGINEER has evaluated soil conditions and has recommended that corrosion protection is required at locations as shown on the drawings. The pipe manufacturer shall supply all joint bonding materials, including #4 AWG stranded insulated copper wire bonding jumpers.

B. Ductile Iron Mechanical Joint Pipe and Fittings

1. Ductile Iron Mechanical Joint Pipe:
 - a. Pipe shall be centrifugally cast ductile iron conforming to the requirements of AWWA C151 for material, dimensions, tolerance, tests, markings and other requirements.
 - b. Manufacturer:
 - 1) American Cast Iron Pipe Co.,
 - 2) Atlantic States, Inc.,
 - 3) Clow - A Division of McWane, Inc.,
 - 4) Griffin,
 - 5) US Pipe.
2. Ductile Iron Mechanical Joint Fittings:
 - a. Tees, bends, elbows, reducers, increasers, offsets and other such fittings shall be mechanical joint ductile iron compact body conforming to AWWA C110 or AWWA C153, as specified.
 - b. Reducers shall be concentric or eccentric where specified.

- c. Fittings shall be suitable for use with polyvinyl chloride pressure pipe.
- d. Manufacturer:
 - 1) American Cast Iron Pipe Co.,
 - 2) Clow - A Division of McWane, Inc.,
 - 3) Griffin,
 - 4) Sigma Corp.,
 - 5) Star Pipe Products, Inc.
 - 6) Tyler - A Division of McWane, Inc.,
 - 7) US Pipe.
- 3. Joints for Ductile Iron Mechanical Joint Pipe and Fittings:
 - a. Joints shall conform to AWWA C111 and shall be mechanical joint bell and spigot and be furnished complete with all necessary accessories consisting of ductile iron follower glands, plain tipped rubber gaskets, nuts and bolts, unless otherwise specified.
 - b. Fittings shall have mechanical joint ends and be furnished with all necessary joint accessories consisting of ductile iron follower glands, (or cast iron glands for cast iron fittings), plain tipped rubber gaskets, nuts and bolts, unless otherwise specified. Split follower glands shall be furnished and installed only when approved by the ENGINEER.
 - c. All nuts and tee bolts for mechanical joint accessories shall be stainless steel or fluorocarbon coated as specified herein.
- 4. Restrained Joints for Ductile Iron Mechanical Joint Pipe and Fittings:
 - a. Restrained joints for mechanical joint pipe and fittings shall be made by restraining the pipe on each side of the fitting for all joints along the length of pipe as shown, specified or required.
 - b. Restraining shall be accomplished at the mechanical joint fitting by use of a mechanical joint wedge action retainer that incorporates mechanical joint restraint into the design of the follower gland with individually actuated wedges that are tightened against the barrel of the pipe, as specified herein.

C. Push-On Ductile Iron Pipe and Fittings

- 1. Push-On Ductile Iron Pipe:
 - a. Pipe shall be centrifugally cast ductile iron conforming to the requirements of AWWA C151 for material, dimensions, tolerance, tests, markings and other requirements.
 - b. Manufacturer:
 - 1) American Cast Iron Pipe Co.,
 - 2) Atlantic States, A Division of McWane, Inc.,
 - 3) Clow - A Division of McWane, Inc.,
 - 4) Griffin,
 - 5) US Pipe.
- 2. Fittings:
 - a. Tees, bends, elbows, reducers, increasers, offsets and other such fittings shall be mechanical joint ductile iron compact body

conforming to AWWA C110 or AWWA C153 and as specified herein.

3. Joints for Push-On Ductile Iron Pipe and Fittings:

- a. Joints shall conform to AWWA C111 and shall be bell and spigot and be furnished complete with circular rubber gaskets, and other accessories as necessary for a complete installation.
- b. Fittings shall have mechanical joint ends and be furnished with all necessary joint accessories consisting of ductile iron follower glands, (cast iron glands for cast iron fittings), plain tipped rubber gaskets, nuts and bolts, unless otherwise specified. Split follower glands shall be furnished and installed only when approved by the ENGINEER.
- c. All nuts and tee bolts for mechanical joint accessories shall be stainless steel or fluorocarbon coated as specified herein.

D. Ductile Iron Flexible Restraint Joint Pipe and Fittings and/or Mechanical Joint Fittings

1. Ductile Iron Flexible Restraint Joint Pipe:

- a. Pipe shall be centrifugally cast ductile iron conforming to the requirements of AWWA C151 for material, dimensions, tolerance, tests, markings, and other requirements.
- b. Restrained joint pipe shall be designed for a water working pressure of 350 psi for pipe sizes 4-inch through 20-inch and 250 psi for pipe sizes 24-inch through 54-inch.
- c. Flexible restraint joints shall consist of a boltless, glandless restraining system with factory applied spigot weld ring or weldment (weld bead of established height and width), which retains the wedge-shaped locking segments. These locking segments are either inserted into the bell prior to spigot engagement or inserted after spigot engagement by “caulking” a snap-ring into the bell, or inserting the segments through slots cast into the bell face.
- d. Pipe that utilizes gaskets with embedded restraining gripper or friction segments is not acceptable.
- e. Field applied weldments or weldments applied in a shop other than at the manufacturing facility are not allowed. Field cuts shall be restrained by cutting the barrel of the pipe and inserting it into a mechanical joint fitting and using wedge action retainer glands. As an alternative, flexible restrained closures may be incorporated into the Work provided they are accounted for in the approved laying schedule.
- f. Manufacturer:
 - 1) American Cast Iron Pipe Co. - Flex Ring,
 - 2) Clow - Super Lock,
 - 3) US Pipe - TR Flex,
 - 4) Or approved equal.

2. Ductile Iron Restrained Fittings and Mechanical Joint Fittings:
 - a. All ductile iron fittings shall meet the requirements of AWWA C153 or AWWA C110.
 - b. Fittings may be either flexible restraint joint or mechanical joint. If flexible restraint joint fittings are used, a certain number of fittings must be mechanical joint to allow for field adjustments in line or grade.
 - c. Fittings that utilize gaskets with embedded restraining gripper or friction segments are not acceptable.
 - d. Field applied weldments or weldments applied in a shop other than at the manufacturing facility are not allowed.
 - e. Manufacturer of Flexible Restraint Joint Fittings:
 - 1) American Cast Iron Pipe Co. - Flex Ring,
 - 2) Clow - Super Lock,
 - 3) US Pipe - TR Flex,
 - 4) Or approved equal.
 - f. Manufacturer of Mechanical Joint Fittings:
 - 1) American Cast Iron Pipe Co.,
 - 2) Clow - A Division of McWane, Inc.,
 - 3) Griffin,
 - 4) Sigma Corp.,
 - 5) Star Pipe Products, Inc.
 - 6) Tyler - A Division of McWane, Inc.,
 - 7) US Pipe.

E. Ductile Iron Anchor Pipe and Fittings

1. Ductile iron anchor pipe and fittings shall provide positive joint restraint by incorporating an integrally cast anchor gland (stop shoulder) at one end and an anchor, mechanical joint or plain end at the other end. The plain end, when fitted with a standardized mechanical joint gasket is to be inserted into a mechanical joint bell and bolted tight. A split, rotating ring shall be provided on the elbows, tees and on one end of the couplings or anchor pipe to permit vertical alignment regardless of the mating bolt hole alignment.
 - a. Pipe shall be centrifugally cast ductile iron conforming to the applicable requirements of AWWA C151 for material, dimensions, tolerance, tests, markings and other requirements.
 - b. Fittings shall conform to the applicable requirements of AWWA C110 or AWWA C153.
 - c. Anchor pipe shall be furnished in lengths from 18-inches to 18 feet as shown or specified.
 - d. Pipe and fittings shall be furnished complete with circular rubber gaskets conforming to AWWA C111, and other accessories as necessary for a complete installation.
 - e. Manufacturer:
 - 1) Tyler - A Division of McWane, Inc.,
 - 2) Clow - A Division of McWane, Inc.

F. Ductile Iron Flanged Pipe and Fittings

1. Ductile Iron Pipe with Threaded Flanges:

- a. Pipe shall be centrifugally cast ductile iron conforming to the requirements of AWWA C151 and C115 for material, dimensions, tolerance, tests, markings, and other requirements.
- b. Pipe barrels and flanges shall have a taper pipe thread (NPT) in accordance with ANSI B1.20.1, with pipe diameters adapted to ductile iron pipe standard outside diameters.
- c. Flanged pipe shall be minimum Class 53 thickness and shall be furnished in standard laying lengths as specified or required.
- d. Manufacturer:
 - 1) American Cast Iron Pipe Co.,
 - 2) Clow - A Division of McWane, Inc.,
 - 3) US Pipe,
 - 4) Fast Fabricators, Inc.

2. Ductile Iron Flanged Fittings:

- b. Tees, bends, elbows, reducers, increasers and other such fittings shall be flanged ductile iron in accordance with the requirements of AWWA C110 and shall conform to ANSI A21.10, 250 psi rating.
- c. Reducers shall be eccentric unless otherwise specified.
- d. Manufacturer:
 - 1) American Cast Iron Pipe Co.,
 - 2) Clow - A Division of McWane, Inc.,
 - 3) Griffin,
 - 4) Sigma Corp,
 - 5) Tyler - A Division of McWane, Inc.,
 - 6) Union Foundry Co., A Division of McWane, Inc.
 - 7) US Pipe.

3. Joints for Ductile Iron Flanged Pipe and Fittings:

- a. Flanged joints shall conform to the requirements of AWWA C110 and drilling and facing of flanges shall be in accordance with ANSI B16.1 Class 125 flanges unless otherwise specified.
- b. Flanged ductile iron pipe and fittings shall be furnished complete with all necessary joint accessories consisting of natural or synthetic rubber gaskets, ¹/₈-inch thick, full face; and, nuts, bolts and washers, unless otherwise specified.
- c. All nuts, bolts and washers for flanges and accessories shall conform to ANSI B18.2.1 and ANSI B18.2.2, respectively and shall be Type 304 stainless steel, high strength, low alloy steel or fluorocarbon coated as specified herein.

G. Accessories

1. Flange Fillers, Blind Flanges and Reducing Companion Flanges:

- a. Conform to the requirements of AWWA C115 for material, dimensions, tolerance, tests, markings and other requirements.
- b. Drilling and facing of flanges shall be in accordance with ANSI B16.1, Class 125 flanges unless otherwise specified.

- c. Flanged fillers, blind flanges and reducing companion flanges shall be furnished complete with all necessary joint accessories consisting of natural or synthetic rubber gaskets, ¹/₈-inch thick, full face; and, nuts, bolts and washers, unless otherwise specified.
 - d. Threaded outlets or taps, (Mueller threads), shall be provided in blind flanges as specified or required.
 - e. All nuts, bolts and washers for flanges and accessories shall conform to ANSI B18.2.1 and ANSI B18.2.2, respectively and shall be Type 304 stainless steel, high strength, low alloy steel.
2. Caps and Plugs:
- a. Conform to the requirements of AWWA C110 for material, dimensions, tolerance, tests, markings and other requirements.
 - b. Caps and plugs shall be mechanical joint or push-on joint and be furnished with all necessary joint accessories consisting of ductile iron follower glands, plain tipped rubber gaskets, nuts and bolts, unless otherwise specified.
 - c. All nuts and tee bolts for mechanical joint accessories shall be fluorocarbon coated as specified herein.
 - d. Threaded outlets or taps, (Mueller threads), shall be provided in plugs and caps as specified or required.
3. Solid Mechanical Joint Sleeves:
- a. Conform to the requirements of AWWA C153 for material, dimensions, tolerance, tests, markings, and other requirements of mechanical joint class 350 ductile iron solid sleeves.
 - b. Unless otherwise specified, provide long laid length sleeves complete with follower glands, rubber gaskets and fluorocarbon coated nuts, tee bolts, and accessories.
4. Manufacturer
- a. American Cast Iron Pipe Co.,
 - b. Clow - A Division of McWane, Inc.,
 - c. Griffin,
 - d. Sigma Corp.,
 - e. Star Pipe Products,
 - f. Tyler - A Division of McWane, Inc.,
 - g. US Pipe.

H. Mechanical Joint Wedge Action Retainer Gland

- 1. Restraint shall be accomplished by use of a retainer gland that incorporates mechanical joint restraint into the follower gland with individually actuated wedges that increase their resistance to pull-out as pressure or external forces increase.
- 2. The joint restraint ring and its wedging components shall be made of grade 65-45-12 ductile iron conforming to ASTM A536. The wedges shall be ductile iron heat treated to a minimum hardness of 370 BHN. T-bolts shall be fluorocarbon coated as specified herein.

3. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to AWWA C111 and AWWA C153.
4. Torque limiting twist off nuts shall be used to insure the proper actuation of the wedges. When the nut is sheared off, a standard hex head shall remain.
5. Manufacturer, for use on ductile iron pipe:
 - a. EBAA Iron, Series 1100 MEGALUG,
 - b. Uni-Flange Series 1400,
 - c. SIGMA One-Lok,
 - d. Star Pipe products – Stargrip.

I. Push-On Ductile Iron Pipe Joint Restraining Device

1. When specified or allowed by the ENGINEER, restraining push-on ductile iron pipe joints shall be accomplished by use of a joint restraint system that consists of restraining rods and split ductile iron clamping rings, installed on the spigot and behind the bell. The clamping ring shall incorporate a series of machined serrations on the inside surface to provide 360 degree contact and support of the pipe barrel. Lateral thrust restraint is provided when the side clamping bolts are tightened allowing the serrations to lock onto the pipe barrel.
2. Threaded restraining rods and bolts and clamping bolts and nuts shall be fluorocarbon coated or type 304 stainless steel.
3. The joint restraint rings shall be made of high strength, grade 65-45-12 ductile iron conforming to ASTM A536.
4. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to AWWA C111 and AWWA C153.
5. Restraining push-on joints as specified herein shall not be allowed for hydrant branches.
6. Restraining push-on joints shall be used on pipe sizes 6-inch to 12-inch only when allowed or specified. Restraining push-on joints in this manner shall not be allowed on pipe larger than 12 inches.
7. Manufacturer, for use on ductile iron pipe:
 - a. Uni-Flange Series 1450,
 - b. EBAA Series 1700,
 - c. Or approved equal.

J. Fluorocarbon Coated Nuts and Bolts

1. T-bolts shall be heat treated ductile iron material with a minimum of 65,000 psi tensile strength and 45,000 psi yield strength meeting ANSI/AWWA C111/A21-95.
2. Nuts and bolts shall have a fluorocarbon SC-1 coating.
3. Manufacturer:
 - a. Standco Industries,
 - b. Or approved equal.

- K. Threaded Harnessing Rods and Bolting Accessories
1. Threaded harnessing rods shall only be used when approved by the ENGINEER.
 2. Harness rods and nuts shall be heat treated steel with a minimum yield strength of 70,000 psi and a minimum ultimate strength of 110,000 psi.
 3. Threads shall conform to American Standard Course Threads.
 4. Rods and nuts shall be galvanized or cadmium plated, unless otherwise specified.
 5. Non-coated materials may be protected with the application of two (2) coats of a bituminous preservative coating after installation.
 6. Oil, grease, paint, or any coating, which requires drying will not be acceptable.

2.02 COATINGS, LININGS, AND POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE AND FITTINGS

- A. Coatings and Linings for Ductile Iron Joint Pipe and Fittings
1. Ductile iron pipe and fittings shall be lined with a bituminous seal coated cement-mortar lining in accordance with AWWA C104, except the thickness for pipe shall be double that specified.
 2. Ductile iron pipe and fittings shall be coated on the outside with a bituminous coating, approximately one millimeter thick. Fittings may be lined with an NSF/ANSI Standard 61 approved fusion bonded epoxy meeting the applicable sections of AWWA C116.
 3. The exterior of flanged ductile iron pipe and fittings for exposed piping shall be coated with a primer coating suitable to receive epoxy paint finish paint system.
- B. Polyethylene Encasement For Ductile Iron Pipe and Fittings
1. Polyethylene encasement shall be used for ductile iron pipe and fittings and on ductile iron fittings when using PVC pipe, conforming to AWWA Specification C105.
 2. Polyethylene film shall be manufactured of virgin polyethylene material conforming to the following requirements of ASTM Standard Specification D1248 - Polyethylene Plastics Molding and Extrusion Materials.
 3. Polyethylene film shall have a tensile strength of 1,200 psi minimum and shall allow elongation of 300 percent minimum and have a dielectric strength of 800 V/mil thickness minimum.
 4. Polyethylene film shall have a minimum nominal thickness of 0.008 in (8 mils). The minus tolerance of thickness shall not exceed 10 percent of the nominal thickness.
 5. Tape required to complete the installation shall be approximately two (2) inches wide, plastic backed adhesive tape such as Polyken #900, Scotchrap #50 or approved equal.
 6. Tube size or sheet width for each size of pipe shall be in accordance with AWWA C-105.

- C. Polyethylene Encasement for Ductile Iron Pipe to be Installed by Horizontal Directional Drilling (HDD)
1. Ductile iron pipe to be installed by horizontal directional drilling (HDD) shall be installed with a double polyethylene encasement per AWWA C105. "Method A" shall be used for installations below the water table. Only polyethylene encasement meeting all material requirements of AWWA C105 shall be used.
 2. Polyethylene film shall be manufactured of virgin polyethylene material conforming to the following requirements of ASTM Standard Specification D1248 – Polyethylene Plastics Molding and Extrusion Materials.
 3. Polyethylene film shall have a tensile strength of 1,200 psi minimum and shall allow elongation of 300 percent minimum and have a dielectric strength of 800 V/mil thickness minimum.
 4. Polyethylene film shall have a minimum nominal thickness of 0.008 in (8 mils). The minus tolerance of thickness shall not exceed 10 percent of the nominal thickness.
 5. Tape required to complete the installation shall be approximately two (2) inches wide, plastic backed adhesive tape, such as Polyken #900, Scotchrap #50, or approved equal.
 6. Tube size or sheet width for each size of pipe shall be in accordance with AWWA C-105.

PART 3 - EXECUTION

3.01 GENERAL

- A. Refer to Section 15051 for buried piping installation.

END OF SECTION

SECTION 15107

COPPER PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install new copper pipe and fittings as shown, specified and required.

B. Related Work Specified Elsewhere

1. Section 15051 - Buried Piping Installation
2. Section 15120 - Piping Specialties and Accessories
3. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Manufacturer shall have a minimum of 5 years experience producing copper pipe, fittings and appurtenances, and shall show evidence of at least 5 installations in satisfactory operation.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers.

B. Reference Standards

1. ASTM B32, Specification for Solder Metal
2. ASTM B42, Specification for Standard Size Seamless Copper Pipe
3. ASTM B68, Specification for Bright Annealed Seamless Copper Tube
4. ASTM B75, Specification for Seamless Copper Tube
5. ASTM B88, Specification for Seamless Copper Water Tube
6. ASTM B302, Specification for Threadless Copper Pipe
7. ASTM B306, Specification for Copper Drainage Tube (DWV)
8. NSF/ANSI Standard 61
9. Underwriter's Laboratories (UL)
10. International Organization for Standardization (ISO)
11. Factory Mutual Research Corporation
12. National Fire Protection Association
13. ASME, Boiler and Pressure Vessel Code
14. Federal Specification WW-P-377D(1), Pipe, Copper, Seamless Standard Sizes (S/S by ASTM B42)
15. ANSI B16.22, Wrought Copper and Bronze Solder - Joint Pressure Fittings
16. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 - 1. Detailed drawings and data on pipe, fittings and accessories.
 - 2. A materials list, which shall include full information regarding all components of the equipment. Materials of construction shall be presented in the listing.
 - 3. Any operations and maintenance information for copper pipe.
- B. Submit certificates of compliance with the applicable referenced standards.
- C. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.
- D. Furnish delivery tickets indicating the pipe manufacturer, pipe type and class, identifying that the pipe was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. The materials shall be inspected before unloading. Materials that are found to be cracked, gouged, chipped, dented, or otherwise damaged will not be accepted.
- C. Interiors of pipe, fittings and appurtenances shall be kept free from dirt and foreign matter.
- D. Store pipe and fittings so they are not in contact with the ground.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All products, including interior coatings, shall be suitable for use in a potable water system.
- B. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.
- C. All piping and fittings shall be designed for a working pressure and field hydrostatic test pressure as shown in Section 15051, Buried Piping Installation.
- D. Copper pipe: Copper pipe shall conform to the requirements of ASTM B88 and Federal Specification WW-T-799a. Buried copper piping to maximum 2-inch

diameter shall be type K, soft temper, suitable for use with flared fittings. Exposed copper piping shall be Type L hard temper tubing. Fittings shall conform to ANSI B16.22.

- E. All copper piping and accessories must be new materials in first-class condition. Used or recycled materials will not be allowed, regardless of condition.

2.02 MARKING

- A. All items shall be marked or labeled with the following information:
 - 1. Metal or alloy designation.
 - 2. Temper.
 - 3. Size and schedule.
 - 4. ASTM specification number.
 - 5. Name and location of supplier.

2.03 JOINTING

- A. All joints shall conform to manufacturer's recommendations and shall be made by skilled workmen.
- B. Joints shall develop full strength and shall be stronger than the pipe joined.

PART 3 - EXECUTION

3.01 GENERAL

- A. Refer to Section 15051 for copper piping installation.
- B. All connections to copper piping shall be watertight at operating pressure.
- C. Copper Tubing
 - 1. Copper tubing shall be installed in accordance with the applicable provisions of Section 02351, Excavation, Backfill and Trenching and Section 15051, Buried Piping Installation.
 - a. Flared connections shall only be allowed for all buried fittings.
 - b. No coupling shall be allowed, especially under paved areas. Exception shall be based on the length of the service and the size of the coil of tubing provided and shall be only as allowed by ENGINEER.
 - c. Installation shall be suitable for open-cut or push or drill methods.
 - 2. Exposed copper tubing shall be carefully erected and neatly arranged.
 - a. Copper tubing shall be run parallel with walls inside structures and shall be pitched to drain.
 - b. Drain valves shall be installed at the low points of liquid filled systems.
 - c. Joints shall be soldered suitable for the pressure intended.

3. Unions shall be provided on copper tubing systems with soldered joints.
 - a. Unions shall be located at control valves, solenoid valves, moisture and steam traps, other items of connected equipment and as shown on the Drawings.
 - b. Unions shall be of cast bronze or brass construction.
 - c. Dielectric unions shall be used when connecting copper tubing to ferrous metals.

END OF SECTION

SECTION 15108

THERMOPLASTIC PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, material, equipment, tools, services, and incidentals necessary to furnish and install thermoplastic pipe as shown, specified, and required.

B. Related Work Specified Elsewhere

1. Section 15051 - Buried Piping Installation
2. Section 15106 - Ductile Iron Pipe, Fittings, and Accessories
3. Section 15110 - Valves and Appurtenances
4. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Manufacturers Qualifications

1. Manufacturer shall have a minimum of 5 years experience producing thermoplastic pipe and shall show evidence of at least 5 installations in satisfactory operation.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturer's.

B. Reference Standards

1. AWWA C900, Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch through 12-inch for Water Distribution
2. ASTM D1598, Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure
3. ASTM D1599 Standard Test Method for Resistance to Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings
4. ASTM D1784, Standard Specifications for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPCC) Compounds
5. ASTM D2122, Standard Test Methods of Determining Dimensions of Thermoplastic Pipe and Fittings
6. ASTM D2241, Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure Rated Pipe (SDR Series)
7. ASTM D3034, Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
8. ASTM D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

9. ASTM F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
10. NSF/ANSI Standard 61
11. Underwriter's Laboratory (UL)
12. International Organization for Standardization (ISO)
13. Factory Mutual Research Corporation
14. 1996 Safe Drinking Water Act
15. American Water Works Association Manual M23.

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 1. Detailed drawings and data on pipe, fittings, and accessories.
 2. A materials list, which shall include full information regarding all components of the equipment. Materials of construction shall be presented in the listing.
 3. Any operations and maintenance information for thermoplastic pipe.
- B. Submit certificates of compliance with the applicable referenced standards.
- C. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.
- D. Furnish delivery tickets indicating the pipe manufacturer, pipe type and class, identifying that the pipe was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Thermoplastic pipe shall be stored on the job site in accordance with AWWA M23 and the manufacturer's recommendations. Thermoplastic pipe that has been subjected to excessive ultraviolet radiation from the sun shall not be used. Noticeably faded materials shall not be installed and shall be promptly removed from the site.
- B. Store thermoplastic pipe in the field by supporting the pipe uniformly per AWWA M23. Do not stack the pipe higher than 1.22 m (4 feet) or with weight on the bell ends. Cover stored thermoplastic pipe to protect it from the sun's ultraviolet radiation. Pipe that has been contaminated with any petroleum products (inside or outside) shall not be installed.
- C. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- D. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the pipe, fittings, and accessories. Do not drop or roll

materials off trucks. All thermoplastic pipe shall be handled with padded slings or other appropriate equipment. The use of cables, hooks or chains will not be permitted.

- E. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, dented, or otherwise damaged will not be accepted.
- F. Interiors of pipe, fittings, and accessories shall be kept free from dirt and foreign matter.
- G. Store pipe and fittings on heavy wood blocking or platforms so they are not in contact with the ground.
- H. Pipe, fittings, and specials shall be unloaded opposite to or as close to the place where they are to be used as is practical to avoid unnecessary handling.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General
 - 1. All products, including interior coatings, shall be suitable for use in a potable water system.
 - 2. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.
 - 3. All polyvinyl chloride pipe, fittings, and accessories must be new materials in first-class condition. Used or recycled materials will not be allowed, regardless of condition.
- B. Polyvinyl Chloride (PVC) Pressure Pipe
 - 1. Pipe
 - a. Polyvinyl chloride pipe, in sizes from 4-inches to 12-inches in diameter, shall be made from Class 12454-B materials or better in accordance with ASTM D1784.
 - b. Polyvinyl chloride pipe and accessories shall conform to the requirements of:
 - 1) Watermains under AWWA C900,
 - 2) Pressure rated ASTM D2241.
 - c. Polyvinyl chloride pipe and accessories to be used for potable water shall be certified as suitable by the NSF or other testing agency and shall be marked with the seal of the agency.
 - d. Pipe shall be designed for a working pressure and field hydrostatic test pressure as identified in Section 15051, Buried Piping Installation. Pipe shall be a minimum of DR-18.
 - e. Pipe shall bear the manufacturer's name, DR rating, and pressure rating.

- f. The outside diameter dimensions of the pipe shall conform with the outside diameter dimensions of ductile iron pipe.
 2. Fittings for Polyvinyl Chloride Pipe
 - a. Fittings for polyvinyl chloride pipe shall be mechanical joint ductile iron fittings as specified in Section 15106. Fittings shall be poly-wrapped.
 3. Joints
 - a. Joints for polyvinyl chloride pipe shall be push-on in accordance with the standard for the type of material.
 - 1) Polyvinyl chloride pipe joints shall be elastomeric.
 - a) Rubber gaskets for elastomeric joints shall conform to ASTM F477.
 - b) The rubber gasket shall be factory installed in the pipe, fittings, and couplings.
 - c) The plain end of the pipe shall be marked by the manufacturer to show the depth of penetration into the bell or coupling.
 4. Restrained Joints
 - a. Restrained polyvinyl chloride pipe joints shall be made by restraining the pipe on each side of the fitting for the length of pipe shown or specified and suitable for a field hydrostatic test pressure as identified in Section 15051, Buried Piping Installation.
 - b. Restrained PVC pipe connecting to ductile iron mechanical joint fittings and valves shall be a ductile iron clamp, EBAA Iron Sales Megalug Retainer Gland, Series 2000 PV, or approved equal.
 - c. Restrained bell joint PVC pipe shall be a ductile iron split clamping ring and back-up ring, EBAA Iron Sales Retainers, Series 1600 PV or 6500, or approved equal.
 - d. All clamping bolts and nuts shall be Type 304 stainless steel or fluorocarbon coated, high strength corrosion resistant low alloy steel.
 - e. Tie-rods shall not be allowed unless pre-approved by the ENGINEER. When used, tie-rods and accessories must be covered with two (2) coats of a bituminous coating to minimize corrosion.
 5. Manufacturer:
 - a. JM Manufacturing,
 - b. National Pipe and Plastics, Inc.,
 - c. Or approved equal.
- C. Polyethylene Tubing
 1. Polyethylene tubing shall conform to the requirements of ASTM D 2737 and be NSF approved and suitable for use in potable water systems. Tubing shall be SDR 9, 200 psi, copper tube size and shall not exceed 2 inches in size.
 2. Polyethylene tubing shall only be used where authorized by ENGINEER.

D. Sewer Pipe

1. All plastic sewer pipe and fittings shall conform to the requirements of ASTM D3034.
2. All joints shall be of the bell and spigot type and conform to ASTM D3212. Gaskets shall be in accordance with ASTM F477.
3. All bells shall be formed integrally with the pipe and shall contain a factory installed elastomeric gasket which is positively retained.
4. All fittings shall have a push-on joint, unless otherwise specified, which is compatible with the pipe and shall conform to ASTM D3034.
5. Flexible sewer couplings shall consist of Type 304 stainless steel clamps and housing with a one-piece neoprene sleeve and shall be as manufactured by Furnco or approved equal.

PART 3 - EXECUTION

A. Refer to Section 15051 for thermoplastic pipe installation.

B. Thermoplastic pipe joint deflection.

1. The maximum pipe joint deflection allowed shall not exceed $\frac{1}{2}$ of the manufacturer's recommended joint deflection. Bending of thermoplastic pipe for achieving pipe deflection is strictly prohibited.

C. Polyethylene Tubing

1. Refer to Section 15051 for buried thermoplastic piping installation.
2. Polyethylene tubing shall be installed in accordance with the applicable provisions of Section 02351, Excavation, Backfill, and Trenching and Section 15051, Buried Piping Installation.
 - a. Polyethylene tubing shall not be used unless ordered in writing by the ENGINEER for use at specific locations. The CONTRACTOR shall provide compression type corporation stops, curb stops, and unions only for use with polyethylene tubing. At all locations where compression fittings are used, a stainless steel insert must be provided.
 - b. Compression fittings are not permitted for any other application.

END OF SECTION

SECTION 15109

PRESTRESSED CONCRETE CYLINDER PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, materials, tools, equipment, services, and incidentals necessary to furnish and install prestressed concrete cylinder water piping and fittings as shown, specified and required.

B. Related Work Specified Elsewhere

1. Section 15051 - Buried Piping Installation
2. Section 15110 - Valves and Appurtenances
3. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. CONTRACTOR'S Qualifications

1. CONTRACTOR shall have a minimum of 5 years experience installing prestressed concrete cylinder pipe, fittings, and appurtenances.
2. A list of qualifications must be presented including:
 - a. The number of years your organization has been installing prestressed concrete cylinder pipe under your present name.
 - b. Any projects similar to this project completed by your organization. Include all projects completed within the last three years and all projects completed for the Authority specifically within the last five years.
 - c. List the names of any company that has operated under the umbrella of your organization and the projects that they have completed.

B. Welder's Qualifications

1. All welders and welding operators shall be qualified under AWS D1.1 Structural Welding Code – Steel, under AWS D1.3 Structural Welding Code – Sheet Steel, or under Sec. IX of the ASME Boiler and Pressure Vessel Code for Welding P – No. 1 (carbon or low alloy) steels. For the purpose of this standard, welders and the welding operators qualified under Sec. IX of the ASME Boiler and Pressure Vessel Code to weld P – No. 1 steels shall be deemed qualified to weld any combination of steels listed in Sec. 4.6 of AWWA C-301. Each welder and welding operator shall have qualified or requalified within the past three (3) years.

C. Manufacturer's Qualifications

1. Manufacturer shall have a minimum of 5 years experience producing prestressed concrete cylinder pipe, fittings, and appurtenances, and shall show evidence of at least 5 installations in satisfactory operation.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers. This interchangeability for both cylinder and embedded cylinder pipe shall include, but not be limited to the following components: cylinder outside diameter, joint ring outside diameter, joint depth (stab depth), and joint O-ring gasket. Care must always be taken to assure that the interchangeable pipe has the proper design for both external and internal pressures (working plus surge) and have the proper cylinder thickness if installed in a restrained joint area of the pipeline.

D. Marking for Identification

1. All pipe, fittings, and specials shall have the pipe class and specification designation with size and length dimensions stenciled thereon. Pipe that has been designed for pipe load conditions or thrust restraint shall have special markings thereon which can be readily identified. The name or trademark of the manufacturer, and the date and place of manufacture shall also be stenciled on the pipe, fittings, and specials. The piping for each service or system as specified herein shall be provided by a manufacturer who has thoroughly familiarized himself with the design intent of the overall system and will provide piping suitable for the service intended.

E. Reference Standards

1. AWWA C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, for Water and Other Liquids
2. AWWA C304, Design of Prestressed Concrete Cylinder Pipe
3. AWWA Manual M9, Concrete Pressure Pipe
4. AWWA C651, Preventative and Corrective Measures During Construction
5. NSF/ANSI Standard 61
6. Underwriter's Laboratories (UL)
7. International Organization for Standardization (ISO)
8. Factory Mutual Research Corporation

1.03 SUBMITTALS

A. Shop Drawings: Submit for approval the following:

1. Information on the product confirming compliance with the specified standard and any modifications included in this specification section.
2. As a minimum, the submittal shall include the following: design data sheet(s), pipe and joint detail drawings, restrained joint detail drawings, closure details (restrained and unrestrained), fitting detail drawings, and pipe laying schedule. The submittal should note any exceptions to AWWA C301 and any modifications included in this specification section.

3. Material specifications and certifications.
4. Shop drawings and affidavit of compliance per AWWA C301.
5. Design calculations (for information only) per AWWA C301 and AWWA C304. The CONTRACTOR shall submit to the ENGINEER the design calculations for each size and class of pipe. Along with each design, the CONTRACTOR shall include the calculated, explicit safety factor of 2.0 times working pressure plus 100 psi surge, including working external loads, where the maximum tensile stress in prestressing wire shall not exceed its yield strength, f_{sy} .
6. The manufacturer is solely and fully responsible for pipe manufacture in accordance with the design criteria contained in the plans and specifications.
7. Affidavit that all materials conform to AWWA C301 and any modifications included in this specification section.
8. Affidavit that all tests called for in AWWA C301 and any modifications included in this specification section have been performed and that all results indicate conformance to AWWA C301 and any modifications included in this specification section.
9. A complete indexed booklet (for information only) containing all data, design mixes, certified test (and certified retests, if any), reports, etc. for the pipe components (concrete, steel, wire, mortar, etc.) and the pipe fittings and specials. This booklet shall also include production information for each piece of pipe-by-pipe identification number.
10. Pipe repair procedures, if procedures different than AWWA C301 are to be used.
11. Written procedures for field repairs of pipe.
12. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the pipe, fittings and appurtenances. Do not drop or roll materials off trucks. All prestressed concrete cylinder pipe and fittings shall be handled with padded slings or other appropriate equipment. The use of cables, hooks or chains will not be permitted.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, or otherwise damaged will not be accepted.
- D. Interiors of pipe, fittings and appurtenances shall be kept free from dirt and foreign matter.

- E. Store pipe and fittings on heavy wood blocking or platforms so they are not in contact with the ground.
- F. Pipe, fittings, and specials shall be unloaded opposite to or as close to the place where they are to be laid as is practical to avoid unnecessary handling.

1.05 PIPE INSTALLATION SPECIALIST

- A. A factory trained and certified manufacturer's pipe installation specialist shall be present during CONTRACTOR start-up and for a total of 5 working days when pipe laying is in progress and thereafter shall be available during the course of the project to assist the OWNER, ENGINEER, and/or CONTRACTOR when requested by the OWNER, ENGINEER, and/or CONTRACTOR. This field service shall be at no cost to the OWNER. This can include field review of pipe/fittings when requested by the OWNER, ENGINEER, and/or CONTRACTOR
- B. The specialist shall submit three (3) copies of a written report to the ENGINEER presenting the findings of each visit. As a minimum, each report should include the following: date, day, time, purpose of the visit (and who initiated the visit), weather conditions, CONTRACTOR'S name, project name and the contract number, ENGINEER'S name, individuals contacted, location visited (station, street, field office, ENGINEER'S main office, OWNER'S office, CONTRACTOR'S office, etc.), and any other pertinent information related to the visit (such as the results of individual pipe/fitting inspections, etc.)

PART 2 - PRODUCTS

2.01 PRESTRESSED CONCRETE CYLINDER PRESSURE PIPE

- A. General
 - 1. All products, including interior coatings shall be suitable for use in a potable water system.
 - 2. All products including wetted parts shall be certified to meet NSF/ANSI Standard 61.
 - 3. Prestressed concrete cylinder pipe shall consist of a steel shell with steel bell and spigot end-rings welded to the ends of the cylinder.
 - 4. Joint O-ring gaskets shall be interchangeable with other pipe of same size of other manufacturers. The composition of the rubber shall be either natural or synthetic rubber. Gaskets removed from existing pipe shall not be reused.
 - 5. Restrained joints shall be designed for working pressure (P_w) plus surge pressure (P_i).
 - 6. All necessary fittings, outlets, bevels, bevel adapters, restrained joints, closure pieces shall be provided when specified.
 - 7. All prestressed concrete cylinder pipe, fittings, and accessories must be new materials in first-class condition. Used or recycled materials will not

be allowed, regardless of condition. Pipe shall not be supplied from inventory, but shall be manufactured specifically for this Contract.

8. Manufacturer of prestressed concrete cylinder pipe, fittings, and appurtenances shall be:

- a. Price Brothers, Inc.,
- b. Or approved equal.

B. Prestressed Concrete Steel Cylinder Pipe (Lined Cylinder and Embedded Cylinder Pipe).

1. Steel cylinders shall meet the requirements of AWWA C301 and shall be of sufficient thickness such that the stress in the cylinder at the specified working pressure plus surge is no greater than 50% of the specified minimum yield of the material as stated in AWWA C301 section 4.4.7.1; and in no case shall the cylinder thickness be less than 0.0747" (14 gauge).
2. The required area of steel for prestressed concrete pipe shall have a single layer of prestressing. Any design with multiple layers of prestressing wire shall not be acceptable.
3. All prestressed concrete pipe shall be manufactured in nominal 20-foot laying lengths. Concrete cores for pipe shall be manufactured per AWWA 301.
4. The pipe "Class" shall be clearly marked per AWWA C301. Markings indicating the pipe class and identifying each pipe in reference to the laying schedule shall also be included. Each pipe shall have an identification number to correlate production information such as concrete core placement, prestressing and mortar coating. A record of this production information shall be furnished. Each length of straight and special pipe and each fitting shall be plainly marked on the interior on the bell end.
5. Transient pressures, earth loads, and live loads above the design pressure shall be accounted for as outlined in AWWA C301. All highway live loads (including impact) shall be American Association of State Highway Transportation Officials HS-20 loading. Where specified, the live load for railroad crossing shall be Cooper E-80 loading

C. Design Conditions

1. Prestressed concrete cylinder pipe and fittings shall have a single design for each size of pipe furnished. There shall be no circumstance where multiple designs will be acceptable for any given size with the exceptions of: a design for restrained areas where heavier cylinders will be required; and, a design for deep stream/road/railroad crossings. The single design per size shall be in accordance with AWWA C304 for the following parameters:

- | | | |
|----|---|---|
| a. | Pipe inside diameter (d_i): | As shown on plans. |
| b. | Operating pressure (P_w): | See Section 15051, Buried Piping Installation. |
| c. | Surge pressure (P_t): | 100 psi, minimum, or as otherwise specified. |
| d. | Total design pressure: | (cumulative sum of b and c), minimum, or as otherwise specified. |
| e. | Field hydrostatic test pressure (P_{ft}): | See Section 15051, Buried Piping Installation (as measured at the lowest point in the pipeline gradient), or as otherwise specified. |
| f. | Safety Factor: | 2.0 (based on conditions described in 1.03.A.5.) |
| g. | Laying Condition: | As shown on plans. |
| h. | Depth of cover (H): | As shown on plans (8 feet minimum). |
| i. | Soil weight: | 120 lbs per cubic foot. |
| j. | Live loading: | AASHTO H20. |
| k. | In combination with the internal pressures, pipe, fittings, and specials shall be designed for the external condition listed below which results in a single class of pipe for each size of pipe: | |
| | 1) | Earth cover for existing grade as shown on Drawings, plus all applicable transient and live loads. |
| | 2) | Earth cover for proposed grade as shown on Drawings plus all applicable transient and live loads. |
| | 3) | All combinations of earth cover between the existing and proposed grades as shown on the drawings plus the applicable live loads (highway or railroad). |

D. Joints for Prestressed Concrete Steel Cylinder Pipe

1. Prestressed concrete cylinder pipe joints shall be sealed by a rubber gasket so that the joint will remain tight under all conditions of service, including movement due to expansion, contraction, and normal settlement. Exposed portions of the joint rings shall be protected by a coating as specified in 2.01.H. following.
2. Exterior joints shall be protected with cement grout (1 part cement to 3 parts sand) poured into a joint grout band or "diaper" after the pipe is firmly bedded and at least partially backfilled to avoid movement after the joint has been grouted. All joint grout bands shall be a minimum of 12-inch wide and be lined with earthfoam®.
3. All watermains shall require mechanically restrained joints at each fitting causing a change in direction of $7\frac{1}{2}$ degrees or greater. The restrained joint shall provide uniform retainage 360 degrees around the pipe joint. Prestressed concrete cylinder pipe shall be restrained where specified or

indicated on the drawings with a harness clamp ring or with a snap ring. These types of joints shall allow flexibility.

4. Bonded joints may be required in areas where the ENGINEER has evaluated soil conditions and has recommended that corrosion protection is required at locations shown on the drawings. The pipe manufacturer shall supply all joint bonding materials, including #4 AWG stranded insulated copper wires bonding jumpers, to be field CAD welded to the joint rings when specified.
5. Where joints on existing pipe are required to be restrained, such restraint shall be accomplished by welding the joint. Extreme care should be taken when restraining multiple lengths of any existing prestressed concrete cylinder pipe that have not been designed to resist axial thrust loads. The CONTRACTOR shall verify the steel cylinder thickness prior to restraining the existing pipe by welding joints.
6. Steel cylinder design for all areas requiring restrained joints shall be based on the type of fitting (i.e. deflection angle of bend, valve, or tee), working pressure plus surge, and an allowable longitudinal stress of 13,500 psi (14-gauge minimum).

E. Fittings, Outlets, Caps and Bevels

1. Outlets, connections, and appurtenances shall be of a size and class suitable for the pipe with which they are intended to be used.
2. Suitable watertight end caps or plugs, approved by the ENGINEER, shall be furnished for the purpose of capping the ends of pipe when pipe laying is not actually in progress.
3. Bevel pipe and/or bevel adapters shall be used where the required deflection of the pipeline is more than what is allowed by the joint opening method for straight pipe or as specified.
4. Other accessories not included under AWWA C301 shall be in accordance with the appropriate standard.

F. Harnessed Bulkheads, Plugs, and Caps

1. Harnessed dished bulkheads, plugs, and caps shall be provided as shown and/or required and shall be designed for the conditions stated herein. Plugs and caps shall be flat steel plates for temporary protection. The flat plates shall be reinforced with stiffeners. Permanent bulkheads shall be dish-shaped steel plates protected by concrete. Two, outlets with plugs, sized as shown on the plans (2-inch minimum), shall be provided in each bulkhead for pipe filling/testing purposes.

G. Construction and Materials

1. All pipe, fittings, specials, bends, closure pieces, joints, gaskets, etc., shall conform to the requirements of AWWA C301.
2. Physical Features of Pipe:
 - a. Steel cylinder shall be formed by spiral-welding steel coil with a full penetration lap-seam weld.

- b. Steel bell and spigot end-rings shall be welded to the ends of the cylinder.
- c. O-ring gasket shall be natural or synthetic rubber gasket conforming to AWWA C301.
- d. Concrete cores for all prestressed concrete pipe shall be manufactured per AWWA C301.
- e. Minimum steel cylinder thickness to be used in fittings and specials shall be $\frac{3}{8}$ -inch
- f. Prestressing wire for precompression of the concrete core shall be a minimum of 6 gauge and shall have yield and tensile strengths equal to or less than that of Class II meeting the requirements of ASTM A648.
- g. Cement mortar coating per AWWA C301 shall be a minimum of $\frac{3}{4}$ inch over the prestressing wire.

H. Coatings, Linings, and Polyethylene Encasement For Prestressed Concrete Cylinder Pipe

- 1. Exposed Steel Joint Rings:
 - a. Exposed portions of the joint rings shall be protected by a zinc metallized coating having a minimum thickness of 0.004 inch with a grout or cement mortar placed after installation in accordance with the pipe manufacturer's recommendation.
- 2. All coatings shall be applied in accordance with the coating manufacturer's instructions. All surface preparation and primers required to ensure a lasting coating and lining shall be provided.
- 3. All linings shall be applied by the pipe manufacturer at the pipe manufacturing facility.
- 4. Repair Damaged Protective Coatings: prepare surfaces and apply coatings in accordance with manufacturer's instructions. Use coating material and application rate specified in this Section.
- 5. Polyethylene Encasement For Prestressed Concrete Cylinder Pipe and Fittings.
 - a. Polyethylene encasement shall conform to AWWA Specification C105.
 - b. Polyethylene film shall be manufactured of virgin polyethylene material conforming to the following requirements of ASTM Standard Specification D1248 – Polyethylene Plastics Molding and Extrusion Materials.
 - c. Polyethylene film shall have a tensile strength of 1,200 psi minimum and shall allow elongation of 300 percent and have a dielectric strength of 800 V/mil thickness minimum.
 - d. Polyethylene film shall have a minimum nominal thickness of 0.008 inch (8 mils). The minus tolerance of thickness shall not exceed 10 percent of the nominal thickness.
 - e. Tape required to complete the installation shall be approximately two (2) inches wide, plastic backed adhesive type, such as Polyken #900, Scotchrap #50, or approved equal.

- f. Tube size or sheet width for each size of pipe shall be in accordance with AWWA C-105.

I. Additional Piping Required

1. In addition to pipe shown on the Drawings and necessary to complete Work, CONTRACTOR shall furnish additional prestressed concrete cylinder pipe pieces. This includes having a number of shorts and bends on hand in the event that there is a need for correction in line of work due to unforeseen errors or obstructions. As a minimum, the following shall be supplied for each size of pipe:
 - a. Two (2) half bevel adapters,
 - b. Two (2) full bevel adapters,
 - c. One (1) short,
 - d. One (1) closure,
 - e. One (1) PCCP Bell x DIP (MJ Spigot)
 - f. One (1) PCCP Bell x DIP (MJ Bell).
2. If any of the above pieces are used in the Work, CONTRACTOR shall install the additional fittings, shorts, and closures at no additional cost to OWNER.
3. In the event fittings, shorts, and/or closure pieces are not utilized, the OWNER may purchase them at the CONTRACTOR'S invoice price plus a 10% handling fee. If the OWNER chooses not to purchase these additional items, they shall be returned and the OWNER shall only be responsible for a restocking fee.
4. Included are all necessary restraints, adapters, bolts, grout, and other appurtenances necessary for installation of the pieces as specified.

J. Closure Pieces

1. Follower ring type closure pieces shall be furnished and installed where required by the CONTRACTOR. These shall be furnished by the pipe manufacturer.
 - a. The pipe layout submitted by the manufacturer shall reflect the CONTRACTOR'S planned schedule for operations and the schedule of construction. Pipe closures shall be designed by the manufacturer for the pressure required and shall be located in straight runs of pipe. The number, design, and location of all closure pieces shall be as shown or subject to the approval of the ENGINEER. All closure pieces shall be restrained.
 - b. The CONTRACTOR may elect either to cut the closure cylinder to the required length in the field, or if timing permits, to have the pipe manufacturer supply the required length base upon exact field measurements.
 - c. All closures, including concrete required for protection of the cylinder and joint rings, shall be provided.

PART 3 - EXECUTION

3.01 PRESTRESSED CONCRETE CYLINDER PIPE.

- A. Before the pipe is lowered into the trench, the mortar coating at the pipe ends and both end rings should be thoroughly cleaned and carefully checked for damage. The bell joint ring shall be smooth and free from burrs and deformations. Before the gasket is installed, it shall be thoroughly lubricated by immersing it in a viscous solution of vegetable soap.
- B. After the pipe has been lowered into the ditch, the lubricated gasket should be stretched around the spigot and settled into the circumferential groove.
- C. While the pipe is still clear of the trench bottom, it shall be aligned with the pipe to which it will be joined. As the pipe is advanced toward the pipe in place, the spigot is depressed manually and guided into the flare of the bell.
- D. Long radius curves may be accomplished by opening one side of the joint between straight sections of pipe. Before the joint is opened, the pipe must be brought straight "home" and then deflected toward the inside of the curve. Deflection of joint openings shall not exceed 50% of the manufacturer's recommendations. Long radius curves can also be achieved by the use of half and full bevel pipe joints and/or adapters.
- E. The joints of pipes 24 inches in diameter and larger may be checked from within the pipe. As the spigot is thrust "home", its advance is checked by two steel inserts in the seat of the bell, 180 degrees apart. These inserts are then removed and a feeler gauge is entered into the recess until the gasket can be felt. If any irregularity is detected in the position of the gasket, the pipe must be removed and the gasket examined for cuts. If undamaged, it may be used again after both, the gasket and the joint are relubricated.
- F. Prior to the installation of adjacent pipe, a joint diaper shall be placed around the bell of the pipe already laid. After the installation of the adjacent pipe, the diaper shall be slipped forward to cover the joint recess and fastened in place with either wire or steel strapping stitched into its edges. A 1:3 cement mortar grout mixture (1 part cement to 3 parts sand) shall then be poured into the joint recess beneath the diaper and rodded to assure complete filling of the entire diaper and recess.
- G. Complete installation of polyethylene encasement prior to backfilling.

3.02 ULTRASONIC JOINT TESTING

- A. Each joint shall, at the CONTRACTOR'S sole cost and expense, be tested with ultrasonic test equipment prior to being backfilled. If a leak is detected, corrective action shall be taken prior to installing the next pipe.

- B. The fact that a point (or joints) has passed the ultrasonic testing does not waive the requirements for the hydrostatic tests described herein.
- C. The testing equipment shall be as manufactured by Moffat Enterprises of Powell Butte, or equal.

3.03 HYDROSTATIC PRESSURE AND LEAKAGE TEST

- A. After the transmission main has been laid and the joints completed, this newly laid pipe shall be subjected to a pressure and leakage test.
- B. The test pressure for this test shall be as specified in Section 15051, Buried Piping Installation, and shall be measured at the lowest point in the test section.

3.04 DURATION

- A. The duration of the hydrostatic pressure and leakage test shall be as specified in Section 15051, Buried Piping Installation.

3.05 PROCEDURE

- A. The pipe shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a satisfactory manner. Prior to testing, the pipe shall be allowed to soak under low pressure to allow the pipe walls to absorb water and for temperature stabilization. The pump, pipe, gauges, water, and measuring devices will be furnished by the CONTRACTOR. All work shall be accomplished by the CONTRACTOR.
- B. When filling of the new line is achieved by accepting water from an existing waterline, the CONTRACTOR shall, as minimum, furnish and install apparatus such as a reduced pressure zone backflow preventer at the source of the supply to protect against the backflow of water from the new line to the existing line. Water for these purposes shall be metered. The pipeline shall be allowed to soak under low pressure to allow the pipe walls to absorb water and for temperature stabilization.
- C. Testing shall be done as soon as the line is installed as determined by the ENGINEER.
- D. The pressure and leakage test shall be performed as follows:
 - 1. For the entire Contract from the beginning station to the end station.
 - 2. For each valved section of the Contract (i.e., from line valve to line valve). These series of section tests shall be performed so that each section is tested separately and so that each butterfly line valve is tested in both directions.
 - 3. The CONTRACTOR shall furnish outlets for filling with water, expelling air, and testing each section as required. Outlets shall also be provided for

sample points as shown on the drawings. These outlets shall be manufactured with the pipe.

4. All tests shall indicate satisfactory results.

3.06 EXPELLING AIR BEFORE TESTING

- A. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, factory installed outlets shall be furnished at various locations and elevations in the test section including the points of highest elevation in the test section. After satisfactory test results these outlets shall be tightly plugged if no longer required.
- B. When test bulkheads are used for testing, they shall include two (2) outlets, one for filling and one for releasing air.

3.07 PRESSURE AND LEAKAGE TEST

- A. All exposed pipes, joints, and fittings which are exposed when the test is conducted shall be carefully examined for visible leakage. Those portions of the pipeline covered by backfill shall be walked to observe leakage appearing on the ground surface. Any leaks discovered in the joints shall be corrected until tight. Any cracked or defective pipe, fittings, etc. discovered in consequence of this pressure test shall be removed and replaced by the CONTRACTOR with new material as previously specified and the test repeated until satisfactory to the ENGINEER.
- B. Suitable means (acceptable to ENGINEER) shall be provided by the CONTRACTOR for determining the quantity of water loss by leakage under the specified test pressure. No pipe installation will be acceptable until, or unless, this leakage is less than specified.
- C. Allowable leakage shall be as specified in Section 15140, Testing and Disinfection.
- D. Should any test of pipe laid disclose leakage per mile of pipe greater than that specified, the CONTRACTOR shall, at his own expense, locate and repair the defective joints or pipe until the leakage is within the specified allowable.

3.08 LEAKAGE DEFINED

- A. Leakage is defined as the quantity of water to be supplied into the newly laid pipe necessary to maintain the specified test pressure after the pipe has been filled with water and the air expelled.

3.09 WATER FOR TESTING

- A. Water for performing the first filling, flushing, and testing operations shall be furnished by the OWNER. Disposal of all water shall be by the CONTRACTOR

at his expense. If the water for filling and testing is obtained from an existing waterline, a meter shall be installed to measure the quantity of water used for these purposes. No water shall be obtained from an existing waterline unless the CONTRACTOR first obtains the consent of the agency having jurisdiction over the existing main. Existing codes may restrict the amount and rate of water that can be obtained from the existing line and the CONTRACTOR shall comply with the directions of the agency of jurisdiction or the ENGINEER in this regard. If additional water is required for any reason (refilling, retesting, etc.), the water shall be at the CONTRACTOR'S expense.

- B. If test results are unsatisfactory and additional water is required to refill, retest, etc., additional water shall be at the CONTRACTOR'S expense.

3.10 DISINFECTION

- A. All watermains shall be disinfected in accordance with AWWA C601 and Section 15140, Testing and Disinfection.

END OF SECTION

SECTION 15110

VALVES AND APPURTENANCES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The work specified shall include all labor, material, equipment, services and incidentals necessary to furnish and install valves and appurtenances as shown, specified and required.

B. Related Work Specified Elsewhere

1. Section 02080 - Fire Hydrants
2. Section 15051 - Buried Piping Installation
3. Section 15106 - Ductile Iron Pipe and Fittings
4. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Manufacturer shall have a minimum of 5 years experience producing valves and appurtenances, and shall show evidence of at least 5 installations in satisfactory operation.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturer's.

B. Reference Standards

1. ANSI B16.1, Cast Iron Pipe Flanges and Flanged Fittings
2. ANSI B16.4, Cast Iron Fittings
3. ASTM A48, Standard Specification for Gray Iron Castings
4. ASTM A126, Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings
5. ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
6. ASTM A354, Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs and Other Externally Threaded Fasteners
7. ASTM A436, Standard Specification for Austenitic Gray Iron Castings
8. ASTM A536, Standard Specification for Ductile Iron Castings
9. ASTM B62, Standard Specification for Composition Bronze or Ounce Metal Castings
10. AWWA C500, Standard for Metal-Seated Gate Valves for Water Supply Service
11. AWWA C504, Standard for Rubber-Seated Butterfly Valves

12. AWWA C508, Standard for Swing Check Valves for Waterworks Service, 2 in.(50 mm) Through 24 in. (600 mm) NPS
13. AWWA C509, Standard for Resilient Seated Gate Valves for Water Supply Service
14. AWWA C800, Underground Service Line Valves and Fittings
15. American Gear Manufacturers Association (AGMA) Standards
16. NEMA, National Electrical Manufacturer's Association
17. NEC, National Electrical Code
18. NSF/ANSI Standard 61
19. Underwriter's Laboratories (UL)
20. International Organization for Standardization (ISO)
21. Factory Mutual Research Corporation
22. 1996 Safe Drinking Water Act
23. Manufacturing Standardization Society of the Valve and Fittings Industry (MSS)

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 1. Manufacturer's literature, illustrations, specifications, detailed drawings, data and descriptive literature on all valves and appurtenances.
 2. Deviations from Drawings and Specifications.
 3. Engineering data including dimensions, materials, size and weight.
 4. Fabrication, assembly, installation and wiring diagrams.
- B. Operation and Maintenance Data: Submit complete manuals including:
 1. Copies of all Shop Drawings, test reports, maintenance data and schedules, description of operation, and spare parts information.
- C. Shop Tests: Submit for approval the following:
 1. Hydrostatic tests for each valve when required by the valve specifications included herein.
 2. Each gate valve shall have the leakage test required by Section 5 of AWWA C509 performed with the pressure differential applied in both directions.
 3. The manufacturer of butterfly valves shall submit certified copies of reports covering the bi-directional leakage tests in accordance with Section 6, AWWA C504.
- D. Certificates:
 1. Where specified or otherwise required by ENGINEER, submit test certificates.
 2. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.
 3. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.

- E. Delivery Tickets:
 - 1. Furnish delivery tickets indicating the valve manufacturer, valve type and class, identifying that the valves are new and from a manufacturer that has been submitted and approved.
- F. Testing Criteria:
 - 1. CONTRACTOR must provide manufacturer's test specifications for all tapping sleeve and valves prior to field testing.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the valves and accessories. Do not drop or roll materials off trucks. All valves and appurtenances shall be handled with padded slings or other appropriate equipment. The use of cables, hooks or chains will not be permitted.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, dented or otherwise damaged will not be accepted.
- D. Interiors of valves and appurtenances shall be kept free from dirt and foreign matter.
- E. Store valves and appurtenances on heavy wood blocking or platforms so they are not in contact with the ground.
- F. Valves and appurtenances shall be unloaded opposite to or as close to the place where they are to be used as is practical to avoid unnecessary handling.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General
 - 1. All products, including interior coatings, shall be suitable for use in a potable water system.
 - 2. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.
 - 3. Valves shall have manufacturer's name and working pressure cast in raised letters on valve body. Valves shall be suitable for test pressures specified in Section 15051, Buried Piping Installation.

