

Contract Documents

Town of Yorktown, New York

Cleaning and Cement Mortar Lining of Water Main Along: Strawberry Road Hanover Street

June 2022

BID SET



Weston & Sampson PE, LS, LA, PC
1 Winners Circle, Suite 130
Albany, NY 12205
tel: 518.463.4400

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TOWN OF YORKTOWN
PUBLIC WORKS CONTRACTS BID

NOTICE TO BIDDERS

NOTICE IS HERE GIVEN that sealed bids will be received by the Town Clerk, Town of Yorktown, Yorktown, NY until 11:00 A.M. on Monday, July 11, 2022 at Town Hall, 363 Underhill Avenue, Yorktown Heights, N.Y. 10598 for the Cleaning and Cement Mortar Lining of Water Mains Along Strawberry Road and Hanover Street project, at which time and place said bids will be publicly opened and read aloud.

Copies of the Bid Documents will be available in the office of the Town of Yorktown Town Clerk located at 363 Underhill Avenue, Yorktown Heights, NY 10598, on weekdays from 8:00 am to 4:00 pm, as well as the Town's website, www.yorktownny.org, or on BidNet Direct, www.bidnetdirect.com for a non-refundable \$50 deposit. A completed Bid Proposal and associated documents must be returned to the Town Clerk, 363 Underhill Avenue, Yorktown Heights, NY 10598, marked: "Bid: Cleaning and Cement Mortar Lining of Water Mains Along Strawberry Road and Hanover Street project."

Bid security in the form of a bid bond, certified check, treasurer's, or cashier's check, payable to the Town, is required in a dollar amount of five percent of the bid amount.

The selected contractor shall furnish a performance bond and a payment bond in amount at least equal to one hundred percent (100%) of the contract price as stipulated in Section 00700, GENERAL CONDITIONS of these specifications.

The scope of work includes but is not limited to the following items:

- A. Strawberry Road:
The project includes but is not limited to the following items: cleaning and cement lining of approximately 1,400 lf of 8-inch diameter cast iron pipe, installation of new valves, fittings and fire hydrants, installation of temporary water service for all impacted users, trench restoration, paving, traffic control, erosion and sedimentation control, and site restoration.
- B. Hanover Street: Cleaning and cement lining of approximately 6,000 lf of 6-inch and 8-inch diameter cast iron pipe, installation of new valves, fittings, and fire hydrants, installation of temporary water service for all impacted users, trench restoration, paving, traffic control, erosion and sedimentation control, and site restoration.

A non-mandatory Pre-Bid meeting will be held on, Tuesday, June 28, 2022 at 1:00 PM at the Yorktown Water District Office, located at 1080 Spillway Road, Shrub Oak, N.Y. 10588. The Town reserves the right to waive any informalities or to reject any or all bids.

Diana L. Quast, Town Clerk
Town of Yorktown
Certified Municipal Clerk

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SECTION 00200

INSTRUCTIONS TO BIDDERS

1. Receipt and Opening of Bids
2. Location and Work to be Done
3. Deposit on Documents
4. Preparation of Bid
5. Modification of Bids
6. Obligation of Bidder
7. Information not Guaranteed
8. Bid Security
9. Time for Completion
10. Addenda and Interpretations
11. Bid Opening Procedure
12. Comparison of Bids
13. Right to Reject Bid
14. Ability and Experience of Bidder
15. Conditions of Work
16. Security for Faithful Performance
17. Power of Attorney
18. Laws and Regulations
19. Liquidated Damages for Failure to Enter into Contract
20. Items and Indeterminate Items
21. Prevailing Wage Rates
22. Guarantee
23. Safety and Health Regulations
24. Efficiency Guarantee Bond
25. OSHA 10 Hour Construction Safety and Health Course Requirements

1. Receipt and Opening of Bids

The Town of Yorktown herein called the TOWN, acting by and through its Water Superintendent will receive sealed Bids for the construction of the Cleaning and Cement Mortar Lining of Water Main Along Strawberry Road and Hanover Street.