4. Manual valve operators shall turn clockwise to close unless otherwise specified. Valves shall indicate the direction of operation.
5. Valve shall be treated as a bulkhead (dead end) condition and pipe joints shall be restrained on both sides of the valve for the lengths as shown, specified, or required.
6. All valves, operators, and appurtenances shall be designed to withstand the working and hydrostatic test pressures as specified in Section 15051, Buried Piping Installation.
7. Unless otherwise specified all flanged valves shall have ends conforming to ANSI B16.1, Class 125.
8. All bolts, nuts and studs shall, unless otherwise approved, shall conform to ASTM A307, Grade B; or ASTM A354. All bolts, nuts and studs on or required to connect submerged or buried valves shall be fluorocarbon coated.
9. Bolts and nuts shall have hexagon heads and nuts.
10. Gasket material and installation shall conform to manufacturer's recommendations.
11. Identification: Identify each valve 4 inches and larger with a brass or stainless steel nameplate stamped with the approved designation. Nameplate shall be permanently fastened to valve body at the factory. Stenciled designations are acceptable for buried valves.
12. All valves and appurtenances must be new materials in first-class condition. Used or recycled materials will not be allowed, regardless of condition.

B. Gate Valves, Flanged and Screwed

1. 2¹/₂ inches Diameter and Smaller: Valves shall be bronze screwed ends, solid wedge, rising stem, screwed bonnet type with screwed ends.
 - a. Product and Manufacturer: Provide one of the following:
 - 1) Fig. 49-U, as manufactured by Jenkins Brothers or,
 - 2) Watts - WGV,
 - 3) Or approved equal.
2. 3-Inch Diameter and Larger:
 - a. Valves shall be iron body, bronze mounted, rising stem and in conformance with AWWA C500.
 - b. Unless otherwise shown or specified exposed valves shall have flanged ends conforming to ANSI B16.1, Class 125 conforming to ANSI A21.11.
 - c. Exposed manually operated gate valve shall be equipped with hand wheels. Gate valves located more than five feet above the operating floor shall be provided with chainwheels, sprockets, and aluminum chain. The chain shall extend to three feet above the operating floor.
 - d. Manufacturer: Provide gate valves of one of the following:
 - 1) Mueller Company,
 - 2) Dresser Manufacturing Division, M&H Division,
 - 3) Or approved equal.

C. Resilient Seat Gate Valves

1. General

- a. The design working pressure and test pressure for all valve sizes shall be as described in AWWA C509 and materials conforming to C509. All valves shall be designed to operate vertically in a horizontal pipeline.
- b. The valve disc shall be fully encapsulated with a synthetic elastomer and shall seat against a corrosion-resistant surface.
- c. Valves for buried applications shall have mechanical joint ends and be restrained per Section 15106, Ductile Iron Pipe, Fittings, and Accessories, by use of a mechanical joint wedge action retainer gland to resist movement.
- d. All bolts and nuts, including bonnet assembly and seal plate hold-down, shall be fluorocarbon coated high strength, corrosion resistant low alloy steel.
- e. Valves for exposed applications shall have flanged ends conforming to ANSI B16.1, Class 125 conforming to ANSI A21.11.
- f. Thin walled AWWA C515 valves shall not be allowed.

2. Gate Valve

- a. The body, bonnet, seal plate, disc and hub nut shall be iron.
- b. Non-rising valve stem, stem nuts, glands and bushings shall be bronze.
- c. Shaft "O"-ring seals shall be synthetic rubber or Buna-N and shall be capable of being replaced under pressure.
- d. All internal parts shall be accessible without removing the main body from the pressurized line.

3. Operators

- a. Operator shall be suitable for buried service.
- b. Operators shall be as specified in AWWA C509 for submerged, buried, or in-plant service as specified.
- c. Operators shall be equipped with a 2-inch square operating nut and shall be full gasketed and grease packed for buried service. Operating nuts shall turn clockwise to close the valve. A cast arrow showing the direction of valve opening shall be supplied.

4. Manufacturer:

- a. Kennedy Valve Company, No. 8571,
- b. Mueller, 2360-16,
- c. Or approved equal.

D. Butterfly Valves

1. General

- a. Butterfly valves shall be short-body design conforming to AWWA C504 and shall have flanged ends for exposed applications and mechanical joint or Victaulic ends for buried applications as specified.

- b. Valves for buried applications shall have mechanical joint ends and be restrained per Section 15106, Ductile Iron Pipe, Fittings, and Accessories, by use of a mechanical joint wedge action retainer gland. Valves may also have Victaulic ends as shown, specified, or required.
 - c. Valves shall be tight closing, rubber seat type with recessed rubber seat securely mounted to the valve body.
 - d. All other bolts, nuts and studs shall, unless otherwise approved, be fluoro carbon coated.
 - e. Bolts and nuts shall have hexagon heads and nuts.
 - f. Gasket material and installation shall conform to manufacturer's recommendations.
 - g. Identification: Identify each valve with a brass or stainless steel nameplate stamped with the approved designation. Nameplate shall be permanently fastened to valve body at the factory.
 - h. All butterfly valves and their operators shall be designed for buried and submerged conditions and shall open counterclockwise.
2. Butterfly Valve
- a. Body shall be cast iron ASTM A126, Class B, with integrally cast shaft bearing hubs. Flanged ends shall conform to ANSI B16.1 and match existing.
 - b. Valve shafts shall be Type 304 stainless steel solid one piece design for valve sizes 3" through 20" and stub shaft design for valves larger than 24" in diameter with an adjustable thrust bearing to center the valve disc.
 - c. Discs shall be of one-piece design, cast iron or ductile with a Type 316 stainless steel seating edge with demonstrated test results of 100,000 cycles of drip tight capability.
 - d. Valve seats shall be synthetic rubber. Rubber seats shall be bonded to the valve body. The seat bond must withstand a 75 pound pull under test procedure ASTM D429, Method B.
 - e. Valve bearings shall be as specified in Sect. 3, AWWA C504. The shaft bearings shall be teflon or teflon lined/fiberglass backed.
 - f. Valve shaft packing shall be non-metallic, split-V self-compensating Chevron style.
3. Operators
- a. Operators shall be permanently lubricated and totally enclosed and be provided with a handwheel, chainwheel or 2-inch square nut, as specified.
 - b. Operators shall be equipped with a totally enclosed permanently lubricated lever-traveling nut drive, self locking type and shall be designed to hold the valve in any intermediate position between "fully open" and "fully closed" without creeping or fluttering.
 - c. Operators shall be equipped with adjustable stop-limiting devices to prevent over travel of the disc in the open and closed positions. Stops shall be located within the operator housing and be capable

of adsorbing the full operator torque with minimum safety factor of 5.

- d. Operator housing, supports and connections to the valve shall have provisions for four-bolt mounting.
- e. Operator components shall withstand an input torque of 450 foot-pounds at the extreme operator positions without damage.
- f. Enclosed lever-traveling nut operators shall have a gear ratio designed not to exceed 80 pounds pull to meet the required operator torque.
- g. Operators shall turn clockwise to close the valve.
- h. Extension stems shall not be allowed. All valves shall be located such that the cover over the top of the operating nut shall not exceed 5-foot in depth.

4. Manufacturer:

- a. Henry Pratt Co, Groundhog,
- b. DeZurik,
- c. Or approved equal.

E. Tapping Sleeve and Valve

1. Tapping Sleeve

- a. Tapping sleeves and valves shall be used for connections larger than 2 inches and shall be stainless steel constructed of 18-8 Type 304 stainless steel.
- b. All bolts and nuts shall be 18-8 Type 304 stainless steel, with heavy hex nuts to be fluorocarbon coated to prevent galling.
- c. Tapping sleeves shall be designed and sized in accordance with the recommendations of the manufacturer.
- d. The sleeve shall be fabricated in two halves, for assembly around the watermain by means of bolts and gaskets to form a watertight seal. Bolts shall be removable and the gasket shall be a 360 degree gridded type to resist oil, alkalies, and suitable for water service.
- e. The flange shall be 18-8 type 304 stainless steel, the outlet side shall conform to AWWA C 207 (ANSI B16.1, class 125), 150 lb drilling for attachment to standard tapping valves. 18-8 type 304 stainless steel flange bolts and flange gasket shall be supplied with tapping sleeve.

2. Tapping Saddle for Prestressed Concrete Cylinder Pipe.

- a. Tapping saddle assembly shall consist of tapping saddle, steel bands, rubber gasket, and a separate flanged tapping gland.
- b. The assembly shall be so designed that the saddle must be installed on the pipe before the prestressing wires can be cut. The gland is to be a separate piece that is installed after the wires are cut and is held against the cylinder by bolting its flange to the flange on the saddle. The outlet on the gland shall allow a tapping valve, as specified herein, to be bolted to it.

3. Tapping Valve (16-inch diameter and smaller):
 - a. Valves for tapping sleeves 16-inches and smaller shall be resilient seat as specified in paragraph 2.01.C herein and shall be specially designed for this purpose.
 - b. The end flange of the tapping valve shall mate with the flange of the tapping sleeve and conform to AWWA C 207 (ANSI B16.1, class 125), 150 lb drilling and to the dimensions of MSS SP-60. The other end of the tapping valve shall be mechanical joint, unless otherwise specified.
 4. Tapping Sleeve Manufacturer for Tapping Ductile Iron, PVC Pipe, or ACP Pipe.
 - a. Mueller, Model No. 304,
 - b. Ford style FTSS,
 - c. Smith Blair 665,
 - d. Or approved equal.
 5. Tapping Saddle Manufacturer for Prestressed Concrete Cylinder Pipe:
 - a. Price Brothers,
 - b. Or approved equal.
 6. Tapping Valve Manufacturer:
 - a. Mueller, No. 2360/2361,
 - b. Kennedy No. 8950,
 - c. Or approved equal.
- F. Check Valves - Liquid Service
1. General:
 - a. Check valves shall absolutely prevent the return of water back through the valve when the upstream pressure decreases below the downstream pressure. The valve shall be tight seating.
 2. 2^{1/2}-Inches Diameter and Smaller: Valves shall be bronze, screwed ends with screw in cap suitable for 150 psi service.
 - a. Product and Manufacturer: Provide one of the following:
 - 1) Fig. 92-A, as manufactured by Jenkins Brothers,
 - 2) Fig. 34-1/2, as manufactured by Crane Company,
 - 3) Or approved equal.
- G. Air Release Valves
1. Air release valves shall be designed to operate automatically under pressure to release entrapped air from a watermain, pump, tank, or water system. Once the air has been released, the valve shall close and remain closed until reopened by entrapped air. No leakage or process fluid will be permitted.
 2. All internal valve components shall be stainless steel.
 3. The air release valve shall be float operated and shall incorporate a compound lever mechanism to enable the valve to automatically release accumulated air from a fluid system that system is pressurized and operating.

4. The air release valve shall close drop tight, incorporating an adjustable Buna-N orifice button.
5. The float shall be stainless steel and be capable of withstanding a test pressure of 300 psi.
6. The linkage/lever mechanism shall be able to be removed from the valve without disassembly of the mechanism, and shall be designed to prevent jamming.
7. The body and cover shall be cast iron conforming to the requirements of ASTM A126 Class B, and shall be designed to withstand a test pressure of 450 psig.
8. Manufacturer:
 - a. ValMatic, model #38,
 - b. Or approved equal.

H. Combination Air and Vacuum Release Valves

1. Combination air release valves shall be designed to relieve entrapped air and to break a siphon in a pipeline regardless of flow direction.
2. All internal valve components shall be corrosion-resistant.
3. Manufacturer:
 - a. ValMatic, valve #201C.2,
 - b. Or approved equal.

2.02 PAINTING

A. Shop Painting

1. Clean and prime coat ferrous metal surfaces.
2. All interior wetted ferrous surfaces of valves and appurtenances except finished or bearing surfaces shall be shop-painted with an approved epoxy paint system certified to NSF/ANSI Standard 61 for potable water and applied in accordance with the paint system manufacturer's recommendations.
3. Coat machined, polished and non-ferrous surfaces including gears, bearing surfaces and similar unpainted surfaces with corrosion prevention compound listed in NSF/ANSI Standard 61 and applied in accordance with the manufacturer's recommendations. Maintain coating during storage and until equipment begins operation.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install valves and appurtenances as shown on the Drawings and in accordance with the manufacturer's recommendations.
- B. All valves shall be kept in the closed position until otherwise directed by the ENGINEER. Hydrant valves shall be opened during the hydrostatic testing and then closed until the watermain is placed into service.

- C. Install all valves so that handwheels, levers, or wrenches can be conveniently turned from operating area and as approved by the ENGINEER.
- D. Install all valves plumb and level unless otherwise approved. Valves shall be installed free from distortion and strain caused by misaligned piping, equipment, or other causes.
- E. CONTRACTOR shall operate each valve full open to full close in the presence of ENGINEER. The number of turns shall be recorded and provided to OWNER with the Record Drawings.

END OF SECTION

SECTION 15120

PIPING SPECIALTIES AND ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

1. CONTRACTOR shall provide all labor, materials, equipment, tools, services, and incidentals necessary to furnish and install piping specialties and accessories as shown, specified and required. Included, but not limited to the following: couplings, repair clamps, joint clamps, service saddles, service fittings, water meter fittings, tile set, corporation stops, curb stops, and curb boxes.

B. Related Work Specified Elsewhere

1. Section 02316 - Select Granular Materials
2. Section 02351 - Excavation, Backfill and Trenching
3. Section 15106 - Ductile Iron Pipe and Fittings
4. Section 15107 - Copper Pipe
5. Section 15108 - Thermoplastic Pipe
6. Section 15109 - Prestressed Concrete Cylinder Pipe
7. Section 15110 - Valves and Appurtenances
8. Section 15140 - Testing and Disinfection

1.02 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Manufacturer shall have a minimum of 5 years of experience in the production of substantially similar types of piping specialties specified and shall show evidence of satisfactory service in at least 5 installations.
2. Parts Interchangeability: It is the intent of these specifications that all materials furnished herein shall be compatible with similar materials of other manufacturers.

B. Reference Standards

1. AWWA C104, Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
2. AWWA C115, American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron Pressure Pipe and Fittings
3. AWWA C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, for Water and Other Liquids
4. AWWA C600, Standard for Installation of Ductile-Iron Watermains and Their Appurtenances
5. AWWA C605, Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

6. AWWA C651, Standard for Disinfecting Watermains
7. AWWA C800, Underground Service Line Valves and Fittings
8. AWWA C900, Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch Through 12-inch for Water Distribution
9. ASTM A536, Standard Specification for Ductile Iron Castings
10. ASTM B92, Specification for Standard Size Seamless Copper Pipe
11. ASTM B62, Standard Specification for Composition Bronze or Ounce Metal Castings
12. ASTM D2000, Standard Classification System for Rubber Products in Automotive Applications
13. NSF/ANSI Standard 61
14. Underwriter's Laboratories (UL)
15. International Organization for Standardization (ISO)
16. Factory Mutual Research Corporation
17. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 1. Manufacturer's literature, illustrations, specifications, detailed drawings, data and descriptive literature on all piping specialties.
 2. Deviations from Drawings and Specifications.
 3. Engineering data including dimensions, materials, size and weight.
 4. Fabrication, assembly, installation and wiring diagrams.
- B. Operation and Maintenance Data: Submit complete manuals including:
 1. Copies of all Shop Drawings, test reports, maintenance data and schedules, description of operation, and spare parts information.
- C. Certificates:
 1. Where specified or otherwise required by ENGINEER, submit test certificates.
 2. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.
 3. Submit certificate of compliance with NSF/ANSI Standard 61 for all products under this section, including interior coatings, by an independent, authorized laboratory.
- D. Delivery Tickets:
 1. Furnish delivery tickets indicating the manufacturer, accessory type and class, identifying that the equipment was new and from a manufacturer that has been submitted and approved.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage; any such distortion or damage shall be basis for rejection of the materials.
- B. Handle all materials very carefully. Materials which are cracked, dented or otherwise damaged will not be accepted.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, gouged, chipped, dented or otherwise damaged will not be accepted.
- D. Interiors of pipe, fittings and accessories shall be kept free from dirt and foreign matter.
- E. Store piping specialties and accessories on heavy wood blocking or platforms as necessary so they are not in contact with the ground.
- F. Pipe, fittings, and specials shall be unloaded as necessary opposite to or as close to the place where they are to be used as is practical to avoid unnecessary handling.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General
 - 1. All products, including interior coatings shall be suitable for use in a potable water system.
 - 2. All products, including wetted parts, shall be certified to meet NSF/ANSI Standard 61.
 - 3. All piping specialties and accessories must be new materials in first-class condition. Used or recycled materials will not be allowed, regardless of condition.
- B. Couplings
 - 1. Sleeve Type, Flexible Couplings:
 - a. Material: Steel, with epoxy coated sleeve.
 - b. Gasket: Manufacturer's standard best quality for the service intended.
 - c. Bolts and Nuts: Buried or submerged couplings shall be provided with Type 304 stainless steel or fluorocarbon coated bolts and nuts.
 - d. Couplings shall be designed for a working pressure and field hydrostatic test pressure as identified in Section 15051, Buried Piping Installation.

e. Harnessing:

- 1) Harness couplings to restrain pressure piping. Couplings shall be designed for a working pressure and field hydrostatic test pressure as identified in Section 15051, Buried Piping Installation.
- 2) Adjacent flanges shall be tied with bolts of corrosion resistant alloy steel. Provide flange mounted stretcher bolt plates and lugs as required and to be designed by coupling manufacturer, unless otherwise approved.
- 3) Conform to dimensions, size, spacing and materials for lugs, bolts, washers and nuts as recommended by manufacturer and approved by ENGINEER for the pipe size, wall thickness and test pressure required. However, the following minimum bolting shall be provided if not specifically stated by the ENGINEER.

Pipe Diameter (In.)	Minimum Number of Bolts	Bolt Diameter (In.)	At (Degrees)
4	2	$\frac{5}{8}$	180
6-8	2	$\frac{3}{4}$	180
10-12	2	$\frac{7}{8}$	180
14-20	4	1	90
24-48	4	1- $\frac{1}{2}$	90

f. Remove pipe stop unless otherwise shown or specified.

g. Couplings 16-inches to 24-inches shall be furnished as long laying lengths of 16-inches. Couplings over 24-inches shall be furnished as 10-inch lengths.

h. Manufacturer:

- 1) Dresser Industries, Style 138, for sizes up to 12-inches, Dresser Industries, Style 38, for sizes over 12-inches,
- 2) Smith-Blair, Type 411, (or type 441 where specified),
- 3) Or approved equal.

2. Hymax Coupling:

- a. Material: Center sleeve shall be fabricated of high strength carbon steel tubing. Compression end rings to be either one bolt or two fabricated of carbon steel.
- b. Gasket: Two layered gaskets of which the inner ring is removable to expand the range of the coupling. Material shall be EPDM according to NSF61.
- c. Bolts and Nuts: Buried or submerged couplings shall be provided with type 304 stainless steel. Bolts to be coated with an anti-seize coating to prevent galling.

- d. Coating: Interior and exterior shall be provided with NFS-61 approved fusion bonded epoxy coating.
- e. Harnessing: as specified herein.
- f. To be used only when approved by ENGINEER.
- g. Manufacturer:
 - 1) Dresser Industries Style 262 for sizes up to 12-inches,
 - 2) Or approved equal.

C. Flanged Coupling Adapter

- 1. The body shall be ductile iron conforming to ASTM A536. The bolt circle, bolt size, and spacing shall conform to AWWA C115 flange drilling.
- 2. The follower gland shall be ASTM A536 ductile iron.
- 3. Gaskets and “O” rings shall be grade 30 standard.
- 4. Nuts and bolts shall be fluorocarbon coated or Type 304 stainless steel, high strength, low alloy.
- 5. Provide fusion bonded epoxy coating on the gasket ring and shop prime enamel on the body.
- 6. Flange coupling adapter shall not be provided with anchor studs, which are not allowed.
- 7. Flange coupling adapter shall be suitable for use on ductile or cast iron pipe to the outside diameter specified.
- 8. Flange coupling adapters shall be restrained as shown, specified, or required.
- 9. Manufacturer:
 - a. Smith-Blair, Style 912,
 - b. Dresser, Style 128,
 - c. Ford FFCA,
 - d. Hymax 2100,
 - e. Or approved equal.

D. Restrained Flanged Adapter

- 1. Restraint shall be accomplished by use of a gland that incorporates wedges that increase their resistance to pull out as pressure or external forces increase.
- 2. The restrained flange adapter shall be comprised of two rings made of ductile iron conforming to ASTM A536.
- 3. The restraining ring shall be suitable for flanges conforming to AWWA C115 flange drilling.
- 4. Nuts and bolts shall be fluorocarbon coated or Type 304 stainless steel, high strength, low alloy.
- 5. Torque limiting twist off nuts shall be used to insure the proper actuation of the wedges. When the nut is sheared off, a standard hex head shall remain.
- 6. Provide fusion bonded epoxy coating on the gasket ring and shop primer on the body.
- 7. Restrained flange adapter shall be suitable for use on ductile iron pipe.

8. Manufacturer:
 - a. EBAA Iron, Series 2100 Megaflange,
 - b. Or approved equal.
- E. Repair Clamps
 1. Repair clamps shall be full circle, 18-8 type 304 stainless steel single band provided in minimum length of 12-inches unless otherwise specified. Bands are to be single section for sizes to 12 inches and double sections for sizes over 12 inches.
 2. Nuts and bolts shall be Type 304 stainless steel or fluorocarbon coated.
 3. Ductile iron lugs shall be field removable.
 4. Repair clamps with a separate keeper bar will not be accepted nor repair clamps with two bolts on a 7.5 inch full circle clamp.
 5. Grade 60 gasket.
 6. When ordered, provide tapped repair clamps with stainless steel outlet taps for corporation stops in CC (AWWA) thread.
 7. Manufacturer:
 - a. Smith-Blair, Style 226, for sizes to 12 inches,
Smith-Blair, Style 227, for sizes over 12 inches,
Smith-Blair, 238 and 239 for tapped clamps,
 - b. Dresser, Style 360,
 - c. Ford, Style F1, for sizes to 12 inches,
Ford, Style F2, for sizes over 12 inches,
 - d. Or approved equal.
- F. Joint Clamps
 1. Joint clamps shall be furnished to permanently stop or prevent leaks through the jointing materials of bell and spigot joints.
 2. Clamp shall be fully adjustable to provide a close fit on the bell and spigot and shall be designed to be installed on pipes without interruption of water service.
 3. Manufacturers standard rubber gasket shall shut the leak off when compressed by the spigot ring drawn up, in turn, by bolts connected to a bell ring.
 4. Manufacturer:
 - a. Smith-Blair, Style #274,
 - b. Dresser, Style 160,
 - c. Or approved equal.
- G. Service Saddles
 1. Service saddles for iron, asbestos-cement pipe or Polyvinyl Chloride (PVC) pipe shall be of the double strap style.
 2. Bodies shall be brass alloy conforming to ASTM B62 (85-5-5-5) and a threaded outlet conforming to AWWA C800.
 3. Straps shall be high quality silicon bronze, flattened to provide a wider bearing surface to the pipe.
 4. Nuts shall be brass alloy as per ASTM B62.

5. Gasket shall be Buna-N rubber in accordance with ASTM D2000.
6. Manufacturer:
 - a. Smith-Blair, Style 323,
 - b. Ford, Style 202B,
 - c. Or approved equal.

H. Services Fittings: Bronze Unions, Couplings and Adapters

1. General
 - a. Service fittings shall have a body cast from corrosion resistant bronze in accordance with ASTM B62 (85-5-5-5).
 - b. Connections shall meet applicable sections of AWWA C-800 and be suitable for flared connection to type K copper pipe.
2. Manufacturer:
 - a. Unions, copper to copper, three parts:
 - 1) Mueller Co #H-15400,
 - 2) Ford C22-XX,
 - 3) Or approved equal.
 - b. Unions, copper to copper, two parts:
 - 1) Mueller Co #H-15405,
 - 2) Ford C02-XX,
 - 3) Or approved equal.
 - c. Eighth bend coupling with gasket:
 - 1) Mueller Co #H-15063,
 - 2) Ford LA02-XX,
 - 3) Or approved equal.
 - d. Quarter bend coupling with gasket:
 - 1) Mueller Co #H-15068,
 - 2) Ford L02-XX,
 - 3) Or approved equal.
 - e. Straight male adapter:
 - 1) Mueller Co #H-15425,
 - 2) Ford C28-XX,
 - 3) Or approved equal.
 - f. Straight female adapter:
 - 1) Mueller Co #H-15450,
 - 2) Ford C21-XX,
 - 3) Or approved equal.

I. Water Meter Couplings, Flanges and Gaskets

1. Water Meter Coupling:
 - a. Meter couplings shall be bronze hex body with iron pipe thread and bronze nut drilled for wire seal.
 - b. Manufacturer:
 - 1) Ford #C38 Body Style A,
 - 2) Or approved equal.

2. Water Meter Flanges:
 - a. Meter flanges shall be bronze, tapped for iron pipe or have male iron pipe thread.
 - b. Manufacturer:
 - 1) Ford #6F or M; and, Ford #7F,
 - 2) Or approved equal.
3. Water Meter Gaskets:
 - a. Gaskets shall be $\frac{1}{8}$ -inch thick, not reinforced rubber.
 - b. Manufacturer:
 - 1) Ford: #GT120R, #GT140 and #GT141,
 - 2) Or approved equal.

J. Water Meter Tile Set

1. The water meter tile set shall be rigid PVC, high insulating "R" value body meter box specially designated for buried meter applications.
2. The water meter tile set shall be designed such that the meter is easily accessible and braced for additional stabilization. No bottom is to be provided.
3. A closed-cell insulation pad or a double lid cover system shall be provided to prevent freezing.
4. The water meter tile set shall be suitable for a minimum depth of cover of 5 feet over the water service tubing.
5. A locking cast iron lid shall be furnished for each tile set.
6. The water meter tile set shall be furnished complete with male I.P. thread inlet and outlet connections, full port angle key at meter inlet, dual check valve at meter outlet, coupling and fittings ready for a complete meter installation.
7. Manufacturer:
 - a. Mueller/McCullough Thermo Coil Meter Box,
 - b. Ford Pit Setter – PD VHH-188-18-60 for $\frac{5}{8}$ -inch x $\frac{3}{4}$ -inch meters, Ford Pit Setter – PD VHH-488-20-60 for 1-inch meters,
 - c. Or approved equal.

K. 1 $\frac{1}{2}$ -inch and 2-inch Water Meter Tile Set.

1. The water meter tile set shall be suitable diameter to allow for 1 $\frac{1}{2}$ -inch and 2-inch meters and shall be constructed of rigid PVC specially designated for buried meter applications.
2. The water meter tile set shall be designed such that the meter is easily accessible and braced for additional stabilization. No bottom is to be provided.
3. The water meter tile set shall be suitable for a minimum depth of cover of 5 feet over the water service tubing.
4. A locking cast iron lid shall be furnished for each tile set. An insulation pad or double lid arrangement shall be provided to prevent freezing.
5. The water meter tile set shall be furnished complete with male I.P. thread inlet and outlet connections, angle key valve at meter inlet, angle key

valve at meter outlet, bypass piping with ball valve, flanged meter couplings, and fittings ready for a complete meter installation.

6. Manufacturer:

- a. Mueller/McCullough EZ-Vault Meter Setter,
- b. Ford Pit Setter-PMBB-688-36HB-60 for 1 ½-inch meters,
Ford Pit Setter-PMBB-788-36HB-60 for 2-inch meters,
- c. Or approved equal.

L. Corporation Stops

1. Corporation stops shall be furnished with bronze stem, washer, nut, body and key.
2. Corporation stops shall be threaded to conform to AWWA C800 with standard corporation stop thread at the inlet. The outlet shall be fitted with coupling nut for flared tube service unless otherwise specified.
3. Components shall be suitable for operating pressure meeting or exceeding AWWA C-800 criteria for high pressure application.
4. Manufacturer:
 - a. Mueller: copper outlet, #B25000, for sizes ¾-inch through 1-inch,
Mueller: copper outlet, #B25020, for sizes over 1-inch,
 - b. Ford: copper outlet, FB600, for sizes ¾-inch through 1-inch,
Ford: copper outlet, FB600 with L02, for sizes over 1-inch,
 - c. Or approved equal.

M. Curb Stops

1. Curb stops shall be manufactured in accordance with AWWA C-800 and shall have all brass components conforming to 85-5-5-5 ASTM B62.
2. Curb stops shall be ball type, quarter turn to open or close, and shall be suitable for potable water service buried application.
3. Components shall be suitable for operating pressure meeting or exceeding AWWA C-800 criteria for high pressure application.
4. Manufacturer:
 - a. Mueller:
 - 1) ¾-inch through 2-inch copper to copper: B25204.
 - 2) ¾-inch through 2-inch copper to iron: B25174.
 - b. Ford:
 - 1) ¾-inch through 2-inch copper to copper: B22.
 - 2) ¾-inch through 2-inch copper to iron: B21,
 - c. Or approved equal.

N. Curb Boxes

1. Curb boxes shall be high quality cast-iron castings suitable for H20 loadings.
2. Boxes shall be two-piece adjustable depth with arch pattern base. An extension stem will not be allowed.
3. Valve box covers shall be marked “water” and shall be cast iron with a brass pentagon plug.
4. Manufacturer:

- a. Bibby-LaPerle:
 - 1) For $\frac{3}{4}$ -inch and 1-inch; 2 $\frac{1}{2}$ -inch shaft: V-009, size 95E,
 - 2) For 1 $\frac{1}{2}$ -inch and 2-inch; 4 $\frac{1}{4}$ -inch shaft: V-425, size 145R,
- b. Hays,
- c. Mueller,
- d. Clow - a division of McWane, Inc.,
- e. Tyler - a division of McWane, Inc.,

O. Valve Boxes

- 1. Valves installed in the ground shall be equipped with an adjustable screw type valve box, minimum 1 foot adjustment.
- 2. The valve box shall have a barrel with a base to fit the valve on which it is to be installed.
- 3. Valve boxes for gate valves shall be three piece screw type, 5- $\frac{1}{4}$ " shaft with No. 6 base and a valve box cover.
- 4. Valve boxes for butterfly valves shall be two piece screw type, 5- $\frac{1}{4}$ " shaft, with integrated base and a valve box cover.
- 5. Valve boxes shall be high quality cast-iron castings suitable for HS-20 loadings.
- 6. All valve box parts must be compatible and interchangeable with Buffalo Pipe and Foundry Corp. valve boxes.
- 7. Valve box covers shall be marked "water" and shall fit properly in the barrel without movement.
- 8. Manufacturer:
 - a. Bibby-LaPerle, (Figure V619 for gate, V652 for butterfly valves),
 - b. Bass & Hays, BH39605,
 - c. Tyler Union - a division of McWane, Inc. (6860 for gate, 6850 for butterfly valves),
 - d. Sigma

P. Insulation

- 1. Materials
 - a. Watermain, valves, water service piping and fittings and other appurtenances installed where depth of bury is less than 54 inches (4 feet, 6 inches) or where shown on the drawings, shall be fully wrapped with a closed cell polystyrene insulation.

2.02 PAINTING

A. Shop Painting

- 1. Clean and prime coat ferrous metal surfaces.
- 2. All interior wetted ferrous surfaces of valves and appurtenances except finished or bearing surfaces shall be shop-painted with an approved epoxy paint system certified to NSF/ANSI Standard 61 for potable water and applied in accordance with the paint system manufacturer's recommendations.

3. Coat machined, polished and non-ferrous surfaces including gears, bearing surfaces and similar unpainted surfaces with corrosion prevention compound listed in NSF/ANSI Standard 61 and applied in accordance with the manufacturer's recommendations. Maintain coating during storage and until equipment begins operation.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install piping specialties and accessories as shown on the Drawings and in accordance with the applicable requirements of Section 15051, Buried Piping Installation.

END OF SECTION

SECTION 15121

CASING PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Specified
The Work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install new casing pipe and incidentals as shown, specified and required.
- B. Related Work Specified Elsewhere:
 - 1. Section 02316 - Select Granular Materials
 - 2. Section 02351 - Excavation, Backfill and Trenching
 - 3. Section 15106 - Ductile Iron Pipe and Fittings
 - 4. Section 15108 - Thermoplastic Pipe
 - 5. Section 15109 - Prestressed Concrete Cylinder Pipe
 - 6. Section 15110 - Valves and Appurtenances

1.02 QUALITY ASSURANCE

- A. All materials shall be new, of first quality and in first class condition. They shall be of the type and manufacturer shown or specified, and substitutions will not be permitted unless specified by the ENGINEER.
- B. Reference Standards:
 - 1. ASTM A123, Zinc (Hot Galvanized) Coatings of Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Bars, Plate Bars and Strips
 - 2. ASTM A139, Electric Fusion (ARC) Welding Steel Pipe
 - 3. ASTM A153, Zinc Coating (Hot Dip) on Iron and Steel Hardware
 - 4. ASTM A307, Low Carbon Steel Externally and Internally Threaded Standard Fasteners
 - 5. ASTM A252, Welded and Seamless Pipe Piles
 - 6. ASTM A570, Standard Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality
 - 7. ASTM C32, Standard Specification for Sewer and Manhole Brick (made from clay or shale)
 - 8. ASTM C207, Standard Specification for Hydrated Lime for Masonry Purposes
- C. Steel casing pipe and all incidentals shall be furnished by one supplier.

- D. Requirements of Regulatory Agencies:
1. The CONTRACTOR shall be responsible for obtaining all required permits and shall comply with all provisions thereof at his own expense.
 2. The CONTRACTOR shall, in addition to #1 above, obtain all additional permits, provide insurance, bonds and guarantees, and all else required by the governing authorities at his own expense. The CONTRACTOR'S responsibility under this paragraph may include, but not be limited to the following:
 - a. Constructing and removing temporary facilities or structures.
 - b. Providing details of construction methods.
 - c. Providing detailed construction schedules.
 - d. Reimbursing the applicable authority for any and all expenses incurred by them in connection with the Work.
 - e. Traffic maintenance.
 - f. Coordination of scheduling with the Authority.
 - g. Necessary clean-up and restoration.
- E. Tolerances:
1. The casing pipe shall be installed on the lines and grades shown on the Drawings and within tolerances required to allow the carrier pipe to pass through the crossing in accordance with the lines and grades shown, specified, or directed.
- F. Welding:
1. Welding shall be done in strict accordance with manufacturer's written requirements.
 2. Welding operators shall be prequalified in accordance with the standard qualification procedure of the American Welding Society, and certificates attesting thereto shall be delivered to the ENGINEER prior to beginning of any welding operations.

1.03 SUBMITTALS

- A. Shop Drawings identifying the casing pipe materials and installation procedure.
- B. Certifications for welding operators.
- C. All permits necessary for county highway crossings.
- D. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage in accordance with the manufacturer's requirements; any such distortion or damage shall be basis for rejection of the materials.

- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the exterior of the pipe, fittings and accessories. Do not drop or roll materials off trucks.
- C. The materials shall be inspected before and after unloading. Materials that are found to be cracked, chipped, gouged, dented or otherwise damaged will not be accepted.
- D. Interiors of materials shall be kept free from dirt and foreign matter.
- E. Store casing pipe on heavy wood blocking or platforms so they are not in contact with the ground.
- F. Casing pipe shall be unloaded opposite to or as close to the place where they are to be laid as is practical to avoid unnecessary handling.

1.05 JOB CONDITIONS

- A. Provide guardrails, fences, signs, lights, barricades, barrels, and all other protective items necessary in accordance with the requirements of all applicable permits, laws, regulations, and ordinances, and as necessary to prevent damage or injury to private or public property or to workmen or the general public.

PART 2 - PRODUCTS

2.01 PROPERTIES OF STEEL CASING PIPE

- A. Design Criteria: Steel Casing Pipe
 - 1. Minimum Tensile Strength - 60,000 PSI
 - 2. Minimum Yield Strength - 35,000 PSI
 - 3. Minimum Wall Thickness as Follows:

<u>Carrier Pipe</u>	<u>Casing Diameter</u>	<u>Minimum Wall Thickness</u>
4"	12"	0.313
6"	16"	0.313
8"	18"	0.313
10"	20"	0.313
12"	24"	0.313
16"	30"	0.563
20"	36"	0.563
24"	42"	0.563
30"	48"	0.625
36"	60"	0.625
42"	66"	0.625

- B. Casing pipe diameter shall be nominal outside diameter.

- C. Steel casing pipe shall be in accordance with ASTM A139, Grade B or ASTM A252, Grade 2.

2.02 MATERIALS

A. Steel Casing Pipe

1. Steel casing pipe shall be fabricated in accordance with the above listed specifications to the lengths and diameters shown on the Contract Drawings.
2. For casing pipes 30-inches in diameter and smaller, grout holes will not be required. For casing pipes larger than 30-inches in diameter, provide an adequate number of 1-¹/₂ inch holes, furnished three feet on center alternating 30 degrees with the top of the casing pipe. This shall be provided before installation to check for voids in the space between the ground and the outside of the casing pipe after the casing pipe is installed.
3. The 1-¹/₂ inch holes in steel casing pipe shall be tapped to receive 1-¹/₂" pipe plugs.
4. Grouting or other methods approved by the ENGINEER shall be used to fill such voids as uncovered.
5. All steel casing pipe must be new in first-class condition. Used or recycled casing pipe will not be allowed, regardless of condition.

B. Brick Bulkheads

1. Brick shall meet the requirements of ASTM C32, Grade MS.
2. Mortar shall be composed of Portland Cement, hydrated lime and sand in which the volume of sand shall not exceed three times the sum of the volumes of cement and lime.
 - a. Cement shall be type II Portland Cement.
 - b. Hydrated lime shall be types conforming to ASTM C207.

C. Cathodic Protection

1. One (1) seventeen pound magnesium anode shall be provided and installed for each end of each casing for cathodic protection.
2. Follow manufacturer's recommendations for attaching to casing pipe and proper burial procedures.

D. Casing Spacers

1. Stainless Steel
 - a. All casing spacers shall be made of 14 gauge Type 304 stainless steel with ⁵/₁₆" Type 304 stainless steel fasteners.
 - b. Runners shall be high molecular weight polyethylene.
 - c. Spacers shall electrically insulate watermain from casing pipe to provide proper cathodic protection.
 - d. Acceptable manufacturers:
 - 1) Smith-Blair,
 - 2) Approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Installation of the casing pipes shall include installation of the steel casing pipe by either the boring and/or jacking method in both earth and/or rock wherever it is encountered.
2. Bulkheads shall be installed at each end of the casing pipe of sufficient strength and quality to support the filling operation and to support annular fill. Vents shall be provided as required to assure complete filling of annular space as required by applicable authorities.
3. When a carrier pipe is installed inside a casing pipe, the entire annular space around the carrier pipe shall be filled with sand or pea gravel.
4. Recovery pits shall be excavated at each bore or jack location to determine possible conflicts in alignment with existing utilities not shown on the plans.
5. The CONTRACTOR is responsible for proper line and grade at each crossing. Misalignment or improper grade, as compared to the Contract Drawings, will require extra work to be performed at no additional cost to the OWNER.
6. Tight vertical sheeting shall be driven before excavating for bore and receiving pits as required. Sheeting shall be for the full length, width, and depth of the excavation. Sheeting shall conform to the applicable requirements of Section 02351, Excavation, Backfill, and Trenching.
7. Sheeting details shall be submitted by the CONTRACTOR to any affected agency for approval in advance of performing the Work.

B. Boring

1. The boring method shall consist of pushing the casing pipe into the fill with a boring auger rotating inside the pipe to remove the spoil.
2. The front of the casing pipe shall be provided with suitable mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.
3. The equipment and mechanical arrangements or devices used to bore and remove the earth and/or rock shall be removable from within the casing pipe in the event an obstruction is encountered.
4. The face of the cutting edge shall be arranged to provide reasonable obstruction to the free flow of soft or poor soil.
5. Water or other liquids shall not be used to facilitate casing emplacement or spoil removal.
6. The diameter of the boring hole shall be essentially the same as the outside diameter of the casing pipe.
7. If voids develop around the casing pipe as it is bored, cement grout will be pumped to fill all such voids; or fill by other means acceptable to the

ENGINEER. All voids shall be filled as soon as possible after completion of the boring operation.

C. Jacking

1. The steel casing pipe installed by the jacking method shall be weldable steel pipe.
2. No type of auger, boring or drilling equipment shall be used.
3. Bracing and backstops shall be designed of sufficient rating such that jacking can be accomplished in a continuous manner until the leading edge of the pipe reaches the final position shown on the Contract Drawings.
4. The diameter of the boring hole shall be essentially the same as the outside diameter of the pipe.
5. If voids develop around the casing pipe as it is jacked, cement grout will be pumped to fill all such voids; or fill by other means acceptable to the ENGINEER. All voids shall be filled as soon as possible after completion of the jacking operation.
6. Jacking operations shall be in accordance with the American Railway Engineering Association Specifications, Chapter 1, Part 4, "Jacking Culvert Pipe Through Fills".

D. Obstruction

If an obstruction is encountered during installation by jacking or boring and it is impossible to advance the casing pipe, the CONTRACTOR shall choose one of the following:

1. Abandon the casing pipe in place and fill completely with grout. Provide whatever bulkheading is necessary to accomplish the grouting operation. The crossing will be moved to another location acceptable to the ENGINEER and the crossing rebored at the CONTRACTOR'S expense.
2. As acceptable to the ENGINEER and authority having jurisdiction, the CONTRACTOR may continue the casing pipe by tunneling and installation of liner plates. This continuation by the tunneling method shall be at the CONTRACTOR'S expense.

E. Welding

1. Welding shall be done in accordance with the manufacturer's written requirements.
2. Welding operators shall be prequalified in accordance with the standard qualification procedure of the American Welding Society, and certification attesting thereto shall be delivered to the ENGINEER prior to beginning of any welding operation.

F. Inspection

1. All casing pipe will be inspected by the ENGINEER prior to installation.
2. Prior to the work in this section, the CONTRACTOR shall inspect the installation area to determine if the work of other trades has progressed to the point where the installation may properly commence.

3. The CONTRACTOR shall verify that the installation can proceed in accordance with all pertinent codes and regulations, the original design and the referenced standards.
- G. Installation of Carrier Pipe in Steel Casing.
1. Verify that casing is installed to the proper lines and grades.
 2. Joints for all carrier pipes 24-inches and larger in diameter shall be made within the casing pipe unless otherwise permitted by the ENGINEER.
 3. Push or pull each length of pipe into casing, adjust line and grade as necessary without disturbing adjacent joints.
 4. All carrier pipe joints falling within the steel casing pipe shall be restrained whether or not the pipe section falls within a restrained section of pipe as shown on the Drawings.
- H. Discrepancies
1. If the above referenced inspection reveals discrepancies, the CONTRACTOR shall notify the ENGINEER immediately.
 2. The CONTRACTOR shall not proceed with the installation in areas of discrepancy until said discrepancy is resolved.
- I. Blasting
1. Blasting is not allowed.
- J. Annular Fill and Bulkhead
1. Provide vents as required to assure complete filling of annular space and as required by the applicable authorities.
 2. Prior to the filling of the annular space, carrier pipe shall be properly and sufficiently secured against flotation and against all movement which would disturb joints.
 - a. The CONTRACTOR shall be responsible for all improper joints including all joints disturbed by placing annular fill.
 - b. The CONTRACTOR shall repair, replace or take whatever action is necessary to properly install casing pipe at no additional expense to the OWNER.
 3. After the carrier pipe is installed in casing, fill annular space with pea gravel between carrier pipe and casing and construct brick and mortar bulkheads as specified herein.
 4. Fill annular space in three (3) stages in the presence of the ENGINEER to his/her satisfaction.
 5. The volume of pea gravel used shall be compared to the annular space volume to ensure complete filling. Incomplete filling of annular space will not be considered acceptable. CONTRACTOR will remove pea gravel and reinstall, at his expense, if so ordered by the ENGINEER.

6. Install bulkheads at pipe joints at each end of the casing of sufficient strength and quality to support the filling operation, and to support annular fill.

END OF SECTION

SECTION 15122

MAGNESIUM ANODE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The Work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install prepackaged magnesium (sacrificial) anodes to cathodically protect a portion of new or existing cast iron pipe or ductile iron pipe, steel casing pipe, service or hydrant branch pipe, and/or new ductile iron fittings and copper water services on new or existing pipe.

B. Related Work Specified Elsewhere:

1. Section 02316 – Select Granular Materials
2. Section 02351 – Excavation, Backfill and Trenching
3. Section 15106 – Ductile Iron Pipe and Fittings
4. Section 15108 – Thermoplastic Pipe
5. Section 15109 – Prestressed Concrete Cylinder Pipe
6. Section 15110 – Valves and Appurtenances
7. Section 15121 – Casing Pipe

1.02 QUALITY ASSURANCE

A. All materials shall be new, of first quality and in first class condition. They shall be of the type and manufacturer shown or specified, and substitutions will not be permitted unless specified by the ENGINEER.

B. Reference Standards:

1. ASTM B843, Standard Specification for Magnesium Alloy Anodes for Cathodic Protection.
2. ASTM G97 – 97(2013), Standard Test Method for Laboratory Evaluation of Magnesium Sacrificial Anode Test Specimens for Underground Applications.

C. Magnesium anodes pipe and all incidentals shall be furnished by one supplier.

D. Requirements of Regulatory Agencies:

1. The CONTRACTOR shall be responsible for obtaining all required permits and shall comply with all provisions thereof at his own expense.

2. The CONTRACTOR shall, in addition to #1 above, obtain all additional permits, provide insurance, bonds and guarantees, and all else required by the governing authorities at his own expense. The CONTRACTOR'S responsibility under this paragraph may include, but not be limited to the following:
 - a. Constructing and removing temporary facilities or structures.
 - b. Providing details of construction methods.
 - c. Providing detailed construction schedules.
 - d. Reimbursing the applicable authority for any and all expenses incurred by them in connection with the Work.
 - e. Traffic maintenance.
 - f. Coordination of scheduling with the Authority.
 - g. Necessary clean-up and restoration.
- E. Thermite Welding:
1. Thermite welding shall be done in strict accordance with manufacturer's written requirements.
 2. Welding operators shall be prequalified in accordance with the standard qualification procedure of the American Welding Society, and certificates attesting thereto shall be delivered to the ENGINEER prior to beginning of any welding operations.

1.03 SUBMITTALS

- A. Shop Drawings identifying the magnesium anode materials and installation procedure.
- B. Certifications for thermal welding operators.
- C. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage in accordance with the manufacturer's requirements; any such distortion or damage shall be basis for rejection of the materials.
- B. Equipment used for unloading shall be covered with wood or rubber to avoid damage to the anodes and accessories. Do not drop or roll materials off trucks.
- C. The materials shall be inspected before and after unloading. Materials that are found to be wet, torn, contain broken wires, loss of anode salts or otherwise damaged will not be accepted.
- D. Store anodes on heavy wood blocking or platforms with a waterproof tarp so they are not in contact with the ground and stay dry.

PART 2 - PRODUCTS

2.01 PROPERTIES OF MAGNESIUM (SACRIFICIAL) ANODES

- A. Anodes shall be high potential magnesium anode ingots with prepackaged backfill.
- B. Anode ingot shall meet or exceed ASTM B843, Grade M1C for high-potential magnesium anodes, with the following chemical composition:

<u>Element</u>	<u>Percent By Weight</u>
Aluminum	0.01 maximum
Manganese	0.5 – 1.3
Zinc	0.05 maximum
Copper	0.02 maximum
Silicon	0.05 maximum
Iron	0.03 maximum
Nickel	0.001 maximum
Other metallic elements	0.05 maximum or 0.3 total
Magnesium	Remainder

- C. Laboratory tests shall be performed by a third party, in accordance with ASTM G97 (Laboratory Evaluation of Magnesium Test Specimens for Underground Application) requirements. Test results shall demonstrate a minimum open circuit potential of -1.70 volts with respect to a saturated Calomel electrode (-1.774 volts with respect to a copper/copper sulfate electrode) and a minimum current efficiency of 50% or 500 amp-hours per pound.
- D. Anode shall come furnished with minimum 10 feet of coiled #12 AWG solid copper wire with insulation, firmly attached to the galvanized steel core of the anode. The core cavity shall be filled with electrical sealing compound to assure a fully insulated and protected connection.
- E. Each magnesium anode ingot shall be a 17-pound magnesium bar in a prepackaged backfill-enclosed, permeable cloth bag. Total weight of the anode and backfill enclosed bag shall be approximately 45 pounds.
- F. Backfill in each magnesium anode bag shall contain 75 percent Hydrated Gypsum, 20 percent Bentonite, and 5 percent Sodium Sulfate.

2.02 THERMITE WELD EQUIPMENT

- A. Thermite Weld
 - 1. Connection of anode lead wire to cast iron or ductile iron pipe or fittings shall be made by the thermite weld method.
 - 2. Thermite weld materials shall consist of wire sleeves, weld mold and weld cartridges according to the weld manufacturer's recommendations for the specific wire and pipe sizes and materials.

3. Weld materials from different manufacturers shall not be interchanged.
4. Weld molds shall be graphite molds.
5. Ceramic 'one-shot' molds will not be acceptable.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Spacing and location of magnesium anodes will be as specified in Contract Documents.
2. Each anode shall be placed in a horizontal position parallel with the pipe, with centerline axis of the anode at least 6 inches below the bottom of the water or steel casing pipe. The centerline axis of the anode shall also be placed at least 6 inches from the exterior wall of the water pipe.
3. Care shall be taken to ensure that the cloth bag is not damaged and no backfill is lost during installation.
4. Each anode shall be centered in the cloth bag. It may be necessary to re-center the anode in the cloth bag by rolling it on the ground prior to installation.
5. Each prepackaged anode shall be lowered into the trench using a sling or rope. The anode shall not be lowered, transported, handled, or lifted by the lead wire. The anode shall not be dropped into the excavation.
6. The anode lead wire shall be long enough to reach from the pipe to the anode without a splice.
7. The anode lead wire shall be attached to the pipe using the thermite weld process.

B. Cathodic Protection Test Station

1. Anodes that are installed at cathodic protection test stations are not to be directly connected to the water pipe or fitting.
2. When the anode lead wire is not long enough to reach the test station terminal board with sufficient slack, the lead wire may be lengthened by splicing on an additional length of lead wire. Splice shall be made using an approved splice connector suitable for buried applications.

C. Polyethylene Wrap

1. To connect anode lead wire to ductile iron pipes that are encased in a polyethylene wrap, the CONTRACTOR shall first cut back the polyethylene wrap to expose the pipe.
2. The CONTRACTOR shall make an "X" shaped cut in the polyethylene wrap and temporarily fold back the polyethylene wrap at the point where the anode lead wire will be connected to the pipe.

D. Surface Preparation and Anode Connection

1. Using a mechanical grinder, remove the minimum area of coating from pipe or fitting surface required for placement of weld mold, creating a bright, shiny surface.
2. Prepare the anode lead wire and pipe surface for thermite welding by assuring that they are dry. Wire and pipe surface shall be free of dirt, grease, and other foreign products.
3. Remove insulation at end to be welded in a manner that will avoid damage to wire.
4. Install adapter sleeves for anode lead wire as recommended by thermite weld manufacturer prior to welding.
5. Hold wire at an approximate 30 degree angle to pipe surface when welding.
6. When weld has cooled, remove weld slag and test weld for strength by striking a sharp blow to the weld with a hammer while pulling firmly on the wire.
7. Re-weld unsound welds and retest weld.
8. Thoroughly clean mold and mold covers after completion of each weld to remove all excess slag.
9. After soundness of weld has been verified, thoroughly clean with a stiff wire brush and brush with an approved bitumastic coating over entire weld area.
10. Lift wire away from pipe and apply bitumastic coating completely around and underneath the wire. Push wire back down on the pipe. Apply a protective bitumastic coating where any original pipe coatings have been disturbed.
11. After the anode lead wire is connected to the pipe, the CONTRACTOR shall repair the polyethylene wrap using polyethylene compatible adhesive tape. The polyethylene wrap shall be folded back against the pipe and the repair tape shall be applied on anode lead wire. The repair tape shall completely cover the area of the polyethylene wrap that was cut and shall completely cover all exposed ductile iron pipe.
12. Extra anode lead wire for each anode shall be coiled. The wire shall have sufficient slack to allow for pipe and anode movement and to protect against undue stress during backfilling.
13. Prior to backfilling the anode, water shall be applied to the anode to moisten its pre-packed backfill.
14. The area immediately surrounding the anode shall be backfilled with native soil. Cushion sand shall be backfilled around the water pipe or fitting so that the sand covers the pipe or fitting to a minimum depth of 12 inches on top, and along both sides of the pipe or fitting.
15. The excavation shall be backfilled in stages using select granular backfill (water) material free from stone, rocks, roots, organic material, trash, or other debris, and carefully tamped to ensure that no voids exist around the bag and that the bag and wire are not damaged.

- E. Anodes on Copper Water Service on PVC, DIP, and PCCP Watermains
1. If designated in the Contract Documents, one 17-pound anode shall be connected to new copper water services on PVC, DIP, and PCCP watermains.
 2. For copper services 1-inch diameter and less, anode lead wire shall be attached to thaw wire type copper tube nut at outlet end of corporation stop. For copper services larger than 1-inch diameter, anode lead wire is to be attached to copper service using bronze ground clamp.
- F. Anodes on Existing Ductile and Cast Iron Watermains
1. Magnesium anodes shall be installed as designated in the Contract Documents or directed by the ENGINEER, on existing cast and ductile iron watermain pipe to cathodically protect both pipes on either side of the joint.
 2. At each excavated joint, an area shall be excavated that is large enough to expose top and one or both sides of existing watermain pipe and safely install anodes in one operation.
 3. Basic general size of the area to be excavated will be dependent on the depth and location of the watermain.
 4. Magnesium anodes are not required to be installed on existing watermain fittings or valves encountered in an excavation, unless otherwise required in the Contract Documents or directed by the ENGINEER.
- G. Anodes on Existing Ductile and Cast Iron Hydrant Branches and Water Services
1. If designated in the Contract Documents, hydrant branches shall be excavated along the branch pipe with the branch gate valve centered in the trench. One 17-pound anode shall be attached to the branch pipe between the watermain and the gate valve and one 17-pound anode on the branch pipe between the gate valve and the hydrant.
 2. Water services 4-inch diameter and larger shall be excavated along the service pipe with the curb shut off valve centered in the excavation. One anode shall be connected to the service pipe between the watermain and the curb valve and a second anode shall be connected to the service pipe between the curb valve and the customer's property. For services with no curb valve, one anode shall be connected to the service pipe in the vicinity of the curb.
 3. Anode sizes shall be based on the service diameter, with one 17-pound anode installed on 4-inch and 6-inch diameter services; two 17-pound anodes installed on 8-inch and 10-inch diameter services; and three 17-pound anodes installed on services 12-inch diameter and larger.
- H. Inspection
1. All casing pipe will be inspected by the ENGINEER prior to installation.
 2. Prior to the work in this section, the CONTRACTOR shall inspect the installation area to determine if the work of other trades has progressed to the point where the installation may properly commence.

3. The CONTRACTOR shall verify that the installation can proceed in accordance with all pertinent codes and regulations, the original design and the referenced standards.
- I. Discrepancies
1. If the above referenced inspection reveals discrepancies, the CONTRACTOR shall notify the ENGINEER immediately.
 2. The CONTRACTOR shall not proceed with the installation in areas of discrepancy until said discrepancy is resolved.

END OF SECTION

SECTION 15123

CATHODIC PROTECTION TESTING STATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

The Work specified shall include all labor, materials, tools, equipment, services and incidentals necessary to furnish and install cathodic protection testing stations to protect a portion of new or existing cast iron pipe or ductile iron pipe, steel casing pipe, service or hydrant branch pipe, and/or new ductile iron fittings and copper water services on new or existing pipe.

B. Related Work Specified Elsewhere:

1. Section 02316 – Select Granular Materials
2. Section 02351 – Excavation, Backfill and Trenching
3. Section 15106 – Ductile Iron Pipe and Fittings
4. Section 15108 – Thermoplastic Pipe
5. Section 15109 – Prestressed Concrete Cylinder Pipe
6. Section 15110 – Valves and Appurtenances
7. Section 15121 – Casing Pipe
8. Section 15122 – Magnesium Anode

1.02 QUALITY ASSURANCE

A. All materials shall be new, of first quality and in first class condition. They shall be of the type and manufacturer shown or specified, and substitutions will not be permitted unless specified by the ENGINEER.

B. Reference Standards:

1. ASTM B843, Standard Specification for Magnesium Alloy Anodes for Cathodic Protection.
2. ASTM G97 – 97(2013), Standard Test Method for Laboratory Evaluation of Magnesium Sacrificial Anode Test Specimens for Underground Applications.

C. Thermite Welding:

1. Thermite welding shall be done in strict accordance with manufacturer's written requirements.
2. Welding operators shall be prequalified in accordance with the standard qualification procedure of the American Welding Society, and certificates attesting thereto shall be delivered to the ENGINEER prior to beginning of any welding operations.

1.03 SUBMITTALS

- A. Shop Drawings identifying the cathodic protection testing station and installation procedure.
- B. Certifications for thermal welding operators.
- C. The CONTRACTOR shall submit certificates of compliance with the applicable referenced standards.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. During delivery and handling, all materials shall be braced and protected from any distortion or damage in accordance with the manufacturer's requirements; any such distortion or damage shall be basis for rejection of the materials.
- B. The materials shall be inspected before installation. Materials that are damaged will not be accepted.

PART 2 - PRODUCTS

2.01 PROPERTIES OF CATHODIC PROTECTION TESTING STATION

- A. Testing stations shall meet the following minimal requirements:
 - 1. All materials for testing stations shall be new materials and supplied by one supplier.
 - 2. Cathodic protection testing stations shall be composed of a minimum 3-inch diameter polyethylene or polycarbonate riser with screw-type protective cap.
 - 3. Test stations shall be blue in color and include proper labeling identifying it as a waterline testing station.
 - 4. Test stations shall be equipped with a circuit testing board, mounted at the top of the station, capable of being used to monitor voltage in the system.
 - 5. Each test station shall be installed with a base anchor, minimizing the chance of settlement or heaving of the station.
 - 6. All wiring within the test station shall be 12-gauge insulated wire or as required by the station manufacturer.
 - 7. Test station label shall identify that it is a waterline testing station and include the name and contact number for the Erie County Water Authority.
- B. Acceptable manufacturers:
 - 1. Pro-Mark,
 - 2. Brentsen,
 - 3. GMC,
 - 4. Or approved equal.

2.02 THERMITE WELD EQUIPMENT

A. Thermite Weld

1. Connection of lead wires to cast iron, ductile iron, or steel pipe or fittings shall be made by the thermite weld method.
2. Thermite weld materials shall consist of wire sleeves, weld mold and weld cartridges according to the weld manufacturer's recommendations for the specific wire and pipe sizes and materials.
3. Weld materials from different manufacturers shall not be interchanged.
4. Weld molds shall be graphite molds.
5. Ceramic 'one-shot' molds will not be acceptable.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Spacing and location of the cathodic protection testing station shall be as specified in the Contract Documents and approved by the ENGINEER.
2. Test stations shall be installed in areas where they will not be disturbed by vehicular traffic and will not interfere with trees, plantings, hydrants, valve boxes, or other utilities.
3. Comply with manufacturer's recommendations for testing station installation.

B. Magnesium (sacrificial) Anode Installation.

1. Anodes that are installed at cathodic protection test stations are not to be directly connected to the water pipe or fitting.
2. When the anode lead wire is not long enough to reach the test station terminal board with sufficient slack, the lead wire may be lengthened by splicing on an additional length of lead wire. Splice shall be made using an approved splice connector suitable for buried applications.
3. Comply with Technical Specification Section 15122 for installation of magnesium anodes.

C. Pipe Surface Preparation and Thermite welding

1. Using a mechanical grinder, remove the minimum area of coating from pipe or fitting surface required for placement of weld mold, creating a bright, shiny surface.
2. Prepare the lead wires and pipe surface for thermite welding by assuring that they are dry. Wire and pipe surface shall be free of dirt, grease, and other foreign products.
3. Remove insulation at end to be welded in a manner that will avoid damage to wire.
4. Install adapter sleeves for lead wire as recommended by thermite weld manufacturer prior to welding.

5. Hold wire at an approximate 30 degree angle to pipe surface when welding.
6. When weld has cooled, remove weld slag and test weld for strength by striking a sharp blow to the weld with a hammer while pulling firmly on the wire.
7. Re-weld unsound welds and retest weld.
8. Thoroughly clean mold and mold covers after completion of each weld to remove all excess slag.
9. After soundness of weld has been verified, thoroughly clean with a stiff wire brush and brush with an approved bitumastic coating over entire weld area.
10. Lift wire away from pipe and apply bitumastic coating completely around and underneath the wire. Push wire back down on the pipe. Apply a protective bitumastic coating where any original pipe coatings have been disturbed.
11. After the lead wires are connected to the pipe, the CONTRACTOR shall repair the polyethylene wrap using polyethylene compatible adhesive tape. The polyethylene wrap shall be folded back against the pipe and the repair tape shall be applied on the lead wires. The repair tape shall completely cover the area of the polyethylene wrap that was cut and shall completely cover all exposed ductile or cast iron pipe.
12. Extra lead wire shall be coiled. The wire shall have sufficient slack to allow for pipe, test board, and anode movement and to protect against undue stress during backfilling.
13. The number of anodes may vary and are shown on contract drawings. If multiple anodes are defined, connect anodes in series and to test board accordingly.
14. Prior to backfilling the anode(s), water shall be applied to the anode(s) to moisten its pre-packed backfill.
15. Test wires shall be installed in continuous length. Test wires shall be provided with sufficient slack at the pipe and at the test station box to prevent the test wire from being unduly stressed or broken during backfilling operations and future excavating. Sufficient test wire shall be provided to coil below ground within the test box so that the terminal board and test wires can extend approximately 3 feet above ground level.
16. Test wires shall be handled with care. Damage to wire insulation shall be repaired by spirally wrapping (minimum of 50 percent overlap) with two layers of high voltage rubber splicing tape and two layers of vinyl electrical tape or using an approved splice connector suitable for buried applications.
17. The terminal end of the lead wire for reference electrodes shall be color coded as indicated on the drawings depending on the type of element required for the soil conditions. If necessary, color coding shall be achieved by wrapping colored vinyl tape several times around the end of the lead wire.
18. All test boxes shall be installed on a solid concrete block foundation.

19. Sand embedment shall be required around the wires and conduit. There shall be a minimum of 6 inches along each side, top, and bottom of the wires and conduit.
20. Upon completion of the Work, the CONTRACTOR shall check all wiring for electrical continuity. The test box/valve box shall be backfilled with the top soil being flush with the surrounding finished grade and the surface restore.
21. The area immediately surrounding the anode shall be backfilled with native soil. Cushion sand shall be backfilled around the water pipe or fitting so that the sand covers the pipe or fitting to a minimum depth of 12 inches on top, and along both sides of the pipe or fitting.
22. The excavation shall be backfilled in stages using select granular backfill (water) material free from stone, rocks, roots, organic material, trash, or other debris, and carefully tamped to ensure that no voids exist around the bag and that the bag and wire are not damaged.

D. Inspection of Testing System

1. CONTRACTOR shall demonstrate to the ENGINEER and OWNER that the station is functioning properly after installation is complete.
2. CONTRACTOR shall measure the voltage across the completed test station using an approved multimeter and provide the results to the ENGINEER.
3. If no reading can be obtained, CONTRACTOR shall verify that all wiring is properly installed by excavating the station and inducing current from pipe to anode to demonstrate conductivity. CONTRACTOR shall be responsible for all trouble-shooting measures necessary until it can be shown that test station is operational.
4. CONTRACTOR shall correct any deficiencies regarding the test station at his expense until test system is operational and results are satisfactory to the ENGINEER and OWNER.

END OF SECTION

SECTION 15140

TESTING AND DISINFECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

1. Testing and disinfection of all pressure piping for leakage as specified.
 - a. The CONTRACTOR shall furnish all labor, equipment, test connections, vents, water and materials necessary for carrying out the pressure and leakage tests as specified and required.
 - b. The work specified shall include all labor, material, equipment, services and incidentals necessary to fill, clean, chlorinate, flush, and test all pipelines which will carry or hold potable water.

B. Related Work Specified Elsewhere

1. Section 02080 - Fire Hydrants
2. Section 15051 - Buried Piping Installation
3. Section 15106 - Ductile Iron Pipe and Fittings
4. Section 15108 - Thermoplastic Pipe
5. Section 15109 - Prestressed Concrete Cylinder Pipe
6. Section 15110 - Valves and Appurtenances
7. Section 15120 - Piping Specialties and Accessories

C. Description

1. Permission shall be obtained from the OWNER of the water system before the use of water from any existing system. The CONTRACTOR shall:
 - a. Conform to the requirements of the OWNER.
 - b. Pay all costs connected with the taking or use of water for any retesting.
 - c. The CONTRACTOR shall provide written notice to the Authority and ENGINEER at least three working days in advance of testing and disinfection.
2. All work under this section shall be performed in the presence of the ENGINEER. A representative of the public health authority having jurisdiction must also be present, as required.
3. Chlorination shall be scheduled such that sampling and flushing will be performed during normal business hours.

1.02 QUALITY ASSURANCE

A. Reference Standards

1. AWWA B300, Standard for Hypochlorites
2. AWWA B301, Standard for Liquid Chlorine

3. AWWA C104, Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
4. AWWA C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type for Water and Other Liquids
5. AWWA C502, Standard for Dry-Barrel Fire Hydrants
6. AWWA C504, Standard for Rubber Seated Butterfly Valves
7. AWWA C600, Standard for Installation of Ductile Iron Watermains and Their Construction
8. AWWA C651-14, Standard for Disinfecting Water Mains
9. AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch Through 12-inch for Water Distribution
10. AWWA M55, Manual of Water Supply Practices, PE Pipe-Design and Installation
11. NSF/ANSI Standard 60 and 61 (as applicable)
12. Standard Methods for the Examination of Water and Wastewater, latest edition
13. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

- A. The CONTRACTOR shall submit proposed materials, methods, and operations regarding testing and disinfection to the ENGINEER for review prior to the start of testing.
- B. CONTRACTOR must provide a sketch to the ENGINEER of the sampling locations identifying at minimum the following:
 1. Street names,
 2. North arrow,
 3. Sampling locations,
 4. House numbers of nearest buildings to sampling locations.
 5. Other distinguishable landmarks,
 6. Any other information as requested by ENGINEER, OWNER, AUTHORITY, or County Health Department.
- C. The CONTRACTOR shall submit certification that all backflow preventers (Reduced Pressure Zone attachments) and pressure gauges have been tested and certified within the last year.
- D. Qualifications of laboratory analyzing biological samples shall be New York State ELAP certified.
- E. Chain-of-Custody forms are to be furnished for all biological samples taken.
- F. For flushing operations, ENGINEER shall supply calculations identifying that a minimum 3.0 ft/sec scour velocity has been achieved in the new waterline and that three pipe volumes have passed through it.

- G. ENGINEER shall provide pressure testing and leakage test results on the ECWA Pressure Test/Leakage Test form available on the ECWA website.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All products must be suitable for use in a potable water system and NSF-60 certified. All piping, valves, etc. shall be NSF-61 certified.
- B. Chlorination shall be by the use of a solution of sodium hypochlorite contained in the pipe or structure as specified. The use of calcium hypochlorite in powdered, granular, or tablet form, shall not be allowed.

PART 3 - EXECUTION

3.01 TESTS ON PRESSURE PIPING FOR POTABLE WATER

- A. General
1. Flush, test and disinfect prior to connection to existing watermain as specified below, except as otherwise authorized by the ENGINEER.
 2. The length of piping and sections included in the tests shall meet the approval of the ENGINEER; however, the length shall not exceed 2,000 feet in any case. Pressure test of pipe section shall be from valve to valve regardless of watermain size.
 3. Notify the ENGINEER 72 hours in advance of testing.
 4. Equipment in or attached to the pipes being tested shall be protected. Any damage to such equipment during the test shall be repaired by the CONTRACTOR at his expense.
 5. Conduct all tests per AWWA C-600 and C-651, latest editions in the presence of the ENGINEER. Repeat tests in the presence of local authorities having jurisdiction if required by them.
 6. CONTRACTOR shall have sufficient personnel at the site for the entire duration of all tests.
 7. When piping is to be insulated or concealed in a structure, tests shall be made before the pipe is covered.
 8. Provide outlets to flush line, expel air and perform specified tests.
 9. Where connections to existing lines are called for only one such connection will be allowed.
 10. All fittings, hydrants and appurtenances must be properly braced and harnessed before the pressure is applied. Thrust restraining devices which will become a part of the system must also be tested at the test pressure.
 11. When testing absorbent pipe materials such as cement or concrete, the pipeline shall be filled with water at least 24 hours before the test is made.
 12. The CONTRACTOR must supply all materials and manpower to perform the tests as specified herein.

13. Testing and disinfection shall be acceptable and approved by the agency of jurisdiction before another connection is made.

B. Initial Flushing

1. CONTRACTOR shall fill and flush new main to remove dirt and miscellaneous debris from the inside of the watermain.
2. CONTRACTOR is responsible for removing all entrapped air during flushing.
3. Flushing must have sufficient flowrate to achieve a fluid velocity of 3.0 feet per second inside the waterline.
4. A minimum 2" tap is required for proper flushing of all watermains having a diameter of 8 inches or less, however, multiple taps or larger taps may be required. ENGINEER shall be responsible for determining necessary connections and providing calculations verifying flushing conditions are met.
5. Refer to AWWA C651, for number of taps required to obtain the minimum 3.0 feet per second flow velocity in all pipes.
6. CONTRACTOR is responsible for providing a water source for flushing. With the permission of the OWNER, an existing watermain may be used as a water source, however, the following restrictions apply:
 - a. The CONTRACTOR is not allowed to operate any valves or hydrants or operate any components which belong to the OWNER.
 - b. If water is drawn from the existing system, an appropriate backwater preventer such as a Reduced-Pressure Zone (RPZ) device must be used. The RPZ must be tested within one (1) year and approved prior to usage.
 - c. Water from flushing procedures must be disposed of properly. Water may be piped or gravity-fed to an existing storm sewer with the ENGINEER'S and the OWNER'S permission if proper erosion control methods to minimize sediment build-up are used. Discharge of water into a roadway or into a parking lot area is strictly prohibited. Water discharging operations shall not cause damage to any public or private property.
7. CONTRACTOR shall partially open and close valves and hydrants several times under expected line pressure to flush foreign material out of the valves and hydrants.
8. Flushing shall continue until three pipe volumes have passed through the new waterline and the water appears sediment-free.

C. Pressure Test

1. Pressure test apparatus must be installed as shown on the Drawings
2. Test pressure shall be as specified in Section 15051, Buried Piping Installation, at the lowest point in the line.
3. Test pressure shall be held on the piping for a period of at least 2 hours, unless a longer period is requested by the ENGINEER, OWNER, or AUTHORITY. Pressure should not fluctuate by more than 5 psi during testing.

4. Pressure gauge must be in good working condition and must be demonstrated to be accurate to the ENGINEER prior to any testing.
5. Gauge must have proper labeling to allow ENGINEER to accurately distinguish the maximum allowable 5 psi change in pressure. Gauge must have markings at no greater than 2 psi increments to allow accurate readings.
6. ENGINEER is responsible for reading the gauge and recording the test results he/she witnesses. Results obtained by the ENGINEER are considered final, and not subject to discussion by the CONTRACTOR.
7. ENGINEER may tap pressure gauge at each reading to ensure needle is measuring pressure accurately.
8. The AUTHORITY reserves the right to read the pressure gauge and record the test results for those lines considered suspect or for potentially inaccurate result recording.
9. ENGINEER shall record pressure at 15 or 30 minute intervals to help determine if the pressure loss is stabilizing.
10. The CONTRACTOR will inform the ENGINEER when to begin the test.
11. If the pressure drop is greater than 5 psi in 2 hours, or if the ENGINEER believes the line is suspect, the CONTRACTOR shall explore for the cause of the excessive leakage and after repairs have been made, the line shall be retested. This procedure shall be repeated until the pressure loss is less than the maximum allowable and the ENGINEER is satisfied.
12. If the pressure drop is 3 psi or greater but less than 5 psi in 2 hours, the CONTRACTOR shall continue the test for another 2 hours. If the pressure drop over the 4 hour period is 5 psi or greater, the test failed and must be repeated after the cause of the leakage is explored and the necessary repairs have been made
13. The ENGINEER shall make a preliminary determination if the test passes or fails based on the pressure and volume losses recorded during testing.
14. After each test, the CONTRACTOR must demonstrate that the test apparatus, including the pressure gauge, is fully functional and accurate. Inaccurate gauges or non-satisfactory equipment will be grounds for test failure, regardless of test results. CONTRACTOR will resupply proper equipment and retest, at his expense.
15. The pressure loss recorded over the 2 or 4-hour test must be acceptable to the County Health Department and AUTHORITY for final hydrostatic testing approval to be given.
16. At the end of the test, the pressure shall be increased to the starting pressure, so that the leakage test data is acquired. See Section D Leakage Test below, for additional information.

HDPE Testing Requirements

1. In conjunction to the requirements above the test procedures for HDPE pipe consists of two steps: 1) the initial phase or expansion phase and 2) the test phase. During the initial/expansion phase, sufficient make-up water shall be added hourly for 3 hours to return to test pressure. During

the test phase, the expansion phase pressure is reduced by 10 psi to test pressure and monitored for at least one hour (3 hours maximum).

2. Under no circumstances shall the total time under test exceed eight (8) hours. If the test is not completed due to leakage, equipment failure or any other reason, depressurize the test section and permit the system eight (8) hours prior to the next testing sequence.
3. In accordance with Section 9.8 of ASTM F2164, the pipe shall pass if the final pressure is within 5% of the test phase pressure for the testing period (3 hours maximum). If the test section fails this test, the CONTRACTOR shall repair or replace all defective materials and/or workmanship at no additional cost to OWNER.

D. Leakage Test

1. The leakage test shall be conducted concurrently with the pressure test.
2. The rate of leakage shall be determined at 15-minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15-minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.
 - a. At the completion of the test the pressure shall be released at the furthestmost point from the point of application.
3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The leakage for pressure pipelines shall not exceed the following allowable rates in gallons per hour per 1000 feet of pipe at the test pressure specified in Section 15051, Buried Piping Installation:

<u>Pipe Diameter</u>	<u>Pipe Material</u>	<u>ECWA Allowable Leakage*</u>
4"	PVC, DIP	0.26
6"	PVC, DIP	0.40
8"	PVC, DIP	0.53
10"	PVC, DIP	0.66
12"	PVC, DIP	0.79
16"	DIP, PCCP	1.06
20"	DIP, PCCP	1.32
24"	DIP, PCCP	1.59
30"	DIP, PCCP	1.98
36"	DIP, PCCP	2.38
42"	DIP, PCCP	2.78
48"	DIP, PCCP	3.17

* 75% of allowable leakage per AWWA C600-17.

5. Regardless of the above allowables, any visible leaks shall be permanently stopped.
6. The CONTRACTOR shall provide a meter certified within the last year or a source-water tank/barrel of small enough cross section so that measurable changes in water depth can be accurately recorded. A two hour test is permitted for circular tanks/barrels of 15 inches in diameter or less. A four hour test is required for circular tanks/barrels greater than 15 inches in diameter. If a tank of non-circular cross section or irregular shape is used, and the change in water depth cannot be properly measured, the ENGINEER or AUTHORITY may require the test to be run more than 2 hours until an accurate depth change can be recorded and the ENGINEER is satisfied with the results.
7. The leakage volume recorded over the 2 or 4-hour test must be acceptable to the County Health Department and AUTHORITY for final waterline approval to be given.

3.02 BUTTERFLY VALVE TESTING

- A. Each butterfly valve shall have a field leakage test performed with the pressure differential as identified in Section 15051, Buried Piping Installation, applied in both directions. This requirement does not waive the requirements stipulated in AWWA C504.
- B. The duration of each field test in each direction shall be a minimum of two (2) hours.
- C. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment and materials required to perform all tests shall be provided by the CONTRACTOR and demonstrated as functional and accurate to the ENGINEER. Non-functional or inaccurate equipment, regardless of test results, will be grounds for test failure. CONTRACTOR shall resupply proper equipment and retest.

3.03 RESILIENT SEAT GATE VALVE TESTING

- A. Each gate valve shall have a field leakage test performed with the pressure differential as identified in Section 15051, Buried Piping Installation, applied in both directions. This requirement does not waive the requirements stipulated in AWWA C509.
- B. The duration of each field test in each direction shall be a minimum of two (2) hours unless specifically defined by the ENGINEER.
- C. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment and materials required to perform all tests shall be provided by the CONTRACTOR and demonstrated as functional and accurate to the

ENGINEER. Non-functional or inaccurate equipment, regardless of test results, will be grounds for test failure. CONTRACTOR will resupply proper equipment and retest.

3.04 TAPPING SLEEVE AND VALVE TESTING

- A. Prior to making the tap, gate valves shall have a field leakage test performed with a hydrostatic pressure as identified in Section 15051, Buried Piping Installation, on the open end.
- B. Once the system is complete, the valves shall be tested in accordance with the Butterfly and Resilient Seat Gate Valve Testing criteria stated above.
- C. The duration of each field test shall be a minimum of two (2) hours unless specifically defined by the ENGINEER.
- D. After installation of the tapping sleeve or saddle and prior to tapping the main, the sleeve or saddle shall be air tested in accordance with manufacturers' recommendations. If the results of the air test do not meet manufacturers' specifications, the sleeve or saddle will be replaced and retested until the results are satisfactory.
- E. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment and materials required to perform all tests shall be provided by the CONTRACTOR and demonstrated as functional and accurate to the ENGINEER. Non-functional or inaccurate equipment, regardless of test results, will be grounds for test failure. CONTRACTOR will resupply proper equipment and retest.

3.05 DISINFECTION

- A. Before disinfection, the line shall be cleaned and flushed with clean water as defined in the Initial Flushing section. CONTRACTOR shall provide outlets as required.
- B. The chlorine solution shall be admitted to pipelines through corporation stops placed in the horizontal axis of the pipe, to structures by means of tubing extending directly into the structure or other approved methods.
- C. CONTRACTOR shall install 2-inch saddles on existing and proposed mains and run 2-inch Type K copper tubing with backflow prevention device to allow for addition of chlorinated water. The rate of chlorine solution flow shall be in such proportion to the rate of water entering the pipe or structure that the resulting free chlorine residual shall be between 50 and 100 milligrams per liter (mg/l). Concentrations over 100 mg/l shall not be allowed to enter the piping system.

- D. The placement of chlorine powder or tablets inside the pipe during installation as a means of disinfection will not be allowed.
- E. The proposed piping shall be tested in all respects, prior to connecting the second end of the pipe to the existing system and prior to installing the annular fill at casing pipes.
- F. All valves to existing mains must be closed during the chlorination process. CONTRACTOR must flush the proposed main through a backflow preventer such as a Reduced Pressure Zone (RPZ) and 2-inch copper until chlorine residual at the opposite end reaches 50 mg/l. All valves to the existing water network are to remain closed until this level is reached. While the chlorinated water is being added, all appurtenances on the main shall be operated so as to completely disinfect the new work. The operation shall be repeated as necessary to provide complete disinfection.
- G. Chlorinated water from hydrants and taps must be properly collected and disposed of by the CONTRACTOR. Discharge of chlorinated water into the existing storm sewer or a natural water body shall not be allowed.
- H. The chlorine treated water shall be retained in the pipe or structure at least 24 hours, unless otherwise directed. During the retention period all valves and hydrants within the treated sections shall be operated.
- I. The chlorine residual shall be not less than 25 mg/l at any point in the pipe or structure at the end of the retention period. CONTRACTOR shall immediately perform final flushing to reduce the retention time high levels of chlorinated water.
- J. When making repairs to or when specified, structures and portions of pipelines shall be chlorinated by a concentrated chlorine solution containing between 200 mg/l and 300 mg/l of free chlorine. The solution shall be applied with a brush or sprayed on the entire inner surface of the empty pipes or structures. The surfaces disinfected shall remain in contact with the strong chlorine solution for at least 30 minutes.
- K. The CONTRACTOR must use an approved test method, as defined in AWWA C651 and *Standard Methods for the Examination of Water and Wastewater*, to determine chlorine levels. Test strips and test kits will be allowed for testing chlorine levels if the kit is less than six months old, in the original bottle, is not past the expiration date, and has a color coded scale on the side with legible concentrations defined. ENGINEER and AUTHORITY reserve the right to reject test results if the test strip or kit is suspect. Sending samples to an approved laboratory is also acceptable.

3.06 FINAL FLUSHING

- A. Upon completion of each disinfecting operation, the CONTRACTOR will be required to empty the contents of the pipe into a tank truck. Dumping into a sewer will only be allowed with approval from the local governing body. In no instance will chlorinated testing or flushing water be emptied onto the roadways, in ditches, culverts, streams, wetlands, or any other natural water body.
- B. Final flushing will continue until such time as the chlorine residual is between 0.5 and 1.2 mg/l.
- C. Prior to discharging into storm or sanitary sewer systems, and with the written approval of the municipality, the CONTRACTOR shall use a reducing agent (such as sodium thiosulfate) to neutralize any chlorine residual. CONTRACTOR shall prove to the ENGINEER, AUTHORITY and municipality that the water has been properly neutralized prior to discharge using an appropriate testing method.

3.07 BACTERIOLOGICAL TESTING

- A. After disinfection and final flushing, a representative of the laboratory hired by the CONTRACTOR shall, in the presence of the ENGINEER, take two bacteriological samples from sampling points at maximum 1,000-foot intervals along the waterline, at every branch off the main line, and at each end of the test section (one immediately after final flushing and a second one after 24 hours) for testing by an ELAP certified laboratory in accordance with the latest Health Department requirements.
- B. Should acceptable results not occur after these two consecutive tests, the CONTRACTOR shall, at his expense, repeat the disinfection procedure until safe results are obtained.
- C. All precautions shall be taken to maintain dry and sanitary conditions and to prevent contamination of any piping, at the CONTRACTOR'S expense.
- D. If, in the opinion of the ENGINEER or AUTHORITY, contamination has occurred, the CONTRACTOR shall repeat the disinfection and bacteriological testing at his cost and expense.
- E. Test results from the laboratory shall be sent directly to the ENGINEER. Test results sent through the CONTRACTOR shall not be considered.
- F. Bacteriological test results shall expire 30 calendar days after the samples are taken. After 30 calendar days, the CONTRACTOR shall be required to repeat the process, taking two sets of samples and submitting results for review.
- G. As per AWWA C651-14 standards, the limit for pipe installed without bacteriological samples being taken is 20 linear feet.

3.08 APPROVAL

- A. The ENGINEER shall submit the Waterline Installation Complete Works Approval Report(s) to the Erie County Water Authority for review and processing.
- B. Once approval is given, after reconnecting the proposed piping to the existing piping, the CONTRACTOR shall slowly refill the watermain with water and allow it to pressurize so that the ENGINEER may inspect the connections and/or other piping.
- C. The CONTRACTOR shall, at his expense, correct any observed defects to the satisfaction of the ENGINEER and OWNER.

END OF SECTION

SECTION 15400

CREW LABOR AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope:
 - 1. CONTRACTOR shall furnish all labor, equipment, and incidentals as specified and required to perform water service related work when ordered.
 - 2. The use of crew labor and equipment shall be ordered by ENGINEER when, at a specific site that is scheduled for a service installation, it is so determined that it would be in the best interest of the Authority that related work be performed.
 - 3. The use of crew labor and equipment may also be ordered by ENGINEER to perform other related work.
- B. Location of the Work:
 - 1. When ordered, the Work shall be performed in the Erie County Water Authority's franchised area and all water districts that the Authority operates under a lease-managed contract.
- C. Adequate Crews Required:
 - 1. The CONTRACTOR is to provide, as hereafter set forth, a crew and equipment as may be required to perform the ordered work.
- D. Time Is of the Essence:
 - 1. The CONTRACTOR is obligated to perform his work as expeditiously as possible.
- E. Materials to be Supplied:
 - 1. The Erie County Water Authority shall supply all waterline materials, fittings, and appurtenances necessary. CONTRACTOR shall provide select backfill and cold patch, unless otherwise ordered.
 - 2. The CONTRACTOR shall be responsible for obtaining the materials.

1.02 CREW LABOR AND EQUIPMENT

- A. Basic Crew:
 - 1. The CONTRACTOR shall provide a crew labor and equipment consisting as follows:
 - a. One wheeled tractor front end loader and backhoe attachment with all accessories, $\frac{3}{8}$ to 1 yard capacity.
 - b. One tool and equipment truck, one ton and over, fully equipped with all accessories and heavy duty revolving yellow lights. Truck shall have heavy duty commercial pump, tamper, cut off saw, lighting lamps to sufficiently light the work area, and ladder. The truck shall also have all necessary small tools such as, but not limited to: pipe

wrenches, socket wrenches, open end wrenches, and ratchet wrenches of all sizes, also shovels, sledge hammers, pry bars, hammers, hoisting slings, chains, hacksaws, screw drivers, and any other tool required to do the work. The truck shall also have specialized equipment and tools required to make repairs to mains and ¾" to 2" services such as caulking tools, chisels, bursting wedges, tube cutters, flaring tools, pipe cutters, utility socket set pilot shut off tool for copper, pipe de-scaler, curb box cleaner, valve box cleaner, service box keys with pentagon nut key, gate valve key, hydrant wrenches, easy outs, and any other specialized tool required to do the work.

- c. The truck shall be equipped or have readily available at the CONTRACTOR'S office the following specialized equipment: welding machine with accessories, D-S drilling machine, B-100 and A3 drilling and tapping machine complete with all accessories, melting pots, metal detector, M-scope line tracer, and any other specialized tool required to complete the work.
- d. All tool and equipment trucks shall be fully equipped and in good condition at all times and it is understood that there will be no payment for any time lost for failure to have this equipment ready for use when needed. It is also understood that the repair crew will be fully competent in the use of all items.
- e. One rear dump truck, 5 cubic yard capacity minimum, 6 wheels.
- f. One trailer for transporting tractor and/or picking up repair material complete with all accessories.
- g. Two skilled laborers, authorized for the operation of specialized equipment and who shall also perform any particular task necessary to perform repairs or related work on water services and mains.
- h. One supplemental laborer to operate basic tools and equipment and provide general labor for pipe repair.
- i. Included, with this item, shall be all related costs such as supervision, wages, benefits, operating cost, overhead, and profit.

- B. Included with this item, shall be all related costs such as supervision, wages, benefits, operating cost, overhead, and profit.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

- A. All work shall be performed with minimal disturbance to the existing surface conditions.
- B. The equipment supplied under this item shall be in good working condition as deemed by ENGINEER. No additional payment shall be made to CONTRACTOR for time spent in replacing malfunctioning equipment.
- C. CONTRACTOR is responsible for contacting the Underground Locating Service to mark the locations of existing utilities.

- D. Authority personnel shall direct the work at the site, but the CONTRACTOR shall be responsible for all County, State, and Federal safety requirements and codes including requirements of OSHA and code rule 16NYCRR Part 753. Included with this item shall be all costs for sheeting, shoring, steel plate, flagmen, cones, signs, arrow boards, flashers, fences, lighting, and any other device necessary to perform Work.

END OF SECTION

APPENDIX A

WOMEN AND MINORITY BUSINESS ENTERPRISE POLICY

ERIE COUNTY WATER AUTHORITY

APPENDIX A
WOMEN AND MINORITY BUSINESS ENTERPRISE POLICY
ERIE COUNTY WATER AUTHORITY

It is the policy of the Authority to foster and encourage minority business enterprise participation in the construction contracts of the Authority. Through the setting of Minority Business Enterprise goals and careful monitoring of CONTRACTOR compliance, the Authority will ensure the fullest possible participation in construction activities by qualified minority and women-owned firms.

Some of the federal and state laws that provide the basis for Equal Employment Opportunity and Affirmative Action are:

1. Title VII, Civil Rights Act of 1964 (as amended by the Equal employment Opportunity Act of 1972): Prohibits employment discrimination because of race, color, sex, religion or national origin.
2. Executive Order 11246 (as amended by the Executive Order 11375): Requires Affirmative Action by all Federal CONTRACTORS and subcontractors and requires that all firms with Contracts over \$50,000.00 and 50 or more employees develop and implement written programs.
3. Equal Act of 1963: Requires employers to provide equal pay for men and women performing similar work.
4. New York State Human Rights Law: Prohibits discrimination based on race, color, sex, age, creed, disability, national origin and marital status in employment matters.
5. Flynn Act: Guarantees disabled citizens protection against discrimination in housing, employment, public accommodations, training programs and non-sectarian education due to mental, physical or medical disability.
6. Title VI, Civil Rights Act of 1964: Prohibits discrimination based on race, color or national origin in all programs which receive Federal aid.
7. Title IX, Education Amendments Act of 1972: Prohibits sex discrimination against students of any educational institution receiving Federal financial aid.

A. MINORITY BUSINESS UTILIZATION COMMITMENT

The Erie County Water Authority has established the following business utilization rules which requires all prime CONTRACTORS awarded construction contracts let by the Erie County Water Authority to exemplify Affirmative Action to sub-contract to minority business enterprise (MBE). For the purpose of these regulations, the term “Minority Business Enterprise” refers to a business at least fifty-one percent (51%) of which is owned and controlled by minority group members. Minority group members are citizens of the United States who are Women, Blacks, Hispanics and Native Americans. MBE’s must demonstrate current certification of a government agency.

The Authority has determined that a goal of ten percent (10%) of the total contract value represents a fair share of minority business utilization on each construction contract awarded.

Recipients of Authority construction Contracts must utilize minority-owned business sources for supplies, services and professional services, allowing these sources the maximum feasible opportunity to compete for Contracts, Subcontracts and third-tier Contracts to be performed, All prime CONTRACTORS awarded Authority Contracts estimated to exceed \$100,000.00 must take positive steps to “afford fair opportunities to MBE’s”. Positive steps shall include, but not be limited to, (a) utilizing a source list of bona fide minority business enterprises, (b) solicitations of bids from MBE’s particularly of those located in Erie County, (c) giving minority firms sufficient time to submit proposals in response to solicitations and (d) maintaining records showing minority business enterprises and specific efforts to identify and award Contracts to these Companies.

Each CONTRACTOR bidding on an Erie County Water Authority contract is to contact MBE’s and solicit bids for various aspects of each project. The CONTRACTOR is to supply the Authority with information regarding contracts for services and products with minority business enterprises and the dollar amount of each contract on the Minority Business Utilization Report.

The Successful Bidder shall submit to the Authority the Minority Business Enterprise Utilization Report - Part A within one week of the bid opening. Part A includes a list of MBE’s from whom the CONTRACTOR has solicited bids, or with whom the CONTRACTOR has signed a binding contractual agreement. The Authority will not consider a CONTRACTOR’s bid where the CONTRACTOR fails to submit this report or where an examination of the report evidences failure by the CONTRACTOR to comply with the affirmative action requirements of the Contract.

In the event of a joint venture participating in this MBE Program, the Joint Venture Disclosure Affidavit must be submitted with Part A by all parties involved. Only to the extent that a minority business enterprise contributes to and is paid for its participation in a joint venture will that dollar be credited towards the 10% goal of minority participation in the Erie County Water Authority MBE Program.

MBE’s must be approved by the Erie County Water Authority before their participation may be credited toward the 10% goal. Where the proposed MBE is not approved by the Authority, an Authority MBE/Disclosure Affidavit must be filed with the Contract Compliance office. Forms and lists of certified MBE’s can be obtained by calling Lavonya Lester, Director of Equal Employment Opportunity (ECWA) at (716) 685-8223.

A Minority Business Enterprise Utilization Waiver Request may be completed and submitted with the Minority Business Enterprise Utilization Report - Part A to the Authority within one week of the bid opening. Waivers shall be granted only where the availability of MBE’s in the market area of the project is less than the 10% goal.

Sufficient information must be provided on the Minority Business Enterprise Utilization Waiver Request to ascertain whether a waiver should be approved, conditionally approved or rejected by advice of the Equal Opportunity Office.

A waiver approval limits the CONTRACTOR’s obligation to solicit MBE’s for this particular project. It does not relieve the CONTRACTOR of MBE utilization for any other Erie County Water Authority project on which he submits a bid.

Conditional approval of the waiver request makes it necessary for the CONTRACTOR to continue soliciting MBE’s for contracting purposes, after he has been declared the low bidder.

A MBE Utilization Waiver Request will be rejected if the CONTRACTOR:

1. fails to provide information on the Minority Business Enterprise Utilization Report with his bid.
2. provides fraudulent information of the MBE reports.
3. fails to make an honest good faith effort to recruit and contract with MBE's or
4. takes any other action which is contrary to the spirit and intent of the law.

THE INFORMATION PROVIDED ON THE MBE WAIVER REQUEST AND THE MBE UTILIZATION REPORT WILL BE CONSIDERED CONCURRENTLY TO DETERMINE IF A WAIVER SHOULD BE APPROVED, CONDITIONALLY APPROVED OR REJECTED.

The low bidder shall submit to the Authority, within one week of the bid opening, a schedule for minority business enterprise participation, with whom the CONTRACTOR intends to Subcontract, specifying the agreed price to be paid for such work, and identifying in detail the Contract item(s) or parts to be performed by each minority business enterprise. A letter of intent to enter into a Subcontract or purchase agreement, signed by the minority business, contingent upon the contract award, indicating the agreed upon price and scope of work, shall be provided, signed by both the CONTRACTOR and the minority business enterprise. The prime CONTRACTOR shall not substitute or delete the listed minority business enterprise without the written consent of the Erie County Water Authority.

In the event that the MBE goal for the contract is not met, the CONTRACTOR shall provide sufficient documentation to establish that every positive effort was made to identify, solicit and negotiate with MBE's in pursuit of the goal. Such documentation includes, but is not limited to, advertisement in minority-focused media, written contract with minority businesses indicating sufficient bidder's price along with evidence showing the work to be performed is the same, and not a reduced portion thereof.

The CONTRACTOR shall provide to the Erie County Water Authority copies of all subcontracts and/or purchase agreements with minority business enterprises within one week of the bid opening. A notice to proceed with construction shall not be issued until acceptable documentation is received.

When the project is thirty (30%) percent complete, the CONTRACTOR shall submit to the Authority the Minority Business Enterprise Utilization Report - Part B. Part B lists the MBE's on the project, the dollar amounts paid to that date and the estimated amount remaining to be spent.

The Minority Business Enterprise Utilization Report - Part C certifies the actual dollar amount expended to MBE's. Part C must be completed by the prime CONTRACTOR and submitted at the seventy-five (75%) percent payment level.

The Minority Business Enterprise Utilization Report - Part D certifies the total dollar amount expended to MBE's. Part D is to be submitted with the request for final payment.

In the event a CONTRACTOR fails to comply with these provisions the Authority may:

1. Summon the CONTRACTOR to a hearing
2. Withhold progress payments in part or in full
3. Cancel the contract.
4. Bar award of future Contracts until the CONTRACTOR can demonstrate that he will comply.

It is hereby the Erie County Water Authority's commitment to assure that on all contracts awarded, prime CONTRACTORS expend a fair share of the contract with bona fide minority businesses in accordance with the goals set forth by the Authority. Failure to comply with these provisions shall disqualify the bidder and shall constitute a breach of contract subject to all remedies available to the Authority.

The Prime CONTRACTOR and all minority Subcontractors are bound by all requirements as put forth in the Erie County Water Authority standard General Conditions and all modifications thereto contained in these Contract Specifications.

Listing of **AFFIRMATIVE ACTION FORMS ATTACHED:**

<u>NAME OF FORM</u>	<u>PAGE NUMBER(S)</u>
Minority Business Utilization Report- Part A	6 & 7
Waiver Request	8
Erie County Water Authority Minority Business Enterprise Joint Venture Disclosure Affidavit	9
Erie County Water Authority Minority Business Enterprise Utilization Report - Part B	10 & 11
Minority Business Enterprise Utilization Report - Part C	12
Minority Business Enterprise Utilization Report - Part D	13

**ERIE COUNTY WATER AUTHORITY
MINORITY BUSINESS ENTERPRISE
UTILIZATION REPORT - PART A**

This information must be submitted by the successful bidder within one week of bid opening.

COMPANY _____

AUTHORIZED REPRESENTATIVE _____

ADDRESS _____

TELEPHONE NUMBER _____

PROJECT NAME _____

PROJECT NUMBER _____

I. List actions taken to identify, solicit, and contact Minority Business Enterprises (MBE) to bid on subcontracts on this project.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

II. List all bona fide Minority Business Enterprise, subcontractors, professional personnel, solicited, contracted, or presently negotiating a contract in accordance with the minority business utilization goal set forth by the Erie County Water Authority. (Attach additional sheets if necessary.)

MINORITY OWNED FIRM	SUPPLY/ SERVICE	AMOUNT OF PROPOSAL	PRIOR CERTI- FICATION	CONTRACT EXECUTED	REASON NOT AWARDED
NAME: _____ ADDRESS: _____ TELE NO. _____ IRS NO. _____				YES _____ NO _____	
NAME: _____ ADDRESS: _____ TELE NO. _____ IRS NO. _____				YES _____ NO _____	
NAME: _____ ADDRESS: _____ TELE NO. _____ IRS NO. _____				YES _____ NO _____	
NAME: _____ ADDRESS: _____ TELE NO. _____ IRS NO. _____				YES _____ NO _____	

PART A CONTINUED

III. Assistance offered by CONTRACTOR to MBE's as to bonding, union requirements, obtaining work capital etc...

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

IV. Total Dollar Amount to be subcontracted to Minority Business Enterprise(s): \$ _____

V. Total Amount of Bid: \$ _____

VI. MBE Percent (%) of project bid: _____

VII. **YOU MUST ATTACH COPIES OF RELEVANT CORRESPONDENCE AND DOCUMENTS INCLUDING RETURN RECEIPTS.**

DATE

SIGNATURE OF AUTHORIZED
REPRESENTATIVE

Note: Within one week of the bid opening, this original form, together with a letter of intent to enter into a subcontract or purchase agreement, contingent upon the contract award, indicating the agreed upon price and scope of work, signed by both the CONTRACTOR and the Minority Business Enterprise, must be submitted to:

Lavonya Lester, Director of Equal Employment Opportunity (ECWA)
Erie County Water Authority
3030 Union Road
Cheektowaga, New York 14227

WAIVER

COMPANY _____

ADDRESS _____

TELEPHONE NUMBER _____
(AREA CODE) (NUMBER)

1. CONTRACTOR has made a good faith effort to adopt subcontracting on this project to those trades, professions, supplies, etc. for which minority business enterprises bids could be solicited; and
2. The total percentage of the bids which could be Subcontracted in trades, professions, supplies, etc. for which minority business enterprises bids could be solicited is less than 10%.

A waiver, as provided for by the Erie County Water Authority is hereby requested on the grounds that there are no/insufficient (circle the appropriate term) minority business enterprise in the market area of this project which do subcontracting in the following fields (list all trades, professions, supplies, etc. which could be subcontracted on this project):

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

(use additional sheets if necessary)

If a partial waiver is granted the CONTRACTOR will make a good faith effort to meet the reduced goal.

DATE

SIGNATURE OF AUTHORIZED
REPRESENTATIVE OF COMPANY

Granted in whole _____

Granted in part _____

Comments _____

_____ EQUAL OPPORTUNITY OFFICIAL	/	_____ TITLE	_____ DATE
-------------------------------------	---	----------------	---------------

_____ LETTING DEPARTMENT REPRESENTATIVE	/	_____ TITLE	_____ DATE
---	---	----------------	---------------

**ERIE COUNTY WATER AUTHORITY
MINORITY BUSINESS ENTERPRISE
JOINT VENTURE DISCLOSURE AFFIDAVIT**

To Be Submitted With Part A
Where Applicable

Joint Ventures: _____
Name: _____
Address: _____
Principal Office: _____
Office Phone: _____
Home Phone: _____

Percent of minority ownership in terms of profit and loss sharings:

Capital contributions by each joint venture and accounting therefore:

Equipment and supply contributions by each joint venturer and accounting therefore:

Any ownership options for ownership or loans between the joint venturers - identify terms thereof:

How and by whom the on-site work will be supervised and administered:

I, _____, as
representative of _____ Company,
do hereby swear or affirm that I am authorized to act on its behalf and that in this capacity and to
the best of my knowledge and belief, the information provided herewith relevant to the joint
venture of _____
is accurate, complete and current, and fairly represents the joint venture; further, that I have
personally reviewed the material and assured myself of its accuracy. It is recognized and
acknowledged that the statements herein are being given under oath and any material
misrepresentation will be grounds for terminating any contract which may be awarded in reliance
hereon.

SIGNATURE

**ERIE COUNTY WATER AUTHORITY
MINORITY BUSINESS ENTERPRISE UTILIZATION REPORT - PART B**

CONTRACTOR _____ CONTRACT NAME _____

- I. List all bona fide minority business enterprises, Subcontractors, suppliers, professional personnel, or joint venture firms, with whom you have entered into a binding agreement in accordance with the Minority Business Utilization Goal set forth by the Erie County Water Authority. Include minority trucking firms that will be utilized and included and estimated dollar amount. This information must be submitted to the Erie County Water Authority when the project is 30% complete.

(USE REVERSE SIDE IF MORE SPACE IS NEEDED) MINORITY OWNED FIRMS	TYPE OF WORK	DATE CONTRACT EXECUTED	TOTAL EXPENDED TO DATE	AMOUNT REMAINING
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				

*Erie County Water Authority reserves the right to require documentation including, but not limited to, canceled checks to verify these amounts:

- II. Total Dollar Amount to be Subcontracted to minority Business Enterprise(s):
\$ _____
- III. Total dollar amount expended to date: \$ _____
- IV. Total amount of bid: \$ _____
- V. MBE Percent (%) of project bid: \$ _____

I, _____ as an official representative of _____
_____, do hereby certify that the information listed above is correct and complete.

NAME

TITLE

DATE

PART B CONTINUED

(USE REVERSE SIDE IF MORE SPACE IS NEEDED) MINORITY OWNED FIRMS	TYPE OF WORK	DATE CONTRACT EXECUTED	TOTAL EXPENDED TO DATE	AMOUNT REMAINING
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				
NAME: _____ ADDRESS: _____ _____ IRS #: _____				

MINORITY BUSINESS ENTERPRISE UTILIZATION REPORT - PART C
CERTIFICATION OF EXPENDITURES TO MBE's

(To be completed by the prime CONTRACTOR and
submitted at the 75% payment level)

CONTRACTOR _____

CONTRACT: _____

MBE	PART B CONTRACT AMOUNT OF ESTIMATE	TOTAL EXPENDED TO DATE	ESTIMATED AMOUNT REMAINING

* Erie County Water Authority reserves the right to require documentation including, but not limited to, canceled checks to verify these amounts.

I, _____
_____ as an official representative of _____,

do hereby certify that the information listed above is correct and complete.

NAME

TITLE

DATE

MINORITY BUSINESS ENTERPRISE UTILIZATION REPORT - PART D

FINAL CERTIFICATION OF EXPENDITURES TO MBE's

(to be completed by the prime CONTRACTOR and submitted with
the request for final payment)

CONTRACTOR: _____

CONTRACT: _____

MBE	TOTAL AMOUNT EXPENDED

TOTAL OF ALL MBE
SUB-CONTRACTS \$ _____

AMOUNT OF
CONTRACT _____

FINAL MBE
PERCENTAGE _____

I, _____, as an official
representative of _____,
do hereby certify that the information listed above is correct and complete.

NAME

TITLE

DATE

ACCOUNTABILITY

The CONTRACTOR shall be fully accountable for its performance under this contract and agrees to answer under oath all questions relevant to the performance thereof and to any transaction, act, or omission had, done or omitted in connection therewith if called before the Erie County Water Authority, any Judicial, County or State Officer or agency empowered to investigate the Contract or its performance.

APPENDIX B

ERIE COUNTY WATER AUTHORITY

APPENDIX B-1
INSURANCE REQUIREMENTS
ERIE COUNTY WATER AUTHORITY

APPENDIX B-1
WATER DISTRIBUTION SYSTEM – REPLACEMENTS AND IMPROVEMENTS
MAY 1, 2021 THROUGH APRIL 30, 2023
PROJECT NO: 202100009

Insurance specs:

The following minimum insurance requirements shall apply to vendors providing services to the Erie County Water Authority (the Authority). If a service or project, in the opinion of the Authority, represents an unusual or exceptional risk, the Authority may establish additional insurance requirements for that service or project. All insurance required herein shall be obtained at the sole cost and expense of the contractor, including deductibles and self-insured retentions, and shall be in full force and effect on the contract commencement date and for the duration of the contract. These requirements include but are not limited to the minimum insurance requirements.

Insurance Requirements:

a. Workers Compensation:

Part 1: Workers Compensation: Statutory

Part 2: Employers Liability: \$1,000,000.

Note: If New York State domiciled employees are used, coverage to be New York Statutory for both Parts 1 and 2

b. New York Disability Benefits Liability:

Statutory coverage if New York State domiciled employees are used.

c. Commercial General Liability:

- \$2,000,000. General Aggregate
- \$2,000,000. Products/Completed Operations Aggregate
- \$1,000,000. Each Occurrence
- \$1,000,000. Personal Injury/Advertising Liability
- Per Project/Job Aggregate Limit Required
- Erie County Water Authority to be scheduled as an Additional Insured for both on-going and completed operations (attach Additional Insured endorsement to Certificate of Insurance)
- Insurance to be primary and non-contributory

d. Automobile Liability:

- \$1,000,000. Each Accident
- Erie County Water Authority to be scheduled as an Additional Insured.

e. Umbrella Liability:

- \$5,000,000. Each Occurrence
- \$5,000,000. Aggregate
- Per Project/Job Aggregate Limit Required
- Erie County Water Authority to be scheduled as an Additional Insured

f. Contractor's Pollution Liability:

- \$5,000,000. Per Claim
- \$5,000,000. Aggregate

e. All-Risk Installation Floater:

Builder's risk completed value form based on the total value of the project, providing coverage for work performed, equipment, supplies and materials at the project location, as well as any off-site storage location.

Certificates of Insurance to be provided to the Authority prior to start of work as follows:

ACORD 25 including copy of Additional Insured Endorsement Note: If coverage provided for NYS domiciled employees require Forms C 105.2 and DB 120.1 for Workers Compensation and NYS DBL.

Certificates of Insurance, on forms approved by the New York State Department of Insurance, must be submitted to the Authority prior to the award of contract. Renewals of Certificates of Insurance, on forms approved by the New York State Department of Insurance, must be received by the Authority 30 days prior to the expiration of the insurance policy period.

Certificates of Insurance and renewals, on forms approved by the New York State Department of Insurance, must be submitted to the Authority prior to the award of contract. Each insurance carrier issuing a Certificate of Insurance shall be rated by A. M. Best no lower than "A-" with a Financial Strength Code (FSC) of at least VII. The professional service provider shall name the Authority, its officers, agents and employees as additional insured on a Primary and Non-Contributory Basis, including a Waiver of Subrogation endorsement (form CG 20 26 11 85 or equivalent), on all applicable liability policies. Any liability coverage on a "claims made" basis should be designated as such on the Certificate of Insurance. Such insurance shall continue through the term of this Agreement and vendor shall purchase at his sole expense either 1) an Extended Reporting Endorsement (also, known as Tail Coverage); or 2) Prior Acts Coverage from new insurer with a retroactive date back to the date of, or prior to, the inception of this Agreement; or 3) demonstrate through Certificates of Insurance that vendor has Maintained continuous coverage with the same or original insurer. Coverage provided under items; 1), 2), or 3) will continue as long as the law allows.

To avoid confusion with similar insurance company names and to properly identify the insurance company, please make sure that the insurer's National Association of Insurance Commissioners (N.A.I.C.) identifying number or A. M. Best identifying number appears on the Certificate of Insurance. Also, at the top of the Certificate of Insurance, please list the project number.

Acceptance of a Certificate of Insurance and/or approval by the Authority shall not be construed to relieve the outside vendor of any obligations, responsibilities or liabilities.

Certificates of Insurance should be e-mailed to mmusarra@ecwa.org or mailed to Ms. Molly Jo Musarra, Claim Representative/Risk Manager Erie County Water Authority, 295 Main Street – Room 350, Buffalo, New York 14203-2494, or If you have any questions you can contact Ms. Musarra by e-mail or phone (716) 849-8465.

APPENDIX B-2
SUBCONTRACTOR ADDENDUM AGREEMENT
ERIE COUNTY WATER AUTHORITY

APPENDIX B-2

[THIS FORM IS INTENDED TO BE USED AS AN EXHIBIT OR ADDENDUM TO ANY SUBCONTRACT—IT SHOULD NOT BE USED BY ITSELF AS A SOLE CONTRACT DOCUMENT]

ADDENDUM AGREEMENT

This Addendum to the Agreement (“Addendum Agreement”) between **[Insert name of Upstream Contractor or Upstream Subcontractor]** (hereinafter referenced as “Contractor”) and **[Insert name of Downstream Subcontractor]** (hereinafter referenced as “Subcontractor”) is being entered into by the parties for any and all work done for, with, or on behalf of **the Erie County Water Authority** (hereinafter the “Authority”) under the Primary Contract No. ____, Project No. _____ **[Insert Project Description]** with **[Insert name of Contractor]**, a copy of which may be obtained from **[Insert name and contract information of the entity]**.

In accordance with the terms and conditions of the Primary Contract No. _____ entered into with the Erie County Water Authority, an **ACORD25-Certificate of Liability Insurance** and **ACORD 855 NY-NY Construction Certificate of Liability Addendum** shall be provided evidencing the following insurance is currently maintained and in force with an insurance carrier approved to do business in the State of New York and maintaining an A.M. Best Rating of A- or better showing the Authority as Certificate Holder and additional insured. You should share these requirements with your current insurance agent, broker or insurance company.

Insurance Requirements

Prior to the commencement of any work designated in any contract or agreement to which this Addendum Agreement is attached, and until at least the final completion and acceptance of the work under the contract or agreement to which this Addendum Agreement is attached, the Subcontractor, at its sole expense, shall maintain the following minimum insurance on its own behalf, and furnish to the Authority certificates of insurance evidencing same and reflecting the effective date of such coverage as listed below. In no event shall the failure to provide this proof, prior to the commencement of the work, be deemed a waiver by the Authority of the Subcontractor’s obligation to maintain the insurance set forth herein. The insurance required shall not be canceled, not renewed or materially changed after the issuance of the certificate of insurance required by this Addendum Agreement.

A. Worker’s Compensation, Occupational Disease & Employer’s Liability Insurance:

Worker’s Compensation, Occupational Disease & Employer’s Liability Insurance in accordance with the applicable laws and statutes to cover any injuries or illness to employees and any other person eligible for compensation, and the liability of the employer thereof to any person or organization, as follows:

Worker’s Compensation & Occupational Disease: Statutory

Employer’s Liability: \$1,000,000 bodily injury by accident or disease, except for work work/employers subject to the New York Worker’s Compensation Law, in which this insurance shall be unlimited.

All such coverage shall: not contain any exclusion for injuries to sole proprietors, partners, members of limited liability companies or executive officers of any corporate entity; and provide for a "Waiver of Subrogation" endorsement in favor of the Owner/Contractor.

Any Contractor/Subcontractor with a principal place of business located outside of the State of New York must include New York under Part 3A of the policy.

B. Commercial General Liability:

Commercial general liability insurance as provided under the ISO Commercial General Liability Coverage Form, CG 00 01, or its equivalent, for claims of Bodily Injury, Property Damage and Personal and Advertising Injury, with limits of not less than:

Per Occurrence and Personal & Advertising Injury-	\$1,000,000.00
General Aggregate & Products/Completed Operations Aggregate-	\$2,000,000.00
Fire Damage Legal Liability/Damage to Rented Property-	\$100,000.00
Medical Payment (per-person)-	\$5,000.00

The coverage must include the following:

1. Liability assumed by the insured in an "insured contract" as that term is defined in the ISO Commercial General Liability Coverage Form, CG 00 01.
2. Products/Completed Operations liability for a period of three years after acceptance of the work.
3. A per project aggregate of \$ 2,000,000.00.
4. A "Waiver of Subrogation" Endorsement in favor of the Owner/Contractor.
5. Exterior Insulation Finish System ("EFIS") coverage must be specifically included or provided separately where the Contractor/Subcontractor work under this Agreement or in any contract or agreement to which this Addendum is attached in any way involves EFIS.
6. **The coverage shall not include any provision, definition, exclusion or endorsement which in any way would serve to eliminate the insurance to any insured or additional insured for liability for bodily injury or property damage arising from work performed in New York State, for claims made under the New York Labor Law or for claims made by employees, subcontractors and employees of subcontractors hired to perform work by any insured or additional insured pursuant to work that is subject to this Addendum Agreement or in any contract or agreement to which this Addendum Agreement is attached.**
7. The insurance is to be provided through insurers licensed and admitted to do business in the State of New York, with an A. M. Best financial rating of "A-" or better, or otherwise specifically approved by the Owner.

The Authority, its officers, directors, partners, representatives, agents and employees must be named as Additional Insureds on a primary and non-contributory basis on both the ongoing and completed operations coverage required herein utilizing the ISO endorsements: CG 2010 04 13 or CG 2038 04 13 (or their equivalent) for ongoing operations; and CG 2037 04 13 (or its equivalent)

for completed operations. The Additional Insured coverage shall contain no special limitation or limitation on the scope of the protection afforded to the Additional Insureds.

C. Commercial Automobile Liability Insurance:

Commercial Automobile Liability insurance covering the ownership, maintenance and use of all Owned, Non-Owned and Hired Vehicles by the Subcontractor with combined Bodily Injury and Property Damage limits including pollution transit coverage of \$1,000,000.00 per accident. The Authority, its officers, directors, partners, representatives, agents and employees must be named as Additional Insureds on a primary and non- contributory basis. A "Waiver of Subrogation" in favor of the Authority must be included.

D. Commercial Umbrella/Excess Liability Insurance:

Commercial Umbrella/Excess Liability Insurance with limits of \$5,000,000.00 per occurrence and a \$5,000,000.00 aggregate. The Authority, its officers, directors, partners, representatives, agents and employees must be named as Additional Insureds on a primary and non-contributory basis. A "Waiver of Subrogation" in favor of the Authority must be included.

E. Pollution Liability:

Where the Subcontractor is performing work that is subject to this Addendum Agreement or to any contract or agreement to which this Addendum Agreement is attached, that involves abatement or remediation of hazardous substances or any manner of environmental work, pollution liability coverage applicable to the type of work/operations being performed in the amount of \$5,000,000.00 per occurrence and \$5,000,000.00 aggregate limit. The Authority, its officers, directors, partners, representatives, agents and employees must be named as Additional Insureds on a primary and non-contributory basis. A "Waiver of Subrogation" in favor of the Authority must be included.

F. Builder's Risk/Installation Floater:

"All Risk" Property Insurance coverage afforded by a Builder's Risk/Installation Floater or its equivalent insuring all materials, equipment and supplies provided by the Subcontractor and intended to become a permanent part of the construction, whether stored on the premises, away from the project site and/or while in transit, in an amount equal to the replacement cost of such materials, equipment and supplies. A "Waiver of Subrogation" in favor of the Authority must be included.

G. Owned and/or Rented Tools or Equipment:

Property insurance covering all owned, rented, leased and/or borrowed tools or equipment of the Subcontractor or used by the Subcontractor in connection with the work that is subject to this Agreement or to any contract or agreement to which this Addendum is attached, in an amount equal to the replacement cost of such tools or equipment. A "Waiver of Subrogation" in favor of the Authority must be included.

JOB-SITE SAFETY:

The Authority makes no representation with respect to the physical conditions or safety of the Project Site. The Subcontractor shall, at its own expense, protect from injury its employees engaged in the performance of the Work. The prevention of accidents to all workers engaged in the Subcontractor's work and others affected by the Subcontractor's work is the responsibility of the Subcontractor. Subcontractor shall comply with all applicable federal, state, labor and local laws, regulations and codes concerning safety.

For purposes of this Addendum Agreement, "Project Site" means the entire construction site or the various separately identifiable part of the site described in any contract or agreement to which the Addendum Agreement is attached, and as described in the Primary Contract with the Authority.

WORKERS COMP IMMUNITY WAIVER:

In any and all claims against the Authority by any employee of the Subcontractor, anyone directly or indirectly employed by the Subcontractor (including any of the Subcontractor's subcontractors) or anyone for whose acts the Subcontractor may be liable, the indemnification obligation shall not be limited by any limitation on the amount or type of damages, compensation or benefits payable by or for the Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

HOLD HARMLESS / INDEMNIFICATION:

To the fullest extent permitted by law, Subcontractor shall defend, indemnify and hold harmless Authority and its heirs, executors, administrators, successors, assigns, affiliates, employees and agents (hereinafter referenced as "Owner Indemnitees") from and against any and all actions, claims, liabilities, damages, losses and expenses, including but not limited to bodily injury, death and property damage, and reasonable attorney's fees and costs (including those incurred in the defense of any such underlying claim, as well as those incurred in the enforcement of this Addendum Agreement and/or in the prosecution of any claim for indemnification by Authority) arising out of or resulting from, or alleged to arise out of or result from, the Subcontractor's work (including the work by any of the Subcontractor's subcontractors), except to the extent caused by the negligence or willful misconduct of any Owner Indemnitees.