Such bids addressed to the Town of Yorktown and endorsed "Bid for the Cleaning and Cement Mortar Lining of Water Main Along Strawberry Road and Hanover Street project" will be received at the Yorktown Clerk's Office at Town Hall, located at 363 Underhill Avenue, Yorktown Heights, NY 10598 until 11:00 AM on Monday, July 11, 2022 at which time and place said bids will be publicly opened and read aloud.

If the building at which bids are to be received is closed for any reason on the date and time that bids are due, receipt of bids by the TOWN will be postponed until the next business day at the time originally stated for receipt of bids.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. By submission of a bid, the bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

2. Location and Work to be Done

The location, general characteristics, and principal details of the Work are indicated on a set of drawings titled "Cleaning and Cement Mortar Lining of Water Main Along Strawberry Road and Hanover Street project" and numbered 1 to 18, inclusive.

Additional drawings showing details in accordance with which the Work is to be done may be furnished by addendum from time to time during the bidding period by the ENGINEER and shall then become a part of the Contract Documents.

The CONTRACTOR shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, and all other things necessary to do all work required for the completion of each item of the Work and as herein specified.

The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item.

3. Cost of Documents

A cost, in the amount as specified in NOTICE TO BIDDERS, will be accepted by the Town Clerk by check, payable to Town of Yorktown, for each set of Contract Documents. Not refundable.

4. Preparation of Bid

Each bid must be submitted on the prescribed form in Section 00410. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and endorsed with the name of the project as specified in Receipt and Opening of Bids, above.

If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in Receipt and Opening of Bids, above.

5. Modification of Bids

Any bidder may modify its bid by written communication at any time prior to the scheduled closing time for receipt of bids. Any telegraphic communication must be received by the TOWN prior to the closing time, and provided further, for any telegraphic communication

that modifies a bid the TOWN is satisfied that a written confirmation of the modification over the signature of the bidder was mailed prior to the closing time.

The modification communication shall not reveal the bid price but shall provide the addition or subtraction or other modification so that the final prices or terms will not be known by the TOWN until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the facsimile transmission.

6. Obligation of Bidder

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his bid.

7. Information not Guaranteed

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the TOWN. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the TOWN does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents.

It is further agreed and understood that no bidder or CONTRACTOR shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or grounds for any claim or demand against the TOWN or the ENGINEER, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

8. Bid Security

Each bid must be accompanied by a certified check, a bid bond, a treasurer's, or cashier's check, payable to the TOWN, in the amount stated in NOTICE TO BIDDERS. Such deposits will be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining deposits will be returned promptly after the TOWN and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to any bidder within 30 days, Saturdays, Sundays and legal holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

9. Time for Completion

The bidder must agree to commence work on or before a date to be specified in the written "Notice to Proceed" from the TOWN and to fully complete the project within the time limit stated in Section 00410, FORM OF GENERAL BID.

10. Addenda and Interpretations

No interpretation of the meaning of the plans, specifications or other prebid documents will be made to any bidder orally, and if provided orally, shall not be relied upon by bidders unless confirmed in a written addendum. All information given to bidders other than by means of the plans, specifications, or by addenda, as described below, is given informally, and shall not be used as the basis of a claim against the TOWN or the ENGINEER.

Every request for such interpretation should be in writing (typed, not handwritten) addressed to Weston & Sampson, PE, LS, LA, PC, 1 Winners Circle, Suite 130 Albany, New York 12205, and to be given consideration must be received at least ten working days prior to the date fixed for the opening of bids.

Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, when issued will be emailed to all prospective bidders to email addresses furnished by them for such purposes. Bidders picking up sets of bid documents will be given all addenda issued to date and will be required to sign for all documents, acknowledging receipt. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under its bid as submitted. All addenda so issued shall become part of the Contract Documents.

11. Bid Opening Procedure

The following list of requirements shall be met by each filed bid.

Bids shall be filed at the place and before the time specified in Receipt and Opening of Bids, above.

The bid and all accompanying documents so required shall be signed by the Bidder or its authorized representative before submission.

All bidders shall include with their bids written acknowledgment of receipt of all addenda. Refer to acknowledgment form provided in Section 00410, FORM OF GENERAL BID.

12. Comparison of Bids

Bids will be compared on the basis of the quantities and unit and lump sum prices stated in the bid forms.

In the event that there is a discrepancy in Section 00410, FORM OF GENERAL BID between the lump sum or unit prices written in words and figures, the prices written in words will govern.

The TOWN agrees to examine and consider each FORM OF GENERAL BID submitted in accordance with the terms and conditions set forth herein and as set forth in Section 00410, FORM OF GENERAL BID.

13. Right to Reject Bid

The TOWN may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids, should the TOWN deem it to be in the public interest to do so.

The TOWN may also reject bids which in its sole judgment are either incomplete, conditional, obscure, or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, and may reject bids for any other reason permitted by law, or the TOWN may waive such omissions, conditions, or irregularities.

14. Ability and Experience of Bidder

No award will be made to any bidder who cannot satisfy the TOWN that it has sufficient ability and experience in this class of work and sufficient capital and plant to enable it to prosecute and complete the work successfully within the time named. The TOWN's decision or judgment on these matters will be final, conclusive, and binding to the fullest extent permitted by law.

The TOWN may make such investigations as it deems necessary, and the bidder shall furnish to the TOWN, under oath if so required, all such information and data for this purpose as the TOWN may request.

15. Conditions of Work

Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the CONTRACTOR, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

16. Security for Faithful Performance

Simultaneously with its delivery of the executed Contract, the CONTRACTOR shall furnish a surety bond or bonds as security for faithful performance of this Contract and for the payment of all persons performing labor and materials under this Contract as specified in Section 00700, GENERAL CONDITIONS included herein each in the amount of 100

percent of its bid. The surety on such bond or bonds shall be a surety company qualified to do business under the laws of the State and satisfactory to the TOWN. The bonds shall remain in force for one year after final acceptance of the work by the TOWN, unless the TOWN, in writing, releases the CONTRACTOR from the obligation sooner.

17. Power of Attorney

Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

18. Laws and Regulations

Applicable provisions of the Laws of New York and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Code of Federal Regulations and Laws of New York and Regulations exist, the more stringent requirement shall apply.

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances or bylaws, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

19. Liquidated Damages for Failure to Enter into Contract

The successful bidder, upon his failure or refusal to execute and deliver the Contract, Bonds and Certificates of Insurance required within 10 days after receipt of notice of the acceptance of the bid, shall except as otherwise provided by applicable law, forfeit to the TOWN, as liquidated damages for such failure or refusal, the security deposited with his/her bid, provided that the amount forfeited shall not exceed the difference between his/her bid price and the bid price of the next lowest responsible and eligible bidder. In case of death, disability, bonafide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the bidder, his/her bid deposit will be returned.

20. Indeterminate Items and Estimated Quantities

The work to be done under this Contract has been divided into parts or items, if applicable, to enable each bidder to bid on different portions of the work in accordance with its estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though each bidder may have judged that such quantity may be greater or less than the estimated quantity stated in Section 00410, FORM OF GENERAL BID.

21. Prevailing Wage Rates

Applicable provisions of the New York State Department of Labor and/or the United States Code and Code of Federal Regulations govern this Contract and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between the Code

of Federal Regulations and State Laws and Regulations exist, the more stringent requirement shall apply.

Prevailing Wage Rates as determined by the Commissioner of the New York State Department of Labor apply to this project. It is the responsibility of the contractor, before bid opening, to request from the Bureau of Public Work, if necessary, any additional information on Prevailing Wage Rates for those trades people who may be employed for the proposed work under this contract.

22. Guarantee

The Contractor shall guarantee that the Work and Services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other contract documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of this AGREEMENT titled "Partial Acceptance", the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance.

If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the TOWN may notify the Contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, corrections, or replacements to the satisfaction of the TOWN within seven (7) days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the TOWN may employ other persons to make said repairs, correction, or replacements, and charge the costs, including compensation for additional professional services, to the Contractor.

23. Safety and Health Regulations

This Project is subject to the Safety and Health Regulations of the U.S. Department of Labor set forth in Title 29 CFR, Part 1926 and to all subsequent amendments, and to the New York State Department of Labor, Division of Safety & Health, Official Compilation of Codes, Rules & Regulations (NYCCR) of the State of New York. Contractors shall be familiar with the requirements of these regulations.