MISCELLANEOUS:

If any term or provision of this Addendum Agreement conflicts with or is otherwise inconsistent with any term or provision in the Primary Contract or any prior written agreement entered between the parties, the terms and provisions contained herein shall govern and control.

This Addendum Agreement shall be binding upon and inure to the benefit of the parties hereto and their successors and permitted assigns. This Addendum Agreement, its terms and any claims arising therefrom, shall be interpreted and construed in accordance with the laws of the State of New York.

This Addendum Agreement may be executed via facsimile or email in any number of counterparts, all of which taken together shall constitute one and the same agreement. No waiver by a party of any breach by the other party of any of the provisions of this Agreement shall be deemed a waiver of any

preceding or succeeding breach of the same or any other provisions hereof. No such waiver shall be effective unless in writing and then only to the extent expressly set forth in writing. No modification or amendment of this Addendum Agreement shall be effective unless in writing and signed by both parties and approved in writing by the Authority. If any term or provision of this Addendum Agreement shall to any extent be invalid or unenforceable, the remainder of this Addendum Agreement shall not be affected thereby, and each provision of this Addendum Agreement shall be valid and enforceable to the fullest extent permitted by law.

**[Insert name of Upstream Contractor
or Upstream Subcontractor]**

**[Insert name of Downstream
Subcontractor]**

[Insert Name of Representative]

(Print name and title)

Date:

[Insert Name by Representative]

(Print name and title)

Date:

Rev. 12/2020

APPENDIX C
PREVAILING WAGE RATE SCHEDULE
ERIE COUNTY WATER AUTHORITY

INSTRUCTIONS AND SCHEDULE OF MINIMUM WAGE RATES ISSUED BY NEW YORK STATE LABOR DEPARTMENT

No laborer, worker or mechanic in the employ of the CONTRACTOR or a Subcontractor or other person doing or contracting to do a whole or a part of the work contemplated by this agreement, shall be permitted or required to work more than eight (8) hours in any calendar day, or more than five (5) days in any one week, except in cases of extraordinary emergency caused by fire, flood, or damages to life and property.

The wages to be paid for a legal day's work to laborers, workmen or mechanics under this agreement, shall not be less than the prevailing rate of wages as defined and determined by the Industrial Commissioner of the State of New York, a schedule of which is attached to this contract and made a part thereof, with the same force and effect as though set forth in full herein.

In the performance of the work the CONTRACTOR shall give preference to citizens of the State of New York who have been residents for at least twelve (12) months immediately prior to the commencement of their employment, and persons other than citizens may be employed when citizens of the State of New York are not available. If the above provisions of this contract and the provisions of Sec. 222 of the Law of the State of New York are not complied with, this contract Labor shall be void.

In the hiring of employees for the performance of work under this contract or by subcontract hereunder, the CONTRACTOR or subcontractor, or any persons acting on behalf of the CONTRACTOR or subcontractor, shall not by any reason of race or color discriminate against or intimidate any employee hired for the performance of work under this contract on account of race or color.

There may be deducted from the amount payable to the CONTRACTOR by the Water Authority, under this contract, a penalty of five dollars (\$5.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of this contract.

This contract may be cancelled or terminated by the Water Authority and all monies due or to become due hereunder may be forfeited for a second or subsequent violation of the terms or conditions of the preceding paragraph of this contract.

**PUBLIC WORKS - FAILURE TO PAY PREVAILING WAGE
EXCLUSION FROM CONTRACTING OR SUBCONTRACTING**

CHAPTER 147

A. 7314-A

Memorandum relating to this chapter, see Legislative Memoranda, post.

Approved may 24, 1991, effective as provided in Section 3.

An act to amend the labor law, in relation to debarment of public building service
CONTRACTORS

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1:

Paragraph b of Subdivision 3 of Section 220-b of the Labor Law, as amended by Chapter 651 of the Laws of 1989, is amended to read as follows:

- b. When two final determinations have been rendered against a CONTRACTOR or subcontractor and/or its successor within any consecutive six-year period determining that such CONTRACTOR or subcontractor and/or its successor has willfully failed to pay the prevailing rate of wages or to provide supplements in accordance with this article, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public work projects are rendered simultaneously, such CONTRACTOR or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract with the state, any municipal corporation or public body for a period of five years from the second final determination. For purposes of this article, a successor shall mean an employer engaged in work substantially similar to that of the predecessor, where there is substantial continuity of operation with that of the predecessor.

SECTION 2:

Subdivision 7 of Section 235 of the labor Law, as added by Chapter 777 of the Laws of 1971, is amended to read as follows:

7. When, pursuant to the provisions of this section two final orders have been entered against a CONTRACTOR or subcontractor and/or its successor within any consecutive six-year period determining that such CONTRACTOR or subcontractor and/or its successor has willfully failed to pay the prevailing wages in accordance with the provisions of this article, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public building service contracts are rendered simultaneously, such CONTRACTOR or subcontractor and/or its successor, and if the CONTRACTOR or subcontractor and/or its successor is a corporation, any officer of such corporation who knowingly participated in such failure, shall be ineligible to submit a bid on or be awarded any public building service work for a period of five years from the date of the second order. For purposes of this article, a successor shall mean an employer engaged in work substantially similar to that of the predecessor, where there is substantial continuity of operation with that of the predecessor. Nothing of this subdivision shall be construed as affecting any provision of any other law or regulation relating to the awarding of public contracts.

SECTION 3:

This act shall take effect 60 days after the date upon which it shall have become a law and shall apply to any conduct occurring after such date.

STATE OF NEW YORK
DEPARTMENT OF LABOR

NOTICE TO ALL PUBLIC OFFICIALS IN CHARGE OF
PUBLIC WORK CONSTRUCTION AND ALL CONTRACTORS
AND SUBCONTRACTORS ENGAGED IN PUBLIC WORKS
CONSTRUCTION IN THE STATE OF NEW YORK

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, provides, among other things, that it shall be the duty of the fiscal officer to make a determination of the schedule of wages to be paid to all laborers, workmen and mechanics employed on public work projects including supplements for welfare, pension, vacation and other benefits. These supplements may include hospital, surgical or medical insurance or benefits; life insurance or death benefits; accidental death or dismemberment insurance; and pension or retirement benefits. If the amount of supplements provided by the employer is less than the total supplements shown on the wage schedule, the difference shall be paid in cash to employees.

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, also provides that the supplements to be provided to laborers, workmen and mechanics upon public works “shall be in accordance with the prevailing practices in the locality...” The amount for supplements listed on the enclosed schedule does not necessarily include all types of prevailing supplements in the locality, and a future determination of the Industrial Commissioner may require the CONTRACTOR to provide additional supplements.

The CONTRACTOR shall provide statutory benefits for disability benefits, workmen’s compensation, unemployment insurance and Social Security.

The substance of this notice should be included in your contract.

Signed - Dr. Philip Ross
INDUSTRIAL COMMISSIONER

PW-39 (5-56)

Article 8 of the New York State Labor Law was amended on July 15, 1983 to provide that wages for Public Projects are to be paid pursuant to the existing Bargaining Agreement in the area where the work is to be performed.

Wages are to be paid on this project as hereinafter set forth or pursuant to the Collective Bargaining Agreement in effect in Erie County, whichever are higher.

During the performance of this contract, the CONTRACTOR agrees as follows:

- (a) The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, creed, sex, age, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, age, color or national origin or because a person has opposed any practices forbidden under these sections or because he filed a complaint, testified, or assisted in any proceeding under these sections. Such action shall be taken with reference, but not limited to: recruitment, employment, classification, job assignment, promotion, upgrading, demotion, transfer, layoff, discharge, expulsion or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.
- (b) The CONTRACTOR will send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the CONTRACTOR'S agreement under clauses (a) through (h) (hereinafter called "non-discrimination clauses") and requesting such labor union or representative to agree in writing, whether in such collective bargaining or other agreement or understanding or otherwise, that such labor union or representative will not discriminate against any member or applicant for membership because of race, creed, sex, age, color or national origin, and will take affirmative action to insure that they are afforded equal membership opportunities without discrimination because of race, creed, sex, age, color or national origin. Such action shall be taken with reference, but not limited to: recruitment, employment, job assignment, promotion, upgrading, classification, demotion, transfer, layoff, discharge, expulsion or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training. Such notice shall be given by the CONTRACTOR prior to the commencement of performance of this contract. Such written agreement shall be made by such labor union or representative prior to the commencement of performance of this contract, unless such labor union or representative fails or refuses so to agree in writing, in which event the CONTRACTOR shall promptly notify the State Commission for Human Rights of such failure or refusal.
- (c) The CONTRACTOR will post and keep posted in conspicuous places, available to employee's and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses (a) and (b) and such provisions of the State's laws against discrimination as the State Commission for Human Rights shall determine.

- (d) The CONTRACTOR will state, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, age, color or national origin.
- (e) The CONTRACTOR will comply with the provisions of Sections 291-299 of the Executive Law and the Civil Rights Law, will furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive Law, and will permit access to his books, records and accounts by the State Commission for Human Rights, the Attorney General and the Industrial Commissioner for purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.
- (f) This contract may be forthwith cancelled, terminated or suspended, in whole or in part, by the contracting agency upon the basis of a finding made by the State Commission for Human Rights that the CONTRACTOR has not complied with these non-discrimination clauses, and the CONTRACTOR may be declared ineligible for future contracts made by or on behalf of the State or a public authority or agency of the State, until he satisfied the State Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the CONTRACTOR and an opportunity has been afforded him to be heard publicly before three members of the Commission. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.
- (g) If this contract is cancelled or terminated under clause (f), in addition to other rights of the Erie County Water Authority provided in this contract upon its breach by the CONTRACTOR, the CONTRACTOR will hold the Erie County Water Authority harmless against any additional expenses or costs incurred by the Authority in completing the work or in purchasing the services, materials, equipment or supplies contemplated by this contract, and the Erie County Water Authority may withhold payments from the CONTRACTOR in an amount sufficient for this purpose and recourse may be had against the surety on the performance bond if necessary.
- (h) The CONTRACTOR will include the provisions of clauses (a) through (g) in every subcontract or purchase order in such manner that provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The CONTRACTOR will take such action in enforcing such provisions of such subcontract or purchase order as the contracting agency may direct, including sanctions or remedies for noncompliance. If the CONTRACTOR becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the CONTRACTOR shall promptly so notify the Attorney General and Attorney for the Erie County Water Authority, requesting them to intervene and protect the interest of the State of New York and the Erie County Water Authority.



Andrew M. Cuomo, Governor

Roberta Reardon, Commissioner

Erie County Water Authority
William Wheeler, Distribution Engineer
3030 Union Road
Cheektowaga NY 14227

Schedule Year 2020 through 2021
Date Requested 01/20/2021
PRC# 2021000600

Location Erie County, New York
Project ID# 202100009
Project Type Water Distribution System Replacements & Improvements Contract 05/01/2021 to 04/30/2023

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2020 through June 2021. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission; a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion [online](#).

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the ["Request for a dispensation to work overtime" form \(PW30\)](#) and ["4 Day / 10 Hour Work Schedule" form \(PW 30.1\)](#).

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12240; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid

or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment. Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed \$100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds \$25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers' compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeymen in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyman's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12240 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of \$50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.



Andrew M. Cuomo, Governor

Roberta Reardon, Commissioner

Erie County Water Authority
William Wheeler, Distribution Engineer
3030 Union Road
Cheektowaga NY 14227

Schedule Year 2020 through 2021
Date Requested 01/20/2021
PRC# 2021000600

Location Erie County, New York
Project ID# 202100009
Project Type Water Distribution System Replacements & Improvements Contract 05/01/2021 to 04/30/2023

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Contractor Information

All information must be supplied

Federal Employer Identification Number: _____		
Name: _____		
Address: _____ _____		
City: _____	State: _____	Zip: _____
Amount of Contract: \$ _____	Contract Type:	
Approximate Starting Date: ____/____/____	<input type="checkbox"/> (01) General Construction	
Approximate Completion Date: ____/____/____	<input type="checkbox"/> (02) Heating/Ventilation	
	<input type="checkbox"/> (03) Electrical	
	<input type="checkbox"/> (04) Plumbing	
	<input type="checkbox"/> (05) Other : _____	

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to \$1,500 for a first offense and up to \$5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, www.labor.ny.gov. <https://labor.ny.gov/formsdocs/ui/IA999.pdf>

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website www.labor.ny.gov or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

**To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12240

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.



Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor, **you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

- **Civil Penalty**
 - First offense: Up to \$2,500 per employee
 - Subsequent offense(s): Up to \$5,000 per employee
- **Criminal Penalty**
 - First offense: Misdemeanor - up to 30 days in jail, up to a \$25,000 fine and debarment from performing public work for up to one year.
 - Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a \$50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)

Attention Employees

THIS IS A: **PUBLIC WORK PROJECT**

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at:
www.labor.ny.gov

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5156		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is \$250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training "prior to the performing any work on the project."

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.*)
- Training roster, attendance record or other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is \$3 million in Bronx, Kings, New York, Queens and, Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirements on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12240

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Erie County General Construction

Boilermaker

01/01/2021

JOB DESCRIPTION Boilermaker

DISTRICT 12

ENTIRE COUNTIES

Allegany, Cattaraugus, Chautauqua, Chemung, Erie, Genesee, Livingston, Monroe, Niagara, Ontario, Orleans, Schuyler, Steuben, Wayne, Wyoming, Yates

WAGES

Per hours: 07/01/2020

Boilermaker \$ 35.10

The wage rate will be 90% of the above for Maintenance work on boilers less than 100,000 pph.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour: \$ 30.74*

*NOTE: \$29.50 of this amount is for every Hour "Paid"

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

1st Term at 12 Months

Terms 3-8 at 6 Months

Per Hour:

1st 65%

3rd 70% 4th 75% 5th 80% 6th 85% 7th 90% 8th 95%

Supplemental Benefits per hour:

All Terms \$ 30.74**

**NOTE: \$29.50 of this amount is for every Hour "Paid"

12-7

Carpenter - Building

01/01/2021

JOB DESCRIPTION Carpenter - Building

DISTRICT 12

ENTIRE COUNTIES

Erie

PARTIAL COUNTIES

Cattaraugus: Townships of Persia and Perrysburg

WAGES

Per hour: 07/01/2020

Building:

Carpenter \$ 32.75

FloorLayer 32.75

Certified Welder 33.75

Hazardous Waste Worker 34.25

Diver-Dry Day 33.75

Diver Tender 33.75

Diver-Wet Day*** 61.25

Hazardous Waste Worker: Hazardous sites requiring personal protective equipment.

*** Diver rate applies to all hours worked on the day of dive.

Depth pay for divers:	0' to 80'	no additional fee
	81' to 100'	additional \$0.50 per foot
	101' to 150'	additional \$0.75 per foot
	151' and deeper	additional \$1.25 per foot
Penetration pay:	0' to 50'	no additional fee
	51' to 100'	additional \$0.75 per foot
	101' and deeper	additional \$1.00 per foot

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked:

Carpenter(s)	\$ 28.38
Diver(s)	28.38

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following percentage of Journeyman's base wage:
Apprentices Indentured Prior to 01/01/2016 and
Floorlayer Apprentices Indentured after 01/01/2016

1st	2nd	3rd	4th
50%	60%	70%	80%

Carpenter Apprentices Indentured After 01/01/2016

1st	2nd	3rd	4th	5th
50%	60%	65%	70%	80%

Supplemental Benefits per hour worked:

1st	2nd	3rd	4th	5th
\$12.00	\$12.00	\$14.65	\$14.65	\$14.65

12-276B-Cat

Carpenter - Building / Heavy&Highway

01/01/2021

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 2

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

PARTIAL COUNTIES

Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Wages per hour:	07/01/2020	07/01/2021
		Additional
Carpenter - ONLY for Artificial Turf/Synthetic Sport Surface	\$ 31.48	\$ 1.15

Note - Does not include the operation of equipment. Please see Operating Engineers rates.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 23.65

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

Notes:

When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. When a holiday falls upon a Sunday, it shall be observed on the following Monday.

An employee taking an unexcused day off the regularly scheduled day before or after a paid Holiday shall not receive Holiday pay.

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
55%	60%	70%	80%

Supplemental Benefits per hour:

1st year term	\$ 11.80
2nd year term	11.80
3rd year term	14.45
4th year term	14.45

2-42AtSS

Carpenter - Heavy&Highway

01/01/2021

JOB DESCRIPTION Carpenter - Heavy&Highway

DISTRICT 12

ENTIRE COUNTIES

Erie

WAGES

Per hour: 07/01/2020

Carpenter	\$ 35.53
Certified Welder	37.03
Diver-Dry Day	36.53
Diver-Wet Day**	60.53
Diver Tender	36.53
Hazardous Material Worker	37.03
Piledriver	35.53
Millwright	37.03
Effluent & Slurry Diver-Dry Day	54.79
Effluent & Slurry Diver-Wet Day	90.97

Hazardous Waste Worker: Hazardous sites requiring personal protective equipment.

** Diver rate applies to all hours worked on the day of dive.

Depth pay for divers:	0' to 50'	no additional fee
	51'to 100'	additional \$0.50 per foot
	101' to 150'	additional \$0.75 per foot
	151' to 200'	additional \$1.25 per foot
Penetration pay:	0' to 50'	no additional fee
	51' to 100'	additional \$0.75 per foot
	101' to deeper	additional \$1.00 per foot

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked:

Carpenter(s) \$ 29.45
Diver(s) 29.45

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (2, 17) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following percentage of Journeyman's wage:

Indentured Prior to 01/01/2016

1st	2nd	3rd	4th
55%	60%	70%	80%

Indentured After 01/01/2016

1st	2nd	3rd	4th	5th
55%	60%	65%	70%	80%

Pile Driver Apprentice(1300hour terms at percentage of Pile Driver Rate)

1st	2nd	3rd	4th
55%	60%	70%	80%

Supplemental benefits per hour worked:

1st	2nd	3rd	4th	5th
\$11.80	\$11.80	\$14.45	\$14.45	\$14.45

12-276HH-Erie

Electrician

01/01/2021

JOB DESCRIPTION Electrician

DISTRICT 3

ENTIRE COUNTIES

Erie

PARTIAL COUNTIES

Cattaraugus: Only the Townships of Ashford, East Otto, Ellicottville, Farmersville, Freedom, Franklinville, Lyndon, Machias, Mansfield, New Albion, Otto, Perrysburg, Persia and Yorkshire.

Genesee: Only the Townships of Alabama, Alexander, Darien, Oakfield, Pembroke and that portion of the Towns of Batavia and Elba that are west of Little Tonawanda Creek; Tonawanda Creek; the City limits of Batavia (in effect prior to Feb. 1, 1970) and State Highway 98 north of the City of Batavia, then north on Highway 98 to the Orleans County line.

Wyoming: Only the Townships of Arcade, Attica, Bennington, Eagle, Java, Orangeville, Sheldon and Wethersfield.

WAGES

Per hour: 07/01/2020

Electrician* \$ 36.49

* Includes teledata work

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:

17.3% for work from 4:30PM - 1:00AM

31.4% for work from 12:30AM - 9:00AM

Additional \$0.50/hr in shafts over 25 ft. deep and in underground tunnels over 75 ft. long.

Additional \$0.75/hr for work on toothpicks, structural steel, temporary platforms, swinging scaffolds, boatswain chairs, smoke stacks or water towers 30 ft above the floor or for work on rolling scaffolds and ladders over 50 ft.

Additional \$1.50/hr for Cable Splicers on such work as lead, and shielded cable and splices or terminations on cable 5KV and above.

Additional \$1.00/hr for Hot work (Atomic plants).

Additional \$2.00/hr for work on radio, TV, light towers and floating platforms or climbing ladders in excess of 100 ft. high.

SUPPLEMENTAL BENEFITS

Per hour: \$ 29.05*

* NOTE - add 3% of the posted straight time or applicable premium wage rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Hour terms at the following wages:

0 to 1000 to 2000 to 3500 to 5000 to 6500 to 8000
\$ 13.50 \$ 14.60 \$ 16.40 \$ 20.05 \$ 25.55 \$ 29.20

Supplemental benefits per hour:

0 to 2000 to 6500 to 8200
\$ 13.01* \$ 23.55* \$ 29.05*

* NOTE - add 3% of the posted straight time or applicable premium wage rate.

3-41

Elevator Constructor

01/01/2021

JOB DESCRIPTION Elevator Constructor

DISTRICT 3

ENTIRE COUNTIES

Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans, Wyoming

WAGES

Per hour: 07/01/2020
Elevator Constructor \$ 51.44
Helper 36.01

**** IMPORTANT NOTICE - EFFECTIVE 04/01/2009 ****

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday or Tuesday thru Friday.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour: \$ 34.77

Note - add 6% of regular hourly rate for all hours worked.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year (1,700 hour each) terms at the following percentage of Journeyman's wage:

1st*	2nd	3rd	4th
55%	65%	70%	80%

Supplemental benefits per hour:

\$ 34.77

* Note - 0-6 months of the 1st year term is paid at 50% of Journeyman's wage with no Supplemental benefits.

Note - add 6% of regular hourly rate for all hours worked.

3-14

Glazier

01/01/2021

JOB DESCRIPTION Glazier

DISTRICT 3

ENTIRE COUNTIES

Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans, Wyoming

WAGES

Per hour: 07/01/2020 05/01/2021

Glazier	\$ 27.50	Additional \$ 1.20
Working off Suspended Scaffold (Swing Stage)	28.50	1.20
Maintenance	17.21*	0.90

* Note - This rate to be used only for all repair and replacement work such as glass breakage, glass replacement, door repair and board ups.

**** IMPORTANT NOTICE ****

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeymen Glazier	\$ 23.37
Maintenance	14.83

OVERTIME PAY

See (B, E2, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE for Glazier and Glazier Apprentices.

Paid: See (5, 6) on HOLIDAY PAGE for Maintenance

Overtime: See (5, 6) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

Glazier: 1000 hour terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	90%

Supplemental benefits per hour:

1st & 2nd terms	\$ 8.00
3rd & 4th terms	8.85
All other terms	10.25

3-660

Insulator - Heat & Frost

01/01/2021

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 3

ENTIRE COUNTIES

Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming

PARTIAL COUNTIES

Genesee: Only the Townships of Alabama, Alexander, Darien, Oakfield and Pembroke.

WAGES

Per Hour:	07/01/2020
Heat & Frost Insulator	\$ 34.15

SUPPLEMENTAL BENEFITS

Per hour:	\$ 24.69
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OVERTIME PAY

See (B, *E, **Q) on OVERTIME PAGE

* Note - Double time after 10 hours on Saturday.

** Note - Triple time on Labor Day if WORKED.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
-----	-----	-----	-----

50% 60% 70% 80%

Supplemental Benefits per hour:

1st and 2nd \$ 19.64
All other terms \$ 24.69

3-4

Ironworker**01/01/2021**

JOB DESCRIPTION Ironworker

DISTRICT 3

ENTIRE COUNTIES

Cattaraugus, Chautauqua

PARTIAL COUNTIES

Allegany: Entire county except the Towns of Birdsall, Burns and Grove.

Erie: All except the Town of Grand Island north of Whitehaven Road.

Genesee: Only the Townships of Alabama, Alexander, Darien and Pembroke

Steuben: Only the Townships of Canisteo, Freemont, Greenwood, Hartsville, Hornell, Hornellsville, Howard, Jasper, Troupsburg and West Union

Wyoming: Only the Townships of Arcade, Attica, Bennington, Eagle, Gainsville, Java, Orangeville, Pike, Sheldon, Warsaw and Wethersfield.

WAGES

Per hour:	07/01/2020	07/01/2021 Additional
Structural	\$ 31.45	\$ 1.25
Ornamental	31.45	1.25
Layout	31.45	1.25
Rodmen	31.45	1.25
Reinforcing	31.45	1.25
Welders	31.45	1.25
Riggers & Mach. Movers	31.45	1.25
Curtain Wall Erector	31.45	1.25
Window Erector	29.10	1.25
Fence Erector	30.02	1.25

SUPPLEMENTAL BENEFITS

Per hour:

Fence erectors \$ 28.05
All others 29.55

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following wage:

1st	2nd	3rd	4th
\$ 16.50	\$ 18.50	\$ 20.50	\$ 22.50

Supplemental benefits per hour:

1st	2nd	3rd	4th
\$ 12.59	\$ 22.26	\$ 23.65	\$ 25.03

3-6

Ironworker**01/01/2021**

JOB DESCRIPTION Ironworker

DISTRICT 3

ENTIRE COUNTIES

Niagara

PARTIAL COUNTIES

Erie: Only that portion of the Township of Grand Island north of Whitehaven Road.

Orleans: Only the Townships of Ridgeway, Shelby and Yates.

WAGES

Per hour: 07/01/2020

Structural	\$ 30.90
Ornamental	30.90
Reinforcing	30.90
Rigger & Mach. Mover	30.90
Pre-Engineered	30.90
Fence Erector	30.90
Pre-Cast Erector	30.90
Welder	30.90
Window Erector	30.90

SUPPLEMENTAL BENEFITS

Per hour:

\$ 30.35

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following wage:

1st term	\$ 16.50
2nd term	18.50
3rd term	20.50
4th term	22.50

Supplemental benefits per hour:

1st term	\$ 11.70
2nd term	19.19
3rd term	20.26
4th term	21.33

3-9

Laborer - Building

01/01/2021

JOB DESCRIPTION Laborer - Building

DISTRICT 3

ENTIRE COUNTIES

Erie

PARTIAL COUNTIES

Cattaraugus: Only the Townships of Perrysburg and the Village Gowanda.

WAGES

CLASS A: Basic, Safety Man, Flagman, Tool Room Man, Nurseryman, Demolition Worker, Top Man, Wrecker, IBC Barriers Except on Structures, Guard Rail, Asphalt Shovelers, Foundation Laborer over 8' in Depth, Hod Carriers, Plaster Tender, Plaster Scaffold Builder, Pneumatic Gas, Electric Tool Operator including all forms of Busters, Jackhammers and Chipping Guns, Steel Burners.

CLASS B: Mortar Mixer, Asphalt Smoothers, Pneumatic Gas, Electric Tool Operator including all forms of Busters, Jackhammers and Chipping Guns over 8' in depth.

CLASS C: Worker on any Swing Scaffold, Blaster, Plumbing Laborer, Wagon Drill Operator, Bottomman (caisson or cofferdam), Laser Setter, Asphalt Rakers, Asphalt Screed Man.

CLASS D: Stone Cutter, Curb Setter and Flag Layer.

CLASS E: Wearing of replaceable cartridge respirator.

CLASS F: Asbestos Removal, Deleader.

CLASS G: Hazardous Waste Worker.

Per hour: 07/01/2020

Building Laborer:

CLASS A \$ 28.78

CLASS B 28.95

CLASS C	29.06
CLASS D	29.53
CLASS E	29.78
CLASS F	30.28
CLASS G	30.78

SUPPLEMENTAL BENEFITS

Per hour:

\$ 26.75

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (22) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0	to 500	to 1000	to 1500	to 2000	to 2500	to 3000	to 4000
	55%	60%	65%	70%	75%	80%	90%

Supplemental benefits per hour:

\$ 26.75

3-210b

Laborer - Heavy&Highway

01/01/2021

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 3

ENTIRE COUNTIES

Erie

WAGES

Heavy/Highway Laborer:

GROUP A: Basic, Drill Helper, Flagman, Outboard and Hand Boats, Demolition Worker, Nurseryman, IBC Barriers (except on structures), Guard Rails, Road Markers.

GROUP B: Grade Checker, Chain Saw, Concrete Aggregate Bin, Concrete Bootmen, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of Steel Mesh, Small Generators for Laborers' Tools, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Tail or Screw Operator on Asphalt Paver, Water Pump Operators (2" and Single Diaphragm), Nozzle (Asphalt, Gunite, Seeding, and Sand Blasting), Laborers on Chain Link Fence Erection, Rock Splitter and Power Unit, Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators, Wrecking Laborer and Laser Man.

GROUP C: All Rock or Drilling Machine Operators (Except Quarry Master and Similar Type), Acetylene Torch Operators, Asphalt Raker, Powderman and Welder.

GROUP D: Blasters, Curb and Flatwork Formsetter not on structures, Stone or Granite Curb Setters and Stone Cutter.

Per hour:	07/01/2020	07/01/2021
Heavy/Highway Laborer:		Additional
GROUP A	\$ 31.06	\$ 1.25
GROUP B	31.26	1.25
GROUP C	31.46	1.25
GROUP D	31.66	1.25

For all Deleader & Asbestos work add \$1.50 to Group A rate.

For all Hazardous waste work add \$2.00 to Group A rate.

For use of replaceable cartridge respirator add \$1.00 to Group A rate.

An additional \$3.00 per hour is required when a single irregular work shift starting any time from 5:00PM to 1:00AM is mandated either in the job specification or by the contracting agency.

Sewer/Water Laborer:

GROUP A: Basic, Flagman, Top man, Wreckers.

GROUP B: Foundation, Plaster tender, Scaffold bootman, Pneumatic, gas, electric, tool operator, jackhammer, chipping guns.

GROUP C: Mortar Mixer, over 8 ft. in depth.

GROUP D: Pavement formsetter, Steelburner, Caisson, Wagon Drill Oper., PipeLayer, Swing Scaffold.

GROUP E: Utility pave driver, Laser operator.

GROUP F: Blaster.

Per hour:	07/01/2020	07/01/2021
Sewer/Water Laborer:		
GROUP A	\$ 31.06	\$ 1.25
GROUP B	31.16	1.25
GROUP C	31.21	1.25
GROUP D	31.31	1.25
GROUP E	31.66	1.25
GROUP F	32.06	1.25

For all Deleader & Asbestos work add \$1.50 to Group A rate.

For all Hazardous waste work add \$2.00 to Group A rate.

An additional \$3.00 per hour is required when a single irregular work shift starting any time from 5:00PM to 1:00AM is mandated either in the job specification or by the contracting agency.

SUPPLEMENTAL BENEFITS

Per hour:
\$ 26.75

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0	to 500	to 1000	to 1500	to 2000	to 2500	to 3000	to 4000
55%	60%	65%	70%	75%	80%	90%	

Supplemental benefits per hour:

\$ 26.75

3-210h

Laborer - Tunnel

01/01/2021

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 3

ENTIRE COUNTIES

Erie

WAGES

CLASS A: Mole Nipper, Powder Handler, Changehouse Attendant and Top Laborer.

CLASS B: Air Spade, Jackhammer, Pavement Breaker.

CLASS C: Top Bell.

CLASS D: Bottom Bell, Side or Roofbelt Driller, Maintenance men, Burners, Block Layers, Rodmen, Caulkers, Miners helper, Trackmen, Nippers, Derailmen, Electrical Cablemen, Hosemen, Groutmen, Gravelmen, Form Workers, Movers and Shaftmen, Conveyor men.

CLASS E: Powder Monkey.

CLASS F: Blasters, Ironmen and Cement Worker, Miner, Welder, Heading Driller.

CLASS G: Steel Erectors, Piledriver, Rigger.

Per hour:	07/01/2020	07/01/2021
Tunnel Laborer:		Additional
CLASS A	\$ 32.56	\$ 1.25
CLASS B	32.71	1.25
CLASS C	32.81	1.25
CLASS D	33.31	1.25

CLASS E	33.41	1.25
CLASS F	33.81	1.25
CLASS G	33.66	1.25

For all Deleader & Asbestos work add \$1.50 to Class A rate.

For all Hazardous waste add \$2.00 to Class A rate.

For use of replaceable cartridge respirator add \$1.00 to Group A rate.

An additional \$3.00 per hour is required when a single irregular work shift starting any time from 5:00PM to 1:00AM is mandated either in the job specification or by the contracting agency.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 26.75

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0	to 500	to 1000	to 1500	to 2000	to 2500	to 3000	to 4000
55%	60%	65%	70%	75%	80%	90%	

Supplemental benefits per hour:

\$ 26.75

3-210t

Lineman Electrician

01/01/2021

JOB DESCRIPTION Lineman Electrician

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

Per hour:

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines

Below rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. (Ref #14.01.01)

07/01/2020

Lineman, Technician	\$ 53.50
Crane, Crawler Backhoe	53.50
Welder, Cable Splicer	53.50
Digging Mach. Operator	48.15
Tractor Trailer Driver	45.48
Groundman, Truck Driver	42.80
Equipment Mechanic	42.80
Flagman	32.10

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work". (Ref #14.02.01-A)

Lineman, Technician	\$ 53.50
Crane, Crawler Backhoe	53.50
Cable Splicer	58.85
Certified Welder -	
Pipe Type Cable	56.18

Digging Mach. Operator	48.15
Tractor Trailer Driver	45.48
Groundman, Truck Driver	42.80
Equipment Mechanic	42.80
Flagman	32.10

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates apply on switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. (Ref #14.02.01-B)

Lineman, Tech, Welder	\$ 54.82
Crane, Crawler Backhoe	54.82
Cable Splicer	60.30
Certified Welder -	
Pipe Type Cable	57.56
Digging Mach. Operator	49.34
Tractor Trailer Driver	46.60
Groundman, Truck Driver	43.86
Equipment Mechanic	43.86
Flagman	32.89

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. (Ref #14.03.01)

Lineman, Tech, Welder	\$ 56.01
Crane, Crawler Backhoe	56.01
Cable Splicer	56.01
Digging Mach. Operator	50.41
Tractor Trailer Driver	47.61
Groundman, Truck Driver	44.81
Equipment Mechanic	44.81
Flagman	33.61

Additional \$1.00 per hour for entire crew when a helicopter is used.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM to 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM to 1:00 AM REGULAR RATE PLUS 17.3 %
3RD SHIFT	12:30 AM to 9:00 AM REGULAR RATE PLUS 31.4 %

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (also required on non-worked holidays):

The following SUPPLEMENTAL BENEFITS apply to all classification categories of CONSTRUCTION, TRANSMISSION and DISTRIBUTION.

Journeyman	\$ 24.90
	*plus 6.75% of hourly wage

*The 6.75% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q.) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

6-1249a

Lineman Electrician - Teledata

01/01/2021

JOB DESCRIPTION Lineman Electrician - Teledata

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2020	01/01/2021
Cable Splicer	\$ 33.77	\$ 34.78
Installer, Repairman	\$ 32.05	\$ 33.01
Teledata Lineman	\$ 32.05	\$ 33.01
Tech., Equip. Operator	\$ 32.05	\$ 33.01
Groundman	\$ 16.99	\$ 17.50

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman	\$ 5.06	\$ 5.06
	*plus 3% of wage paid	*plus 3% of wage paid

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting

01/01/2021

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Warren, Washington, Wayne, Wyoming, Yates

WAGES

Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

A Groundman/Groundman Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/groundman truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.
(Ref #14.01.01)

Per hour: 07/01/2020

Lineman, Technician	\$ 46.20
Crane, Crawler Backhoe	46.20
Certified Welder	48.51
Digging Machine	41.58
Tractor Trailer Driver	39.27
Groundman, Truck Driver	36.96
Equipment Mechanic	36.96
Flagman	27.72

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM	REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM	REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM	REGULAR RATE PLUS 31.4%

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

Journeyman	\$ 24.90
	*plus 6.75% of hourly wage

*The 6.75% is based on the hourly wage paid, straight time rate or premium rate.
Supplements paid at STRAIGHT TIME rate for holidays.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms.

	07/01/2020
1st term	\$ 27.72
2nd term	30.03
3rd term	32.34
4th term	34.65
5th term	36.96
6th term	39.27
7th term	41.58

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

6-1249a-LT

Lineman Electrician - Tree Trimmer

01/01/2021

JOB DESCRIPTION Lineman Electrician - Tree Trimmer

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also would include stump removal near underground energized electrical lines, including telephone and CATV lines.

Per hour:	07/01/2020	01/03/21	01/02/22	01/01/23
Tree Trimmer	\$ 26.56	\$ 27.36	\$ 28.25	\$ 29.59
Equipment Operator	23.49	24.19	24.98	26.17
Equipment Mechanic	23.49	24.19	24.98	26.17
Truck Driver	19.56	20.15	20.80	21.79
Groundman	16.11	16.59	17.13	17.94
Flag person	11.80	12.50*	12.50	12.94

*RATE GOES INTO EFFECT 12/31/2020

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2020	01/03/21	01/02/22	01/01/23
Journeyman	\$ 9.98	\$ 9.98	\$ 10.23	\$ 10.48
	*plus 3% of hourly wage	*plus 3% of hourly wage	*plus 3% of hourly wage	*plus 3% of hourly wage

* The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked.

Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday.

All paid holidays falling on a Sunday shall be observed on the following Monday.

6-1249TT

Mason - Building

01/01/2021

JOB DESCRIPTION Mason - Building

DISTRICT 3

ENTIRE COUNTIES

Erie, Niagara

PARTIAL COUNTIES

Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per hour: 07/01/2020

Plasterer \$ 30.15

Additional \$3.00/hr for work on swing stage over 20 feet.

SUPPLEMENTAL BENEFITS

Per hour: \$ 21.49

OVERTIME PAY

Exterior work only See (B, E, E2, Q) on OVERTIME PAGE.
All other work See (B, E, Q) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Hour terms at the following dollar amounts:

0	to	1000	to	2000	to	3000	to	4000	to	4700	to	5400	to	6000	to	7000	to	8000
\$		12.50	\$	14.00	\$	15.00	\$	16.00	\$	17.00	\$	18.00	\$	19.00	\$	20.00	\$	21.00

Supplemental benefits per hour:

Hour terms at the following dollar amounts:

0	to	4000	to	4700	to	5400	to	6000	to	8000
\$		2.50	\$	3.50	\$	4.50	\$	5.50	\$	7.50

3-9-Pltr

Mason - Building

01/01/2021

JOB DESCRIPTION Mason - Building

DISTRICT 5

ENTIRE COUNTIES

Erie, Niagara

PARTIAL COUNTIES

Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per Hour: 07/01/2020
Building:
Bricklayer \$ 31.72
Stone Mason 31.72
Tuck Pointer 31.72

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 30.11

OVERTIME PAY

See (B,E,E2*,Q) on OVERTIME PAGE

*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1250 hour terms at the following wage:

1st	2nd	3rd	4th
\$ 25.37	\$ 25.70	\$ 27.42	\$ 29.92

Supplemental benefits per hour:

1st	2nd	3rd	4th
\$ 11.65	\$ 17.52	\$ 22.00	\$ 25.71

5-3B-Z3

Mason - Building / Heavy&Highway**01/01/2021****JOB DESCRIPTION** Mason - Building / Heavy&Highway**DISTRICT** 3**ENTIRE COUNTIES**

Erie

PARTIAL COUNTIES

Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per hour: 07/01/2020

Cement Mason \$ 31.00
Additional \$0.25 per hr for Swing scaffold or exterior scaffold 42' or higher.
Additional \$1.00 per hr when required to wear respirator.

SUPPLEMENTAL BENEFITS

Per hour: \$ 31.92

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

750 hour terms at the following dollar amounts:

1st	2nd	3rd	4th	5th	6th
\$ 15.63	\$ 17.19	\$ 20.25	\$ 23.31	\$ 26.44	\$ 29.56

Supplemental benefits per hour:

1st	2nd	3rd	4th	5th	6th
\$ 8.36	\$ 11.31	\$ 11.19	\$ 14.38	\$ 16.43	\$ 19.66

3-111Erie

Mason - Heavy&Highway**01/01/2021****JOB DESCRIPTION** Mason - Heavy&Highway**DISTRICT** 5**ENTIRE COUNTIES**

Allegany, Broome, Chautauqua, Chemung, Chenango, Cortland, Delaware, Genesee, Livingston, Monroe, Ontario, Orleans, Otsego, Schuyler, Seneca, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

PARTIAL COUNTIES

Cattaraugus: Entire county except in the Township of Perrysburg and the Village of Gowanda only the Bricklayer classification applies.

Erie: Only the Bricklayer classification applies.

Niagara: Only the Bricklayer classification applies.

WAGES

Per hour:	07/01/2020	07/01/2021
Heavy & Highway:		Additional
Cement Mason	\$ 31.58	\$ 1.15
Bricklayer	31.58	

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 22.93

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1500 hour terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
50%	60%	70%	80%

Supplemental benefits per hour:

1st term	\$ 14.13
2nd - 4th term	22.93

5-3h

Mason - Tile Finisher

01/01/2021

JOB DESCRIPTION Mason - Tile Finisher

DISTRICT 5

ENTIRE COUNTIES

Erie, Niagara, Orleans

PARTIAL COUNTIES

Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per hour: 07/01/2020

Building:

Marble, Slate, Terrazzo \$ 29.31
and Tile Finisher

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour: \$ 16.37

OVERTIME PAY

See (B,E,E2*,Q) on OVERTIME PAGE

*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1200 hours 1st and 2nd term and 1300 hours 3rd term at the following wage:

1st	2nd	3rd
\$ 18.79	\$ 21.31	\$ 24.13

Supplemental benefits per hour:

1st	2nd	3rd
\$ 8.54	\$ 10.61	\$ 12.37

5-3TF - Z3

Mason - Tile Setter

01/01/2021

JOB DESCRIPTION Mason - Tile Setter

DISTRICT 5

ENTIRE COUNTIES

Erie, Niagara, Orleans

PARTIAL COUNTIES

Cattaraugus: Only in the Township of Perrysburg and the Village of Gowanda.

WAGES

Per hour: 07/01/2020
Building:
Marble, Slate, Terrazzo
and Tile Setter \$ 32.25

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour: \$ 29.08

OVERTIME PAY

See (B,E,E2*,Q) on OVERTIME PAGE

*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1250 hour terms at the following wage:

1st	2nd	3rd	4th
\$ 25.15	\$ 25.43	\$ 27.19	\$ 30.22

Supplemental benefits per hour:

1st	2nd	3rd	4th
\$ 11.57	\$ 17.44	\$ 21.83	\$ 24.96

5-3TS - Z3

Millwright

01/01/2021

JOB DESCRIPTION Millwright

DISTRICT 12

ENTIRE COUNTIES

Erie, Genesee, Niagara

WAGES

Per hour: 07/01/2020
Building \$ 33.30
Heavy & Highway* 35.30

*All Heavy & Highway Millwright construction will be paid at the rate indicated above. H/H work performed on hazardous waste sites where employees are required to wear protective gear shall receive an additional \$2.00 per hour over the Millwright H/H rate for all hours worked on the day protective gear was worn.

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):

- Certified Welders shall receive \$1.75 per hour in addition to the current Millwright's rate provided he/she is directed to perform certified welding.
- If a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive a \$1.50 premium per hour.
- An employee performing the work of a machinist shall receive \$2.00 per hour in addition to the current Building Millwright's rate. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional \$0.50 per hour. This amount will increase to \$1.00 on 7/1/2020.

SUPPLEMENTAL BENEFITS

Per hour Paid:

All Classifications \$29.85

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1300 hour terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour worked:

1st	2nd	3rd	4th
\$11.80	\$ 24.48	\$ 26.27	\$ 28.06

12-1163-Gen/Nia/Orl/Wyo

Operating Engineer - Building

01/01/2021

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 12

ENTIRE COUNTIES

Cattaraugus, Chautauqua, Erie, Orleans, Wyoming

PARTIAL COUNTIES

Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES

CLASS A: Air Hoist, All Boom Type Equipment, All Pans and Carry-Alls, Archer Hoist, Asphalt Curb and Gutter Machines, Asphalt Roller, Asphalt Spreader or Paver, Automatic Fine Grade Machine (CMI or similar, first and second operator), Backhoe and Pullhoe, Backhoe and Pullhoe (tractor mounted, rubber tired), Back Filling Machine, Belt Placer (CMI or similar type), Bending Machine (Pipe), Bituminous Spreader and Mixer, Blacktop Plants (Automated and Non-automated), Blast or Rotary Drill (Truck or Track Mounted), Blower for Burning Brush, Boiler (when used for power), Boom Truck (excluding pick-up and delivery), Boring Machine, Bulldozer, Cableway, Cage Hoist, Caisson Auger, Central Mix Plant (and all concrete batching plants), Cherry Picker, Concrete Cleaning Decontamination Machine Operator, Concrete Curb and Gutter Machine, Concrete Curing Machine, Concrete Cutters (Vermeer or Similar Type), Concrete Mixer (over 1/2 cu yd.), Concrete Pavement Spreaders and Finishers, Concrete Paver, Concrete Pump, Conveyor, Core Drill, Crane, Crusher, Decon of Equipment, Derrick, Dragline, Dredge, Drill Rig (Tractor Mounted), Dual Drum Paver, Electric Pump used in conjunction with Well Point Systems, Elevating Grader (self propelled or towed), Elevator, Excavator (all purpose, hydraulically operated), Farm Tractor with Accessories, Fine Grade Machine, Forklift, Front End Loader, Generator (10 outlets or more), Gradall, Grader, Grout or Guniting Machine, Head Tower, Heavy Equipment Robotics Operator/Mechanic, Helicopter (when used for hoisting), Hoist (one drum), Hoisting Engine, Horizontal Directional Drill Locator, Horizontal Directional Drill Operator, Hydraulic Boom, Hydraulic Hammer (self-propelled), Hydraulic Pipe Jack Machine (or similar type machine), Hydraulic Rock Expander (or similar type machine), Hydraulic System Pumps, Hydro Crane, Hydro Hammer (or similar type), Industrial Tractor, Jersey Spreader, Kolman Plant Loader (and similar type loaders), Laser Screed, Locomotive, Lubrication Truck, Maintenance Engineer, Maintenance, Lubrication Unit or Truck, Mine Hoist, Mixer for Stabilized Base (self-propelled), Monorail, Motorized Hydraulic Pin Puller, Motorized Hydraulic Seeder, Mucking Machine, Mulching Machine, Multiple Drum Hoist (more than one drum in use), Overhead Crane, Peine Crane (or similar type), Pile Driver, Plant Engineer, Pneumatic Mixer, Post Hole Digger and Driver, Power Broom, Pumpcrete, Push Button Hoist, Push or Snatch Cat, Quarry Master or equivalent, Road Widener, Rock Bit Sharpener (all types), Roller (all), Rolling Machine (pipe), Rotomill, Scissors Trucks, Lift, or Boom Lift of any type (when used for hoisting), Scoopmobile, Shovel, Sideboom, Skidsteer/Bobcat (Similar Type), Skimmer, Slip Form Paver (CMI or similar type), Snorkel/Vacuum Truck, Strato-Tower, Stump Chipping Machine, Tire Truck and Drivers performing tire repair (exclude outside vendor), Towed Roller, Tractor Drawn Belt-Type Grader/Loader, Tractor Shovel, Tractor with Towed Accessories, Tractor (when using winch power), Tractors, Trencher, Truck Crane, Truck Mechanic and Helper (exclude Teamsters when repairing their own trucks), Tunnel Shovel, Tube Finisher (CMI and similar type), Ultra High Pressure Waterjet Cutting Tool System Operator/Mechanic, Vacuum Blasting Machine Operator/Mechanic, Vibratory Compactor, Vibro Tamp, Well Drilling Machine, Well Point, Winch, Winch Truck with A Frame.

CLASS B: Aggregate Bin, Aggregate Plant, Apprentice Engineer, Apprentice Engineer Driver, Articulated Off Road Material Hauler, Boiler (used in conjunction with production), CMI and similar type Concrete Spreads (Apprentice Engineer), Cement Bin, Chipping Machine and Chip Spreader, Compressors (4 or less), Compressors (any size, but subject to other provisions for Compressors, Dust Collectors, Generators, Mechanical Heaters, Pumps, Welding Machines - four of any type or combination), Concrete Mixer (1/2 cu. yd. and under), Fireman, Form Tamper, Form Trucks (excluding Teamster or delivery), Fuel Truck or Drivers (exclude Teamster or delivery), Heaters, Heating Boiler (used for temporary heat), Helper on Lubrication Unit or Truck, Jeep Trencher, Power Heaterman, Power Plant in excess of 10 K.W., Pumps, Revinus Widener, Steam Boilers (if manning or license by local law is required), Steam Cleaner (when used for cleaning equipment on the job site), Welding Machine (1 machine over 300 amps or 2 or 3 machines regardless of amps).

Operating Engineer- Building:

Per hour:	07/01/2020
Class A	\$ 37.86
Class B	33.38
Crane(Up to 60 Tons)	40.86
" (61 to 199 Tons)	41.36
" (200 to 399 Tons)	41.86
" (400 Tons or more)	42.36

Additional \$5.00/hr. for Any Tower Crane

Additional \$2.50/hr. for Hazardous Work Site

Additional \$1.00/hr. for Tunnel Work

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyman \$ 30.70**

**Note: For Overtime Hours \$22.50 of this amount is paid a straight time, the remaining balance of \$8.20 is paid at the same premium as the wage.

OVERTIME PAY

See (B, E, *E2, P, **V) on OVERTIME PAGE

* Only Saturdays between October 15th and April 15th.

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1 year Terms

1st	2nd	3rd	4th
\$27.70	\$28.59	\$29.47	\$30.31

Supplemental benefits Per Hour:

All Apprentices \$29.80**

**Note: For Overtime Hours \$22.50 of this amount to be paid a straight time rate remaining balance of \$7.30 is paid at same premium as the wage.

12-17b

Operating Engineer - Heavy&Highway

01/01/2021

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 12

ENTIRE COUNTIES

Cattaraugus, Chautauqua, Erie, Orleans, Wyoming

PARTIAL COUNTIES

Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES

CLASS A: Air Hoist, All Boom Type Equipment, All Pans and Carry-Alls, Asphalt Curb and Cutter Machines, Asphalt Roller, Asphalt Spreader or Paver, Automatic Fine Grade Machine (CMI or similar, first and second operator), Backhoe and Pullhoe (all), Back Filling Machine, Belt Placer (CMI or similar type), Bending Machine (pipe), Bituminous Spreader and Mixer, Blacktop Plant (all), Blast or Rotary Drill (Truck or Track Mounted), Blower for Burning Brush, Boiler (when used for power), Boom Truck, Boring Machine, Bulldozer, Cableway, Cage Hoist, Caisson Auger, Central Mix Plant (and all Concrete Batching Plants), Cherry Picker, Concrete Cleaning Decontamination Machine, Concrete Curb and Gutter Machine, Concrete Curing Machine, Concrete Mixer (over 1/2 cu. yd.), Concrete Pavement Spreaders and Finishers, Concrete Paver, Concrete Pump, Concrete Saw (self propelled), Conveyor, Conveying Vehicles Conveying Engineer's Equipment, Core Drill, Crane, Crusher, Decontamination of Equipment, Derrick, Dragline, Dredge, Drill Rig (Tractor Mounted), Dual Drum Paver, Electric Pump used in conjunction with Well Point Systems, Elevating Grader (self propelled or towed), Elevator, Excavator (all purpose, hydraulically operated), Farm Tractor with Accessories, Fine Grade Machine, Forklift, Front End Loader, Gradall, Grader, Grout or Guniting Machine, Head Tower, Heavy Equipment Robotics Operator/Mechanic, Hoist (all types), Hoisting Engine, Horizontal Directional Drill Locator, Horizontal Directional Drill Operator, Hydraulic Boom, Hydraulic Hammer (self propelled), Hydraulic Pipe Jack Machine, (or similar type machine), Hydraulic Rock Expander (or similar type machine), Hydraulic System Pumps, Industrial Tractor, Jersey Spreader, Kolman Plant Loader (and similar type Loaders), Laser Screed, Locomotive, Log Skidder (similar type), Maintenance Engineer, Maintenance, Lubrication Unit or Truck, Mine Hoist, Mixer for Stabilized Base (self propelled), Monorail, Motorized Hydraulic Pin Puller, Motorized Hydraulic Seeder, Mucking Machine, Mulching Machine, Overhead Crane, Parts Chasing, Peine Crane (or similar type), Pile Driver, Plant Engineer, Pneumatic Mixer, Post Hole Digger and Post Driver, Power Broom, Pump Crete, Push Button Hoist, Push or Snatch Cat, Quarry Master (or equivalent), Road Widener, Rock Bit Sharpener (all types), Roller (all), Rolling Machine (Pipe), Rotomill, Scoopmobile, Shovel, Side Boom, Skidsteer/Bobcat (similar type), Skimmer, Slip Form Paver (CMI or similar, first and second operator), Snorkel/Vacuum Truck, Strato-Tower, Tire Truck & Repair, Towed Roller, Tractor Drawn Belt-Type Grader/Loader, Tractor Shovel, Tractor with Towed Accessories, Tractors (when using winch power), Trencher, Truck Crane, Tug Boats, Tunnel Shovel, Tube Finisher (CMI and similar), Vacuum Blasting Machine Operator/Mechanic, Vibratory Compactor, Vibro Tamp, Waterjet Cutting Tool System Operator/Mechanic (Ultra High Pressure), Well Drilling Machine, Well Point, Winch, Winch Truck with A Frame.

CLASS B: Aggregate Bin, Aggregate Plant, Apprentice Engineer, Apprentice Engineer Driver, Articulated Off Road Material Hauler, CMI and similar type Concrete Spreads (Apprentice Engineer), Cement Bin, Chipping Machine and Chip Spreader, Compressors (4 or less), Compressors: any size, but subject to other provisions for Compressors, Dust Collectors, Generators, Mechanical Heaters, Pumps, Welding Machines (four of any type or combination), Concrete Mixer (1/2 cu. yd. and under), Fireman, Form Tamper, Fuel Truck, Heating Boiler (used for temporary heat), Helper on Lubrication Unit or Truck, Jeep Trencher, Power Heaterman, Power Plant in excess of 10 K.W., Pumps (4" or over), Revinus Widener, Steam Cleaner, Stump Chipping Machine, Welding Machine (1 machine over 300 amps or 2 or 3 machines regardless of amps).

Operating Engineer- Heavy/Highway, Sewer/Water, Tunnel:

Per hour:	07/01/2020
Class A	\$ 39.89
Class B	35.39
Crane(boom over 100ft)	40.64
" (boom over 200ft)	40.89
" (boom over 300ft)	41.39

Additional \$3.00/hr. for Lattice Boom
Additional \$3.00/hr. for Hydraulic Crane over 60 tons
Additional \$2.50/hr. for Hazardous Work Site
Additional \$1.00/hr. for Tunnel Work
Additional \$3.00/hr. for Mandated Off-Shift Work

SUPPLEMENTAL BENEFITS

Per hour:

Journeymen \$ 32.01*

*Note: For Overtime Hours \$24.31 of the amount paid at straight time, the remaining balance of \$7.70 is paid at the same premium as the wage.

OVERTIME PAY

See (B, E, Q, T, *V) on OVERTIME PAGE

HOLIDAY

Paid: See (*5, **6) on HOLIDAY PAGE
Overtime: See (***5, ****6) on HOLIDAY PAGE

*, ** NOTE: If Holiday falls on a Sunday it will be celebrated on Monday

, * NOTE: If employee works that Monday use "T" under Overtime Pay.

REGISTERED APPRENTICES

Wages per hour:

Apprentices at 1 year terms

1st	2nd	3rd	4th
\$32.39	\$33.39	\$34.39	\$35.39

Supplemental Benefits

All Apprentices \$31.61*

Note: For Overtime Hours \$24.31 of this amount is paid at straight time , the remaining balance of \$7.30 is paid at the same premium as the wage.

12-17 hh/sw/t

Operating Engineer - Marine Dredging

01/01/2021

JOB DESCRIPTION Operating Engineer - Marine Dredging

DISTRICT 4

ENTIRE COUNTIES

Albany, Bronx, Cayuga, Chautauqua, Clinton, Columbia, Dutchess, Erie, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Niagara, Orange, Orleans, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES

These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour:	07/01/2020	10/01/2020
CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more.	\$ 40.31	\$ 41.42
CLASS A2 Crane Operator (360 swing)	35.92	36.91
CLASS B Dozer, Front Loader Operator on Land	To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits.	
CLASS B1 Derrick Operator (180 swing) Spider/Spill Barge Operator Operator II, Fill Placer, Engineer, Chief Mate, Electrician, Chief Welder, Maintenance Engineer Licensed Boat, Crew Boat Operator	34.86	35.82
CLASS B2 Certified Welder	32.82	33.72
CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	31.92	32.80
CLASS C2 Boat Operator	30.89	31.74
CLASS D Shoreman, Deckhand, Oiler, Rodman, Scowman, Cook, Messman, Porter/Janitor	25.66	26.37

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

	07/01/2020	10/01/2020
All Classes A & B	\$11.58 plus 7.5% of straight time wage, Overtime hours	\$11.98 plus 8% of straight time wage, Overtime hours

	add \$ 0.63	add \$ 0.63
All Class C	\$11.28 plus 7.5% of straight time wage, Overtime hours add \$ 0.48	11.68 plus 8% of straight time wage, Overtime hours add \$ 0.48
All Class D	\$10.98 plus 7.5% of straight time wage, Overtime hours add \$ 0.33	11.38 plus 8% of straight time wage, Overtime hours add \$ 0.33

OVERTIME PAY

See (B2, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew

01/01/2021

JOB DESCRIPTION Operating Engineer - Survey Crew

DISTRICT 12

ENTIRE COUNTIES

Cattaraugus, Chautauqua, Erie, Orleans, Wyoming

PARTIAL COUNTIES

Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES

These rates apply to Building and Heavy Highway.

Per hour:

SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.

Instrument Person - One who operates the surveying instruments.

Rod Person - One who holds the rods and assists the Instrument Person.

07/01/2020

Party Chief	\$ 42.64
Instrument Person	40.20
Rod Person	27.78

Additional \$3.00 per hr. for work in a Tunnel.

Additional \$2.50 per hr. for EPA or DEC certified toxic or hazardous waste work.

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyman	\$ 27.80
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OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on the Percentage of Rod Person wage:

07/01/2020

0-1000 Hrs	60%
1001-2000 Hrs	70%
2001-3000 Hrs	80%

SUPPLEMENTAL BENEFITS per hour worked:

0-1000 Hrs	\$ 16.62
1001-2000 Hrs	19.40
2001-3000 Hrs	22.17

12-17D Sur

Operating Engineer - Survey Crew - Consulting Engineer**01/01/2021**

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer**DISTRICT** 12**ENTIRE COUNTIES**

Cattaraugus, Chautauqua, Erie, Orleans, Wyoming

PARTIAL COUNTIES

Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES

These rates apply to feasibility and preliminary design surveying, line of grade surveying for inspection or supervision of construction when performed under a Consulting Engineer Agreement.