24. Efficiency Guarantee Bond

Whenever it is written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period can be considered if the equipment supplier or manufacturer is willing to provide an "Efficiency Guarantee Bond" or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure.

25. OSHA 10 Hour Construction Safety and Health Course Requirements

Under Article 8 of the New York State Labor Law, for any public works project of at least \$250,000 in value, all laborers, workers, and mechanics working on the construction site shall be certified as having successfully completed a minimum of 10 hours of Construction and Health Safety Training, as approved by OSHA. The Contractor, subcontractor, or other person doing or contracting to do the whole or part of the work contemplated by the contract, shall provide proof to the Engineer of certification for successfully completing the course for each employee, prior to performing any work on the project.

END OF SECTION

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SECTION 00410

FORM OF GENERAL BID

Proposal of _____(hereinafter called "Bidder")*

a corporation, organized and existing under the laws of the State of _____

a joint venture

a partnership

an individual doing business as _____

To _____ (hereinafter called the Town).

Gentlemen:

The undersigned Bidder, in compliance with your invitation for bids for the construction of the Cleaning and Cement Mortar Lining of Water Main Along Strawberry Road and Hanover Street project having examined the plans and specifications with related documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies and to construct the project in accordance with the contract documents, as prepared by Weston & Sampson PE, LS, LA, PC, within the time set forth therein and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this bid is a part.

The Bidder hereby agrees to commence work under this contract on or before a date to be fixed in the written "Notice to Proceed" given by the Town to the Contractor and to fully complete the project within 365 consecutive days of the start date fixed in the "Notice to Proceed." The Bidder further agrees to pay as liquidated damages the sum of \$1,200 for each consecutive calendar day thereafter during which the work has not been fully completed.

Bidder acknowledges receipt of the following addenda:

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

STRAWBERRY ROAD				
PAYMENT ITEM NO.	PAYMENT ITEM DESCRIPTION & UNIT PRICE (IN WORDS)	ESTIMATED QUANTITY (UNIT)	UNIT PRICE (IN FIGURES)	TOTAL AMOUNT (IN FIGURES)
SR-1	MOBILIZATION, BONDS, AND INSURANCE			
	AND _____ DOLLARS	LS		
SR-2	TRAFFIC CONTROL			
	AND _____ DOLLARS	LS		
SR-3	CLEANING AND CEMENT LINING OF 8" WATER MAINS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	1400 LF		
SR-4	TEMPORARY BYPASS SYSTEM, FURNISHED & INSTALLED			
	AND _____ DOLLARS	LS		
SR-5	HYDRANTS, VALVES, AND CONNECTIONS			
	AND _____ DOLLARS	3 EA		
SR-6	8" WATER VALVES, FURNISHED & INSTALLED			
	AND _____ DOLLARS	2 EA		
SR-7	8" DUCTILE IRON PIPE & FITTINGS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	50 LF		
SR-8	ADDITIONAL NYSDOT TYPE 2 SELECT FILL, FURNISHED & INSTALLED			
	AND _____ DOLLARS	10 CY		
SR-9	PAVEMENT DRIVEWAY RESTORATION, FURNISHED & INSTALLED			
	AND _____ DOLLARS	10 SY		
SR-10	PAVEMENT ROADWAY RESTORATION, FURNISHED & INSTALLED			
	AND _____ DOLLARS	35 SY		
SR-11	EXPLORATORY EXCAVATIONS			
	AND _____ DOLLARS	2 EA		
SR-12	CONCRETE SIDEWALK REPLACEMENT, FURNISHED & INSTALLED			
	AND _____ DOLLARS	50 SF		
SR-13	LOAMING AND SEEDING, FURNISHED & INSTALLED			
	AND _____ DOLLARS	LS		
SR-14	ADDITIONAL FITTINGS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	6 EA		
	STRAWBERRY ROAD SUBTOTAL			
	AND _____ DOLLARS			

HANOVER STREET				
PAYMENT	PAYMENT ITEM DESCRIPTION &	ESTIMATED		TOTAL
ITEM	UNIT PRICE	QUANTITY	UNIT PRICE	AMOUNT
NO.	(IN WORDS)	(UNIT)	(IN FIGURES)	(IN FIGURES)
HS-1	MOBILIZATION, BONDS, AND INSURANCE			
	AND _____ DOLLARS	LS		
HS-2	TRAFFIC CONTROL			
	AND _____ DOLLARS	LS		
HS-3	CLEANING AND CEMENT LINING OF 6" WATER MAINS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	1,800 LF		
HS-4	CLEANING AND CEMENT LINING OF 8" WATER MAINS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	4,200 LF		
HS-5	TEMPORARY BYPASS SYSTEM, FURNISHED & INSTALLED			
	AND _____ DOLLARS	LS		
HS-6	HYDRANTS, VALVES, AND CONNECTIONS			
	AND _____ DOLLARS	9 EA		
HS-7	6" WATER VALVES, FURNISHED & INSTALLED			
	AND _____ DOLLARS	10 EA		
HS-8	8" WATER VALVES, FURNISHED & INSTALLED			
	AND _____ DOLLARS	17 EA		
HS-9	8" DUCTILE IRON PIPE & FITTINGS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	140 LF		
HS-10	12" DRAINPIPE, FURNISHED & INSTALLED			
	AND _____ DOLLARS	60 LF		
HS-11	ADDITIONAL NYSDOT TYPE 2 SELECT FILL, FURNISHED & INSTALLED			
	AND _____ DOLLARS	100 CY		
HS-12	PAVEMENT DRIVEWAY RESTORATION, FURNISHED & INSTALLED			
	AND _____ DOLLARS	40 SY		
HS-13	PAVEMENT ROADWAY RESTORATION, FURNISHED & INSTALLED			
	AND _____ DOLLARS	100 SY		
HS-14	EXPLORATORY EXCAVATIONS			
	AND _____ DOLLARS	10 EA		
HS-15	CONCRETE SIDEWALK REPLACEMENT, FURNISHED & INSTALLED			
	AND _____ DOLLARS	40 SF		
HS-16	LOAMING AND SEEDING, FURNISHED & INSTALLED			
	AND _____ DOLLARS	LS		
HS-17	ADDITIONAL FITTINGS, FURNISHED & INSTALLED			
	AND _____ DOLLARS	20EA		
	HANOVER STREET SUBTOTAL			
	AND _____ DOLLARS			

TOTAL OF BID

The proposed Lump Sum contract price for both project areas, all-inclusive is:

_____ Dollars

and _____ Cents (\$ _____).

BIDS SHALL BE EVALUATED BY THE LOWEST TOTAL BID.

(All entries shall be made clearly in ink or typewritten. Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern).

The above lump sum price shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

The Bidder will comply with all local, state, and federal statutes, and will comply with the anti-discrimination clauses attached hereto as Schedule C, and made a part hereof, and will adhere to the requirements set forth in the aforesaid advertisement.

The Bidder agrees that it has complied with Section 103-d of the General Municipal Law of the State of New York, and agrees that it will comply with Section 103-a of said law. Copies of such section are attached hereto and made a part of these contract documents, and designated as Schedule D.

The Bidder will comply with section 220-h of Article 8 of the New York State Labor Law, which requires all workers on the construction site of a public works project with a value of at least \$250,000 to have received at least 10 hours of construction safety and health training as approved by OSHA.

The contract will be awarded to the lowest responsible and eligible bidder.

The Bidder understands that the Town reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal agreement attached in Section 00520 AGREEMENT.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of Section 00200 INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Town in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract prices in accordance with Section 00610 PERFORMANCE BOND, Section 00615 PAYMENT BOND, and as stipulated in Section 12 of Section 00700 GENERAL CONDITIONS of these specifications.

The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications.

1. Have been in business under present name for _____ years.
2. The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as Principals, are as follows:

(Attach supplementary list if necessary)

07/12/2017

00410-6

3. The Bidder shall state below what work of a similar character to that included in the proposed contract he has done, and give references that will enable the Town to judge his experience, skill and business standing (add supplementary page if necessary).