Per hour:

SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.

Instrument Person - One who operates the surveying instruments.

Rod Person - One who holds the rods and assists the Instrument Person.

07/01/2020

Party Chief	\$ 42.64
Instrument Person	40.20
Rod Person	27.78

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyman	\$ 27.80
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OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on the Percentage of Rod Persons Wage:

07/01/2020

0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFITS per hour worked:

0-1000	\$ 16.62
1001-2000	19.40
2001-3000	22.17

12-17D Con Eng

Painter**01/01/2021**

JOB DESCRIPTION Painter**DISTRICT** 3**ENTIRE COUNTIES**

Allegany, Erie, Genesee, Niagara, Orleans, Wyoming

PARTIAL COUNTIES

Cattaraugus: Entire County except the Townships of Conewango, Leon, Napoli, New Albion, Randolph and South Valley.

Chautauqua: Only the Townships of Awkright, Dunkirk, Hanover, Pomfret, Portland, Sheridan and Villenova.

Livingston: Only the Townships of North Dansville, Nunda, Ossian, Portage, Sparta, Spring Water and West Sparta.

Steuben: Only the Townships of Avoca, Canisteo, Cohocton, Dansville, Fremont, Greenwood, Hartsville, Hornellsville, Howard, Jasper, Prattsburg, Pulteney, Troupsburg, Tuscarora, Urbana, Wayland, Wayne, Woodhull, West Union, Wheeler, and the City of Hornell.

WAGES

Per hour:	07/01/2020	05/01/2021 Additional
Basic Rate (Brush & Roll)	\$ 27.25	\$ 1.00
Spray painting, wallcovering	27.25	1.00
Abrasive and hydroblasting	27.25	1.00
Taping/DryWall Finisher	27.75	1.00
Skeleton Steel*	28.00	1.00

* Skeleton Steel: No floors, walls or ceiling are constructed, including radio and television towers, flagpoles, smokestacks, cranes and the abatement of coatings with lead, asbestos and/or arsenic, etc. All work within the confines of a plant shall be paid the skeleton steel rate (except in-plant tank work (see Tank Rate)).

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 25.54

OVERTIME PAY

Exterior work only See (B, E4, F*, R) on OVERTIME PAGE.

All other work See (B, F*, R) on OVERTIME PAGE.

* Note - Saturday is payable at straight time if the employee misses work, except where a doctor's or hospital verification of illness is produced Monday through Friday when work was available to the employee.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Painter/Decorator: 750 hour terms at the following percentage of Journeyman's Basic wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	90%

Taper/Drywall Finisher: 750 hour terms at the following percentage of Journeyman's Taper wage:

1st	2nd	3rd	4th	5th	6th
50%	55%	60%	65%	75%	85%

Supplemental benefits per hour:

Painter/Decorator and Taper/Drywall Finisher:

1st	2nd	3rd	4th	5th	6th	7th	8th
\$ 2.35	\$ 4.35	\$ 5.35	\$ 5.85	\$ 6.35	\$ 6.85	\$ 7.35	\$ 7.60

3-4-Buf, Nia, Olean

Painter

01/01/2021

JOB DESCRIPTION Painter

DISTRICT 3

ENTIRE COUNTIES

Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Cortland, Delaware, Erie, Genesee, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

WAGES

Per hour:	07/01/2020	05/01/2021 Additional
Bridge	\$ 39.20	\$ 1.00
Tunnel	39.20	1.00
Tank*	37.20	1.00

For Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

Tank rate applies to indoor and outdoor tanks, tank towers, standpipes, digesters, waste water treatment tanks, chlorinator tanks, etc. Covers all types of tanks including but not limited to steel tanks, concrete tanks, fiberglass tanks, etc.

Note an additional \$1.00 per hour is required when the contracting agency or project specification requires any shift to start prior to 6:00am or after 12:00 noon.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 29.00

OVERTIME PAY

Exterior work only See (B, E4, F*, R) on OVERTIME PAGE.

All other work See (B, F*, R) on OVERTIME PAGE.

*Note - Saturday is payable at straight time if the employee misses work, except where a doctor's or hospital verification of illness is produced Monday through Friday when work was available to the employee.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

750 hour terms at the following percentage of Journeyman's wage rate:

1st	2nd	3rd	4th	5th	6th
50%	55%	60%	65%	75%	85%

Supplemental benefits per hour:

1st & 2nd terms	\$ 5.50
3rd & 4th terms	5.50
5th & 6th terms	6.50

3-4-Bridge, Tunnel, Tank

Painter - Metal Polisher

01/01/2021

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

07/01/2020

Metal Polisher	\$ 36.33
Metal Polisher*	37.43
Metal Polisher**	40.33

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2020

Journeyworker:

All classification \$ 9.94

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

07/01/2020

1st year	\$ 16.00
2nd year	17.00
3rd year	18.00

1st year*	\$ 16.39
2nd year*	17.44
3rd year*	18.54
1st year**	\$ 18.50
2nd year**	19.50
3rd year**	20.50

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:

Per hour:

1st year	\$ 6.69
2nd year	6.69
3rd year	6.69

8-8A/28A-MP

Plumber**01/01/2021**

JOB DESCRIPTION Plumber

DISTRICT 3

ENTIRE COUNTIES

Erie, Niagara, Wyoming

PARTIAL COUNTIES

Allegany: Only the Townships of Allen, Angelica, Belfast, Caneadea, Centerville, Granger, Hume, New Hudson and Rushford

Cattaraugus: Only the Townships of Ashford, Dayton, East Otto, Ellicottville, Farmersville, Franklinville, Freedom, Leon, Lyndon, Machias, Mansfield, New Albion, Otto, Perrysburg, Persia and Yorkshire.

Chautauqua: Only the Townships of Arkwright, Charlotte, Cherry Creek, Dunkirk, Hanover, Pomfret, Portland, Ripley, Sheridan, Stockton, Villenova, Westfield, City of Dunkirk and Village of Fredonia.

Genesee: Only the Townships of Alabama, Alexander, Batavia, Darien, Elba, Oakfield, Pembroke and the City of Batavia.

Orleans: Only the Townships of Ridgeway, Shelby and Yates.

WAGES

Per hour: 07/01/2020

Plumber	\$ 36.63
Steamfitter	\$ 36.63

Note - Add 10% (ten-percent) to wage when HAZMAT training is required or when OSHA compliant respirator protection is required.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 26.43

Note - \$3.60 of this amount must be paid at the same premium as the wage.

OVERTIME PAY

See (*B, **E, Q) on OVERTIME PAGE

* Double time after 11 hours per day on Weekdays.

** Double time after 10 hours per day on Saturday.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th	5th
45%	55%	65%	75%	90%

Note - Add 10% (ten-percent) to wage when HAZMAT training is required or when OSHA compliant respirator protection is required.

Supplemental benefits per hour:

\$ 21.80

Note - \$3.60 of this amount must be paid at the same premium as the wage.

3-22-Buffalo, Niagara

Roofer**01/01/2021**

JOB DESCRIPTION Roofer

DISTRICT 3

ENTIRE COUNTIES

Erie, Genesee, Niagara, Orleans, Wyoming

WAGES

Per hour:	07/01/2020	06/01/2021 Additional
Asbestos Removal	\$ 32.96	\$ 1.00
Slate, Tile	30.11	1.00
Precast tile / slabs	30.11	1.00
Crete / gypsum planks	30.11	1.00
Damp and waterproofer	29.96	1.00
Composition, spayers,	29.96	1.00
Asphalt mastic,	29.96	1.00
Steep roofers	29.96	1.00

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:

15.0% for work from 4:30PM - 1:00AM or second shift

20.0% for work from 12:30AM - 9:00AM or third shift

SUPPLEMENTAL BENEFITS

Per hour:
\$ 23.01

OVERTIME PAY

See (B, *E, **E2, Q) on OVERTIME PAGE

* and ** Double time after 8 hours on Saturday.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0 to 499	to 999	to 1499	to 1999	to 2499	to 2999	to 3499	to 4499
60%	65%	70%	75%	80%	85%	90%	95%

Supplemental benefits per hour:

0 to 499	to 999	to 1499	to 1999	to 2499	to 2999	to 3499	to 4499
\$ 8.21	\$ 8.21	\$ 12.34	\$ 12.54	\$ 20.32	\$ 20.99	\$ 21.66	\$ 22.34

3-74

Sheetmetal Worker

01/01/2021

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 3

ENTIRE COUNTIES

Erie, Genesee, Niagara, Orleans, Wyoming

WAGES

Per hour:	07/01/2020	06/01/2021 Additional
Sheet Metal Worker	\$ 35.00	\$ 1.25

Additional \$0.50 per hour for work more than 30" above floor on boatswain chair.

Additional \$1.00 per hour for work in "Hot" areas of atomic laboratories, atomic plants, or any premises where radio-active materials are stored or handled and personal protective equipment is required.

Additional \$1.00 per hour for work when required to have 40-hour HAZMAT training or the use of OSHA compliant respirator is required.

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:

Shift Premium per hour:

Second Shift	\$ 3.25
Third Shift	\$ 5.00

SUPPLEMENTAL BENEFITS

Per hour:
\$ 26.22*

* Note - \$16.52 of this amount must be paid at the same premium as the wages per overtime hours.

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following wage:

1st term	\$ 15.75
2nd term	20.50
3rd term	21.95
4th term	26.30
5th term	29.20

Supplemental benefits per hour:

1st term	\$ 15.59	Note - \$7.89 of this amount must be paid at the same premium as the wage.
2nd term	18.59	Note - \$10.89 of this amount must be paid at the same premium as the wage.
3rd term	23.52	Note - \$13.82 of this amount must be paid at the same premium as the wage.
4th term	24.42	Note - \$14.72 of this amount must be paid at the same premium as the wage.
5th term	25.02	Note - \$15.32 of this amount must be paid at the same premium as the wage.

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply;

Shift Premium per hour:

Second Shift

1st term	\$ 1.46
2nd term	\$ 1.63
3rd term	\$ 1.79
4th term	\$ 2.28
5th term	\$ 2.60

Third Shift

1st term	\$ 2.25
2nd term	\$ 2.50
3rd term	\$ 2.75
4th term	\$ 3.50
5th term	\$ 4.00

3-71

Sprinkler Fitter

01/01/2021

JOB DESCRIPTION Sprinkler Fitter

DISTRICT 1

ENTIRE COUNTIES

Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Washington, Wayne, Wyoming, Yates

WAGES

Per hour	07/01/2020
Sprinkler	\$ 35.01
Fitter	

SUPPLEMENTAL BENEFITS

Per hour

Journey person	\$ 26.62
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OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES

Wages per hour

One Half Year terms at the following percentage of journeyperson's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 16.94	\$ 18.82	\$ 20.44	\$ 22.31	\$ 24.18	\$ 26.05	\$ 27.92	\$ 29.79	\$ 31.67	\$ 33.54

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 8.27	\$ 8.27	\$ 18.70	\$ 18.70	\$ 18.95	\$ 18.95	\$ 18.95	\$ 18.95	\$ 18.95	\$ 18.95
1-669									

Teamster - Building / Heavy&Highway	01/01/2021
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JOB DESCRIPTION Teamster - Building / Heavy&Highway

DISTRICT 3

ENTIRE COUNTIES

Erie, Niagara

PARTIAL COUNTIES

Genesee: Only in the Townships of Alabama, Darien and Pembroke.

Orleans: Only the Townships of Ridgeway, Shelby and Yates.

Wyoming: Only in the Townships of Arcade, Bennington, Java and Sheldon.

WAGES

GROUP 1: Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks (straight jobs), Single Axle Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Tiremen, Mechanics Helpers and Parts Chasers.

GROUP 2: Tandems and Batch Trucks, Mechanics, Dispatcher.

GROUP 3: Semi-Trailers, Low-Boy Trucks, Asphalt Distributor Trucks and Agitator, Mixer Trucks and dumpcrete type vehicles, Truck Mechanic, Fuel Trucks

GROUP 4: Specialized Earth Moving Equipment, Euclid type, or similar off-highway, where not self-loading, Straddle (Ross) Carrier, and self-contained concrete mobile truck.

GROUP 5: Off-highway Tandem Back-Dump, Twin Engine Equipment and Double-Hitched Equipment where not self-loading.

Per hour: 07/01/2020

All GROUPS \$ 39.72

Add \$2.00 when required to use personal protection when performing hazardous waste removal work.

An additional \$3.00 per hour is required when a single irregular work shift starting any time from 5:00PM to 1:00AM is mandated either in the job specification or by the contracting agency.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 14.68*

*Note - Only \$ 6.79 per hour needs to be paid for overtime hours.

OVERTIME PAY

See (B, G, P) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

3-449

Teamster - Building / Heavy&Highway	01/01/2021
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JOB DESCRIPTION Teamster - Building / Heavy&Highway

DISTRICT 3

ENTIRE COUNTIES

Erie, Niagara

WAGES

Per hour: 07/01/2020

Dump Truck Operator* \$ 23.25

*Does not include Single Axle Dump Trucks (see Teamster Group 1).

*Does not include Off-highway Dump Trucks (see Teamster Groups 2-5).

SUPPLEMENTAL BENEFITS

Per hour:

\$ 1.59

OVERTIME PAY

See (B, B2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

3-449d-DT

Welder

01/01/2021

JOB DESCRIPTION Welder

DISTRICT 1

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2020

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays
- (S) Two and one half times the hourly rate for Holidays

- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays
- (U) Four times the hourly rate for Holidays
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.
- (X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None
- (2) Labor Day
- (3) Memorial Day and Labor Day
- (4) Memorial Day and July 4th
- (5) Memorial Day, July 4th, and Labor Day
- (6) New Year's, Thanksgiving, and Christmas
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- (8) Good Friday
- (9) Lincoln's Birthday
- (10) Washington's Birthday
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 Day on Presidential Election Day
- (15) Veterans Day
- (16) Day after Thanksgiving
- (17) July 4th
- (18) 1/2 Day before Christmas
- (19) 1/2 Day before New Years
- (20) Thanksgiving
- (21) New Year's Day
- (22) Christmas
- (23) Day before Christmas
- (24) Day before New Year's
- (25) Presidents' Day
- (26) Martin Luther King, Jr. Day
- (27) Memorial Day
- (28) Easter Sunday



New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12240

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By:

(Check Only One)

☐

Contracting Agency

☐

Architect or Engineering Firm

☐

Public Work District Office

Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone: ()

Fax: ()

E-Mail:

2. NY State Units (see Item 5)

☐ 01 DOT

☐ 02 OGS

☐ 03 Dormitory Authority

☐ 04 State University
Construction Fund

☐ 05 Mental Hygiene
Facilities Corp.

☐ 06 OTHER N.Y. STATE UNIT

☐ 07 City

☐ 08 Local School District

☐ 09 Special Local District, i.e.,
Fire, Sewer, Water District

☐ 10 Village

☐ 11 Town

☐ 12 County

☐ 13 Other Non-N.Y. State
(Describe)

3. SEND REPLY TO ☐ (check if new or change)
Name and complete address:

Telephone:()

Fax: ()

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR
THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

- ☐ 1. New Building
- ☐ 2. Addition to Existing Structure
- ☐ 3. Heavy and Highway Construction (New and Repair)
- ☐ 4. New Sewer or Waterline
- ☐ 5. Other New Construction (Explain)
- ☐ 6. Other Reconstruction, Maintenance, Repair or Alteration
- ☐ 7. Demolition
- ☐ 8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Has this project been reviewed for compliance with the Wicks Law involving separate bidding?

YES ☐ NO ☐

10. Name and Title of Requester

Signature



NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

**LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE
AWARDED ANY PUBLIC WORK CONTRACT**

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: <https://applications.labor.ny.gov/EDList/searchPage.do>

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	NYC	*****9839	A.J.S. PROJECT MANAGEMENT, INC.		149 FIFTH AVENUE NEW YORK NY 10010	12/29/2016	12/29/2021
DOL	DOL	*****4018	ADIRONDACK BUILDING RESTORATION INC.		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC	*****6775	ADVENTURE MASONRY CORP.		1535 RICHMOND AVENUE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	NYC		AGOSTINHO TOME		405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	DOL		AJ TORCHIA		10153 ROBERTS RD SAUQUOIT NY 13456	08/09/2016	08/09/2021
DOL	DOL		AMADEO J TORCHIA	TORCHIA'S HOME IMPROVEMENT	10153 ROBERTS RD SAUQUOIT NY 13456	08/09/2016	08/09/2021
DOL	NYC		AMJAD NAZIR		2366 61ST ST BROOKLYN NY 11204	12/15/2016	12/15/2021
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		ANITA SALERNO		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	NYC		ANTHONY J SCLAFANI		149 FIFTH AVE NEW YORK NY 10010	12/29/2016	12/29/2021
DOL	DOL		ANTHONY PERGOLA		3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10323	01/23/2017	01/23/2022
DOL	DOL		ANTONIO ESTIVEZ		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	DOL		ARVINDER ATWAL		65 KENNETH PLACE NEW HYDE PARK NY 11040	07/19/2017	07/19/2022
DOL	NYC	*****6683	ATLAS RESTORATION CORP.		35-12 19TH AVENUE ASTORIA NY 11105	08/02/2017	08/02/2022
DOL	NYC	*****5532	ATWAL MECHANICALS, INC		65 KENNETH PLACE NEW HYDE PARK NY 11040	07/19/2017	07/19/2022
DOL	NYC	*****2591	AVI 212 INC.		260 CROPSEY AVENUE APT 11GBROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC		BALWINDER SINGH		421 HUDSON ST SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	NYC	*****3915	BEACON RESTORATION INC		SUITE B-8 782 PELHAM PARKWAY SOUTHBRONX NY 10462	04/21/2016	04/21/2021
DOL	NYC	*****8416	BEAM CONSTRUCTION, INC.		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	DOL		BIAGIO CANTISANI			06/12/2018	06/12/2023
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BOGDAN MARKOVSKI		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL	*****8551	BRANDY'S MASONRY		216 WESTBROOK STREET P O BOX 304SAYRE PA 18840	08/09/2016	08/09/2021
DOL	DOL	*****1449	BRRESTORATION NY INC		140 ARCADIA AVENUE OSWEGO NY 13126	09/12/2016	09/12/2021
DOL	DOL		BRUCE MORSEY		C/O KENT HOLLOW SIDING LL 29A BRIDGE STREETNEW MILFORD CT 06776	01/15/2016	01/15/2021
DOL	DOL		BRUCE P. NASH JR.		5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	DOL	*****0225	C&D LAFACE CONSTRUCTION, INC.		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****8809	C.B.E. CONTRACTING CORPORATION		310 MCGUINESS BLVD GREENPOINT NY 11222	03/07/2017	03/07/2022

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DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL		CANTISANI & ASSOCIATES LTD		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CANTISANI HOLDING LLC			06/12/2018	06/12/2023
DOL	DOL		CARIBBEAN POOLS		C/O DOUGLAS L MALARKEY 64 VICTORIA DRIVEBINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL		CARMEN RACHETTA		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	02/03/2025
DOL	DOL		CARMENA RACHETTA		8531 OSWEGO ROAD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****3812	CARMODY "2" INC			06/12/2018	06/12/2023
DOL	DOL	*****1143	CARMODY BUILDING CORP	CARMODY CONTRACTING AND CARMODY CONTRACTING CORP.	442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY CONCRETE CORPORATION			06/12/2018	06/12/2023
DOL	DOL		CARMODY ENTERPRISES, LTD.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY INC		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****3812	CARMODY INDUSTRIES INC			06/12/2018	06/12/2023
DOL	DOL		CARMODY MAINTENANCE CORPORATION		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY MASONRY CORP		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****8809	CBE CONTRACTING CORP		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	AG		CESAR J. AGUDELO		81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372	02/07/2018	02/07/2023
DOL	DOL		CHARLES ZIMMER JR		216 WESTBROOK STREET P O BOX 304SAYRE PA 18840	08/09/2016	08/09/2021
DOL	DOL		CHRISTOPHER J MAINI		19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		CHRISTOPHER PAPASTEFANOU A/K/A CHRIS PAPASTEFANOU		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****1927	CONSTRUCTION PARTS WAREHOUSE, INC.	CPW	5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	NYC	*****2164	CREATIVE TRUCKING INC		58-83 54TH STREET MASPETH NY 11378	02/26/2016	02/26/2021
DOL	DOL	*****2524	CSI ELECTRICAL & MECHANICAL INC		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	DOL	*****7761	D L MALARKEY CONSTRUCTION		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL	*****7888	D L MALARKEY CONSTRUCTION INC		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL	*****5629	DAKA PLUMBING AND HEATING LLC		2561 ROUTE 55 POUGHQUAG NY 12570	02/19/2016	02/19/2021
DOL	NYC		DALJIT KAUR BOPARAI		185-06 56TH AVE FRESH MEADOW NY 11365	10/17/2017	10/17/2022
DOL	DOL		DANICA IVANOSKI		61 WILLETT ST. PASSAIC NJ 07503	10/26/2016	10/26/2021
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		DAVID MARTINEZ		C/O EMPIRE TILE INC 6 TREMONT COURTHUNTINGTON STATION NY 11746	03/08/2016	03/08/2021
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024

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DOL	DOL		DEBBIE STURDEVANT		29 MAPLEWOOD DRIVE BINGHAMTON NY 13901	02/21/2017	02/21/2022
DOL	AG		DEBRA MARTINEZ		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL		DEDA GAZIVODAN		C/O DAKA PLUMBING AND H 2561 ROUTE 55POUGHQUAG NY 12570	02/19/2016	02/19/2021
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		DENNIS SCHWANDTNER		C/O YES SERVICE AND REPAI 145 LODGE AVEHUNTINGTON STATION NY 11476	08/09/2016	08/09/2021
DOL	DOL		DF CONTRACTORS OF ROCHESTER, INC.		1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	DOL		DF CONTRACTORS, INC.		1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	NYC		DIMITRIOS TSOUMAS		35-12 19TH AVENUE ASTORIA NY 11105	08/02/2017	08/02/2022
DOL	DOL		DOMENICO LAFACE		8531 OSWEGO RD BALDWINSVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****3242	DONALD R. FORSAY	DF LAWN SERVICE	1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	DOL		DONALD R. FORSAY		1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	NYC	*****7404	DOSANJH CONSTRUCTION CORP		9439 212TH STREET QUEENS VILLAGE NY 11428	02/25/2016	02/25/2021
DOL	DOL		DOUGLAS L MALARKEY	MALARKEY CONSTRUCTI ON	64 VICTORIA DRIVE B INGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	NYC		DUARTE LOPES		66-05 WOODHAVEN BLVD. STE 2REGO PARK NY 11374	04/20/2017	04/20/2022
DOL	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL		EAST COAST PAVING		2238 BAKER RD GILLET PA 16923	03/12/2018	03/12/2023
DOL	NYC	*****4269	EAST PORT EXCAVATION & UTILITIES		601 PORTION RD RONKONKOMA NY 11779	11/18/2016	11/18/2021
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL	*****3270	EMPIRE TILE INC		6 TREMONT COURT HUNTINGTON STATION NY 11746	03/08/2016	03/08/2021
DOL	NYC	*****5917	EPOCH ELECTRICAL, INC		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2024
DOL	DOL	*****7403	F & B PAINTING CONTRACTING INC		2 PARKVIEW AVENUE HARRISON NY 10604	09/26/2016	09/26/2021
DOL	DOL		FAIGY LOWINGER		11 MOUNTAIN RD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL		FRANK BENEDETTO		19 CATLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		FRANK BENEDETTO		C/O F & B PAINTING CONTRA 2 PARKVIEW AVENUEHARRISON NY 10604	09/26/2016	09/26/2021
DOL	DOL	*****4722	FRANK BENEDETTO AND CHRISTOPHER J MAINI	B & M CONCRETE	19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	NYC		FRANK MAINI		1766 FRONT ST YORKTOWN HEIGHTS NY 10598	01/17/2018	01/17/2023
DOL	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		GABRIEL FRASSETTI			04/10/2019	04/10/2024
DOL	DOL		GALINDA ROTENBERG		C/O GMDV TRANS INC 67-48 182ND STREETFRESH MEADOWS NY 11365	06/24/2016	06/24/2021
DOL	DOL		GEOFF CORLETT		415 FLAGGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		GIOVANNI LAFACE		8531 OSWEGO RD BALDWINSVILLE NY 13027	02/03/2020	01/09/2023

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DOL	NYC	*****3164	GLOBE GATES INC	GLOBAL OVERHEAD DOORS	405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	DOL	*****5674	GMDV TRANS INC		67-48 182ND STREET FRESH MEADOWS NY 11365	06/24/2016	06/24/2021
DOL	NYC		GREAT ESTATE CONSTRUCTION, INC.		327 STAGG ST BROOKLYN NY 11206	10/10/2017	10/10/2022
DOL	DOL		GREGORY S. OLSON		P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC		HARMEL SINGH		15 CLINTON LANE HICKSVILLE NY 11801	02/25/2016	02/25/2021
DOL	NYC		HAROLD KUEMMEL		58-83 54TH STREET MASPETH NY 11378	02/26/2016	02/26/2021
DOL	NYC	*****3228	HEIGHTS ELEVATOR CORP.		1766 FRONT ST YORKTOWN HEIGHTS NY 10598	01/17/2018	01/17/2023
DOL	DOL	*****5131	INTEGRITY MASONRY, INC.	M&R CONCRETE	722 8TH AVE WATERVLIT NY 12189	06/05/2018	06/05/2023
DOL	DOL		IRENE KASELIS		32 PENNINGTON AVE WALDWICK NJ 07463	05/30/2019	05/30/2024
DOL	AG		J A M CONSTRUCTION CORP		SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457	04/07/2016	04/07/2021
DOL	DOL		J.A. HIRES CADWALLADER		P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		JAMES C. DELGIACCO		722 8TH AVE WATERVLIT NY 12189	06/05/2018	06/05/2023
DOL	AG		JAMES FALCONE		SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457	04/07/2016	04/07/2021
DOL	DOL		JAMES LIACONE		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JAMES RACHEL		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JASON W MILLIMAN		C/O ROCHESTER ACOUSTICAL P O BOX 799HILTON NY 14468	02/19/2016	02/19/2021
DOL	DOL	*****5368	JCH MASONRY & LANDSCAPING INC.		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		JESSICA WHITESIDE		C/O BRRESTORATION NY INC 140 ARCADIA AVENUEOSWEGO NY 13126	09/12/2016	09/12/2021
DOL	AG		JOHN ANTHONY MASSINO		36-49 204TH STREET BAYSIDE NY 11372	02/07/2018	02/07/2023
DOL	DOL		JOHN F. CADWALLADER		200 LATTA BROOK PARK HORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL	*****4612	JOHN F. CADWALLADER, INC.	THE GLASS COMPANY	P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	AG	*****0600	JOHNCO CONTRACTING, INC.		36-49 204TH STREET BAYSIDE NY 11372	02/07/2018	02/07/2023
DOL	DOL		JON E DEYOUNG		261 MILL RD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		JORI PEDERSEN		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		JOSE CHUCHUCA		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	AG		JOSEPH FALCONE		SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457	04/07/2016	04/07/2021
DOL	NYC		JOSEPH FOLEY		66-05 WOODHAVEN BLVD. STE 2REGO PARK NY 11374	04/20/2017	04/20/2022
DOL	DOL	*****9273	JOSEPH M LOVETRO		P O BOX 812 BUFFALO NY 14220	08/09/2016	08/09/2021

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DOL	NYC		JOSEPH MARTINO		1535 RICHMOND AVENUE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	DOL		JOY MARTIN		2404 DELAWARE AVE NIGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL	*****5062	K R F SITE DEVELOPMENT INC		375 LAKE SHORE DRIVE PUTNAM VALLEY NY 10579	01/23/2017	01/23/2022
DOL	NYC		K.S. CONTRACTING CORP.		29 PHILLIP DRIVE PARSIPPANY NJ 07054	02/13/2017	02/13/2022
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATIE BURDICK		2238 BAKER RD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		KENNETH FIORENTINO		375 LAKE SHORE DRIVE PUTNAM VALLEY NY 10579	01/23/2017	01/23/2022
DOL	DOL	*****9732	KENT HOLLOW SIDING LLC		29A BRIDGE STREET NEW MILFORD CT 06776	01/15/2016	01/15/2021
DOL	DOL	*****3490	L & M CONSTRUCTION/DRYWALL INC.		1079 YONKERS AVE YONKERS NY 10704	08/07/2018	08/07/2023
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	AG	*****4643	LALO DRYWALL, INC.		221 OLD FORD ROAD NEW PLATZ NY 12561	05/20/2016	05/20/2021
DOL	DOL	*****4505	LARAPINTA ASSOCIATES INC		29 MAPLEWOOD DRIVE BINGHAMTON NY 13901	02/21/2017	02/21/2022
DOL	DOL		LAVERN GLAVE		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	06/24/2016	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	06/24/2016	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	01/17/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	08/14/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	08/14/2017	08/14/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	01/17/2017	09/19/2022
DOL	DA	*****4460	LONG ISLAND GLASS & STOREFRONTS, LLC		4 MANHASSET TRL RIDGE NY 11961	09/06/2018	09/06/2023
DOL	AG	*****4216	LOTUS-C CORP.		81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372	02/07/2018	02/07/2023
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	AG		LUIS MARTINEZ	LALO DRYWALL	211 MAIN ST. NEW PALTZ NY 12561	05/20/2016	05/20/2021
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL		M ANVER BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	DOL		M. ANVER BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	DOL	*****1784	MADISON AVE CONSTRUCTION CORP		39 PENNY STREET WEST ISLIP NY 11795	11/02/2016	11/02/2021

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DOL	DOL		MALARKEY'S BAR & GRILL LLC		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL	*****0705	MALARKEY'S PUB & GRUB LLC		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	NYC		MAREK FABIJANOWSKI		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	DOL		MARIACHI'S PIZZERIA		C/O DOUGLAS L MALARKEY 64 VICTORIA DRIVEBINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	NYC		MARTINE ALTER		1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	DOL		MARVIN A STURDEVANT		29 MAPLEWOOD DRIVE BINGHAMTON NY 13901	02/21/2017	02/21/2022
DOL	DOL		MASONRY CONSTRUCTION, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****3333	MASONRY INDUSTRIES, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	NYC		MATINA KARAGIANNIS		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2023
DOL	DOL		MATTHEW P. KILGORE		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	DOL		MAURICE GAWENO		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****6416	MCCALL MASONRY		P O BOX 304 SAYRE PA 18840	08/09/2016	08/09/2021
DOL	DOL		MCLEAN "MIKKI BEANE"		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL		MCLEAN "MIKKI" DRAKE		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL		MCLEAN M DRAKE-BEANE		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL	*****9445	MCLEAN M WALSH	ELITE PROFESSIONAL PAINTING OF CNY	1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL	*****9445	MCLEAN M WALSH	ELITE PROFESSIONAL PAINTING OF CNY	1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	NYC		MICHAEL HIRSCH		C/O MZM CORP 163 S MAIN STREETNEW CITY NY 10956	01/28/2016	01/28/2021
DOL	DOL		MICHAEL LENIHAN		1079 YONKERS AVE UNIT 4YONKERS NY 10704	08/07/2018	08/07/2023
DOL	AG		MICHAEL RIGLIETTI		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL	*****4829	MILESTONE ENVIRONMENTAL CORPORATION		704 GINESI DRIVE SUITE 29MORGANVILLE NJ 07751	04/10/2019	04/10/2024
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	NYC	*****3826	MOVING MAVEN OF NY, INC.		1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	NYC	*****3550	MOVING MAVEN, INC		1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	AG		MSR ELECTRICAL CONSTRUCTION CORP.		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL		MUHAMMAD BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	DOL		MUHAMMAD BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC	*****3613	MZM CORP		163 S MAIN STREET NEW CITY NY 10956	01/28/2016	01/28/2021
DOL	DA	*****9786	NATIONAL INSULATION & GC CORP		180 MILLER PLACE HICKSVILLE NY 11801	12/12/2018	12/12/2023

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DOL	NYC	*****4839	NEW YORK RIGGING CORP		58-83 54TH STREET MASPETH NY 11378	02/26/2016	02/26/2021
DOL	NYC		NICHOLAS FILIPAKIS		7113 FORT HAMILTON PARKWA BROOKLYN NY 11228	12/09/2016	12/09/2021
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	DOL	*****6966	NORTH COUNTRY DRYWALL AND PAINT		23167 COUNTY ROUTE 59 DEXTER NY 13634	10/24/2016	10/24/2021
DOL	DOL	*****0065	NORTHEAST LANDSCAPE AND MASONRY ASSOC		3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10523	01/23/2017	01/23/2022
DOL	DOL	*****1845	OC ERECTERS, LLC A/K/A OC ERECTERS OF NY INC.		1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442	01/16/2018	01/16/2023
DOL	NYC	*****0818	ONE TEN RESTORATION, INC.		2366 61ST ST BROOKLYN NY 11204	12/15/2016	12/15/2021
DOL	NYC		PARESH SHAH		29 PHILLIP DRIVE PARSIPPANY NJ 07054	02/13/2017	02/13/2022
DOL	NYC	*****9422	PELIUM CONSTRUCTION, INC.		22-33 35TH ST. ASTORIA NY 11105	12/30/2016	12/30/2021
DOL	DOL		PETER M PERGOLA		3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10523	01/23/2017	01/23/2022
DOL	DOL		PIERRE LAPORT		224 COUNTY HIGHWAY 138 BROADALBIN NY 12025	03/07/2017	03/07/2022
DOL	DOL	*****1543	PJ LAPORT FLOORING INC		224 COUNTY HIGHWAY 138 BROADALBIN NY 12025	03/07/2017	03/07/2022
DOL	NYC	*****5771	PMJ ELECTRICAL CORP		7113 FORT HAMILTON PARKWA BROOKLYN NY 11228	12/09/2016	12/09/2021
DOL	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC	*****4532	PROFESSIONAL PAVERS CORP.		66-05 WOODHAVEN BLVD. REGO PARK NY 11374	04/20/2017	04/20/2022
DOL	DA	*****6817	QUADRANT METAL BUILDINGS LLC		2740 SW MARTIN DOWNS BLVD PALM CITY FL 34990	08/25/2016	08/25/2021
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP		3 PARK CIRCLE MIDDLETOWN NY 10940	01/30/2018	01/30/2023
DOL	AG	*****7015	RCM PAINTING INC.		69-06 GRAND AVENUE 2ND FLOORMASPETH NY 11378	02/07/2018	02/07/2023
DOL	DOL		REGINALD WARREN		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DA		RIANN MULLER		2740 SW MARTIN DOWNS BLVD PALM CITY FL 34990	08/25/2016	08/25/2021
DOL	DOL	*****9148	RICH T CONSTRUCTION		107 WILLOW WOOD LANE CAMILLUS NY 13031	11/13/2018	11/13/2023
DOL	DOL		RICHARD MACONE		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL	*****9148	RICHARD TIMIAN	RICH T CONSTRUCTI ON	108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	11/13/2018	11/13/2023
DOL	DOL		ROBBYE BISSESAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROBERT A. VALERINO		3841 LANYARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		ROBERT BRUNO		3 GAYLORD ST AUBURN NY 13021	11/15/2016	11/15/2021
DOL	DOL		ROBERT BRUNO		5 MORNINGSIDE DRIVE AUBURN NY 13021	05/28/2019	05/28/2024
DOL	NYC		ROBERT HOHMAN		149 FIFTH AVE NEW YORK NY 10010	12/29/2016	12/29/2021
DOL	DOL	*****3859	ROCHESTER ACOUSTICAL CORP		P O BOX 799 HILTON NY 14468	02/19/2016	02/19/2021

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DOL	DOL		RODERICK PUGH		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL	*****4880	RODERICK PUGH CONSTRUCTION INC.		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		ROSEANNE CANTISANI			06/12/2018	06/12/2023
DOL	DOL		RYAN ALBIE		21 S HOWELLS POINT ROAD BELLPORT NY 11713	02/21/2017	02/21/2022
DOL	DOL	*****3347	RYAN ALBIE CONTRACTING INC		21 S HOWELLS POINT ROAD BELLPORT NY 11713	02/21/2017	02/21/2022
DOL	DOL	*****1365	S & L PAINTING, INC.		11 MOUNTAIN ROAD P.O BOX 408MONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL	*****7730	S C MARTIN GROUP INC.		2404 DELAWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	NYC		SABIR MUHAMMED		SUITE B-8 782 PELHAM PARKWAY SOUTHBRONX NY 10462	04/21/2016	04/21/2021
DOL	DOL		SALVATORE A FRESINA			08/26/2016	08/26/2021
DOL	DOL		SAM FRESINA			08/26/2016	08/26/2021
DOL	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC		SANDEEP BOPARAI		185-06 56TH AVE FRESH MEADOW NY 11365	10/17/2017	10/17/2022
DOL	DOL	*****9751	SCW CONSTRUCTION		544 OLD ROUTE 23 ACRE NY 12405	02/14/2017	02/14/2022
DOL	AG		SERGIO RAYMUNDO		109 DUBOIS RD. NEW PALTZ NY 12561	05/20/2016	05/20/2021
DOL	NYC	*****6597	SHAIRA CONSTRUCTION CORP.		421 HUDSON STREET SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	DOL	*****1961	SHANE BURDICK	CENTRAL TRAFFIC CONTROL, LLC.	2238 BAKER ROAD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		SHANE BURDICK		2238 BAKER ROAD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		SHANE NOLAN		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		SHULEM LOWINGER		11 MOUNTAIN ROAD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL	*****0816	SOLAR ARRAY SOLUTIONS, LLC		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****9933	STEED GENERAL CONTRACTORS, INC.		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR.		256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458	05/30/2019	05/30/2024
DOL	DOL	*****9751	STEPHEN C WAGAR		544 OLD ROUTE 23 ACRE NY 12405	02/14/2017	02/14/2022
DOL	DOL		STEVE TATE		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	NYC		STEVEN GOVERNALE		601 PORTION RD RONKONKOMA NY 11779	11/18/2016	11/18/2021
DOL	DOL		STEVEN MARTIN		2404 DELWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL		STEVEN P SUCATO		15-68 208TH STREET BAYSIDE NY 11360	06/23/2016	06/23/2021
DOL	DOL		STEVEN TESTA		50 SALEM STREET - BLDG B LYNNFIELD MA 01940	01/23/2017	01/23/2022
DOL	NYC	*****5863	SUKHMANY CONSTRUCTION, INC.		185-06 56TH AVE FRESH MEADOW NY 11365	10/17/2017	10/17/2022

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DOL	DOL	*****1060	SUNN ENTERPRISES GROUP, LLC		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL	*****8209	SYRACUSE SCALES, INC.		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL		TALAILA OCAMPA		1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442	01/16/2018	01/16/2023
DOL	DOL	*****9852	TAP STEEL INC		ROUTE 26 3101 P O BOX 457CONSTABLEVILLE NY 13325	01/28/2016	01/28/2021
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL		TEST		P.O BOX 123 ALBANY NY 12204	05/20/2020	05/20/2025
DOL	DOL	*****5570	TESTA CORP		50 SALEM STREET - BLDG B LYNNFIELD MA 01940	01/23/2017	01/23/2022
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		TIMOTHY A PALUCK		C/O TAP STEEL INC RTE 26 3101/ P O BOX 457CONSTABLEVILLE NY 13325	01/28/2016	01/28/2021
DOL	DOL	*****3453	TORCHIA'S HOME IMPROVEMENT		10153 ROBERTS RD SAUQUOIT NY 13456	08/09/2016	08/09/2021
DOL	DOL	*****8311	TRIPLE B FABRICATING, INC.		61 WILLETT ST. PASSAIC NJ 07503	10/26/2016	10/26/2021
DOL	DOL	*****9407	TURBO GROUP INC		15-68 208TH STREET BAYSIDE NY 11360	06/23/2016	06/23/2021
DOL	DOL	*****6392	V.M.K CORP.		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHELEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****7361	VIALE HOLDINGS, INC.	MOVING MAVEN	1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	DOL		VICTOR ALICANTI		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	DOL		VICTOR ROTENBERG		C/O GMDV TRANS INC 67048 182ND STREETFRESH MEADOWS NY 11365	06/24/2016	06/24/2021
DOL	NYC		VIKTAR PATONICH		2630 CROPEY AVE BROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC		VITO GARGANO		1535 RICHMOND AVE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	NYC	*****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL		WAYNE LIVINGSTON JR	NORTH COUNTRY DRYWALL AND PAINT	23167 COUNTY ROUTE 59 DEXTER NY 13634	10/24/2016	10/24/2021
DOL	DOL	*****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		WHITE PLAINS CARPENTRY CORP		442 ARMONK RD	06/12/2018	06/12/2023
DOL	DOL		WILLIAM C WATKINS		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL		WILLIAM DEAK		C/O MADISON AVE CONSTR CO 39 PENNY STREETWEST ISLIP NY 11795	11/02/2016	11/02/2021
DOL	DOL	*****4043	WINDSHIELD INSTALLATION NETWORK, INC.		200 LATTI BROOK PARK HORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL	*****4730	XGD SYSTEMS, LLC	TDI GOLF	415 GLAGE AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL	*****7345	YES SERVICE AND REPAIRS CORPORATION		145 LODGE AVE HUNTINGTON STATION NY 11476	08/09/2016	08/09/2021
DOL	NYC		ZAKIR NASEEM		30 MEADOW ST BROOKLYN NY 11206	10/10/2017	10/10/2022
DOL	NYC	*****8277	ZHN CONTRACTING CORP		30 MEADOW ST BROOKLYN NY 11206	10/10/2017	10/10/2022

APPENDIX D
HIGHWAY PERMITS

HIGHWAY WORK PERMIT APPLICATION FOR UTILITY WORK
ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
95 FRANKLIN STREET ~ 14TH FLOOR, BUFFALO, NEW YORK 14202
HIGHWAY WORK PERMIT APPLICATION FOR UTILITY WORK

Application is hereby made for a highway work permit Highway Permit No. _____
Effective Date: _____

ENTER NAME
MAILING ADDRESS
AND PHONE NO.
IN THIS SPACE

Phone:

Check Type of Operation	PERMIT FEE				Deposit/Undertaking on File	Guarantee Deposit Amt. and/or Fee
	Base Fee	Additional Fee				
		Indicate No. Ft./Poles	Times Unit Rate	Total Amt. of Fee		
<input type="checkbox"/> 1. Original Installation						
<input type="checkbox"/> a. Underground <input type="checkbox"/> (1) Excavating, tunneling, boring, installing, etc. <input type="checkbox"/> (2) Commercial service sub-service connection	\$60		60¢ per ft.			
<input type="checkbox"/> b. Underground Residential service sub-surface connection	\$60		60¢ per ft.			
<input type="checkbox"/> c. Overhead Erecting poles, towers, etc.	\$120		\$4.00 per unit			
<input type="checkbox"/> d. Overhead Running new lines	\$120					
<input type="checkbox"/> e. Overhead <input type="checkbox"/> (1) Residential service connections <input type="checkbox"/> (2) Commercial service connections	\$30 \$60					
<input type="checkbox"/> f. On Bridges and Culverts <input type="checkbox"/> (1) Regular installation <input type="checkbox"/> (2) Requiring structural changes (existing procedure will continue for other aspects)	\$120 \$600					
<input type="checkbox"/> g. Telephone Booths/News Boxes	\$60					
<input type="checkbox"/> h. Miscellaneous	\$60					
<input type="checkbox"/> 2. Maintenance	\$60					
<input type="checkbox"/> a. Repairing, making replacements, relocation, performing herbicide work, etc. (indicate footage or poles although no additional fee)						
<input type="checkbox"/> b. Repair of residential water or sewer lines	NC					
<input type="checkbox"/> c. County requested maintenance	NC					
<input type="checkbox"/> 3. After original construction						
<input type="checkbox"/> a. County requested relocation	NC					
<input type="checkbox"/> b. Commercial service sub-surface connection	\$60					
<input type="checkbox"/> c. Commercial service overhead connection	\$30					
<input type="checkbox"/> d. Residential service sub-surface	NC					
<input type="checkbox"/> e. Residential service overhead connection	NC					

TOTAL PAID: \$ _____

Work may be described as follows: _____

☐ Additional work description is attached: ☐ Plans _____ pages and/or ☐ sketch is filed showing work to be performed at:
LOCATION: (☐ On ☐ Along ☐Across) County Rd. No. _____ between station/road _____
and station/road _____ in the town of _____
known as _____

Acceptance of the requested permit subjects the applicant/permittee to the restrictions, regulations and obligations stated with this application and on the permit.
Applicant/Permittee Signature _____ Date of Application _____,
For joint application and work, note name and address of Second Utility/Contractor/Entity below:

Revenue Received	_____	20	_____	By	_____
Approval recommended	_____	20	_____	By District Engineer	_____
Approval recommended	_____	20	_____	By Const./Engineer	_____
Comments:	_____				

HIGHWAY WORK PERMIT APPLICATION FOR UTILITY WORK RESPONSIBILITIES OF APPLICANT/PERMITTEE AND ALL SUBCONTRACTORS

PROTECTIVE LIABILITY INSURANCE COVERAGE

Applicant/Permittee must have protective liability insurance coverage in accordance with County requirements. Expiration of, or lack of, liability insurance automatically terminates the permit.

Insurance coverage may be provided by furnishing the County with one of the following:

- a. A Certificate of Protective Liability Insurance for Permits on County Highways, naming the County of Erie as Certificate Holder and as an additional insured.
- b. An Undertaking may be furnished by Public Service Corporations and Government Units only and must include the wording required by the County.

COMPENSATION INSURANCE AND DISABILITY COVERAGE

The Applicant/Permittee and all Subcontractors are required to have compensation insurance and disability coverage as noted in the provisions of the Worker's Compensation Law and Acts amendatory thereof for the entire period of the permit, or the permit is invalid.

NOTIFICATIONS

Notify County through Permit Office, one week prior to commencing work, except emergency work by public service utilities which should be reported the next day. Work must start within 30 days from date of permit. Notify Permit Office at conclusion of work.

MAJOR UTILITIES, COORDINATION WITH ABUTTING LANDOWNERS

Prior to submission of an application for permission to work in Erie County Highway Right-of-Way, the Applicant/Permittee shall coordinate said work with each major utility in the proposed work area so as not to interfere with their existing or planned utilities. Major utilities include, but are not limited to, gas, electric, telephone, pipe line and cable companies; and sanitary sewer and water districts.

Applicant/Permittee must notify in writing owners of facilities in work area (permission must be obtained before doing work affecting utilities' facilities) before starting work. Notify landowners of abutting lands before disturbing trees. Annual Maintenance Permit Notifications: Notify by telephone the County Highway District Engineer's Office one week in advance each time regular maintenance work is to be performed. In emergencies, notification by telephone should be made the next work day.

LOCATION OF OTHER UTILITIES DISCLAIMER

It shall be the sole responsibility of the Applicant/Permittee to ascertain the location of other utilities. The COUNTY OF ERIE shall be fully indemnified, held harmless and assumes no responsibility whatsoever to the Applicant/Permittee or any other previous or subsequent licensee for any encroachment or other interference with existing utility uses. Before any work is started, Dig Safely New York (Underground Facilities Protective Organization) shall be contacted at 1-800-962-7962.

CONSTRUCTION, SITE CARE AND RESTORATION

Applicant/Permittee shall construct proposed utilities in accordance with submitted plans. Further, an undertaking, a bond or certified check in an amount designated by the County of Erie may be required before a permit is issued, to guarantee restoration of the site to its original condition. If the County is obliged to restore the site to its original condition, the cost to the County will be deducted from the amount of the Applicant/Permittee's guarantee deposit at the conclusion of the work. The Applicant/Permittee is responsible for traffic protection and maintenance, including adequate use of signs and barriers, during work and non-work hours. No unnecessary obstruction is to be left on the pavement or in or on the right-of-way or in such a position as to block warning signs during or between work hours. No work shall be done to obstruct drainage or divert creeks, water courses or sluices onto the right-of-way. All false-work must be removed, and all excavations must be filled in and restored to the satisfaction of the Permit Office and District Engineer.

COSTS INCURRED BY ISSUANCE OF THIS PERMIT

The County shall be held free of any costs incurred by the issuance of this permit, direct or indirect.

HOLD HARMLESS/INDEMNIFICATION

The Applicant/Permittee agrees and covenants to indemnify and save, defend and hold the COUNTY OF ERIE harmless from any and all liability, claims, lawsuits, disputes, costs, attorney fees, personal injuries, including death, property damage, or any other loss or damage, including any claim, loss or damage of other licensees, arising directly or indirectly out of or in connection with the Applicant/Permittee's work, obligations, use of the right of way, and/or right(s) pursuant to this permit, except for those claims caused by or resulting from the sole negligence of the County, its agents or employees. Without limiting the generality of the preceding sentence, the provisions of the paragraph shall extend to indemnify and save harmless the COUNTY OF ERIE from any claims arising out of or in connection with the termination or revocation of this permit.

SUBMITTING WORK PLANS

The Applicant/Permittee will submit work plans and/or a map as required by the County. This shall include such details as the location of their utilities, measurements of driveways with relation to nearest corner, positions of guys supporting poles and a schedule of the number of poles and feet of excavation necessary for completion of the work on the County right of way. A description of the proposed method of construction will be included.

Plan work with future adjustments in mind, as any relocation, replacement or removal of the installation authorized by this permit and made necessary by future highway maintenance, reconstruction or new construction, will be the responsibility of the Applicant/Permittee.

The Applicant/Permittee must cooperate and coordinate all work with County construction or other construction undertaken where there is reason to believe that a conflict exists. Otherwise, it shall be the Applicant/Permittee's responsibility to prove that no conflict exists.

TRAFFIC MAINTENANCE

Highway traffic shall be maintained by the Applicant/Permittee in a safe manner, during work and non-work hours until its final completion. Suitable safeguards (including but not limited to flagmen when required) must be provided by the Applicant/Permittee. Maintenance of traffic shall be in conformance with N.Y.S. Manual of Uniform Traffic Control Devices.

COST OF CONSTRUCTION OBSERVATION

If, in the accounts kept by the County, costs of construction observation are found to be exceedingly high, the County reserves the right to bill the Applicant/Permittee for actual expenses incurred in observation of the Applicant/Permittee's project.

SCOPE

- a. Areas covered:
Permits issued are for highways, bridges and culverts over which the County of Erie has jurisdiction. (NYS and local governments issue permits for their own jurisdictions.)
- b. Legal:
The privilege granted by the permit does not authorize any infringement of federal, state, or local laws or regulations, and is limited to the extent of the authority of the County in the premises, and is transferable and assignable only with the written consent of the Deputy Commissioner of Public Works-Highways.
- c. Commissioner's Reservations:
The Deputy Commissioner of Public Works-Highways reserves the right to modify fees and to revoke or annul the permit at any time, at his discretion, without a hearing or the necessity of showing cause.
- d. Locations:
Work locations must meet approval of the County.

COMPLETION OF PROJECT

Upon completion of the work within the County highway right-of-way authorized by the work permit, the Applicant/Permittee and any successors in interest, shall be responsible for the maintenance and repair of such work or portion of such work as set forth within the Terms and Conditions of the Highway Work Permit.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

INSTRUCTIONS TO APPLICANTS FOR HIGHWAY WORK PERMITS

An applicant requesting a Highway Work Permit must obtain and complete those forms which have been checked below according to the type of work to be performed.

- ☐ (1) Highway Work Permit Application for Utility Work (Form PERM 32)
- ☐ (2) Highway Work Permit Application for Non-utility Work (Form PERM 33)
- ☐ (3) ACORD 25 Certificate of Liability Insurance (with ACORD 855 Addendum)
- ☐ (4) Application for Charge Account Agreement (Form PERM 10)
- ☐ (5) Inspection and/or Supervision Payment Agreement (Form PERM 50 or PERM 52)
- ☐ (6) Payment Agreement for Highway Work Permit Design Review (Form PERM 51)

INSTRUCTIONS FOR COMPLETING ABOVE FORMS

- (1) PERM 32: Detailed instructions are included with the application.
- (2) PERM 33: Detailed instructions are included with the application.
- (3) ACORD 25 Certificate of Liability insurance (with ACORD 855 New York Construction Addendum): These forms are obtained from your insurance professional. Specific details on insurance requirements are provided in the PERM 32 and PERM 33 application under Submission Package Requirements.
- (4) APPLICATION FOR CHARGE ACCOUNT AGREEMENT (FORM PERM 10): This form may be used by utilities to request a charge account for Highway Work Permits. The form should be accompanied by a \$50.00 payment to cover administrative costs of establishing the charge account.
- (5) INSPECTION AND/OR SUPERVISION PAYMENT AGREEMENT (FORM PERM 50 OR PERM 52): This form is required for all permits where inspection and/or supervision by Department employees will exceed one work hour. A separate consultant inspection agreement may also be required.
- (6) PAYMENT AGREEMENT FOR HIGHWAY WORK PERMITS DESIGN REVIEW (FORM PERM 51): This form is required for all major commercial permits for projects that have a 100,000 square foot or greater gross building area.
- (7) SPECIAL CONDITIONS FOR COMMERCIAL-MAJOR NON-UTILITY PERMITS (FORM PERM 55)
This form describes prevailing wage and public letting requirements for major commercial permits where the estimated cost of work in the State highway right-of-way of \$250,000 or greater.



Form PERM 32 (December 2015)
Highway Work Permit Application for Utility
Work Instructions and Form

INSTRUCTIONS FOR COMPLETING THE APPLICATION

FRONT OF APPLICATION

Three (3) copies of the entire application, work plans and all other supporting documents must be submitted. At the time of application, certain information relative to fees and deposits may be contingent upon determinations to be made by the Department. In such cases, the information may be left blank and remittance withheld until a determination is made.

Please complete the following:

- Permittee name, address, phone and email address. Provide joint applicant contact information, if appropriate. If there are additional applicants, attach contact information on a separate sheet.
- Name and phone number(s) of emergency contact person.
- If permit is to be returned to someone other than the applicant, complete this section.
- If the guarantee deposit or bond is to be returned to someone other than applicant, complete this section.
- Estimate the cost of work being performed in the state highway right-of-way and provide this figure.
- Indicate anticipated duration of work to be performed with starting date and ending date.
- Indicate the form of insurance coverage to be provided.
- Give a brief description of the work that is proposed to be done under this permit.
- Indicate whether any overhead and/or underground work (5 foot or greater depth) is included in the proposed work.
- Plans and specifications should accompany this application for any work that involves construction within the state highway right-of-way. Place a check mark on the lines for plans and specifications if they are attached to this application.
- Location of the project should be identified by State Route, highway reference marker(s), and the municipality and county in which work area is located.
- In regard to State Environmental Quality Review (SEQR), indicate the type of action, the name of the Lead Agency, and what date the final determination was made, if available.
- Signature of applicant and date.
- Signature of second applicant, if any, and date.

BACK OF APPLICATION

- Check type of work that will be performed.
- In the appropriate column, indicate total amount of permit fees
- Indicate Utility Charge Account Number if applicable
- Indicate type of performance security provided (bond, deposit, letter of credit), if required.
- Indicate check number of deposit or bond number.

RESPONSIBILITIES OF PERMITTEE PURSUANT TO UTILITY HIGHWAY WORK PERMITS

NOTE: FAILURE TO OBTAIN A PERMIT OR FAILURE TO COMPLY WITH THE TERMS OF A PERMIT MAY RESULT IN THE DEPARTMENT HALTING THE ACTIVITY FOR WHICH A PERMIT IS REQUIRED UNTIL ADEQUATE CORRECTIONS HAVE BEEN MADE.

1. LIMITATIONS ON USE: The specific site identified in this Highway Work Permit, and only that site identified, will be available for use by Permittee only for the purpose stated in this Permit and only on the date(s) and for the duration designated in this permit. This Permit does not authorize any infringement of federal, state or local laws or regulations, is limited to the extent of the authority of NYSDOT and is transferable and assignable only with the written consent of the Commissioner of Transportation. The Commissioner reserves the right to modify fees and to revoke or annul the Permit at any time, at his/her discretion without a hearing or the necessity of showing cause.

2. CONDITIONS OF USE: NYSDOT makes no affirmation that the state-owned site used for the work has been designed, constructed, or maintained for the purpose of the conduct of the work. The Permittee assumes full responsibility for planning and conducting a safe and orderly project that does not expose workers or the public to any unreasonable hazards and that involves a minimal disruption of the normal uses of the state and local highway systems. **It shall be the sole obligation of the Permittee to determine whether the site is suitable for the purpose of safely conducting the work.** The Permittee assumes all responsibility for assuring that the use of the highway/property conforms to applicable requirements of law, including, but not limited to those set forth herein.

Permittee agrees to assure compliance with New York Labor Law, industrial regulations, and OSHA regulations, and to assure the safety of all workers who will be engaged to do the permitted work.

3. INSURANCE COVERAGE: Permittee must have the insurance that is required for the type and extent of the work being performed.

Permittee agrees to maintain liability insurance in full force and effect throughout the term of the highway work permit. Expiration of, or lack of, liability insurance automatically terminates the permit.

To comply with this requirement, an applicant must furnish the Department with one of the following:

- A completed **Certificate of Insurance** evidencing the required types and limits of insurance coverage, with New York State Department of Transportation named as an additional insured on the commercial general liability policy. An industry standard **ACORD 25** form with an **ACORD 855** Addendum is acceptable evidence of the required coverage. Certificate Holder should be indicated as New York State Department of Transportation, with the address of the issuing office.
- A fully executed **Undertaking Agreement** may be provided by Municipalities, Public Utilities, Transportation Corporations, Public Service Corporations or Railroads, as an alternative to providing proof of commercial general liability the insurance.

See PERM 32 Submission Package Requirements on page 4 for more detailed guidance on insurance coverage.

4. COMPENSATION AND DISABILITY INSURANCE COVERAGE: Permittee is required to have compensation insurance and disability coverage as noted in the provisions of the Worker's Compensation Law and Acts amendatory thereof for the entire period of the permit, or the permit will be invalid. Applicant must provide proof of coverage (Form C-105.2, U-26.3 or SI-12 for Worker's Compensation, and DB-120.1 or DB-155 for Disability Benefits), or provide proof of exemption from this requirement (Form CE-200).

5. INDEMNIFICATION: Permittee agrees that, in addition to any protection afforded to NYSDOT under any available insurance, NYSDOT shall not be liable for any damage or injury to the Permittee, its agents, employees, or to any other person, or to any property, occurring on the site or in any way associated with Permittee's activities or operations; whether undertaken by Permittee's own forces or by contractor or other agents working on Permittee's behalf. To the fullest extent permitted by law, the Permittee agrees to defend, indemnify and hold harmless the State of New York, NYSDOT and their agents from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of any claim, including but not limited to claims for personal injuries, property damage or wrongful death and/or environmental claims, in any way associated with the Permittee's activities or operations, no matter how caused.

6. NOTIFICATION: The following should be notified at the appropriate time as shown below:

- Commissioner of Transportation, through the NYSDOT regional office, one week prior to commencing work.
- Area gas distributors, 72 hours prior to any blasting.
- Utility companies with facilities in work areas, before starting work (in accordance with Industrial Code 53).
- Permission from utility company must be obtained before commencing work affecting the utilities' facilities.
- NYSDOT regional signal maintenance shop, 3 days prior to starting work (traffic signal work).
- NYSDOT regional office, at conclusion of work, and return original copy of permit to Resident Engineer.

NOTIFICATION FOR ANNUAL MAINTENANCE PERMITS: (1) Except in emergencies, the applicant will notify the regional director and resident engineer in writing, at least 72 hours before work is started. This notice will contain a complete description of the work to be done, including sketches where essential. (2) In emergencies, telephone notice will be immediately given the resident engineer, and the full requirements outlined above will be met as soon as possible, and not later than the first working day following the emergency notice.

7. SITE CARE AND RESTORATION: A bond, deposit (bank cashier's check), or a Letter of Credit, in an amount designated by the Department of Transportation, may be required before a permit is issued, in order to guarantee restoration of the site to its original condition. A fully executed Undertaking Agreement may be accepted as an alternative security, where applicable. If the Department is obliged to restore the site to its original condition, the costs to the Department will be deducted from the amount of the permittee's deposit at the conclusion of the work. Costs in excess of the bond/deposit on file will be billed directly to the permittee. If permittee posts a Letter of Credit, the Department may elect to have a contractor restore the site, and issue a draft drawn against the Letter of Credit as payment.

- Anyone working within state highway right-of-way must wear **high visibility apparel** and **hard hat** meeting ANSI Class 2 requirements.
- No unnecessary obstruction is to be left on the pavement or the state highway right-of-way, or in such a position as to block warning signs during non-working hours.
- No work shall be done to obstruct drainage or divert creeks, water courses or sluices onto the state highway right-of-way.
- All false work must be removed and all excavations must be filled in and restored to the satisfaction of the Regional Maintenance Engineer.

8. COSTS INCURRED BY ISSUANCE OF THIS PERMIT: All costs beyond the limits of any liability insurance, surety deposits, etc. are the responsibility of the permittee. The State shall be held free of any costs incurred by the issuance of this permit, direct or indirect.

9. SUBMITTING WORK PLANS: The applicant will submit three (3) copies of work plans and/or maps as required by the Department. This shall include (but not be limited to) such details as: measurements of driveways with relation to nearest property corner; location of existing and proposed poles, guide rail, signal equipment, trees or drainage structures; positions of guys supporting poles; a schedule of the number of poles and feet of excavation necessary for completion of work on the State right-of-way. A description of the proposed method of construction will be included.

- Plan work with future adjustments in mind, as any relocation, replacement or removal of the installation authorized by this permit and made necessary by future highway maintenance, reconstruction or new construction, will be the responsibility of the permittee.
- The permittee must coordinate the work with any State construction being conducted.

10. TRAFFIC MAINTENANCE: A plan detailing how the permittee intends to maintain and protect traffic shall be submitted with work plans. Traffic shall be maintained on the highway in a safe manner during working and non-working hours until construction is completed. The permittee is responsible for traffic protection and maintenance, including adequate use of signs, barriers, and flag persons during working and non-working hours until construction is completed. All sketches will be stamped with "MAINTENANCE OF TRAFFIC SHALL BE IN CONFORMANCE WITH THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

11. COST OF INSPECTION AND SUPERVISION: Prior to issuance of the Highway Work Permit, the permittee may be required to sign an INSPECTION PAYMENT AGREEMENT FOR HIGHWAY WORK PERMITS (FORM PERM 50) agreeing to the payment of construction inspection charges, based on the number of work days involved.

12. SCOPE:

- **Areas Covered:** Permits issued are for highways, bridges and culverts over which the New York State Department of Transportation has jurisdiction. (Local governments issue permits for highways under their jurisdiction.) Work locations must be approved by the Department.
- **Maintenance:** Unless noted otherwise, applicant shall be fully responsible for the maintenance of all items installed and/or altered as shown on the approved permit plans and documents. Property owners having access to a state highway shall be fully responsible for the maintenance of their driveway in accordance with POLICY AND STANDARDS FOR ENTRANCES TO STATE HIGHWAYS.
- **Work Commencement:** The Permittee shall have a copy of the permit available at the site during the construction period. Work should start within 30 days from validation date of permit or said permit may be revoked.

13. REPORTING ACCIDENTS: Permittee is required to report any accidents that occur during the course of the permit work to their insurance company, and to provide the Department with a copy of any such report.

14. COMPLETION OF PROJECT: Upon completion of the work within the State highway right-of-way authorized by the work permit, the person and his or its successors in interest shall be responsible for the maintenance and repair of such work or portion of such work as set forth within the Terms and Conditions of the Highway Work Permit.

15. USE AND OCCUPANCY: A Use & Occupancy agreement may be a requirement of this permit. If required, Applicant agrees to enter into a Use & Occupancy agreement with the department, and to pay all fees associated with ongoing occupancy of state right-of-way, and all other conditions required under the Use & Occupancy agreement.

PERM 32 Submission Package Requirements

Submit three (3) copies of the final submission package: Submission package must include the entire PERM 32 with all work plans and supporting documents, including the following (check all that apply):

<input type="checkbox"/>	Stamped Final Plans – Submit in PDF file format on CD, with three (3) paper copies (1" = 50'), or as requested
<input type="checkbox"/>	ACORD 25 - Certificate of Insurance, with NYSDOT named as Additional Insured (See line 3 below).
<input type="checkbox"/>	ACORD 855 - New York Construction Certificate of Liability Insurance Addendum (See line 3 below).
<input type="checkbox"/>	PERM 1, 2, 6 or 16 - Undertaking Agreement, if applicable (See line 4 below).
<input type="checkbox"/>	PERM 36 - Attachment to Highway Work Permit – Consultant Inspection, if applicable
<input type="checkbox"/>	PERM 44 - Surety Bond – Performance bond in Applicant's name, or deposit (Bank cashier's check required)
<input type="checkbox"/>	PERM 50 – Inspection/Supervision Payment Agreement, if applicable
<input type="checkbox"/>	Proof of Worker's Compensation Insurance (Form C-105.2, U-26.3 or SI-12), or proof of exemption (Form CE-200)
<input type="checkbox"/>	Proof of Disability Benefits Coverage (Form DB-120.1 or DB-155), or proof of exemption (Form CE-200)
<input type="checkbox"/>	Permit Fees
<input type="checkbox"/>	Other (specify):

Insurance Requirements

- 1) In most cases, Permittee must provide proof of **Commercial General Liability** insurance coverage with limits of liability not less than **\$1,000,000** per claim/occurrence, unless any of the following circumstances exist, in which case the limits of liability shall not be less than **\$5,000,000** per claim/occurrence:
 - (a) The estimated value of permitted work in state right-of-way is \$250,000 or more (see line 5 below);
 - (b) The permitted work requires or includes the construction, alteration or maintenance of underground features at any depth five feet or more below grade;
 - (c) The permitted work requires or includes the construction, alteration or maintenance of overhead features that include, but are not limited to, traffic signals, overhead sign structures, retaining walls or other grade separation structures.
- 2) Exceptions to the above liability limits include: (a) Annual maintenance permits require limits of liability not less than \$5,000,000 per claim/occurrence; (b) Permits for vegetation control activities require limits of liability not less than \$1,000,000 per claim/occurrence; (c) Residential driveway permits require limits of liability not less than \$500,000 per claim/occurrence; and (d) Adopt-a-Highway permits are exempt.
- 3) **ACORD 25** with **ACORD 855** (New York Construction Addendum) shall be submitted as an acceptable proof of liability coverage. New York State Department of Transportation should be named as Additional Insured and as the Certificate Holder at the address of the issuing office.
- 4) Municipalities, public utilities, public authorities and railroads may elect to provide a fully executed **Undertaking Agreement** as a substitute for providing proof of insurance coverage, or any other financial security otherwise required.
- 5) When the estimated cost of work being performed in the right-of-way equals or exceeds \$250,000, Permittee must additionally provide proof of a **Protective Liability (OCP)** insurance policy with a minimum liability limit of \$1,000,000 per occurrence, with New York State Department of Transportation as Named Insured.

Permittee agrees to maintain liability insurance in full force and effect throughout the term of the highway work permit. Expiration of, or lack of, liability insurance coverage automatically terminates the permit.

For more information on insurance requirements, go to: www.dot.ny.gov/permits-insurance

STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION
HIGHWAY WORK PERMIT APPLICATION FOR UTILITY WORK

Application is hereby made for a highway work permit:

Name _____

Address _____

City _____ State _____ Zip _____

Applicant Phone (____) _____

Applicant Email Address _____

Emergency Contact _____

Emergency Phone (____) _____

RETURN PERMIT TO: (if different from Permittee)

Name _____

Address _____

City _____ State _____ Zip _____

DESCRIPTION OF PROPOSED WORK:

For Joint application, name and address of Applicant 2 below:

Name _____

Address _____

City _____ State _____ Zip _____

Applicant 2 Phone (____) _____

Applicant 2 Email Address _____

RETURN DEPOSIT/BOND TO: (if different from Permittee)

Name _____

Address _____

City _____ State _____ Zip _____

Estimated cost of work being performed in highway right-of-way: \$ _____

Anticipated duration of work: From _____ to _____ (applies to the operations indicated on the reverse side)

WILL OVERHEAD OR UNDERGROUND (5'+) OPERATIONS BE INVOLVED IN THE PROPOSED WORK? YES ____ NO ____

ATTACHED: Plans _____ Specifications _____

LOCATION: State Route: _____ Located Between Reference Markers _____ and _____

City/Town/Village of _____ County of _____

SEQR REVIEW (select one)

[] Type II [] Type I [] Unlisted LEAD AGENCY: _____ DATE OF DETERMINATION: _____

Insurance (check one): _____ General Liability Insurance _____ Undertaking

NOTE: PERMIT IS ISSUED CONTINGENT UPON ALL LOCAL REQUIREMENTS BEING SATISFIED

ACKNOWLEDGMENT: ON BEHALF OF THE APPLICANT, I HEREBY REQUEST A HIGHWAY WORK PERMIT, AND DO ACKNOWLEDGE AND AGREE TO THE RESPONSIBILITIES OF PERMITTEE AND THE OTHER OBLIGATIONS SET FORTH IN THIS PERMIT AND WARRANT COMPLIANCE THEREWITH.

Applicant Signature _____

Date _____

Applicant 2 Signature _____

Date _____

Approval recommended by Resident Engineer _____	Res No _____ Date _____
Approved by Regional Traffic Engineer _____	Reg No _____ Date _____

Operational Type and Description			PERMIT FEES				
			Base Fee	QTY	Unit Rate	Sub Total	Total Fees
ORIGINAL INSTALLATION			Number of feet/poles				
	1a1	Underground - excavation, tunneling, boring, installing, etc.	32		.32/foot		
	1a2	Underground - Commercial subsurface connection	32		.32/foot		
	1a3	Underground - Residential subsurface connection	32		.32/foot		
	1b1	Overhead - Erecting poles, towers	63		2.50/unit		
	1b2	Overhead - Running new lines	63				
	1b3	Overhead - Commercial service connection	19				
	1b4	Overhead - Residential service connection	19				
	1c1	Installation on bridge or culvert	63				
	1c2	Installation on bridge or culvert requiring structural changes	625				
MAINTENANCE			Number of regions/counties				
	2a	Maintenance, single job	32				
	2b1	Annual maintenance per region			2500		
	2b2	Annual maintenance per county			625		
	2c	Repair of water or sewer lines	32				
	2d	DOT requested maintenance	N/C				
AFTER ORIGINAL CONSTRUCTION			Number of regions/counties				
	3a1	Annual – includes overhead connections – per region			2500		
	3a2	Annual – includes overhead connections – per county			625		
	3b	DOT requested relocation	N/C				
	3c	Commercial subsurface service connection	32				
	3d	Commercial overhead service connection	19				
	3e	Residential subsurface service connection	32				
	3f	Residential overhead service connection	19				
MISCELLANEOUS UTILITY WORK							
	4	Miscellaneous (describe below)	32				

UTILITY CHARGE ACCOUNT NUMBER: _____ WORK ORDER/REF NO: _____

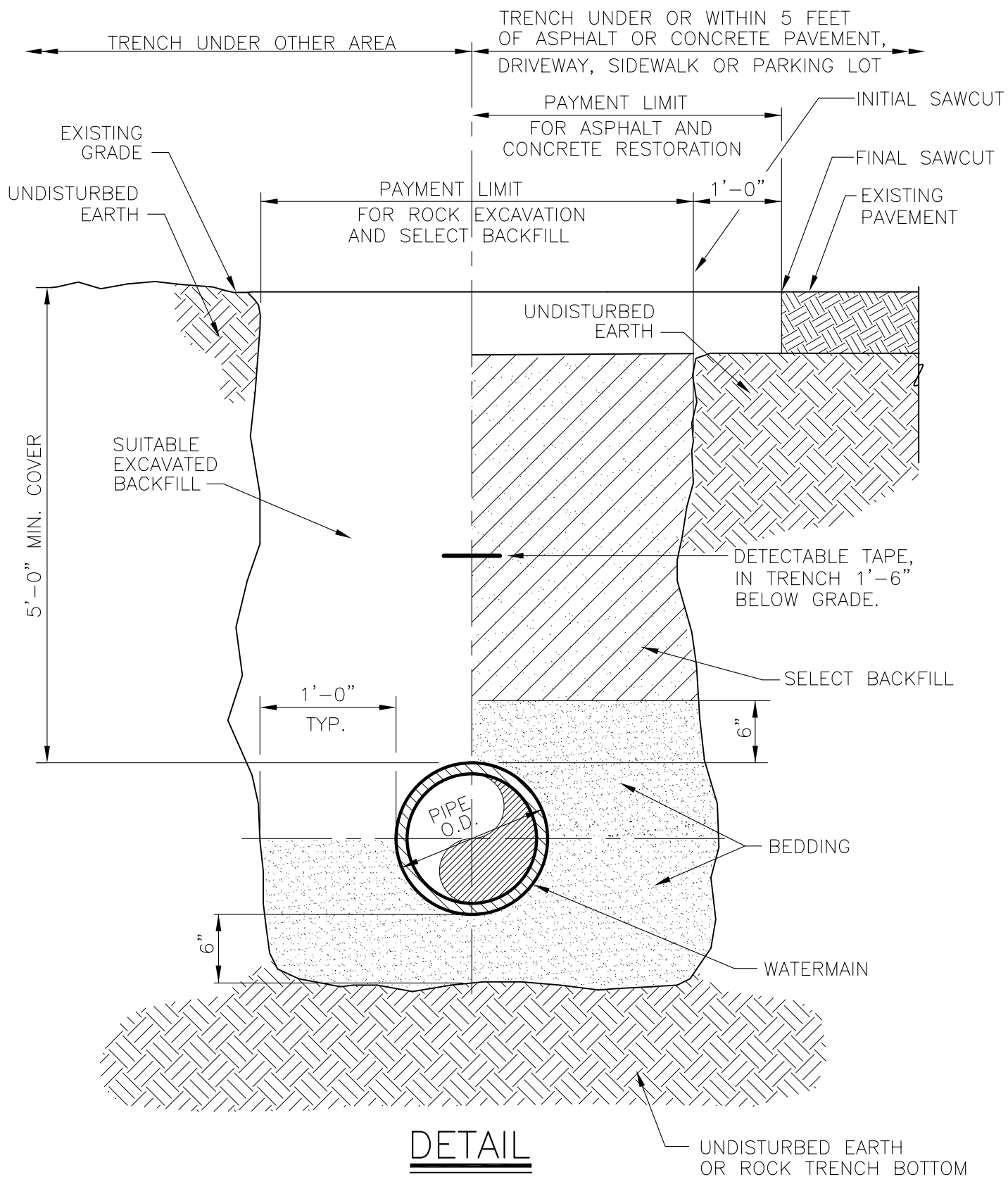
PERFORMANCE SECURITY (Select One): Guarantee Deposit – Cash [] Performance Bond [] Letter of Credit []

Guarantee Deposit Amount: _____

Guarantee Deposit Check Number or Bond Number: _____

(To be completed by NYSDOT issuing office)	
Project Identification Number _____	Highway Work Permit No. _____
State Highway (SH) Number _____	Record ID Number _____

APPENDIX E
STANDARD DETAILS
ERIE COUNTY WATER AUTHORITY



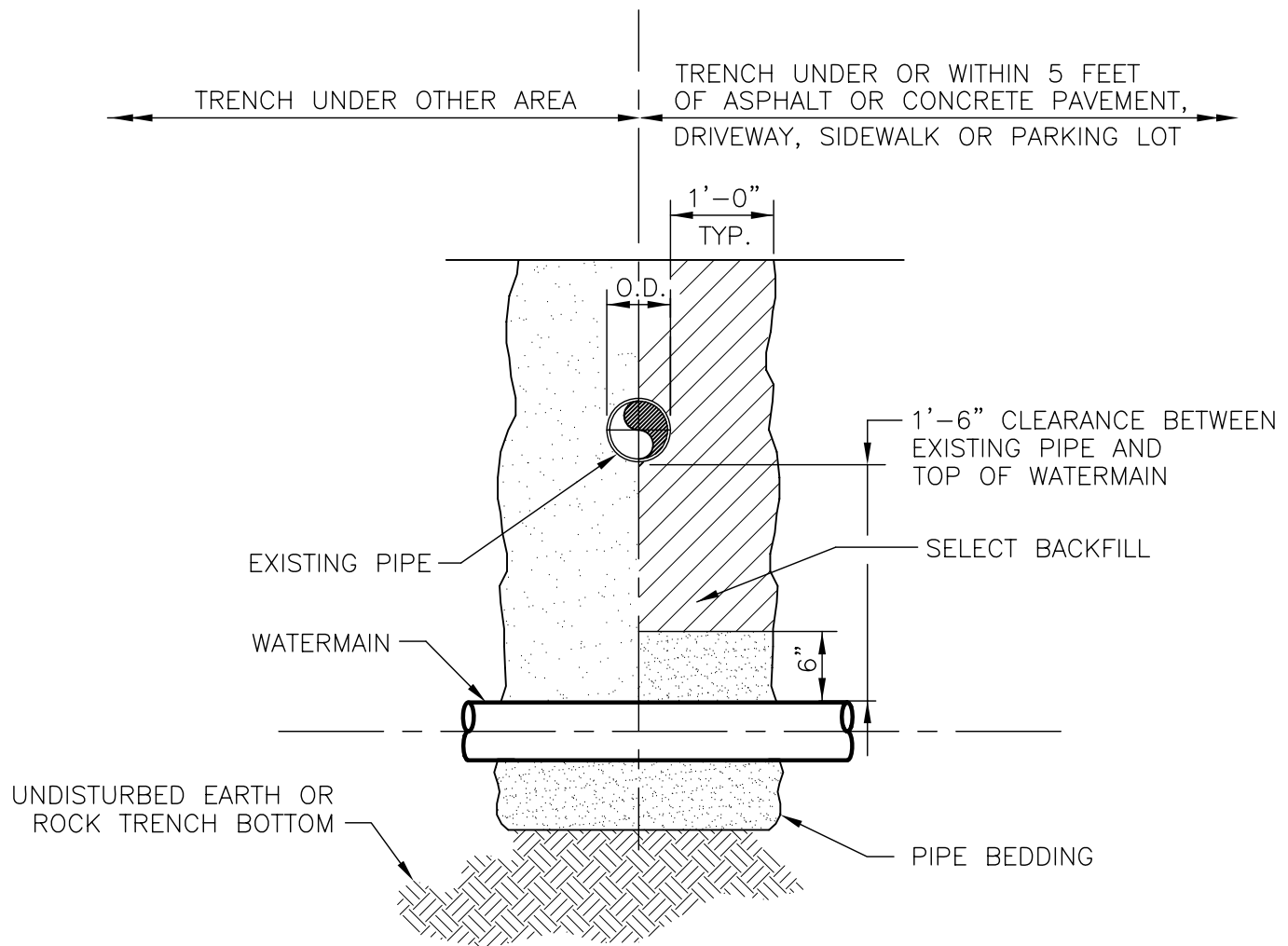
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TRENCH THROUGH 12-INCH
DIAMETER WATERMAIN

DWG. NO.
SD1

DATE 4/28/92	REVISED 10/05
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NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION

N.T.S.

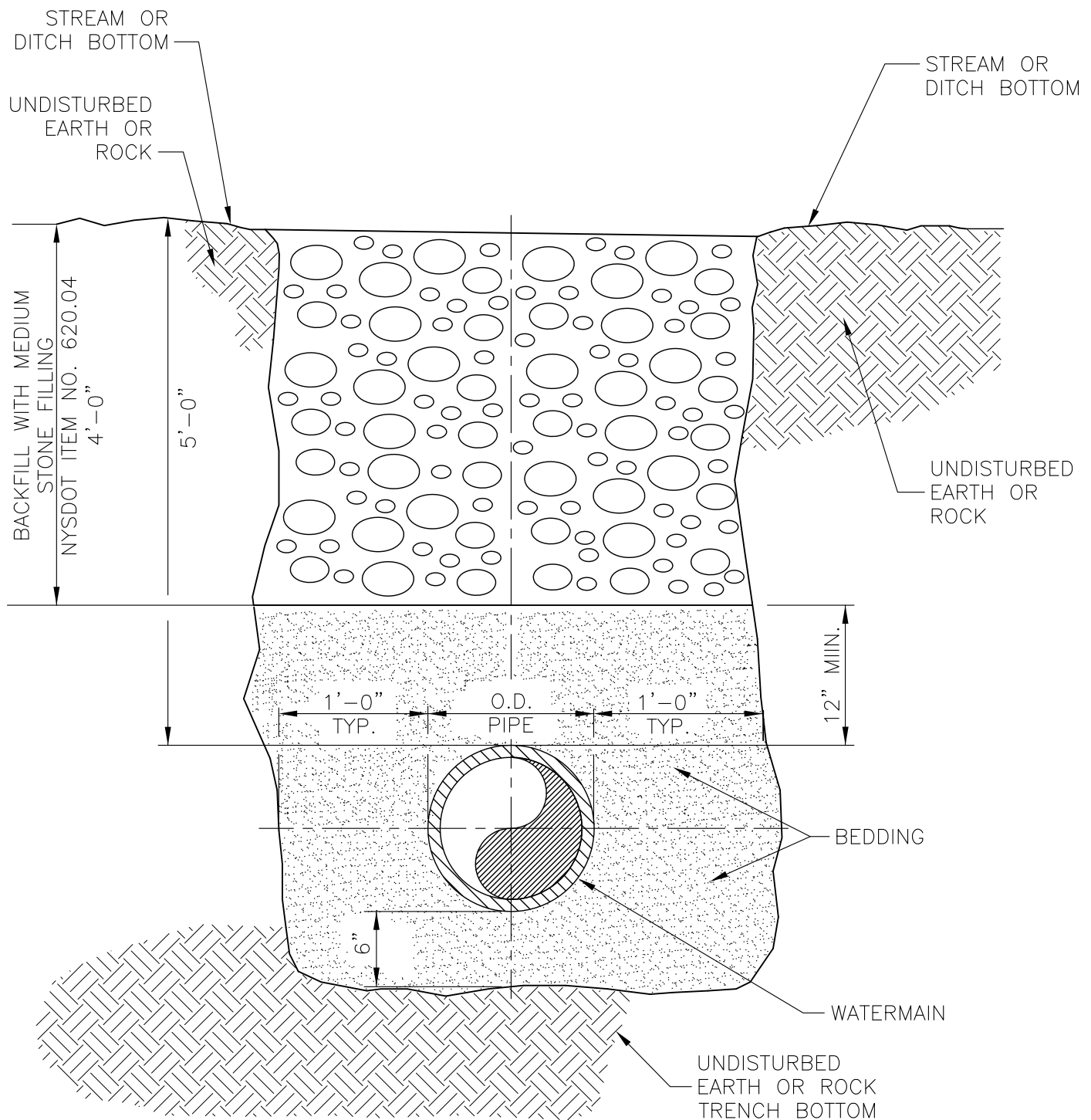
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
PIPE CROSSING

DWG. NO.
SD2

DATE	REVISED
4/28/92	10/05



DETAIL

N.T.S.

NOTE:

1. PIPELINE MARKERS TO BE INSTALLED ON EACH SIDE OF CROSSING.
2. COMPLY WITH ALL STATE GUIDELINES FOR STREAM CROSSINGS. USE ADEQUATE EROSION CONTROL METHODS DURING CONSTRUCTION.

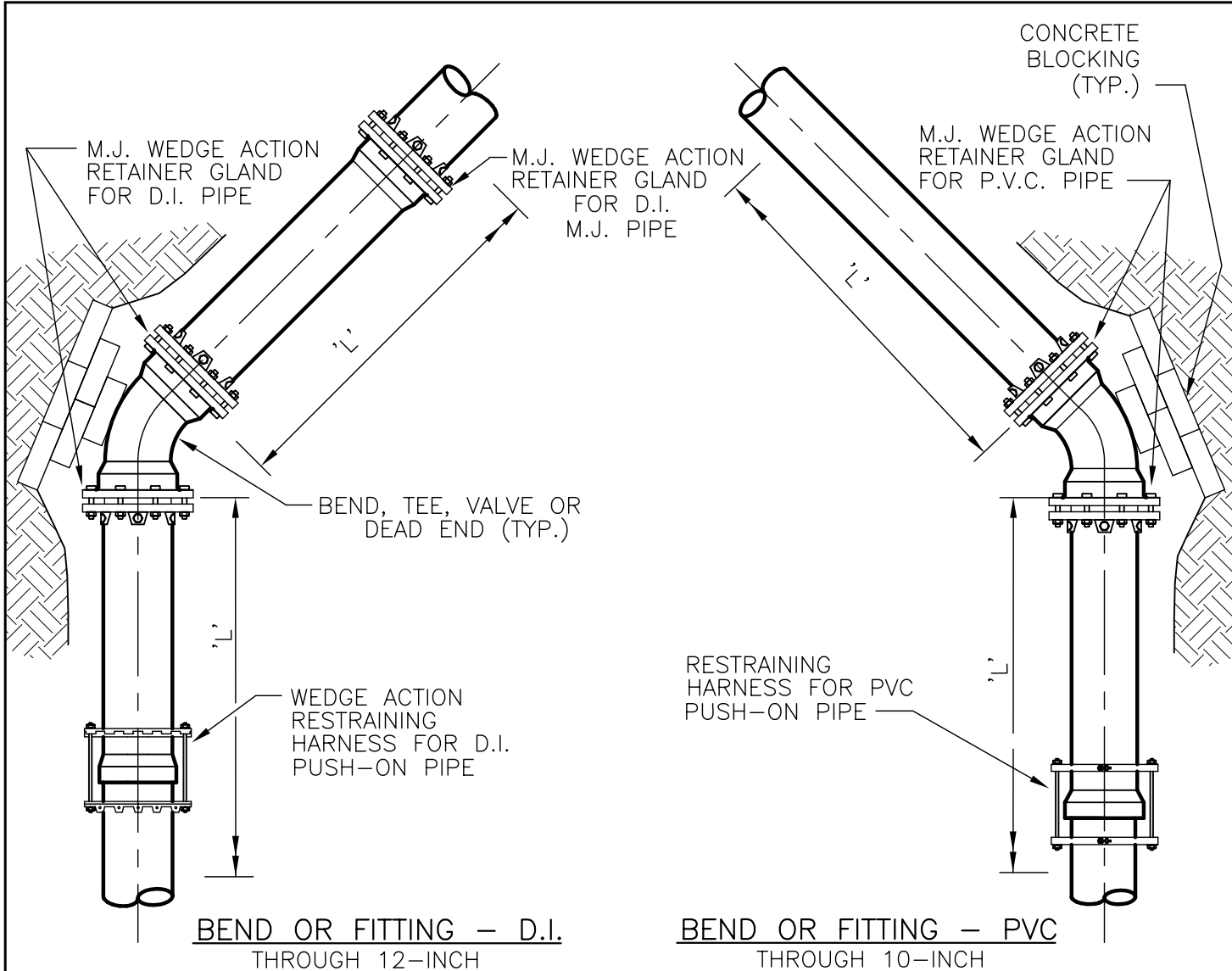
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TRENCH STREAM CROSSING

DWG. NO.
SD3

DATE	REVISED
6/28/92	07/16



RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW	22.5° ELBOW	45° ELBOW	TEE BRANCH, 90° BEND, VALVE OR DEAD END
		'L'	'L'	'L'	'L'
8"	PVC/DIP	13' / 12'	25' / 23'	48' / 45'	99' / 94'
10"	PVC/DIP	15' / 14'	30' / 28'	57' / 54'	120' / 112'
12"	DIP	16'	32'	63'	130'
16"	DIP	20'	40'	81'	170'

NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN

N.T.S.

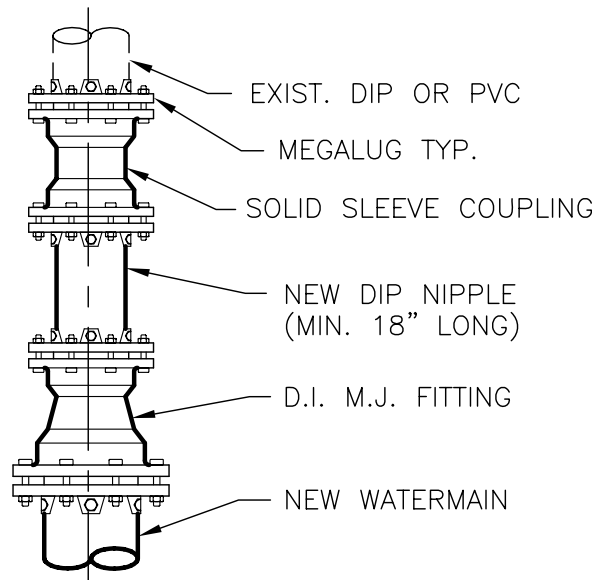
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
RESTRAINED JOINT SCHEDULE

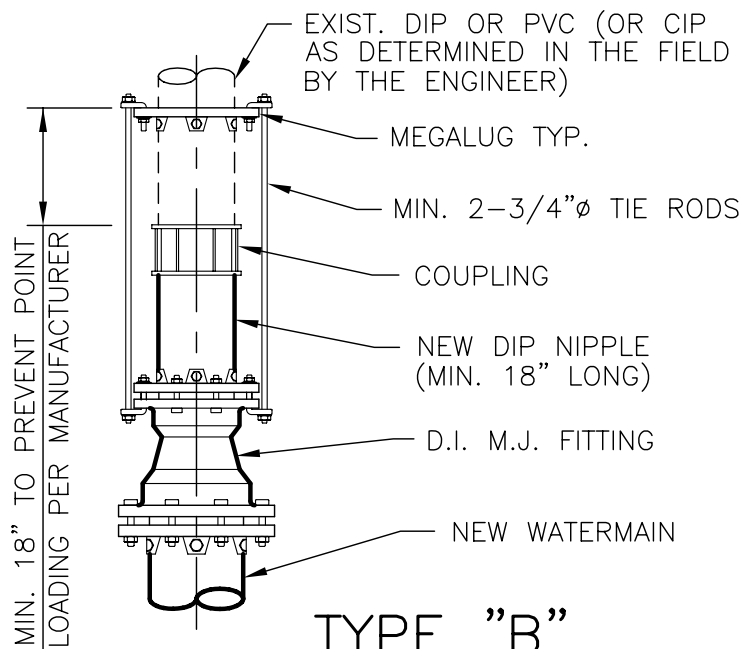
DWG. NO.
SD4

DATE 4/28/92	REVISED 10/05
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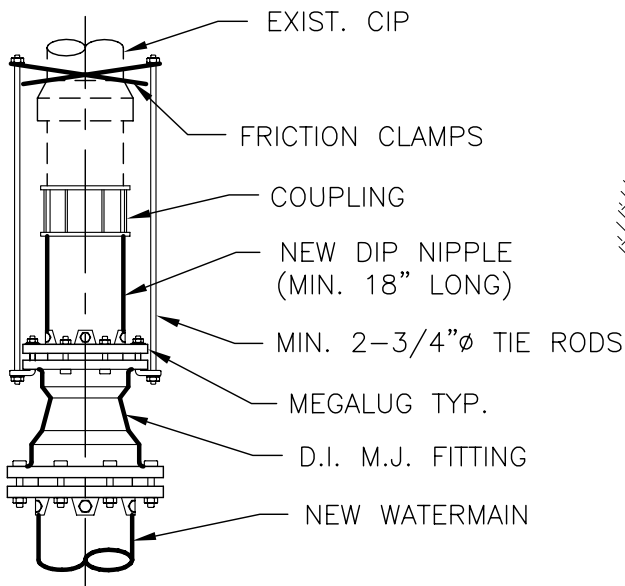
TYPE "A"

CONNECTION TO DIP OR PVC
N.T.S.



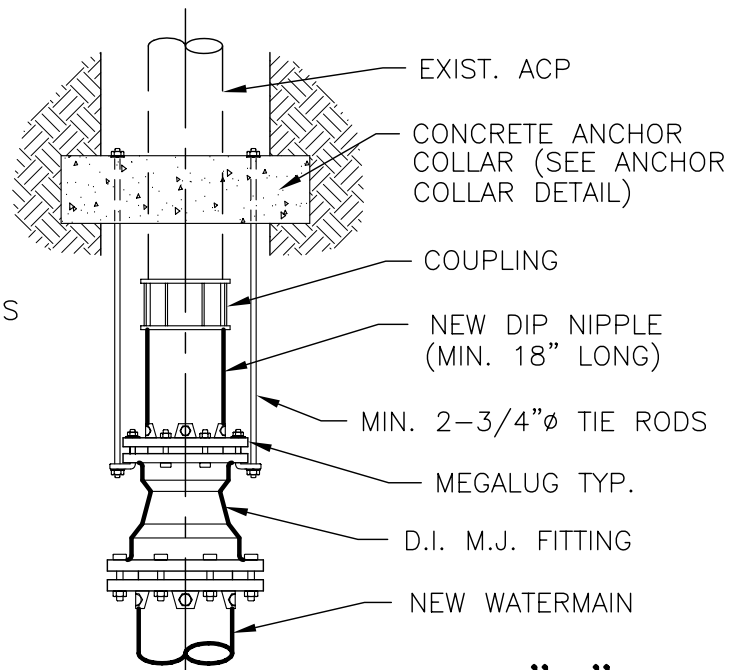
TYPE "B"

CONNECTION TO DIP, PVC OR CIP
N.T.S.



TYPE "C"

CONNECTION TO CIP
N.T.S.



TYPE "D"

CONNECTION TO ACP
N.T.S.

NOTES:

1. VALVES AND TEES MAY BE HARNESSSED SIMILARLY.
2. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURE—PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
3. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
4. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.

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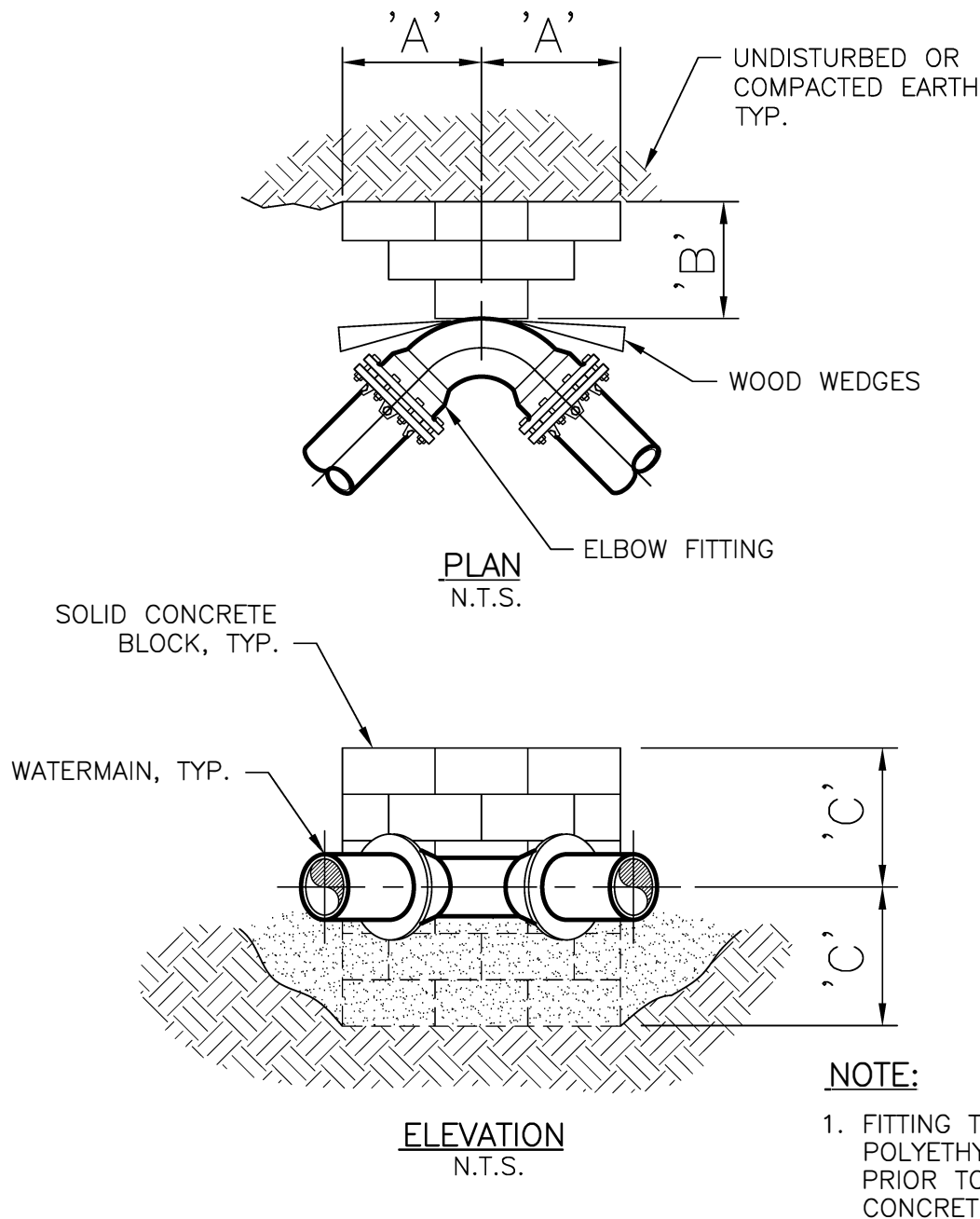
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TYPICAL CONNECTION TO EXISTING
WATERMAIN THROUGH 12-INCH
DIAMETER WATERMAIN

DWG. NO.
SD5

DATE
3/05

REVISED
10/05



DIMENSION SCHEDULE												
PIPE SIZE	11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'
6"	0'-6"	1'-0"	0'-6"	0'-6"	1'-0"	0'-6"	0'-9"	1'-0"	0'-9"	1'-0"	1'-0"	0'-9"
8"	1'-0"	1'-0"	0'-6"	1'-0"	1'-0"	0'-6"	1'-3"	1'-3"	0'-9"	1'-3"	1'-3"	0'-9"
10"	1'-0"	1'-0"	0'-9"	1'-0"	1'-0"	0'-9"	1'-6"	1'-6"	1'-0"	1'-6"	1'-6"	1'-0"
12"	1'-6"	1'-6"	1'-0"	1'-6"	1'-6"	1'-0"	1'-9"	1'-6"	1'-0"	2'-0"	1'-6"	2'-0"

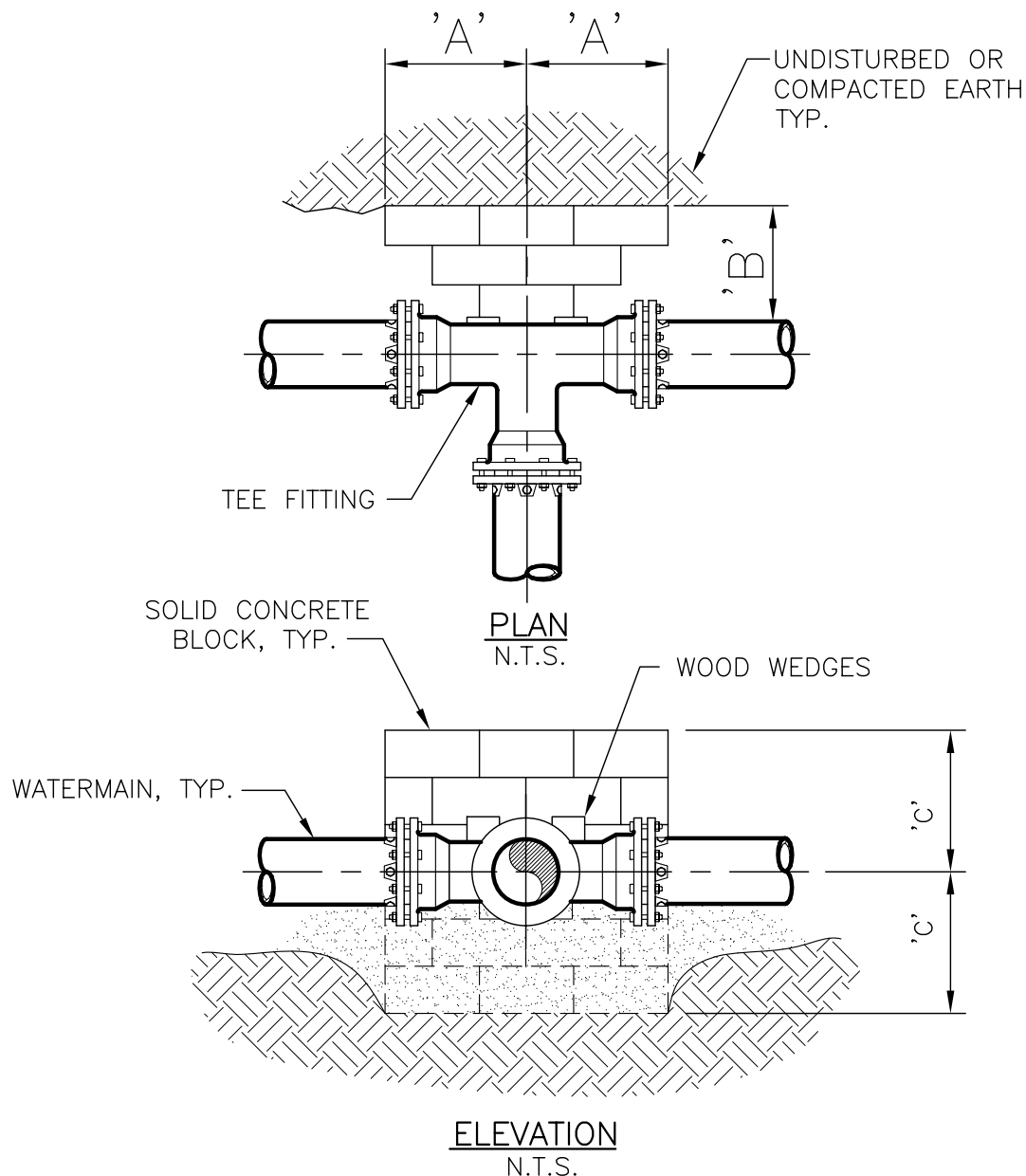
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
THRUST BLOCKS
FOR ELBOW FITTING

DWG. NO.
SD6

DATE 4/28/92	REVISED 10/05
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NOTES:

1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

BRANCH TEE SIZE	DIMENSION SCHEDULE		
	'A'	'B'	'C'
8"	1'-3"	1'-6"	1'-6"
10"	1'-6"	1'-6"	2'-0"
12"	2'-0"	1'-6"	2'-0"

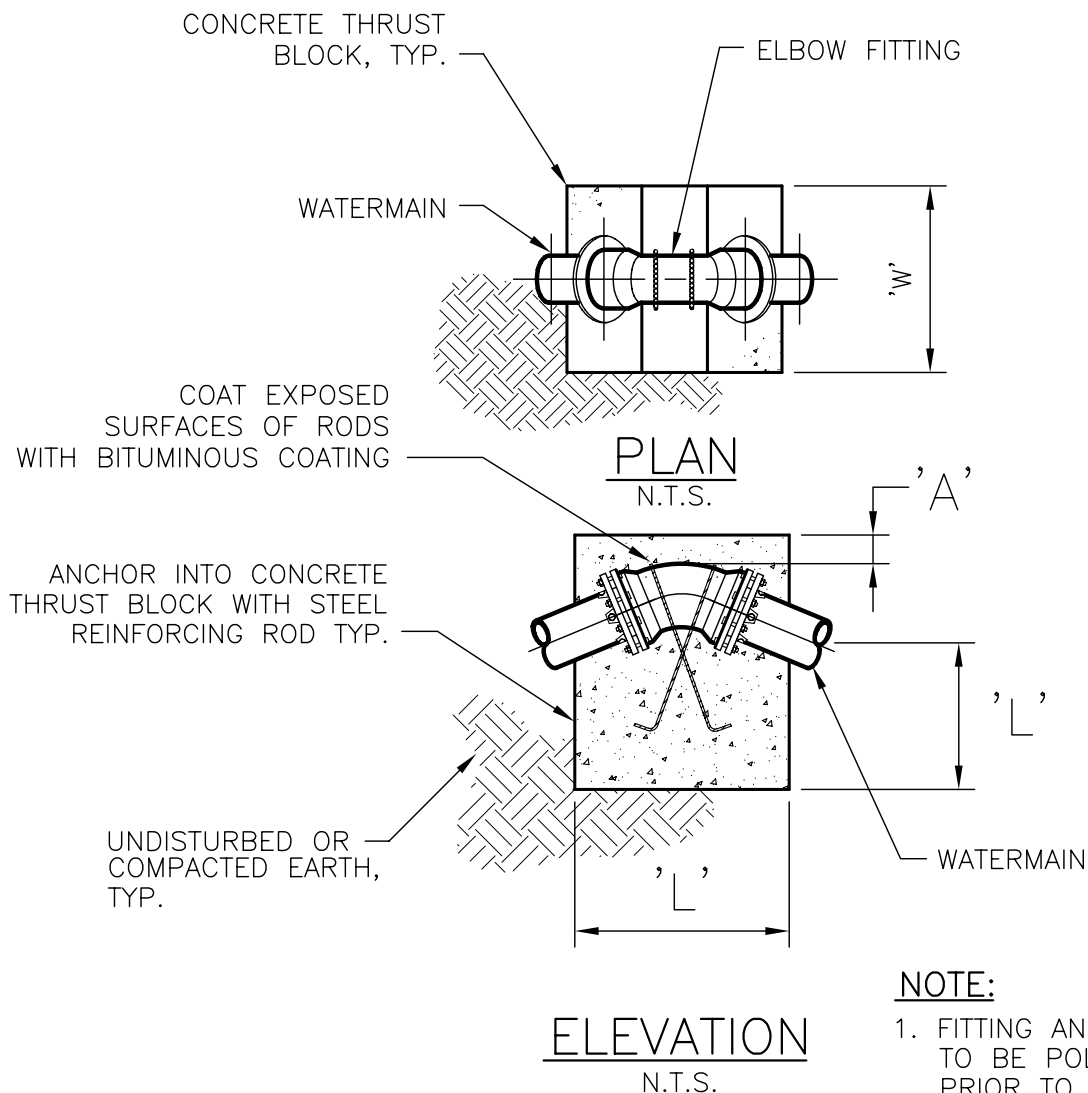
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
THRUST BLOCKS
FOR TEE OR "DEAD END" FITTING

DWG. NO.
SD7

DATE 4/28/92	REVISED 10/05
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NOTE:

1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE

PIPE SIZE	PIPE TYPE	11.25° ELBOW				22.5° ELBOW				45° ELBOW			
		'A'	'W'	'L'	ROD ϕ	'A'	'W'	'L'	ROD ϕ	'A'	'W'	'L'	ROD ϕ
8"	PVC/DIP	1'-0"	3'-0"	3'-0"	1/2"	1'-0"	3'-6"	3'-6"	1/2"	1'-0"	4'-0"	4'-6"	1/2"
10"	PVC/DIP	1'-0"	3'-6"	3'-6"	1/2"	1'-0"	4'-0"	4'-0"	1/2"	1'-0"	4'-6"	4'-9"	1/2"
12"	DIP	1'-0"	4'-0"	4'-0"	1/2"	1'-0"	4'-6"	4'-6"	1/2"	1'-0"	5'-0"	5'-0"	1/2"

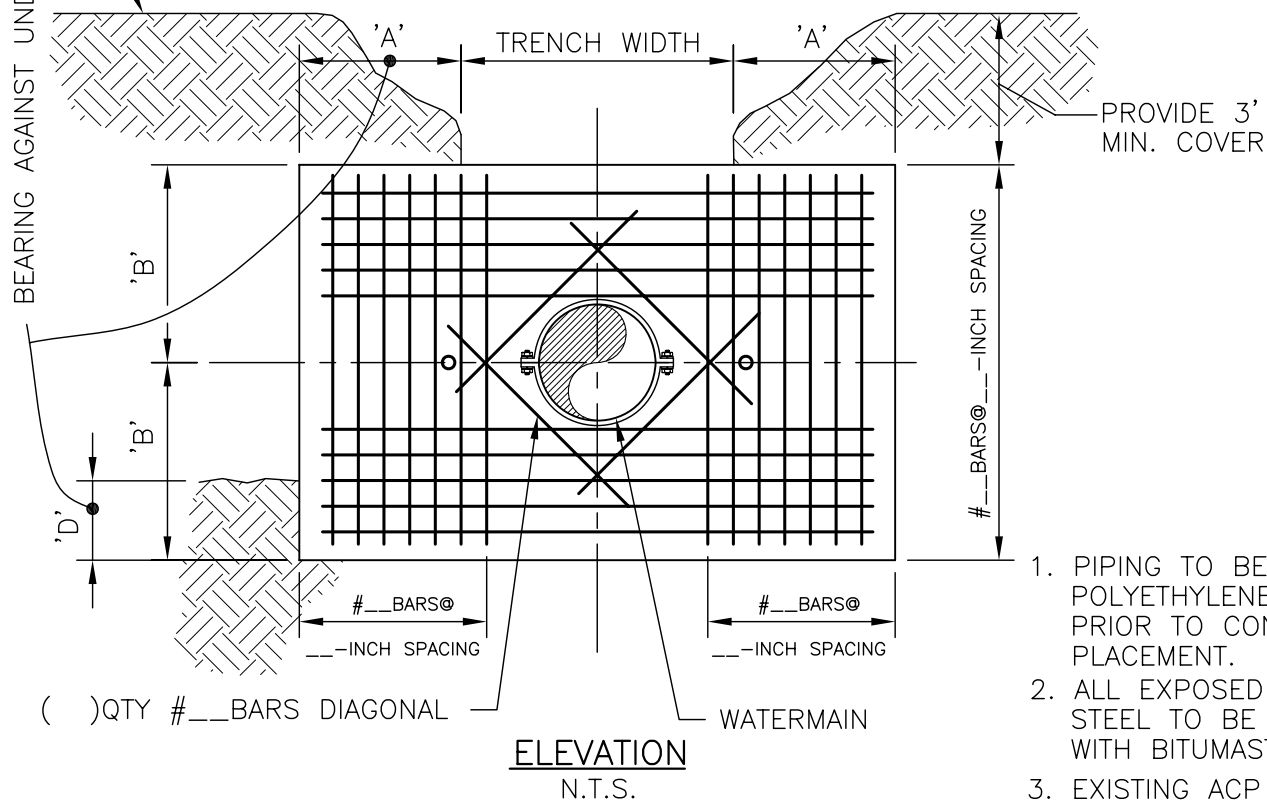
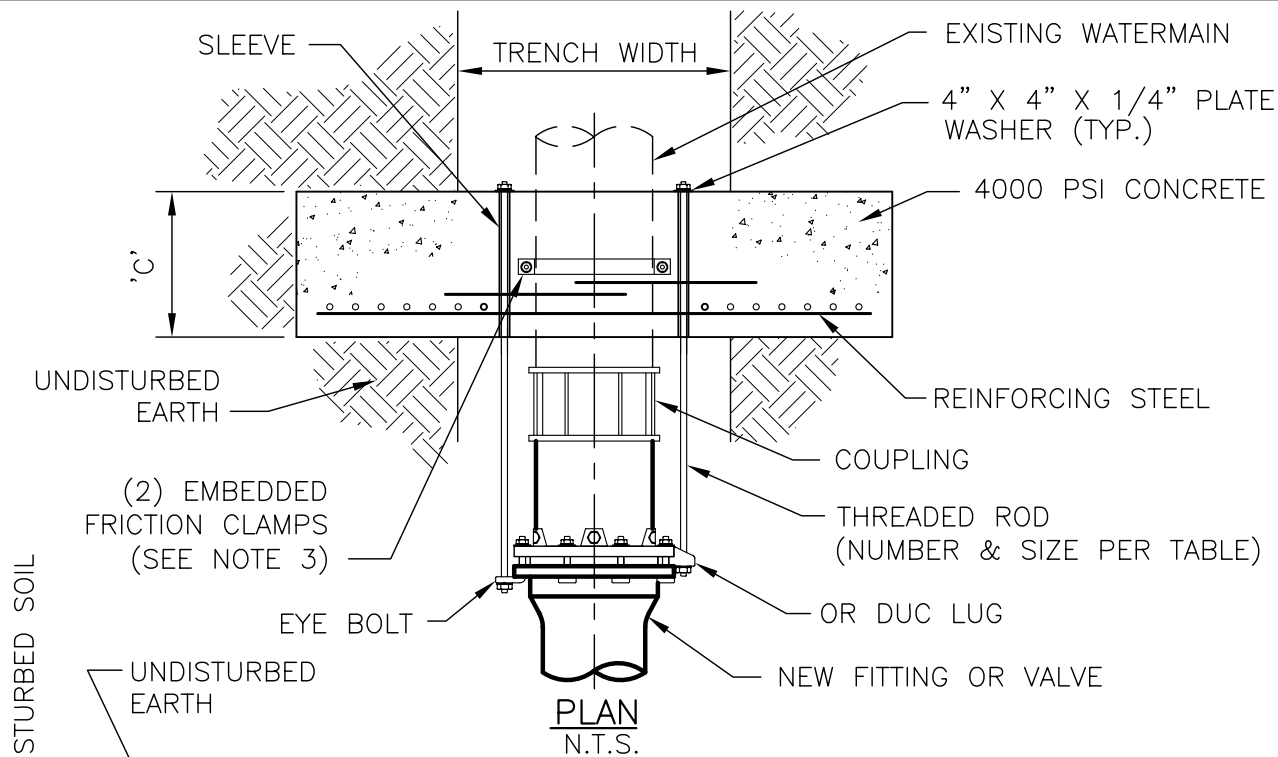
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
THRUST BLOCKS
FOR VERTICAL BEND

DWG. NO.
SD8

DATE 4/28/92	REVISED 10/05
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NOTE:

1. PIPING TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.
2. ALL EXPOSED CARBON STEEL TO BE COATED WITH BITUMASTIC.
3. EXISTING ACP PIPE TO BE ISOLATED FROM CONCRETE.
4. USE HIGH EARLY CEMENT AND ALLOW CONCRETE TO ACHIEVE 90% STRENGTH BEFORE PLACING WATERMAIN INTO SERVICE.

PIPE SIZE	DIMENSION SCHEDULE				THRD. ROD	
	'A'	'B'	'C'	'D'	#	Ø

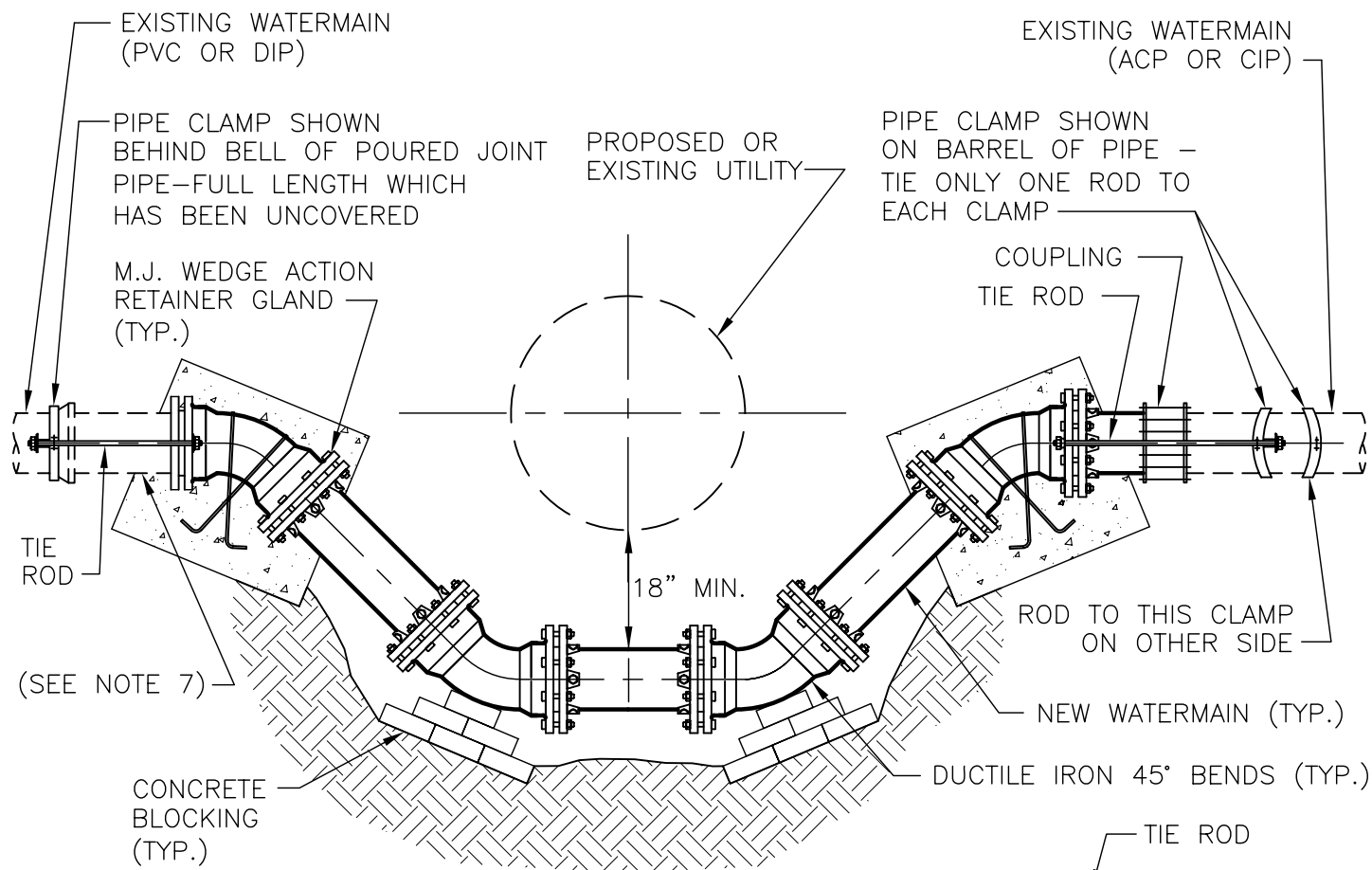
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
ANCHOR COLLAR

DWG. NO.
SD9

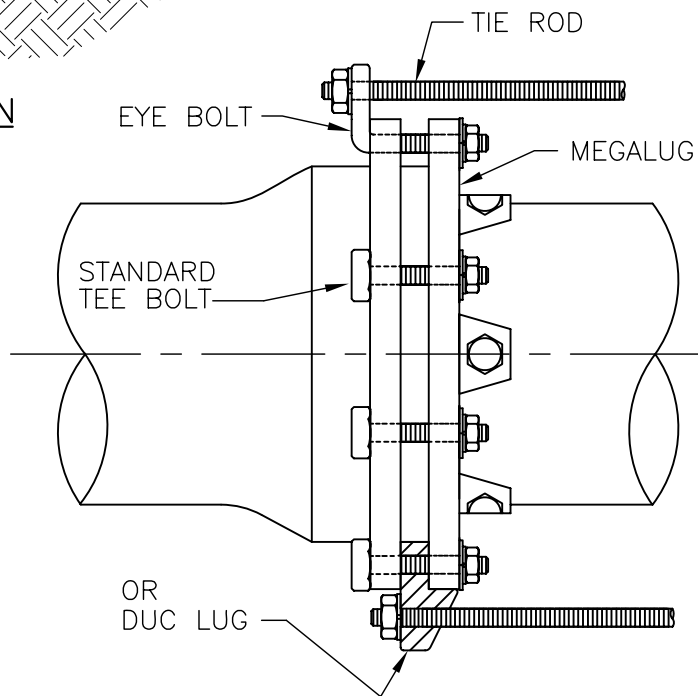
DATE	REVISED
4/28/92	10/05



ELEVATION
N.T.S.

NOTES:

1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES—PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.



TIE ROD SCHEDULE			
PIPE SIZE	PIPE TYPE	ROD ϕ	NUMBER OF RODS
8"/10"		3/4"	2
12"/16"		3/4"	2

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD10_HARN_OFFSET_EXIST_WMAIN

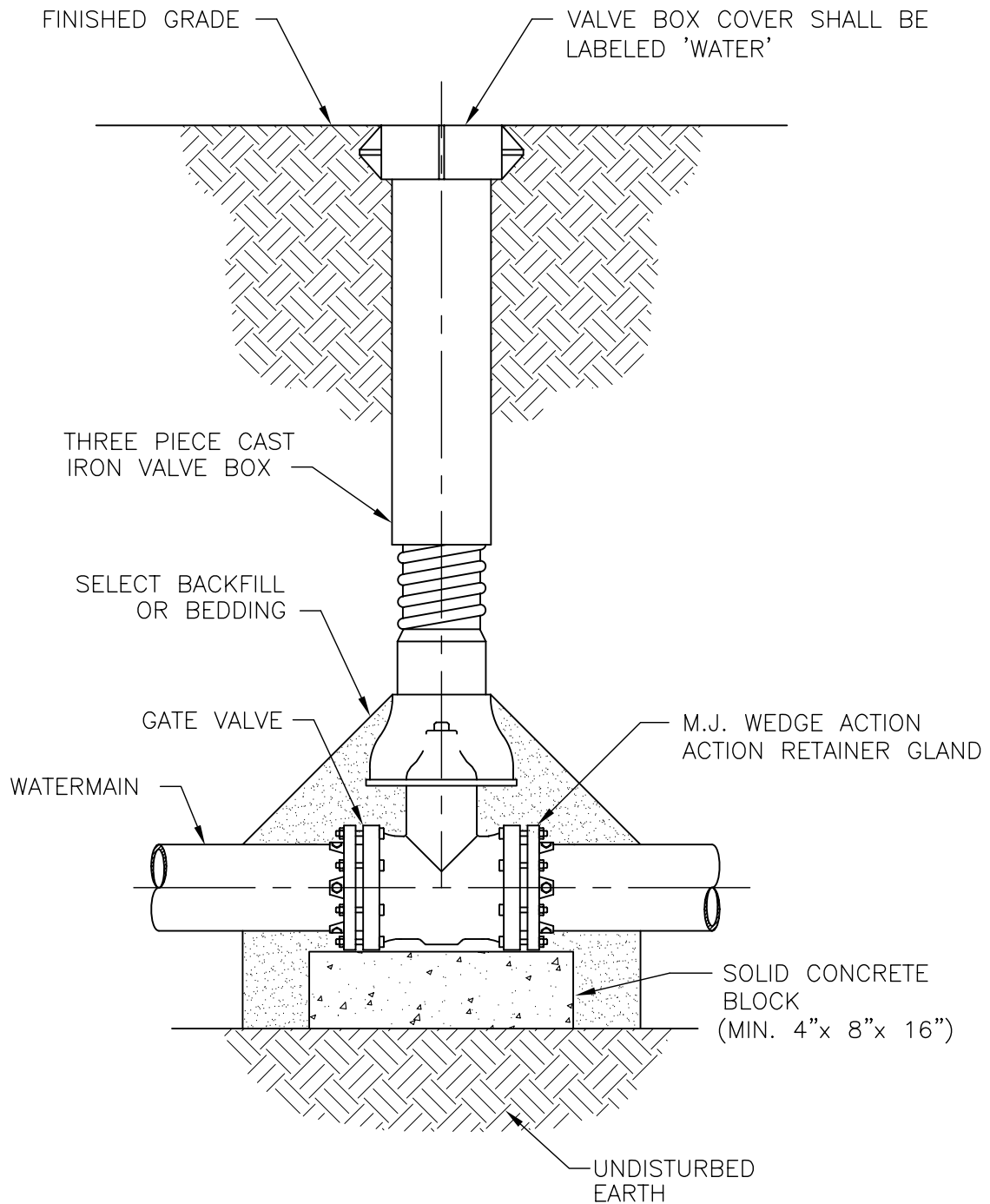
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
HARNESSING DETAILS—INSTALL OFFSET
IN EXISTING WATERMAIN

DWG. NO.
SD10

DATE
6/00

REVISED
10/05



NOTE:

1. VALVE SHALL NOT SUPPORT VALVE BOX.

SECTION

N.T.S.

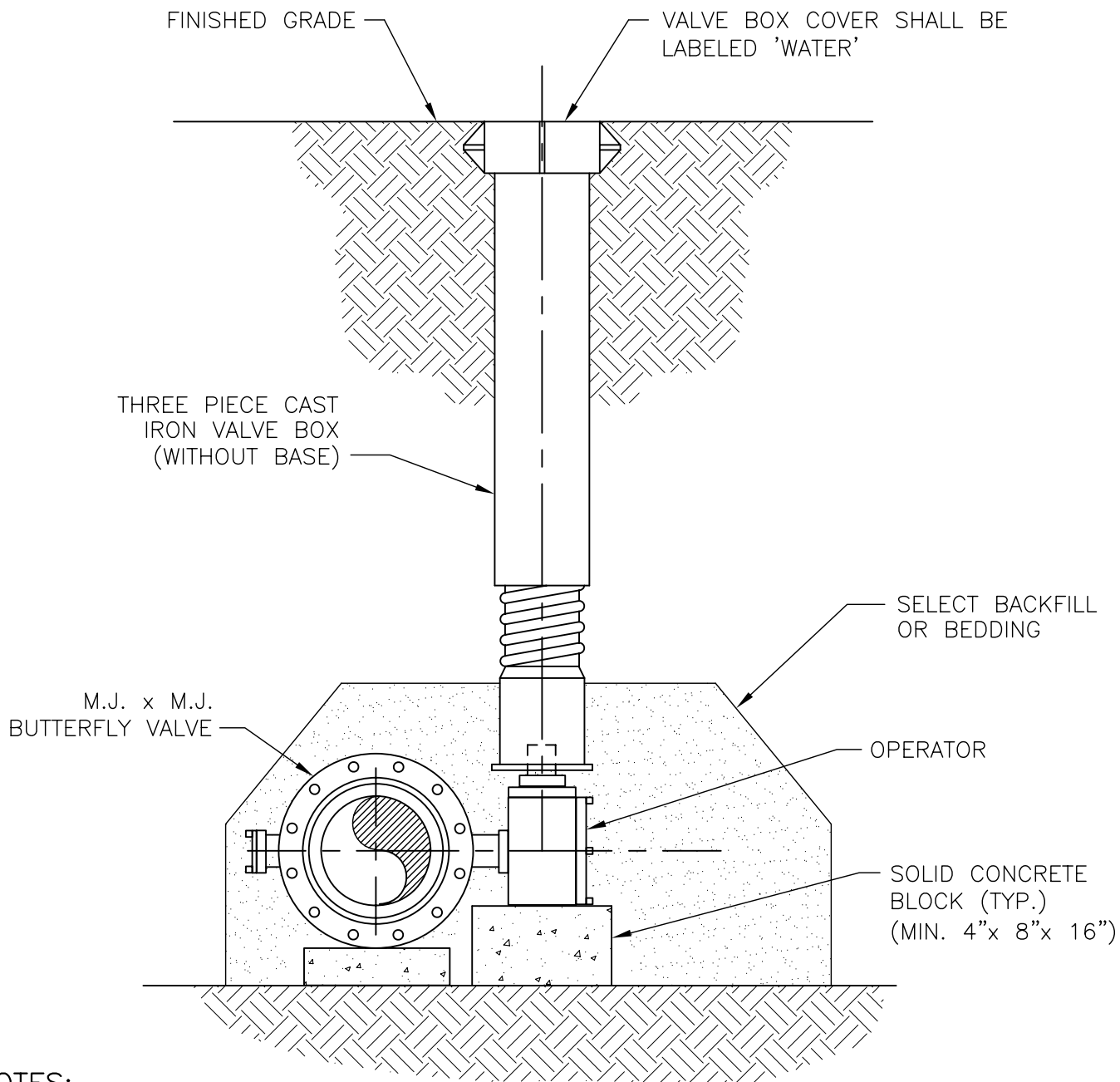
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
GATE VALVE SETTING

DWG. NO.
SD11

DATE 4/28/92	REVISED 10/05
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NOTES:

1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. POSITION VALVE SO THAT OPERATOR IS ON SIDE OF WATERMAIN OPPOSITE THE ϕ OF ROADWAY.

SECTION

N.T.S.

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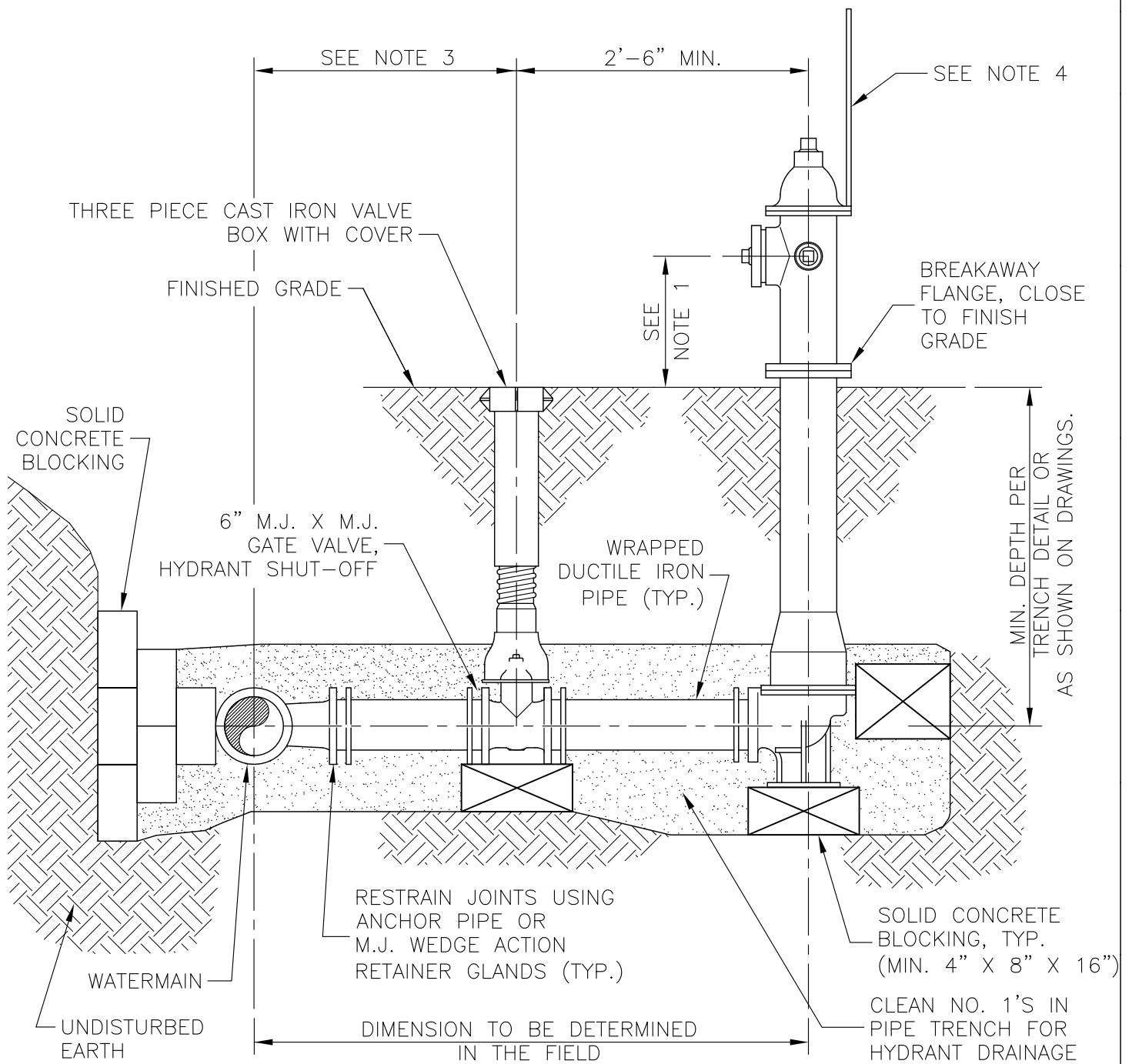
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
BUTTERFLY VALVE SETTING

DWG. NO.
SD12

DATE
6/00

REVISED
10/05



NOTES:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.

SECTION

N.T.S.

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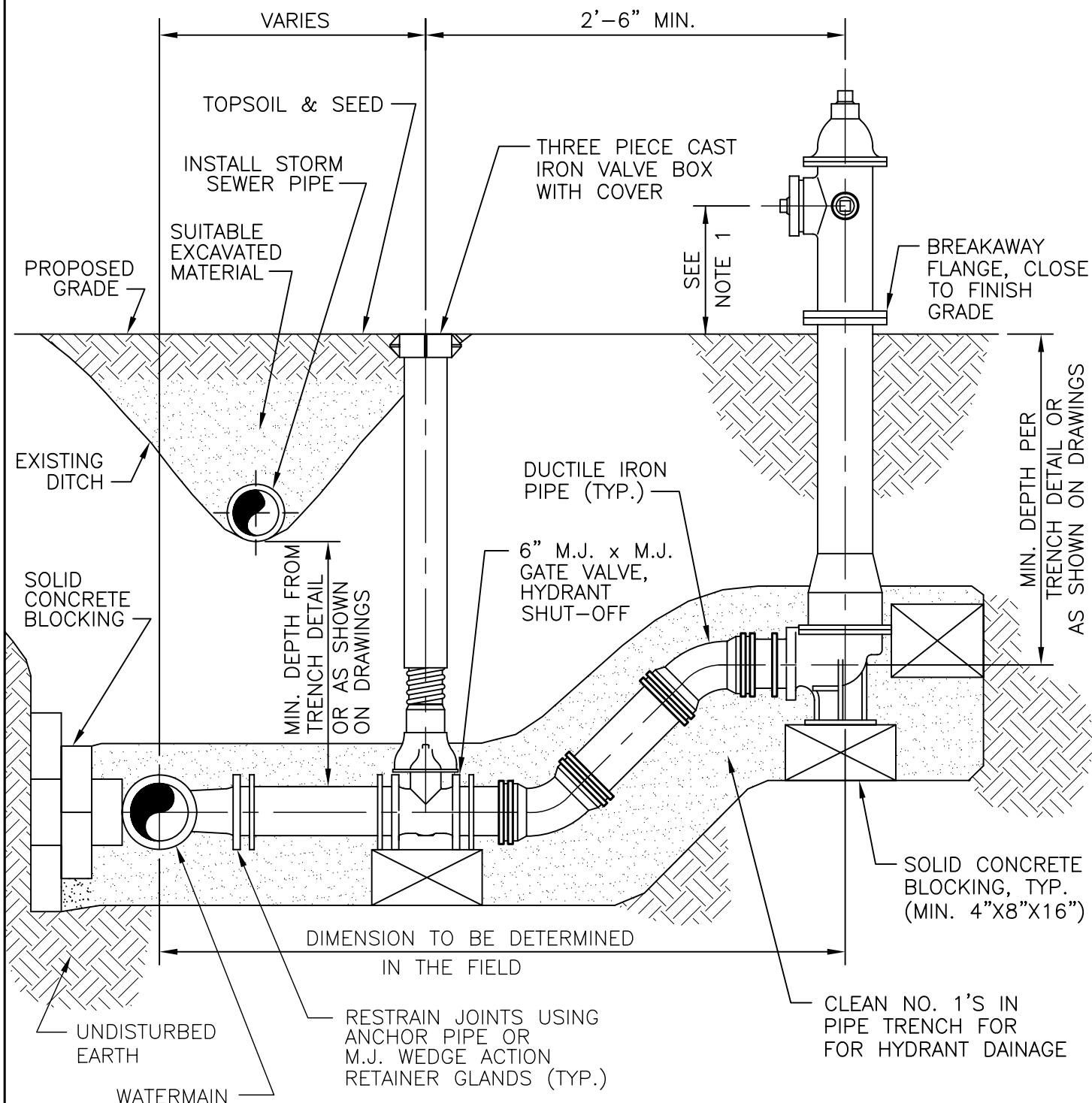
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
FIRE HYDRANT
INSTALLATION

DWG. NO.
SD13

DATE
6/00

REVISED
07/16



NOTE:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.

SECTION
N.T.S.

STORM SEWER PIPE			
PIPE SIZE	PIPE TYPE	DIAMETER	LENGTH

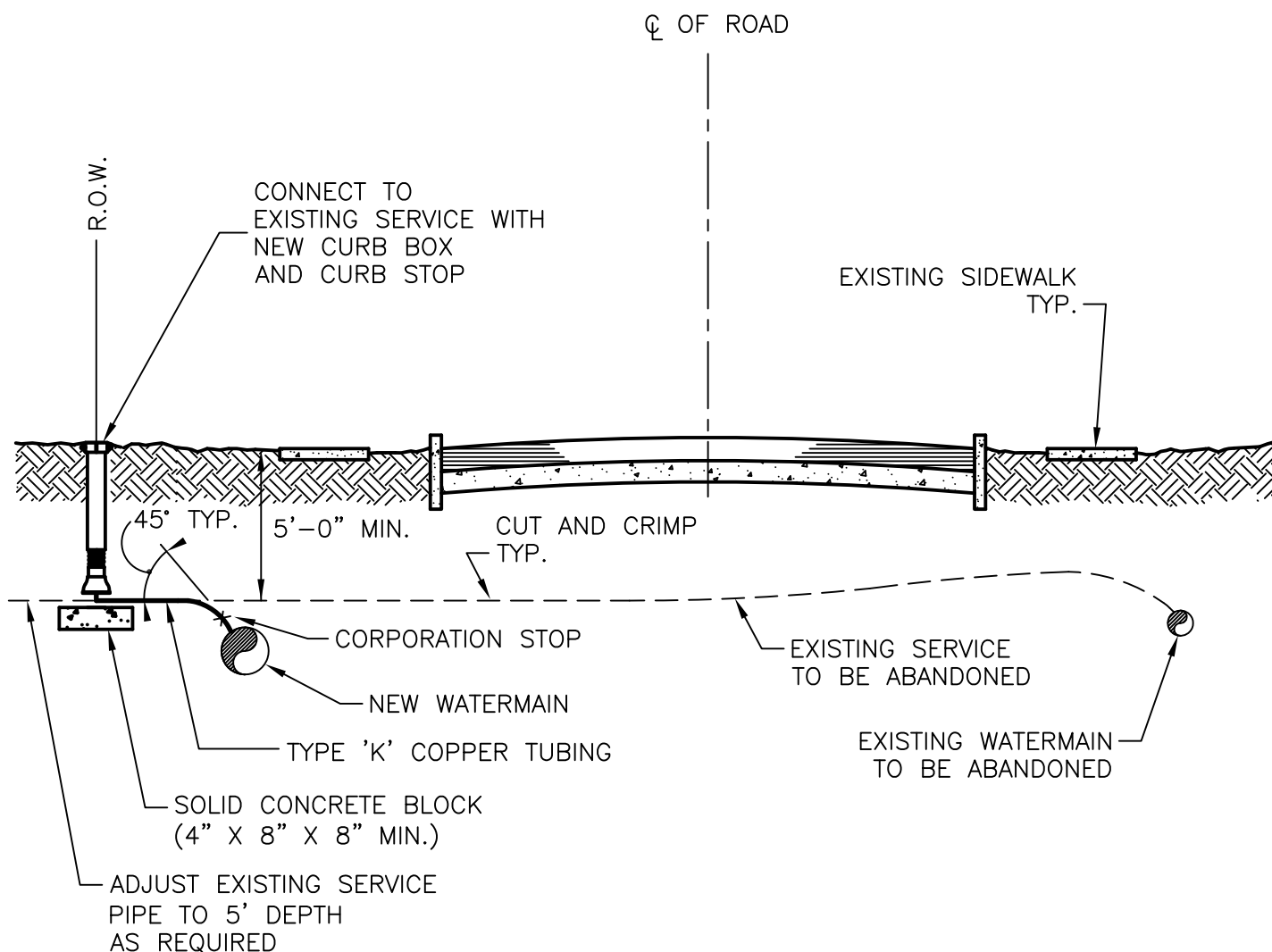
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
FIRE HYDRANT INSTALLATION
CROSSING EXISTING DITCH

DWG. NO.
SD14

DATE 6/00	REVISED 10/05
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NOTES:

1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
 - A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
 - B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
 - C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
 - D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
 - E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
 - F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

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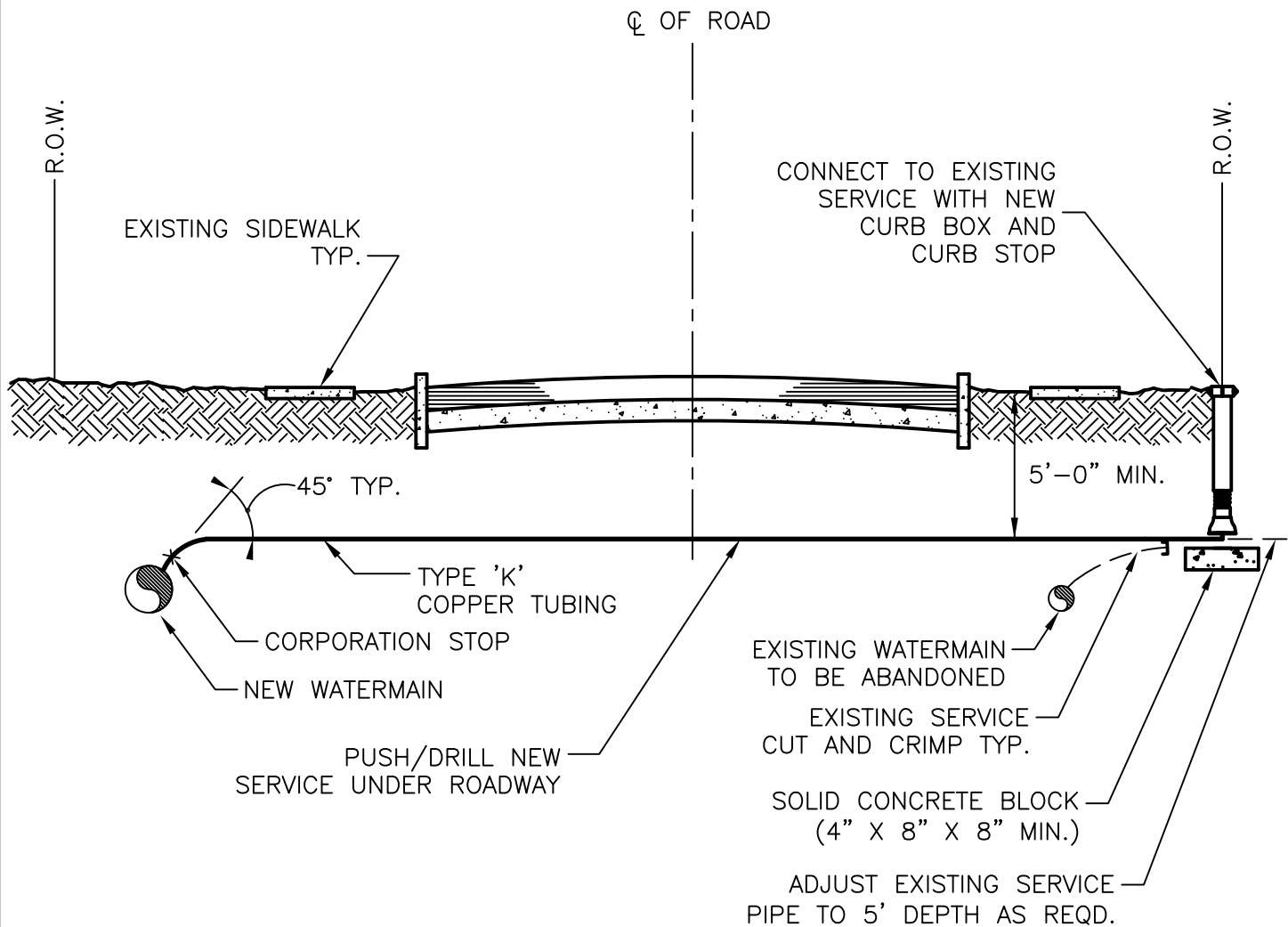
**ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK**

**STANDARD DETAIL
NEAR SIDE
SERVICE REPLACEMENT/INSTALLATION**

DWG. NO.
SD15

DATE
4/92

REVISED
09/16



NOTES:

1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
 - A. WHEN SERVICES AND PLACED ON 4" OR SMALLER PIPES.
 - B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
 - C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
 - D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
 - E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
 - F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

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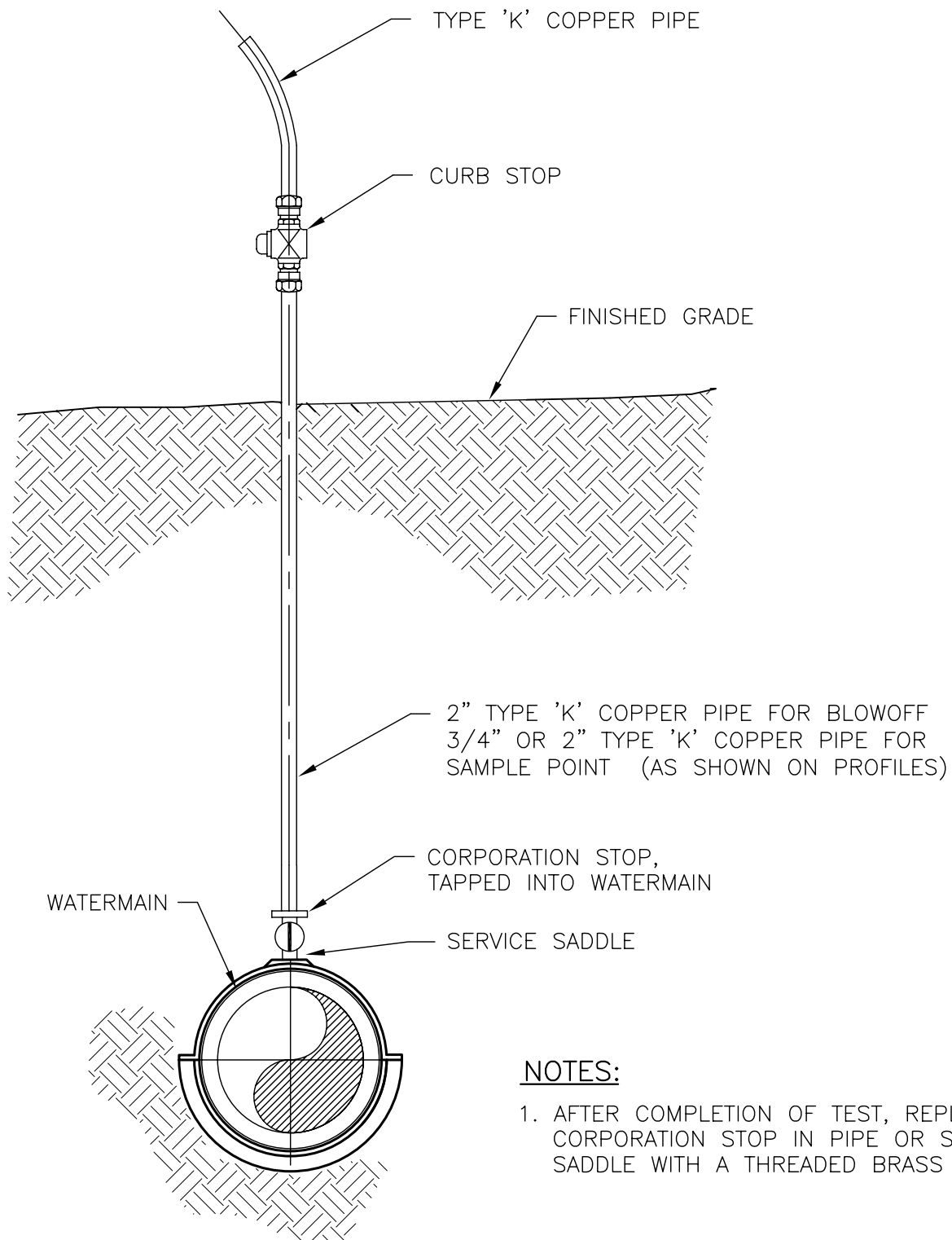
**ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK**

**STANDARD DETAIL
FAR SIDE
SERVICE REPLACEMENT/INSTALLATION**

DWG. NO.
SD16

DATE
4/92

REVISED
09/16



NOTES:

1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION

N.T.S.

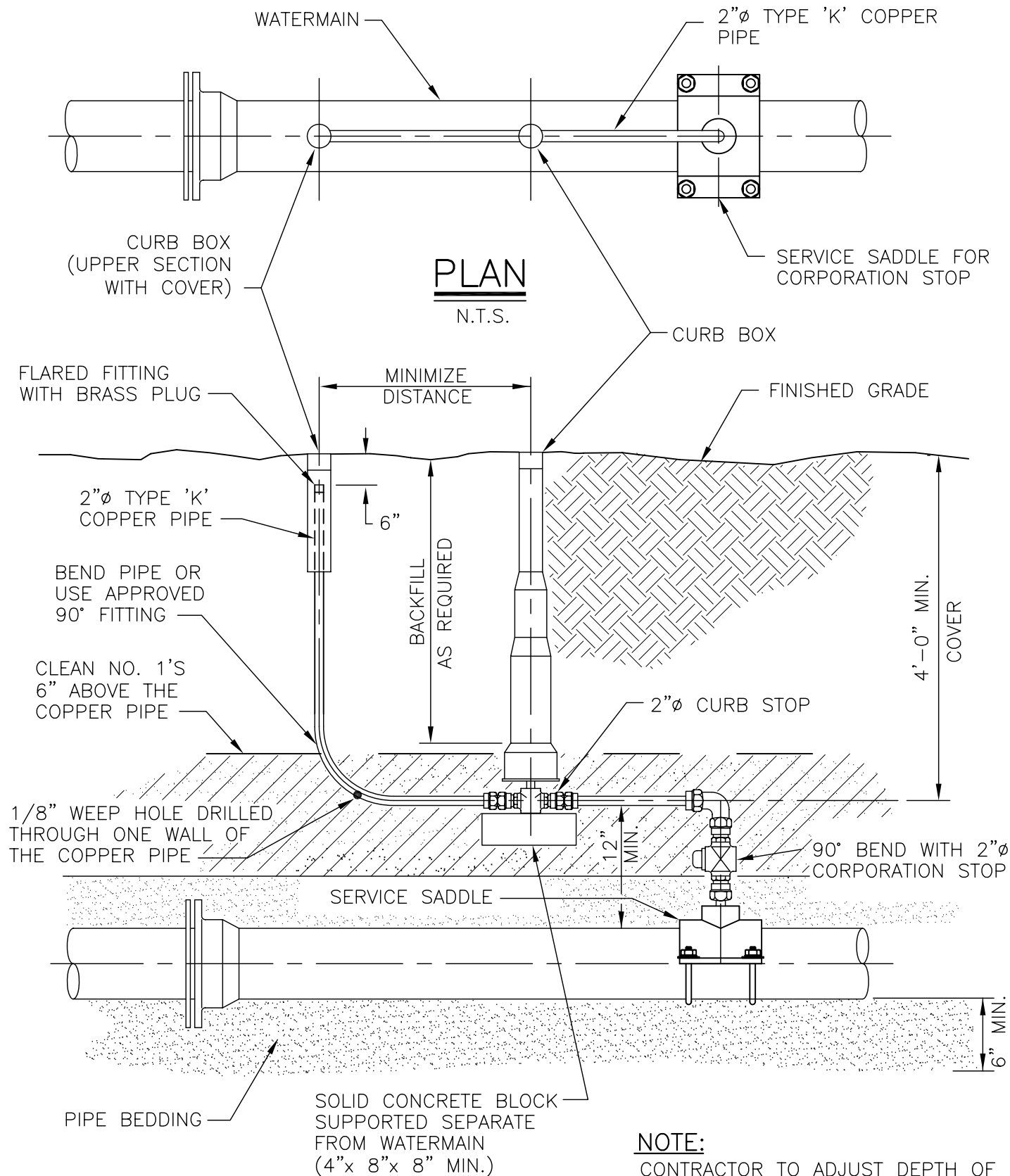
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TEMPORARY
BLOW-OFF/SAMPLING POINT

DWG. NO.
SD17

DATE	REVISED
4/28/92	10/05



NOTE:

CONTRACTOR TO ADJUST DEPTH OF MAIN TO OBTAIN CLEARANCES AS SHOWN

SECTION

N.T.S.

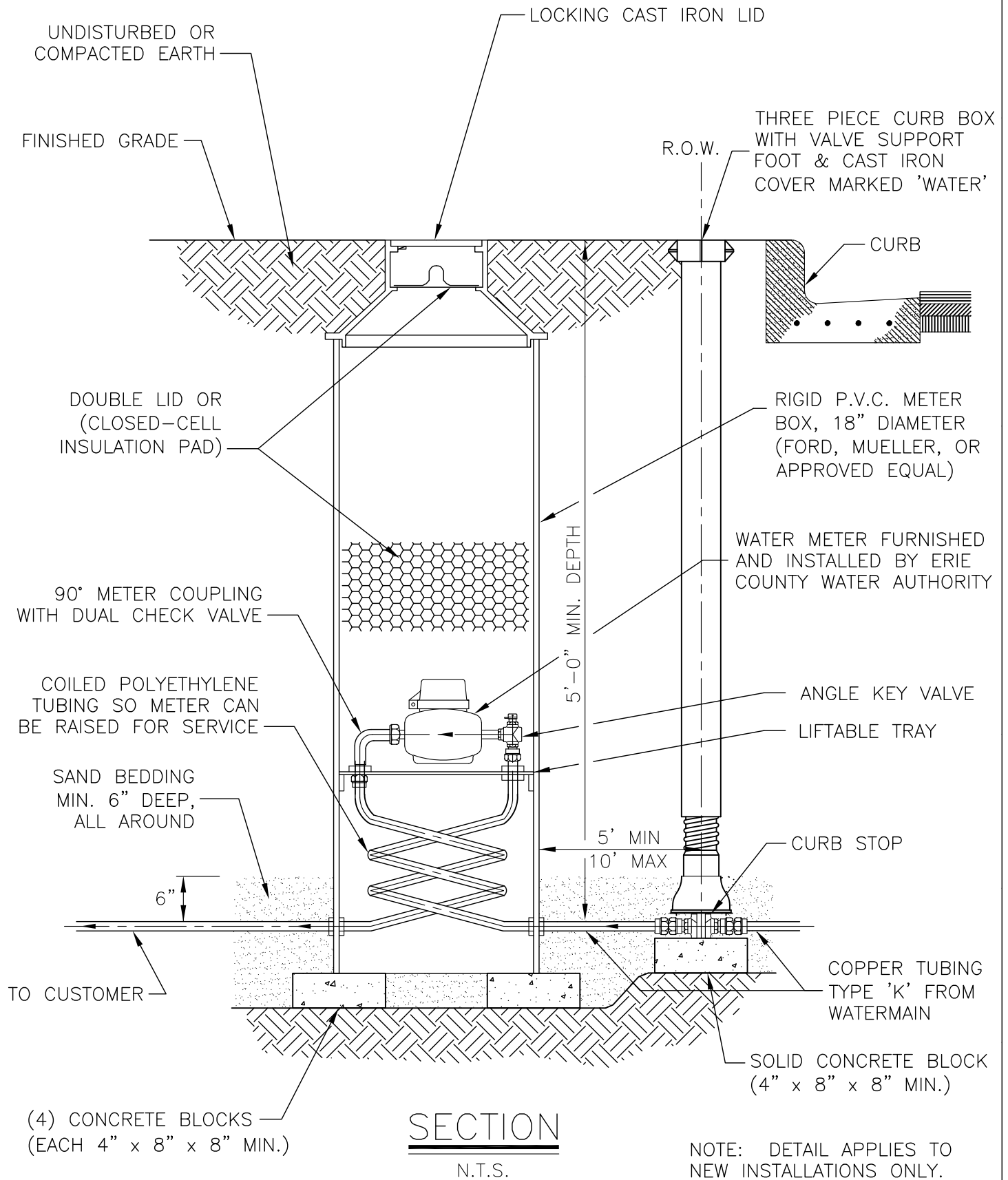
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
BLOWOFF

DWG. NO.
SD18

DATE	REVISED
4/28/92	10/05



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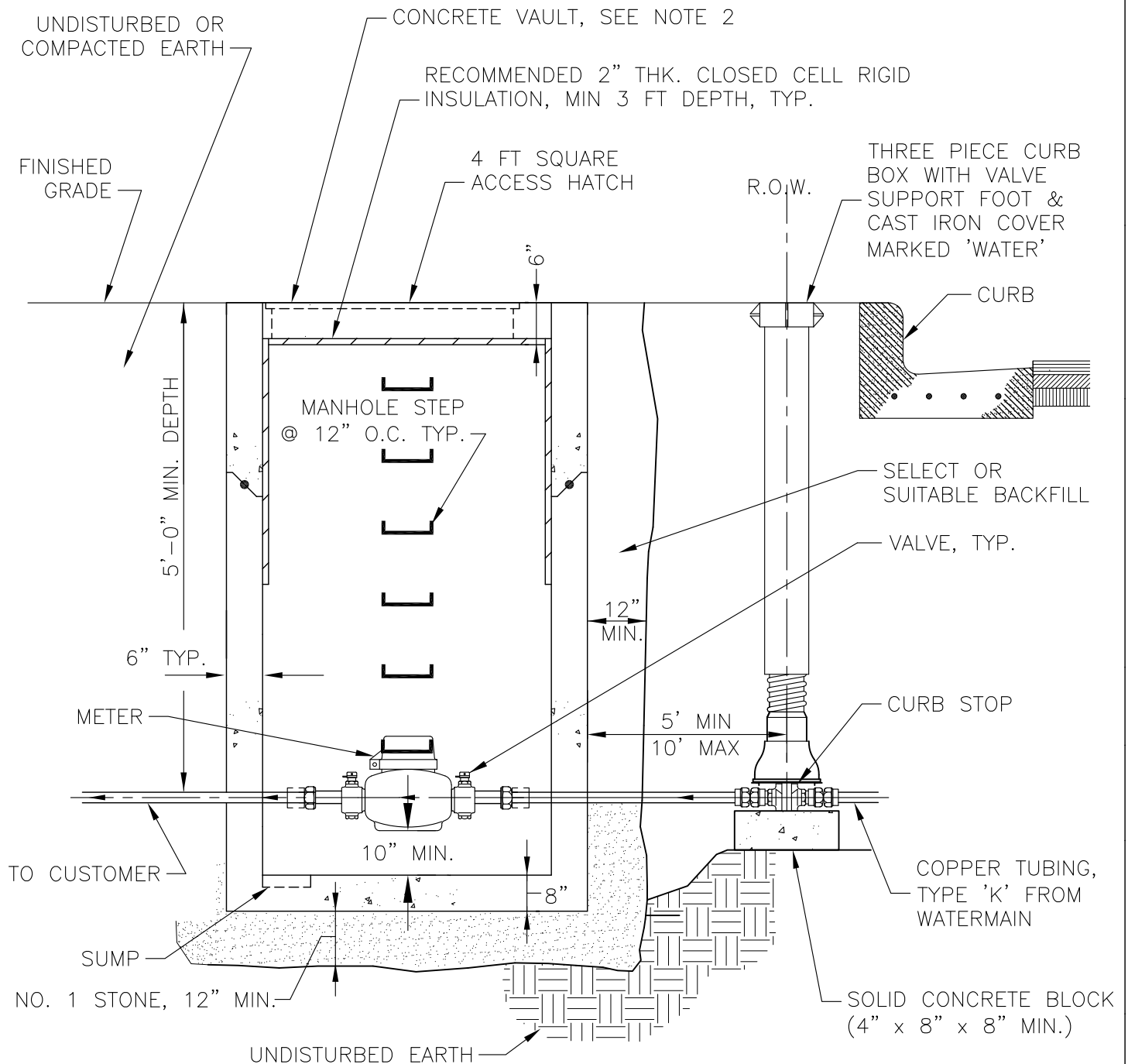
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
WATER METER PIT FOR UP TO
AND INCLUDING 1-INCH METER

DWG. NO.
SD21

DATE
4/92

REVISED
12/17



NOTES:

1. WATER METER FURNISHED AND INSTALLED BY ERIE COUNTY WATER AUTHORITY.
2. PRECAST CONCRETE VAULT SHALL BE 4,000 PSI MIX AND SHALL BE A MINIMUM 4 FT X 4 FT X 7 FT SIZE.
3. INSTALL BYPASS AROUND METER IF DIRECTED BY ECWA FORCES.
4. NO PLUMBING CONNECTIONS ALLOWED WITHIN 8" OF VAULT WALL.
5. A HOT-BOX LOCATED ABOVE GRADE IS ALSO ACCEPTABLE.

SECTION

N.T.S.

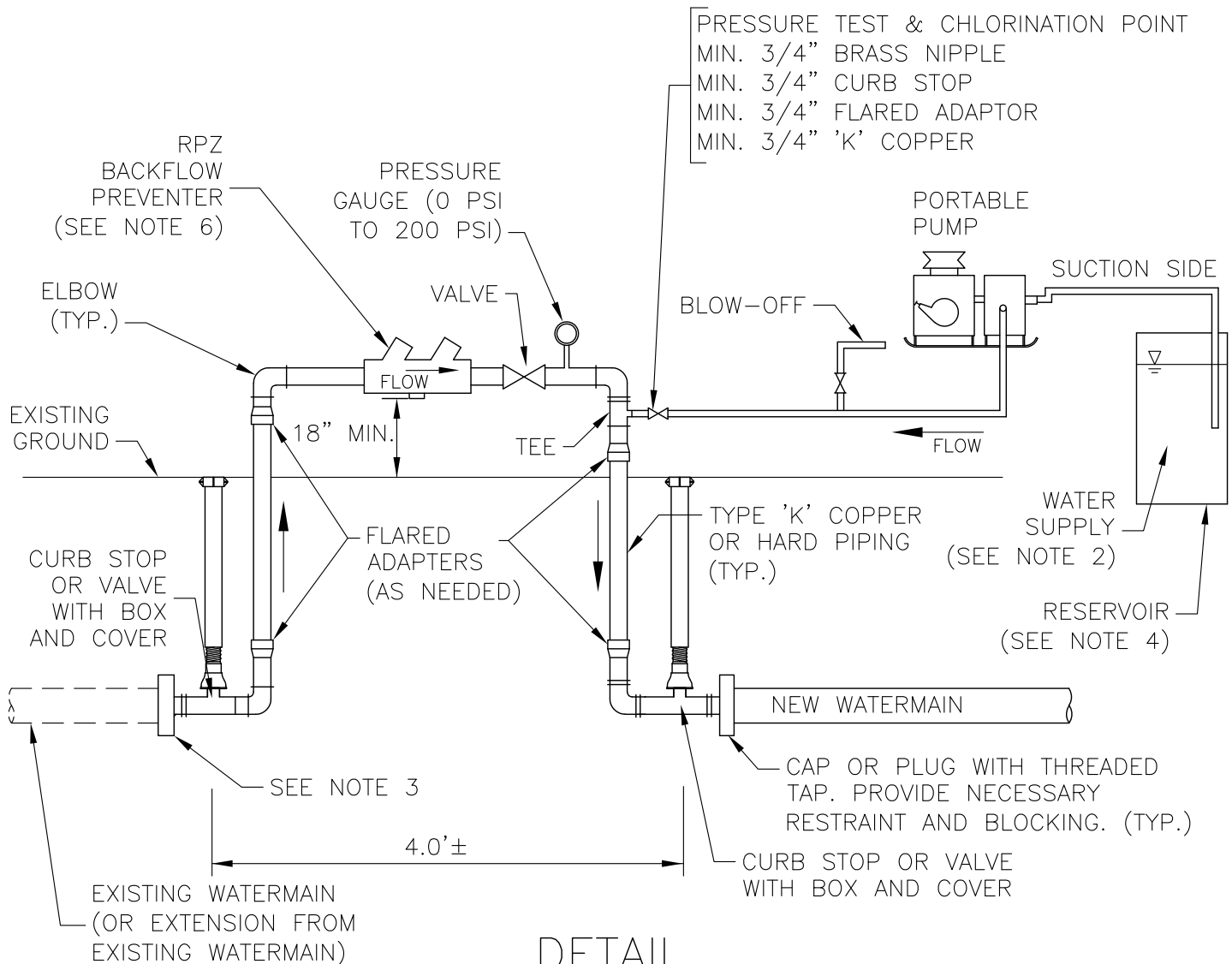
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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
CONCRETE WATER METER VAULT
1 1/2-INCH AND 2-INCH METERS

DWG. NO.
SD22

DATE	REVISED
4/28/92	12/17



DETAIL

N.T.S.

NOTES:

1. BACTERIOLOGICAL WATER SAMPLES SHALL BE TAKEN AT BEGINNING AND END OF NEW WATERMAIN SECTION AND AT MAXIMUM 1,000 FT. SPACINGS.
2. PROVIDE CLEAN WATER SUPPLY FOR PRESSURE TESTING. PROVIDE CHLORINATED WATER SUPPLY FOR DISINFECTION.
3. CAP OR PLUG WITH THREADED TAP OR APPROPRIATE TAP INTO MAIN. PROVIDE NECESSARY RESTRAINT AND BLOCKING.
4. DIAMETER OF RESERVOIR SHALL BE 15" OR LESS. IF DIAMETER IS GREATER THAN 15", LEAKAGE TEST SHALL BE RUN A MINIMUM OF 4 HOURS.
5. PRESSURE TEST CANNOT EXCEED 2,000 LINEAR FEET PER TEST SECTION.
6. BACKFLOW PREVENTER TO BE SIZED TO ACHIEVE MIN 3 FPS SCOUR VELOCITY DURING FLUSHING OF NEW WATERLINE.

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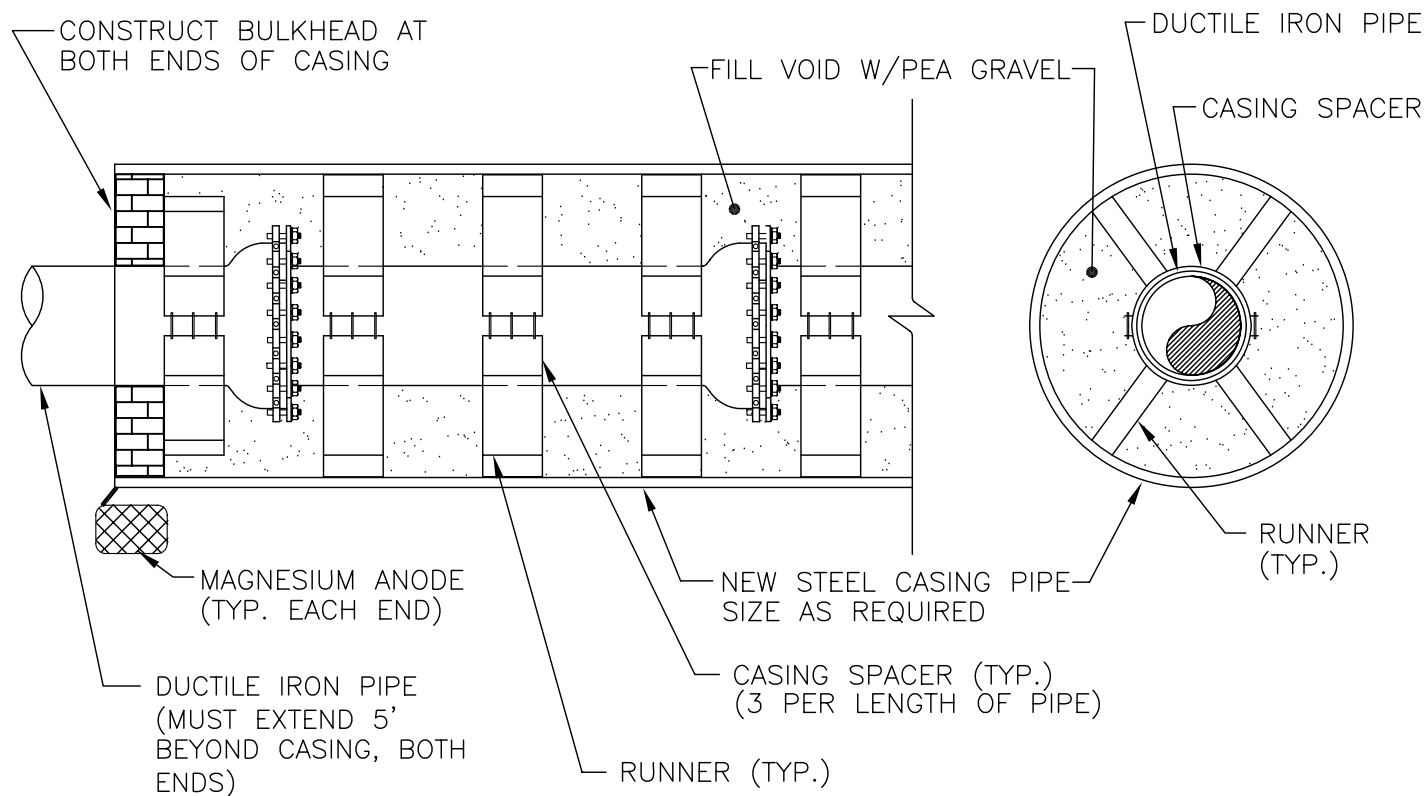
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
PRESSURE TESTING AND
DISINFECTION APPARATUS SCHEMATIC

DWG. NO.
SD23

DATE
6/00

REVISED
7/18



NOTES:

1. ALL PIPE JOINTS WITHIN THE CASING PIPE SHALL BE RESTRAINED JOINTS.
2. THE PROPOSED NUMBER OF CASING SPACERS SHALL BE INSTALLED TO PROVIDE SUFFICIENT SUPPORT AS PER MANUFACTURER'S RECOMMENDATIONS.

ELEVATION

N.T.S.

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD25_CASING_PIPE_CASING_SPACERS

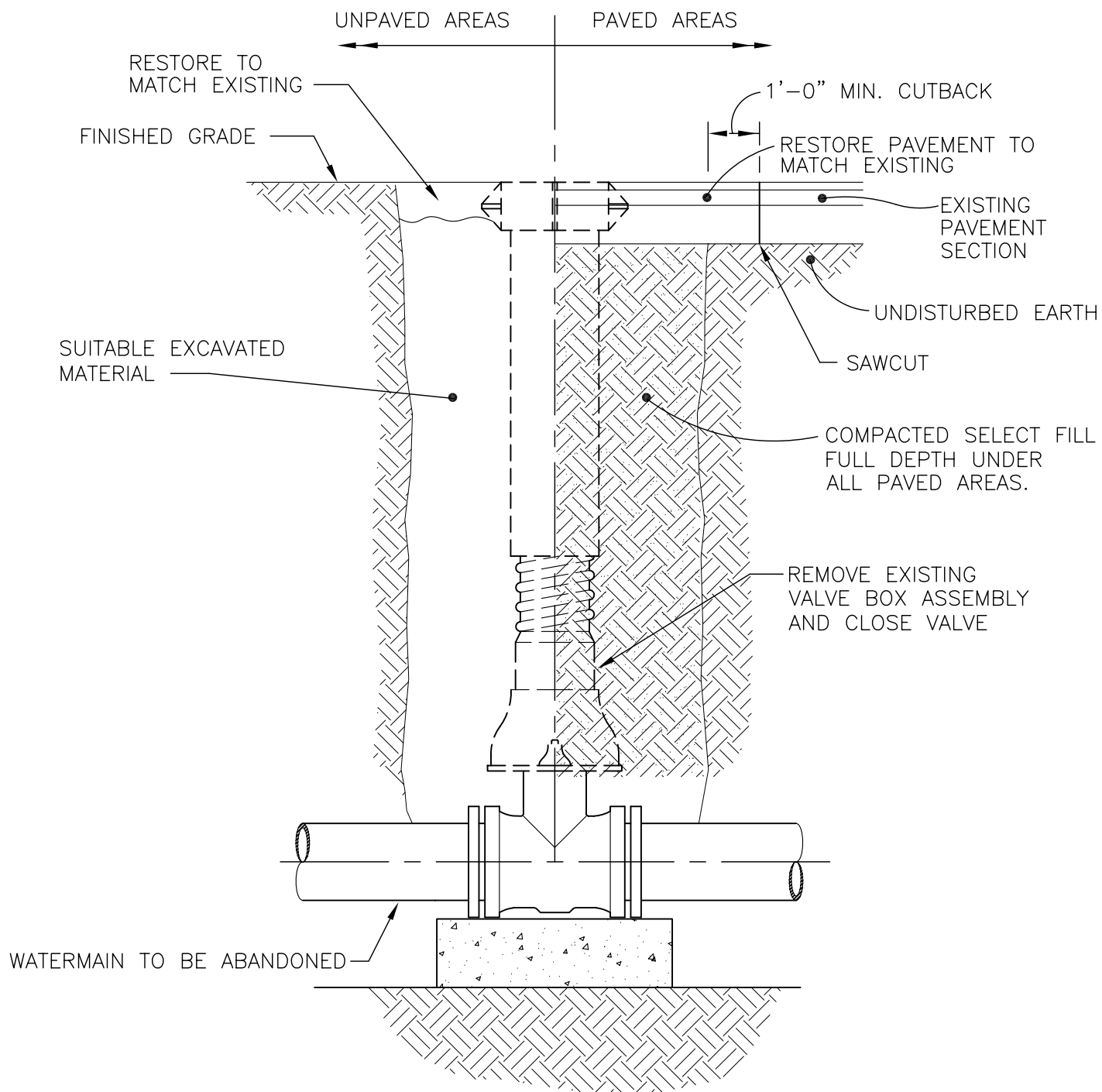
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
CASING PIPE WITH
CASING SPACERS

DWG. NO.
SD25

DATE
6/00

REVISED
10/05



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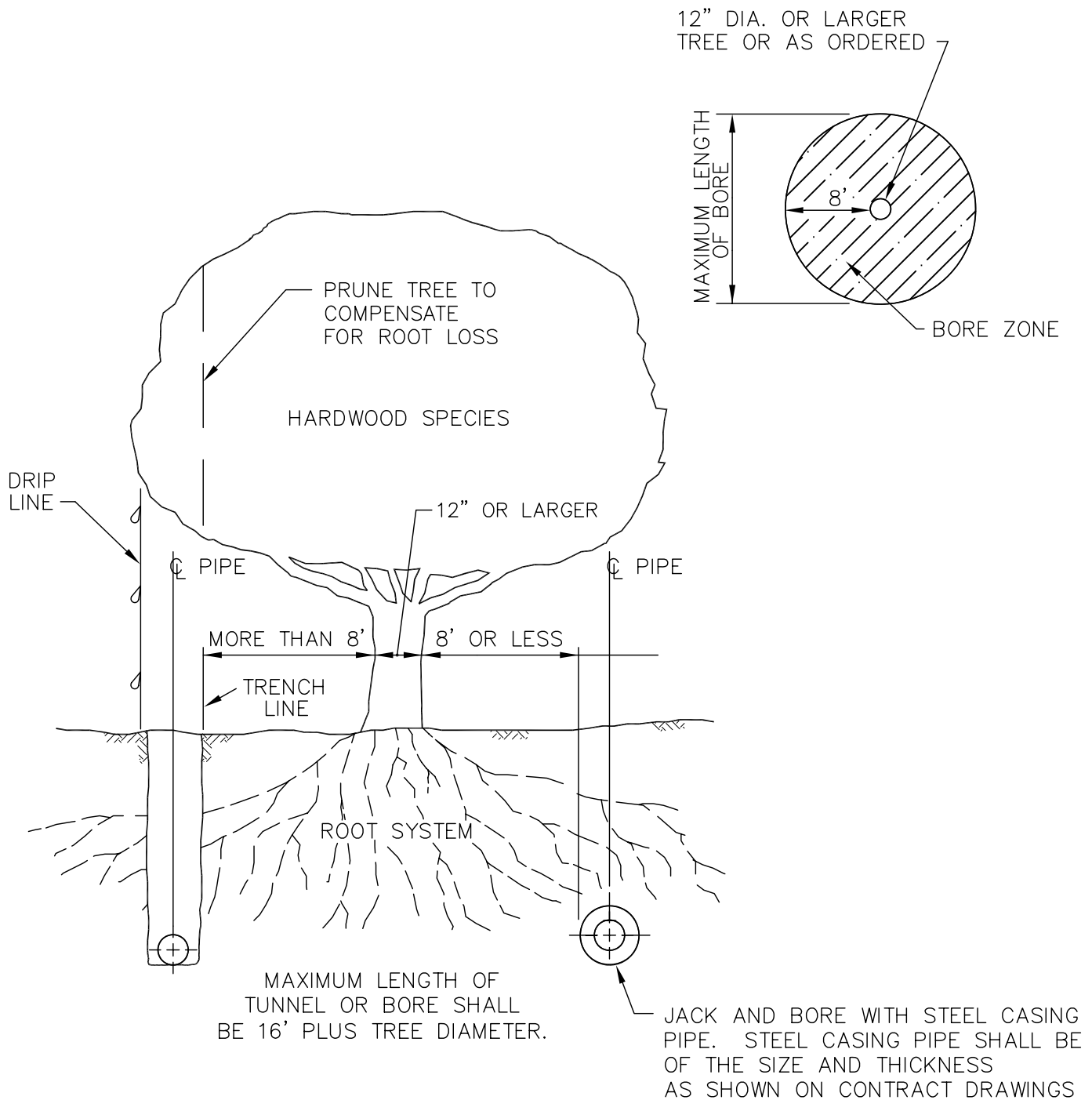
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
EXISTING VALVE BOX
ABANDONMENT

DWG. NO.
SD26

DATE
6/00

REVISED
10/05



NOTE:

1. TREE BORES SHALL BE AT LOCATIONS SHOWN ON CONTRACT DRAWINGS.
2. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED LANDSCAPER TO TRIM AND REPAIR TREES AS NECESSARY.

ELEVATION

N.T.S.

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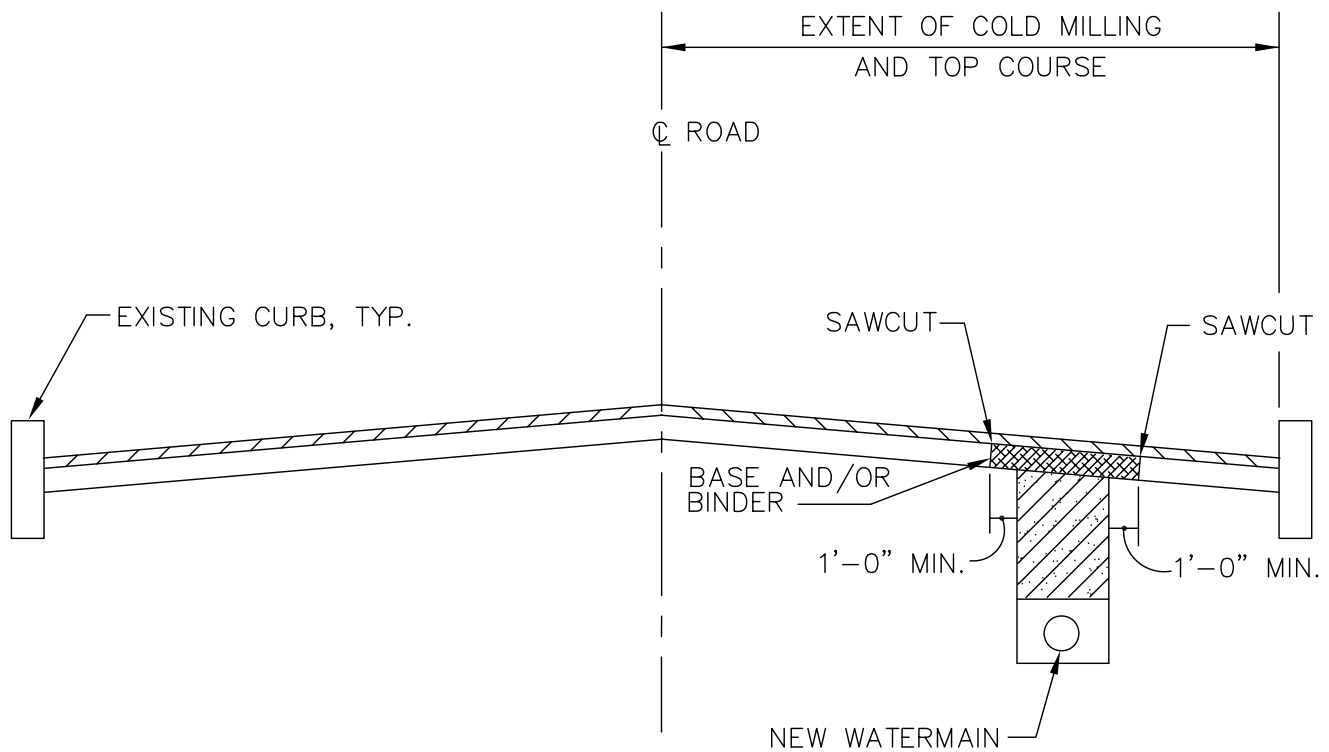
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TREE BORE

DWG. NO.
SD27

DATE
6/00

REVISED
10/05



SECTION

N.T.S.

NOTES:

1. APPLICABLE WHEN NEW WATERMAIN IS INSTALLED LONGITUDINALLY BENEATH A PAVED ROADWAY.
2. SEE DRAWINGS FOR LIMITS OF COLD MILLING.

LOCATION	COLD MILLING THICKNESS	ASPHALT TOP THICKNESS

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD28_COLD_MILLING

ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
COLD MILLING

DWG. NO.
SD28

DATE
6/00

REVISED
10/05

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
GENERAL NOTES

DWG. NO.
SD29

DATE
3/05

REVISED
7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item. Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 7/17

PIPE DIAMETER (in)	PIPE MATERIAL		WORKING PRESSURE (psi)	TEST PRESSURE (psi)
	Type	Rating		
Insert	Insert DIP	Insert Class	Insert 150	Insert 170
Insert	Insert PVC	Insert DR	Insert 150	Insert 170
Insert	Insert PCCP		Insert 150	Insert 170

(Fill in project-specific values in table. Items shown are for example only.)

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD31_PRESS_TEST_SCHED

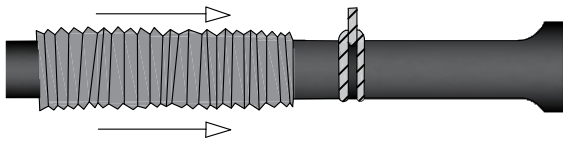
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

PRESSURE TESTING
SCHEDULE

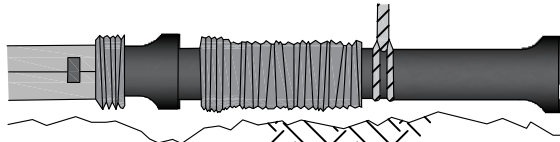
DWG. NO.
SD31

DATE
10/05

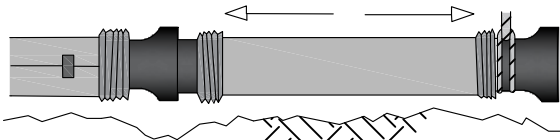
REVISED



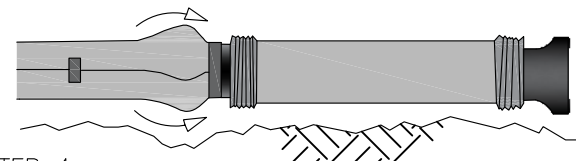
STEP 1.
CUT A SECTION OF POLYETHYLENE TUBE APPROXIMATELY 2 FEET LONGER THAN THE PIPE SECTION. REMOVE ALL LUMPS OF CLAY, MUD, CINDERS, OR OTHER MATERIALS THAT MIGHT HAVE ACCUMULATED ON THE PIPE SURFACE DURING STORAGE. SLIP THE POLYETHYLENE TUBE ACCORDION FASHION ON THE END OF THE PIPE. PULL BACK THE OVERHANGING END OF THE TUBE UNTIL IT CLEARS THE PIPE END.



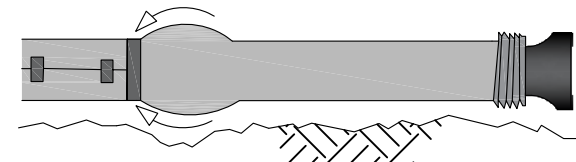
STEP 2.
DIG A SHALLOW BELL HOLE IN THE TRENCH BOTTOM AT THE JOINT LOCATION TO FACILITATE INSTALLATION OF THE POLYETHYLENE TUBE. LOWER THE PIPE INTO THE TRENCH AND MAKE UP THE PIPE JOINT WITH THE PROCEEDING SECTION OF PIPE.



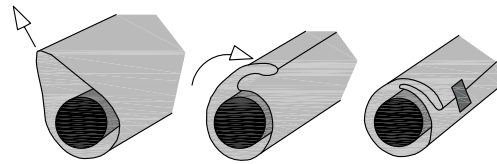
STEP 3.
MOVE THE CABLE TO THE BELL END OF THE PIPE AND LIFT THE PIPE SLIGHTLY TO PROVIDE ENOUGH CLEARANCE TO EASILY SLIDE THE TUBE. SPREAD THE TUBE OVER THE ENTIRE BARREL OF THE PIPE. NOTE: MAKE SURE THAT NO DIRT OR OTHER BEDDING MATERIAL BECOMES TRAPPED BETWEEN THE WRAP AND THE PIPE.



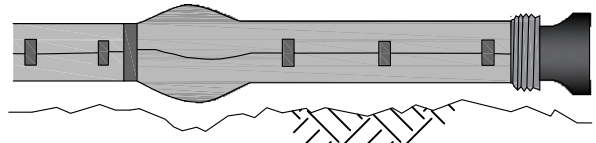
STEP 4.
MAKE THE OVERLAP OF POLYETHYLENE TUBE BY PULLING BACK THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE AND SECURING IT IN PLACE. NOTE: THE POLYETHYLENE MAY BE SECURED IN PLACE BY USING TAPE OR PLASTIC TIE STRAPS.



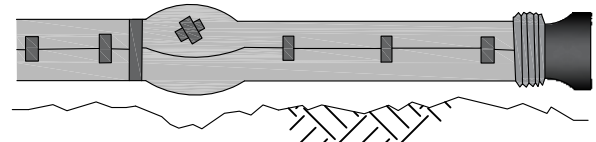
STEP 5.
OVERLAP THE SECURED TUBE END WITH THE END OF THE NEW PIPE SECTION. SECURE THE NEW TUBE END IN PLACE.



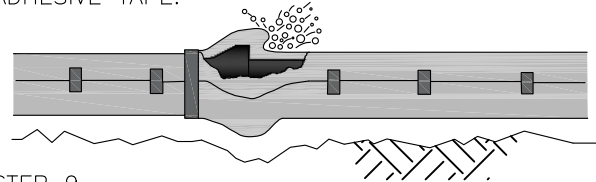
STEP 6.
TAKE UP THE SLACK IN THE TUBE ALONG THE BARREL OF THE PIPE TO MAKE A SNUG, BUT NOT TIGHT, FIT. FOLD EXCESS POLYETHYLENE BACK OVER THE TOP OF THE PIPE.



STEP 7.
SECURE THE FOLD AT SEVERAL LOCATIONS ALONG THE PIPE BARREL (APPROXIMATELY EVERY 3 FEET, MAXIMUM OF 5 FEET).



STEP 8.
REPAIR ALL THE SMALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE. IF THE POLYETHYLENE IS BADLY DAMAGED, REPAIR THE DAMAGED AREA WITH A SHEET OF POLYETHYLENE AND SEAL THE EDGES OF THE REPAIR WITH ADHESIVE TAPE.



STEP 9.
CAREFULLY BACKFILL THE TRENCH ACCORDING TO THE PROCEDURES IN AWWA C600 STANDARD. TO PREVENT DAMAGE DURING BACKFILLING ALLOW ADEQUATE SLACK IN THE TUBE AT THE JOINT. BACKFILL SHOULD BE FREE OF CINDERS, ROCKS, BOULDERS, NAILS, STICKS, OR OTHER MATERIALS THAT MIGHT DAMAGE THE POLYETHYLENE. AVOID DAMAGING THE POLYETHYLENE WHEN USING TAMPING DEVICES.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD32_POLY_WRAP

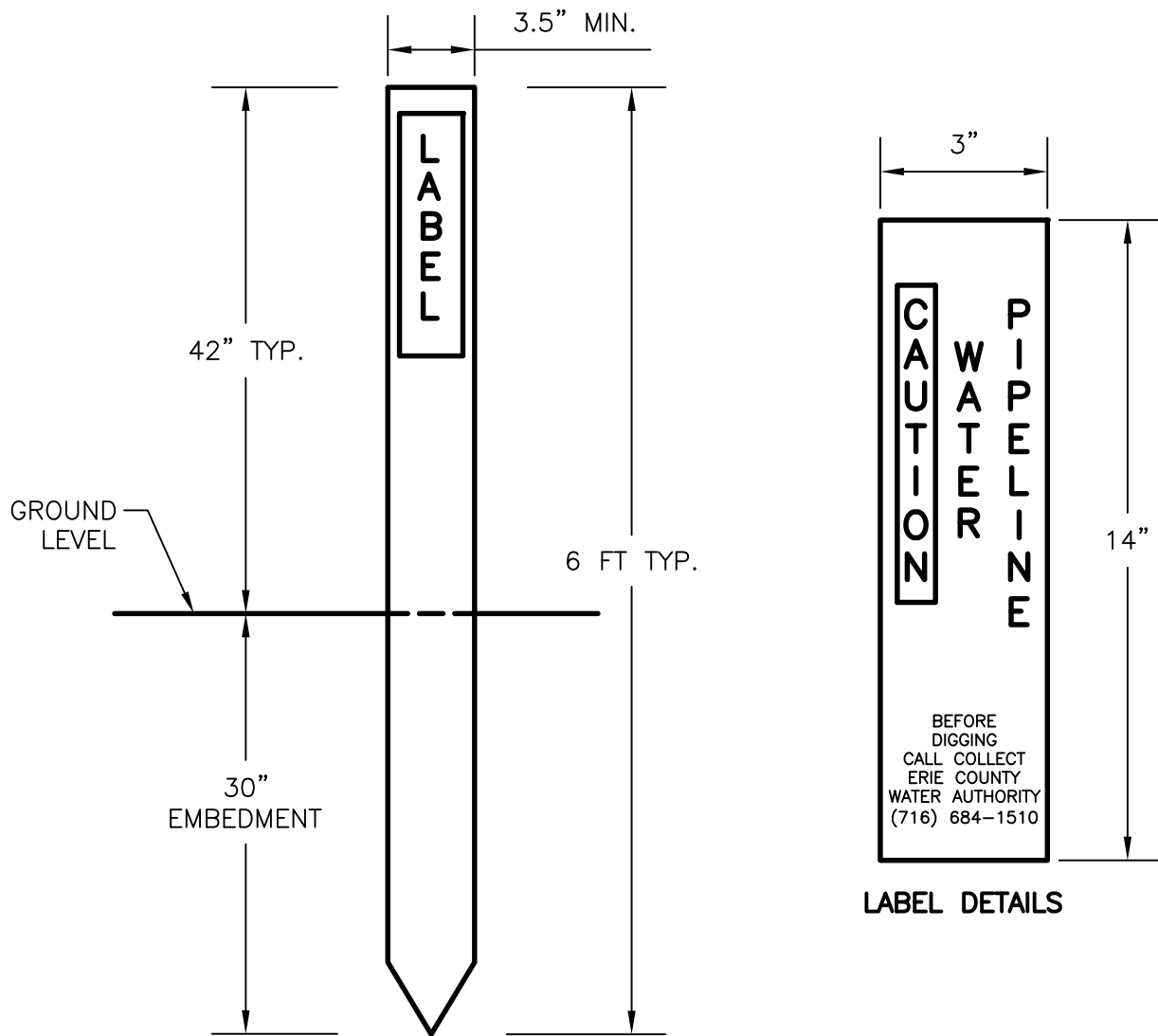
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
POLYETHYLENE ENCASEMENT
OF DUCTILE IRON PIPE

DWG. NO.
SD32

DATE
06/16

REVISED
07/16



NOTES:

1. MARKER POSTS SHALL BE FLEXIBLE, IMPACT RESISTANT FIBERGLASS, AND ROYAL BLUE IN COLOR. LABELS SHALL BE SELF-ADHERING AND WEATHERPROOF.
2. ALL MARKER POSTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. MARKERS TO BE PLACED AT LOCATIONS DELINEATED ON CONTRACT PLANS, DIRECTLY ABOVE WATERLINE PIPE.
4. AT ALL CREEK CROSSINGS, ONE MARKER SHALL BE PLACED ON EACH SIDE OF THE CREEK WITH THE LABEL FACING AWAY FROM THE CREEK. MARKERS ARE NOT TO BE PLACED IN THE FLOODPLAIN OR WITHIN 5 FEET OF A VALVE OR HYDRANT ASSEMBLY.

DETAIL

N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD33_WATERLINE MARKER

**ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK**

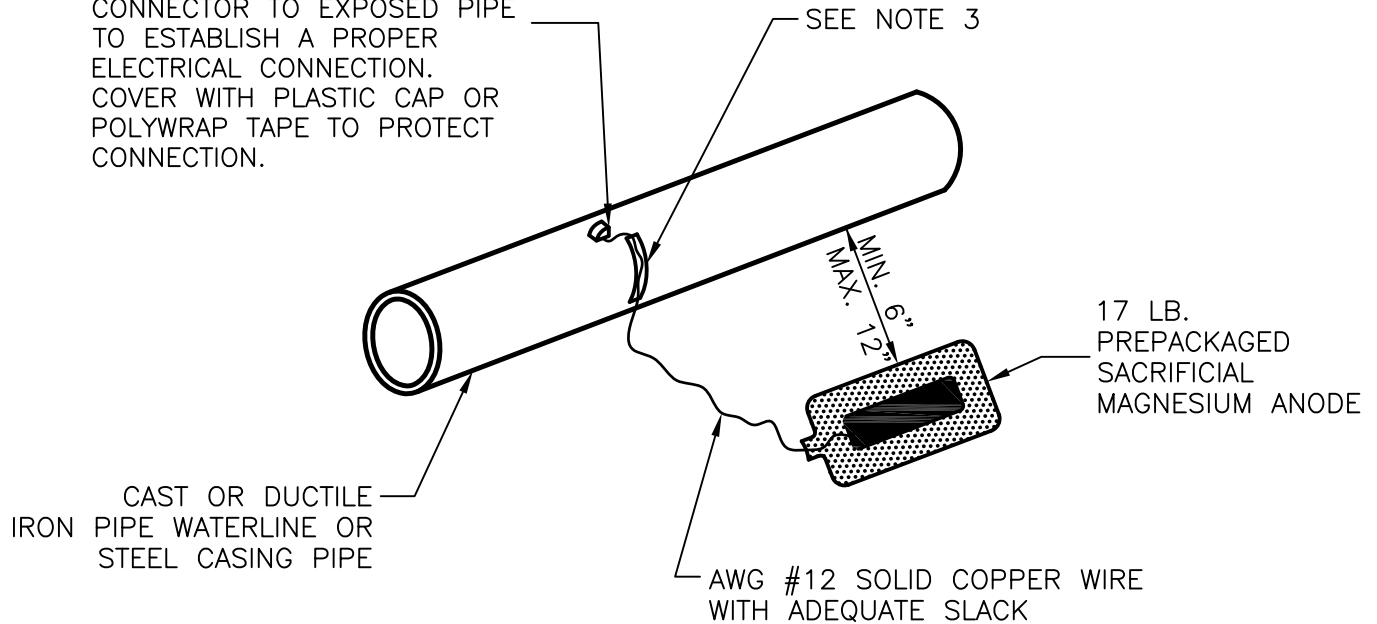
**STANDARD DETAIL
WATERLINE UTILITY MARKER**

DWG. NO.
SD33

DATE
9/16

REVISED

SURFACE COATING ON EXISTING PIPE TO BE REMOVED WITH HAND FILE OR MECHANICAL GRINDER. FUSE WELD ANODE CONNECTOR TO EXPOSED PIPE TO ESTABLISH A PROPER ELECTRICAL CONNECTION. COVER WITH PLASTIC CAP OR POLYWRAP TAPE TO PROTECT CONNECTION.



NOTES:

1. INSTALL MAGNESIUM ANODES PER MANUFACTURER'S RECOMMENDATIONS.
2. SACRIFICIAL ANODE BAG SHALL BE WETTED BEFORE BACKFILLING.
3. WIRE TO BE PLACED LOOSELY ON PIPE SURFACE AND SECURED IN PLACE WITH POLYWRAP TAPE. WIRE SHALL BE PLACED WITHOUT TENSION ONTO BOTTOM OF EXCAVATION AND CAREFULLY BACKFILLED WITH STONE TO PREVENT DAMAGE.
4. FOR CAST IRON AND DUCTILE IRON WATERLINE, ANY EXISTING POLYWRAP AROUND PIPE SHALL BE SECURED AROUND CONNECTING WIRES AND TAPED UP TO PROTECT WATERLINE AND WIRING ACCORDINGLY.

DETAIL

N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD34_MAG_ANODE

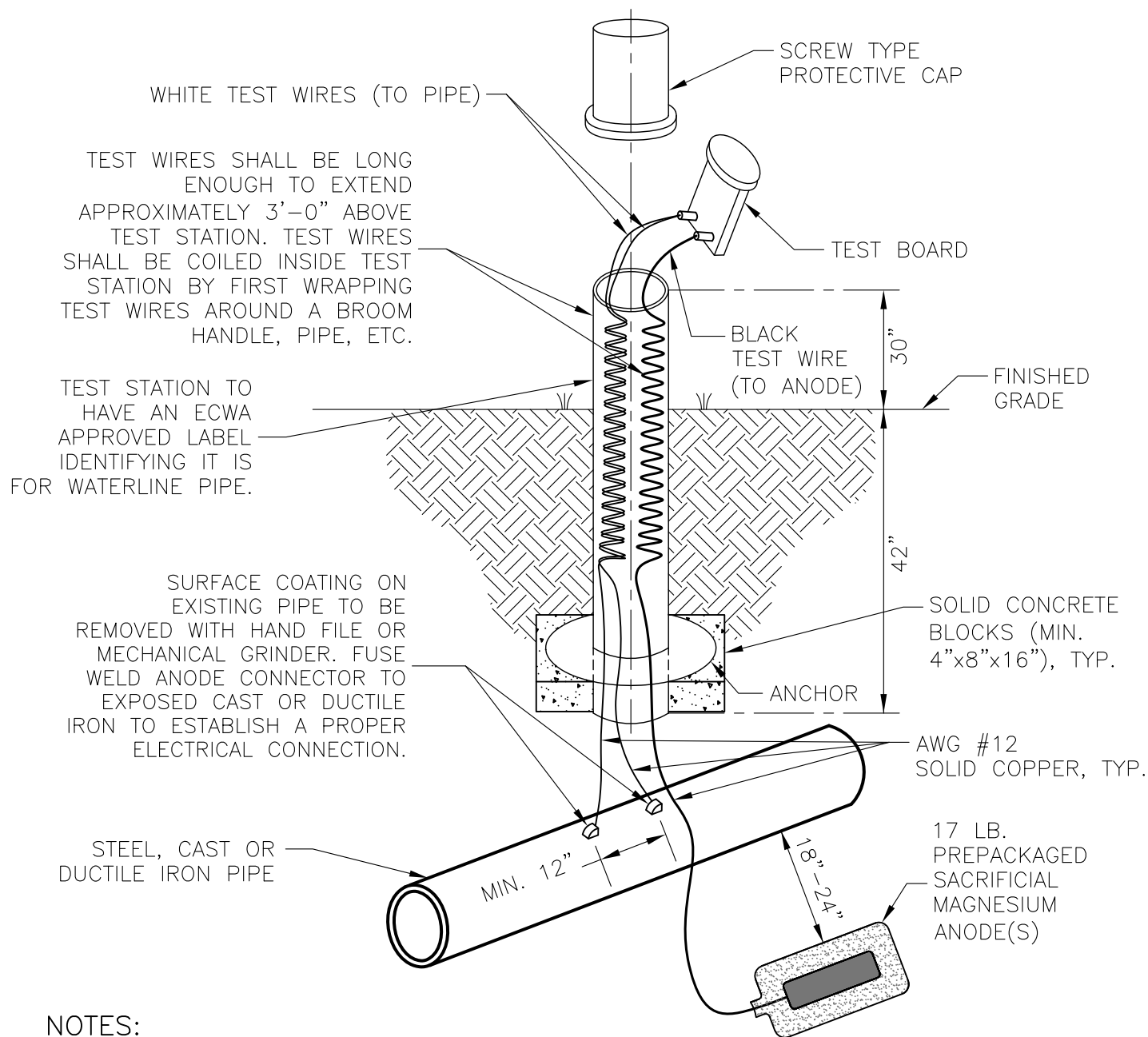
**ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK**

**STANDARD DETAIL
MAGNESIUM ANODE INSTALLATION**

DWG. NO.
SD34

DATE
7/16

REVISED
9/16



NOTES:

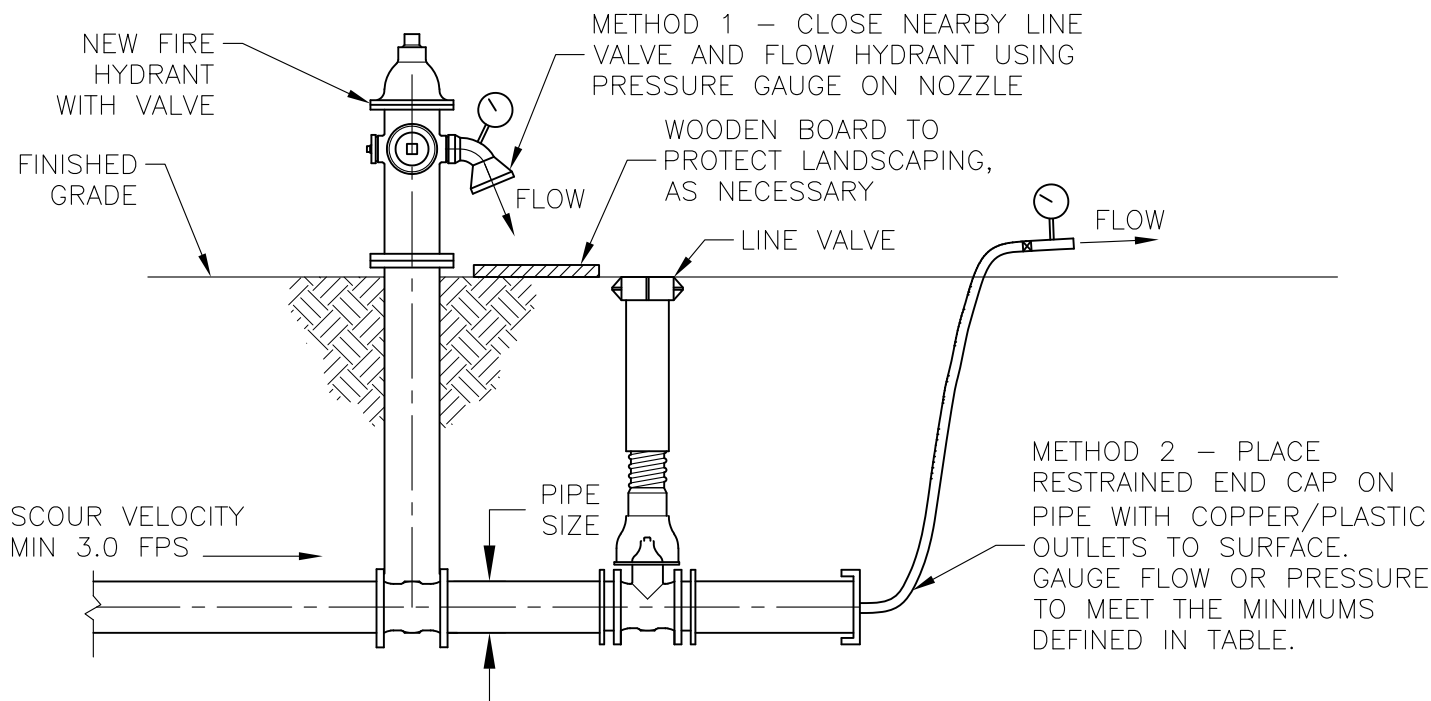
1. TEST STATION SHALL ONLY BE INSTALLED IN GRASS AREAS, MINIMUM OF 3 FT. FROM SIDEWALK, DRIVEWAY AND PAVEMENT AREAS.
2. TEST STATION SHALL BE MADE OF POLYETHYLENE OR POLYCARBONATE AND BLUE IN COLOR.
3. SACRIFICIAL ANODE BAGS SHALL BE WETTED BEFORE BACKFILLING.
4. ANY EXISTING POLYWRAP AROUND WATERLINE SHALL BE RESECURED AROUND TEST WIRES WITH POLYWRAP TAPE TO PROTECT PIPE AND WIRING ACCORDINGLY.
5. CONTRACTOR SHALL DEMONSTRATE THAT TEST STATION IS FUNCTIONING PROPERLY AFTER INSTALLATION IS COMPLETE.

DETAIL

N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD35_MAG_ANODE_TEST_STA

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL MAGNESIUM ANODE TESTING STATION FOR STEEL CASING PIPE AND CIP/DIP		DWG. NO. SD35	
			DATE 7/16	REVISED 12/17



PIPE SIZE (IN)	REQUIRED FLOW (GPM)	METHOD 1 HYDRANT FLOW		METHOD 2 END CAP FLOW	
		2 1/2" NOZZLE PRESSURE (PSI)	4" NOZZLE PRESSURE (PSI)	2" I.D. PRESSURE (PSI)	3" I.D. PRESSURE (PSI)
6	275	7	1	7	2
8	500	9	2	22	5
10	750	20	4	50	10
12	1100	44	7	—	22
16	1900	—	20	—	62
20	3000	—	50	—	—

I.D. = INNER DIAMETER

NOTES:

1. TO OBTAIN SCOUR VELOCITY (3.0 FPS) IN THE WATERLINE, CONTRACTOR SHALL ACHIEVE FLOWRATE AT NOZZLE DEFINED IN TABLE. PRESSURE GAUGE USED SHALL SHOW A HIGHER PRESSURE THAN THE MINIMUMS DEFINED IN THE TABLE.
2. OUTLET PRESSURE MEASURED BY PITOT GAUGE.
3. ENGINEER SHALL PROVIDE CALCULATIONS IF CONNECTIONS ARE OTHER THAN THOSE SHOWN, IF MULTIPLE CONNECTIONS ARE USED, OR AS REQUESTED BY ECWA.
4. TO FLUSH THREE PIPE VOLUMES, MINIMUM FLUSHING TIME (IN SECONDS) EQUALS THE LENGTH OF PIPE BEING FLUSHED, IN FEET.

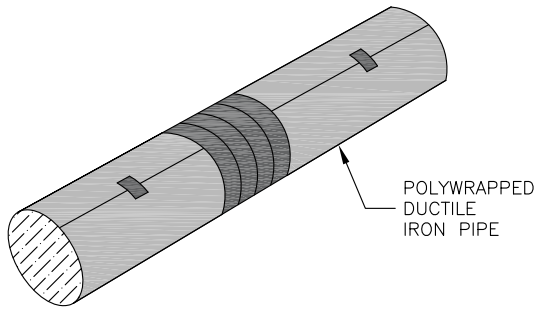
SECTION

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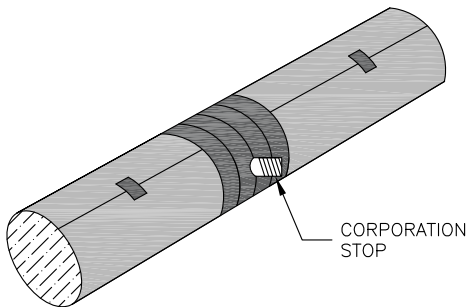
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<p>ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK</p>	<p>STANDARD DETAIL WATERLINE FLUSHING</p>	<p>DWG. NO. SD36</p>	
		<p>DATE 6/16</p>	<p>REVISED 3/18</p>

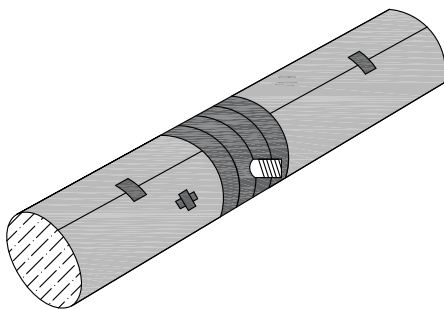
REVISÉD



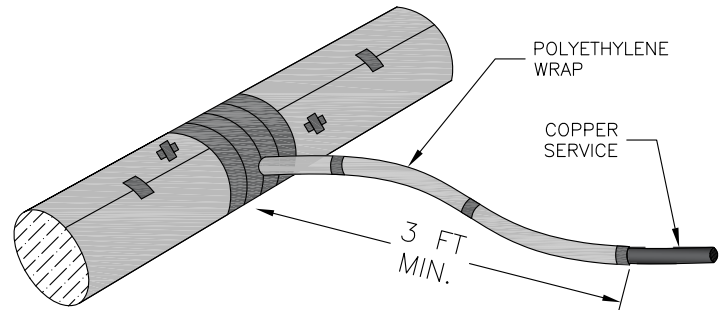
STEP 1.
WRAP TWO OR THREE LAYERS OF TAPE COMPLETELY AROUND THE PIPE WHERE THE TAPPING MACHINE WILL BE PLACED.



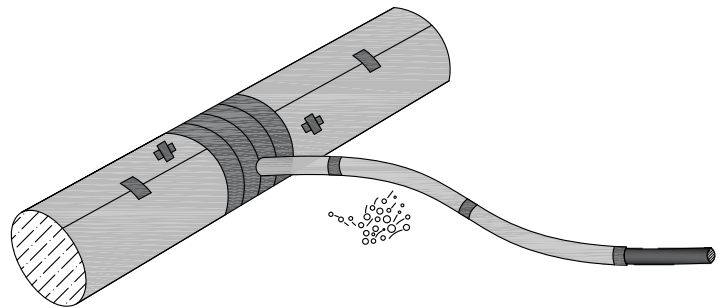
STEP 2.
MOUNT THE TAPPING MACHINE ON THE TAPED AREA AND MAKE THE TAP DIRECTLY THROUGH THE TAPE AND POLYWRAP. INSTALL CORPORATION STOP.



STEP 3.
INSPECT THE ENTIRE AREA FOR DAMAGE AND REPAIR IF NECESSARY.



STEP 4.
WRAP ANY CONNECTED COPPER SERVICE LINE WITHIN THREE FEET OF THE PIPE WITH POLYETHYLENE AND SECURE WITH TAPE.



STEP 5.
CAREFULLY BACKFILL THE TRENCH ACCORDING TO THE PROCEDURES IN AWWA C600 STANDARD. TO PREVENT DAMAGE DURING BACKFILLING ALLOW ADEQUATE SLACK IN THE TUBE AT THE JOINT. BACKFILL SHOULD BE FREE OF CINDERS, ROCKS, BOULDERS, NAILS, STICKS, OR OTHER MATERIALS THAT MIGHT DAMAGE THE POLYETHYLENE. AVOID DAMAGING THE POLYETHYLENE WHEN USING TAMPING DEVICES.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD38_TAP_POLY_WRAP_PIPE

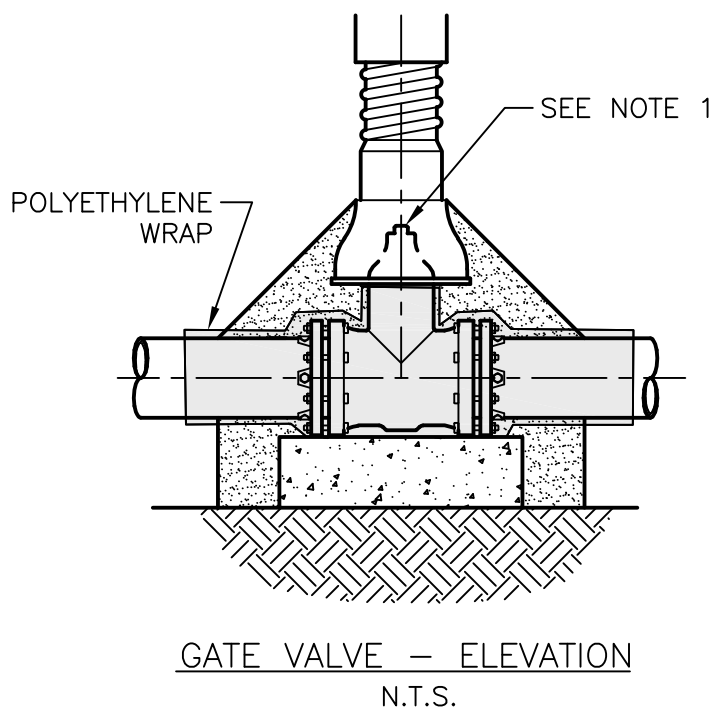
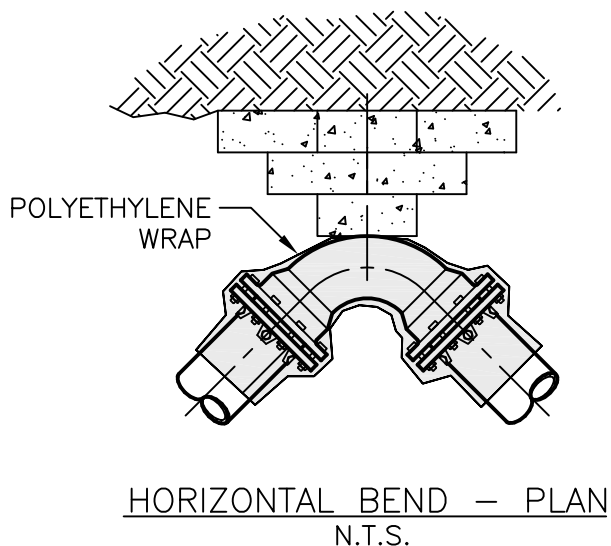
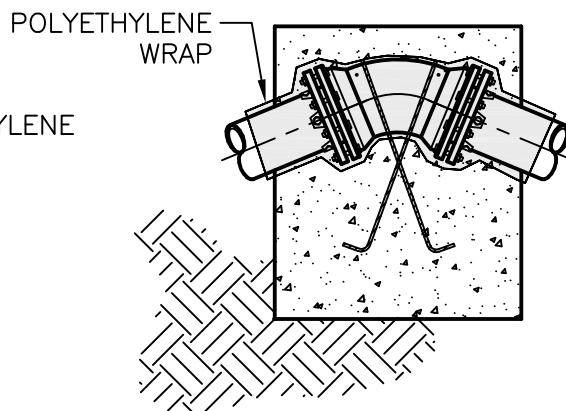
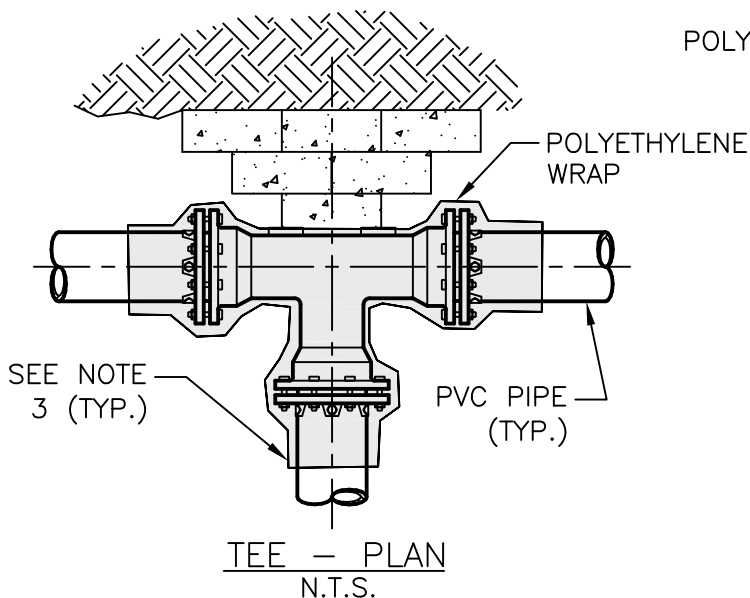
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TAPPING POLYWRAPPED PIPE

DWG. NO.
SD38

DATE
05/18

REVISED



NOTES:

1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON GATE VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PVC PIPE WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

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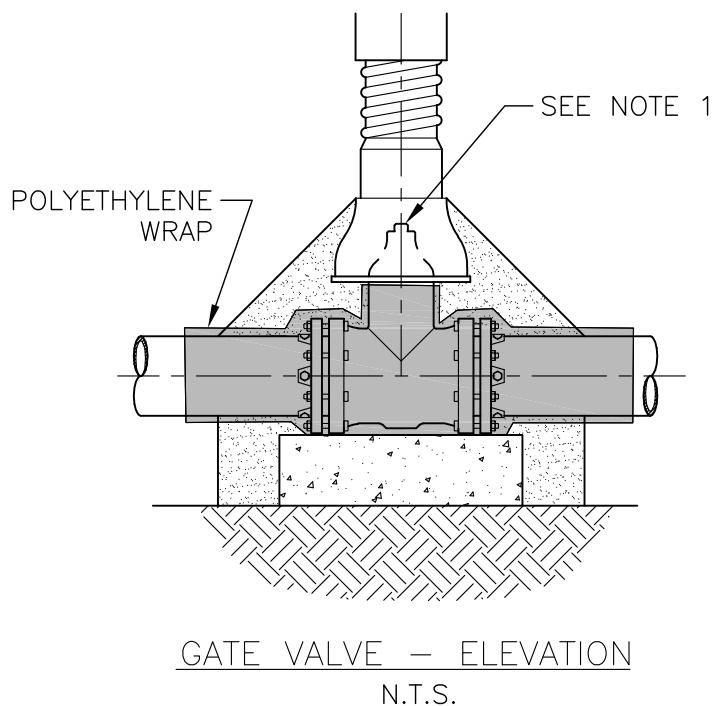
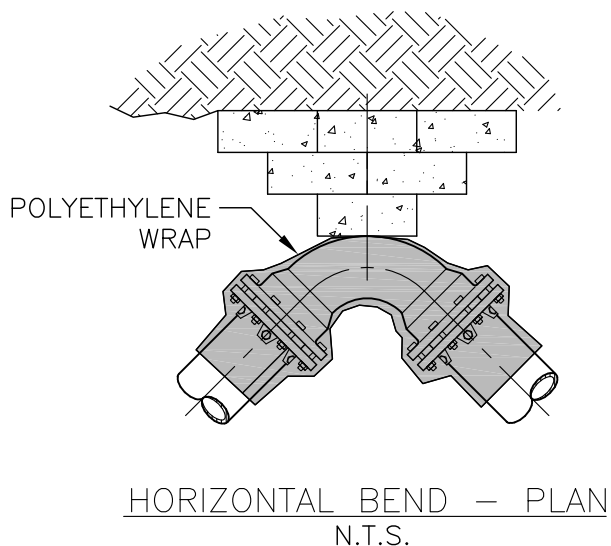
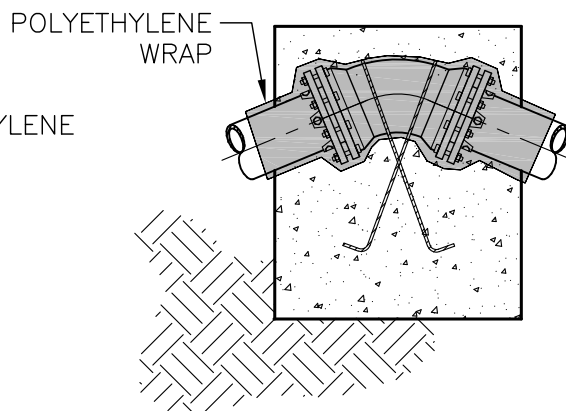
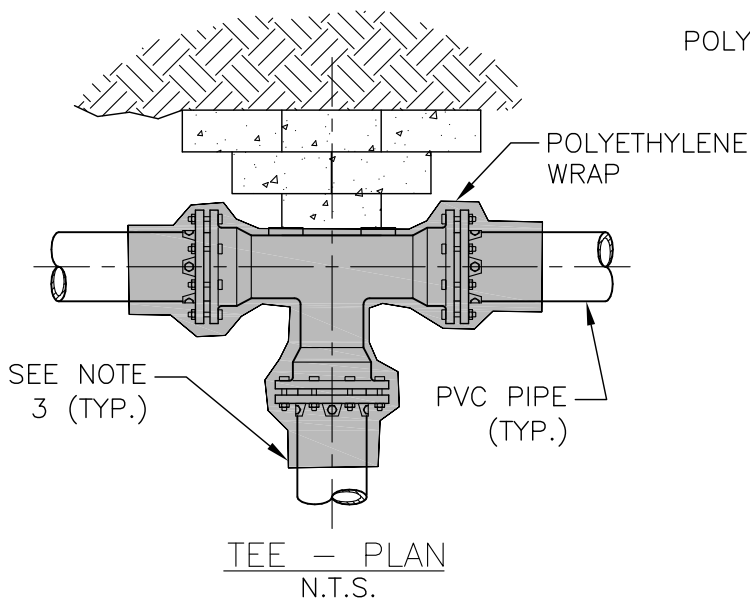
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
POLYWRAPPING DUCTILE IRON
FITTINGS ON PVC PIPE

DWG. NO.
SD39

DATE
3/18

REVISED



NOTES:

1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

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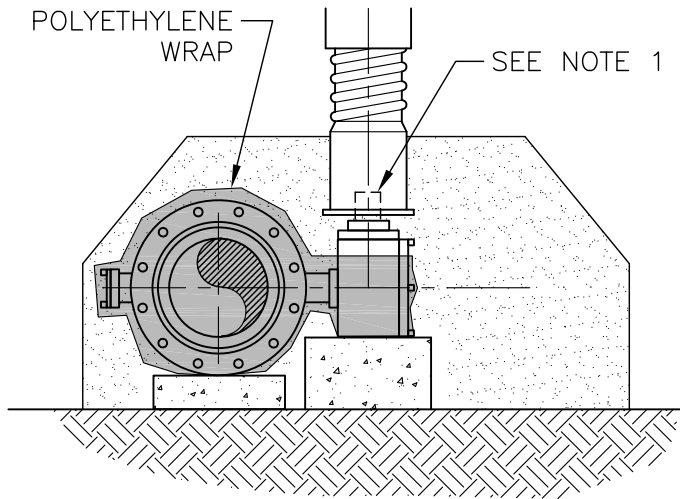
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
POLYWRAPPING CAST/DUCTILE
IRON FITTINGS

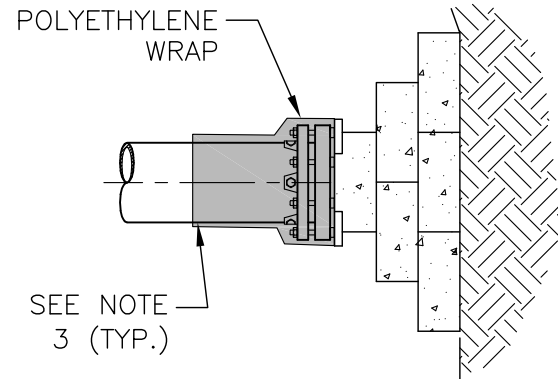
DWG. NO.
SD39A

DATE
3/18

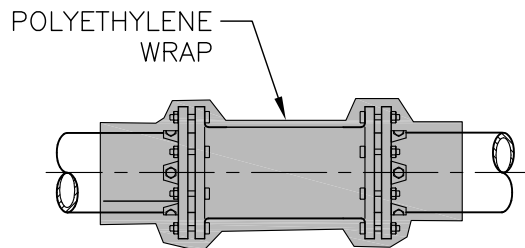
REVISED
12/18



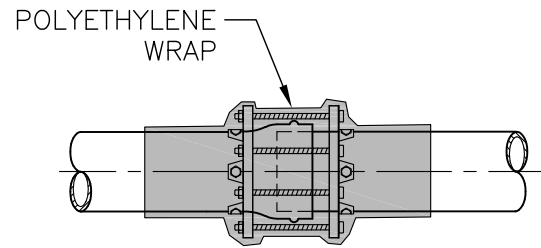
BUTTERFLY VALVE — ELEVATION
N.T.S.



END CAP / PLUG
N.T.S.



SOLID SLEEVE OR
RESTRAINED COUPLING
N.T.S.



EXTERNAL JOINT RESTRAINT
N.T.S.

NOTES:

1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

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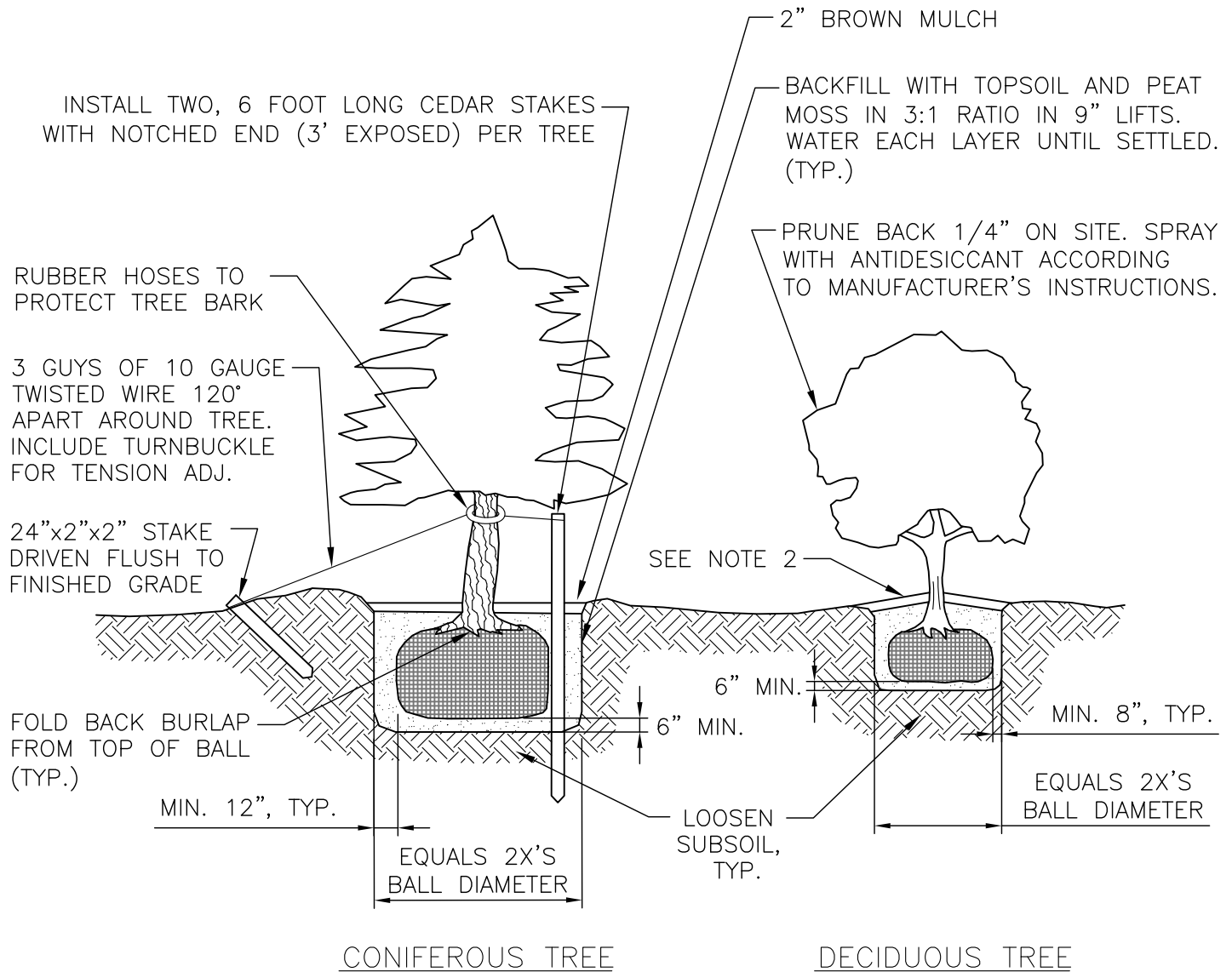
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
POLYWRAPPING CAST/DUCTILE
IRON FITTINGS

DWG. NO.
SD39B

DATE
12/18

REVISED



NOTES:

1. WRAP DECIDUOUS TREE TRUNKS WITH BURLAP OR ASPHALTIC PAPER TREE WRAP.
2. FOR DECIDUOUS TREES, CROWN TOPSOIL 4" ABOVE GRADE AND INSTALL 2" BROWN MULCH ON TOP.
3. FOR CONIFEROUS TREES, GROUND LINE TYPE TO BE THE SAME AS EXISTED AT THE SOURCE NURSERY.
4. SPECIES OF NEW TREES TO BE DETERMINED BY ENGINEER AND OWNER.
5. ALL TREES TO BE INSTALLED PLUMB AND AT PROPER BURIAL DEPTH.

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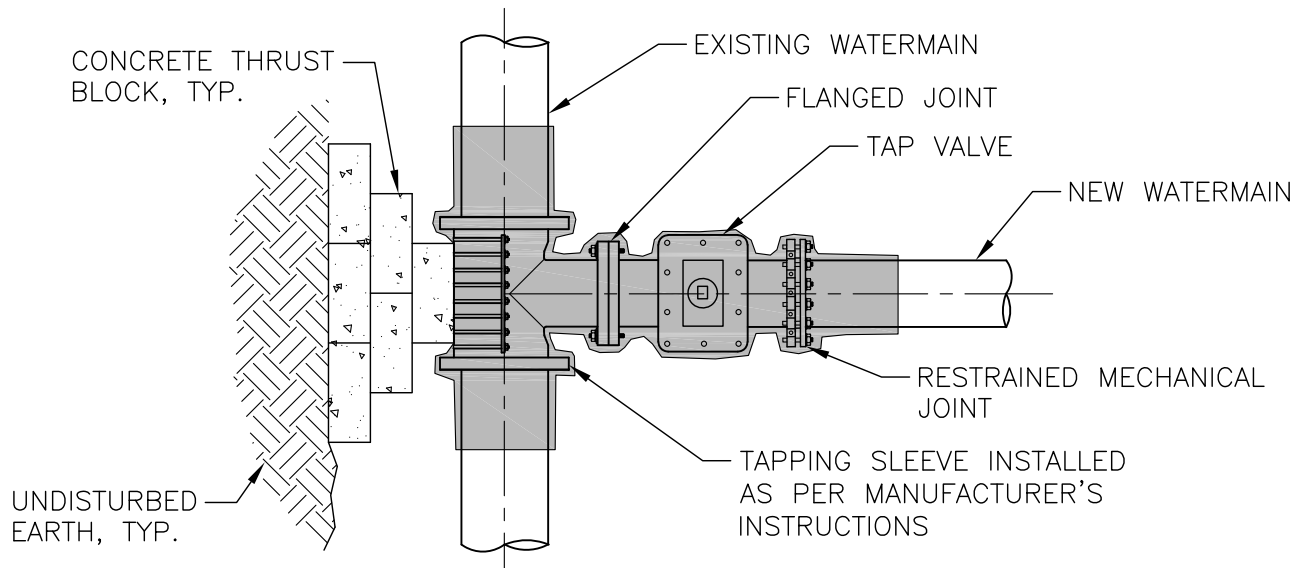
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TREE PLANTING

DWG. NO.
SD40

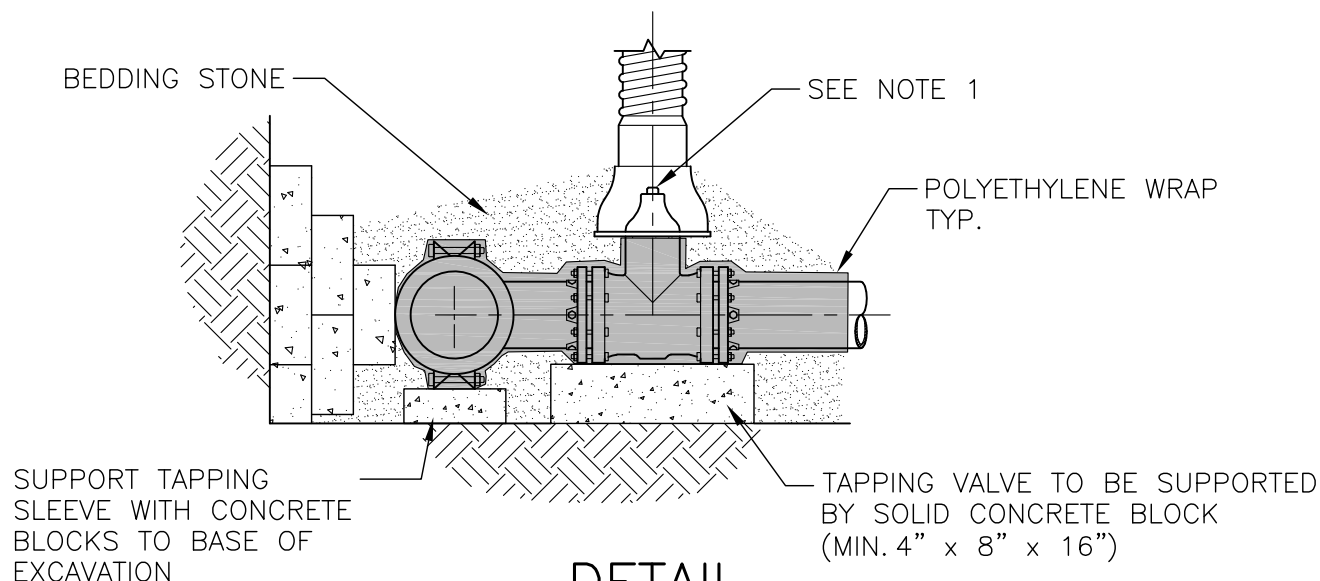
DATE
04/18

REVISED



PLAN

N.T.S.



DETAIL

N.T.S.

NOTES:

1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT.
2. ASSEMBLY TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

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ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

STANDARD DETAIL
TAPPING SLEEVE AND VALVE

DWG. NO.
SD42

DATE
01/19

REVISED