Completion Date	Project Name	Contract Amount	Design Engineer	Reference Name	Telephone No.
a.					
b.					
c.					
d.					
e.					
f.					

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.

Respectfully submitted:

Date _____

By _____

(Signature)

(Name - Typed or Printed)

(Title)

(SEAL - if bid is by a corporation)

(Business Name)

(Federal ID Number)

(Business Address)

(City and State)

(Telephone Number)

(Fax Number)



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SCHEDULE C

NON-DISCRIMINATION CLAUSE

During the performance of this AGREEMENT, the CONTRACTOR agrees as follows:

1. The CONTRACTOR will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status and will undertake programs of affirmative action to ensure that they are afforded equal employment opportunities without discrimination. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, lay-off, or termination, rates of pay or other forms of compensation, and selection for training or re-training, including apprenticeship and on-the-job training.

2. If the CONTRACTOR is directed to do so by the Town or the Office of State Contract Compliance (hereafter OSCC), the CONTRACTOR shall request each employment agency, labor union or representative will not discriminate because of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the CONTRACTOR'S obligation hereunder and the purposes of Executive Order 45 (1977).

3. 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, color, national origin, sex, age, disability or marital status.

4. The CONTRACTOR will comply with all the provisions of Executive Order 45 (1977) and of rules, regulations and orders issued pursuant thereto and will furnish all information and reports required by said Executive Order or such rules, regulations and orders, and will permit access to its books, records and accounts and to its premises by the DEPARTMENT or the OSCC for the purposes of ascertaining compliance with said Executive Order and such rules, regulations and orders.

5. If the CONTRACTOR does not comply with the equal opportunity provisions of this contract, with Executive Order 45 (1977), or with such rules, regulations, this contract or any portion thereof, may be canceled, terminated, or suspended or payments thereon withheld, or the CONTRACTOR may be declared ineligible for future State-assisted contracts, in accordance with procedures authorized in Executive Order 45 (1977), and such other sanctions may be imposed and remedies invoked as are provided in said Executive Order or by rule, regulation or order issued pursuant thereto, or as otherwise provided by law.

SCHEDULE D

SECTION 103-d GENERAL MUNICIPAL LAW OF NEW YORK STATE

Every bid or proposal hereafter made to a political subdivision of the state or any public department, agency, or official thereof 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. 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 certified as to its own organization, under penalty of perjury, that to the best of 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; and
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 therefor. 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 political subdivision public department, agency, or official thereof 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 prices lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or 8 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).

2. Any bid hereafter made to any political subdivision of the state or any public department, agency, or official thereof by a corporate bidder for work or service performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule regulation or local law, and where such bid contains the certification referred to in subdivision one of this section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

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SECTION 00420

BIDDER'S QUALIFICATION FORM

This form should be submitted upon request of Owner by the three lowest Bidders after opening of the bids, in accordance with Paragraph 3.1 of Section 00200 - INSTRUCTIONS TO BIDDERS.

1. Name of Contractor _____
2. How many years experience have you had in construction work of the same general type as this Contract? _____
3. Give information about the construction experience of the principals of your present organization who will be involved in the Contract (Add additional sheets if necessary):

<u>Individual's Name</u>	<u>Present Position in Organization</u>	<u>Years of Construction Experience</u>	<u>Proposed Size and Type of Work</u>	<u>Position for This Contract</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

4. Give information about your present contract workload, or contracts to which you are committed:

<u>Contract Price</u>	<u>Type of Construction</u>	<u>Location of Work</u>	<u>Percentage Completed</u>	<u>Expected Completion Date</u>	<u>Name and Address of Owner</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

5. Has your organization or any other partner thereof, failed to complete a construction contract? _____

6. References. Give only engineers, architects or owner's representatives who are directly familiar with your work on similar projects.

<u>Name</u>	<u>Business Address</u>	<u>Telephone</u>	<u>Project</u>

7. Is any litigation pending against your organization? _____

8. Has your organization been denied any construction project where it was the lowest bidder? _____

If yes, give details: _____

9. Give as reference a surety company or companies regarding your organization's financial responsibility and general reliability:

Name of Surety Company: _____

Name of Local Agent (if different): _____

Local Address: _____

Telephone: _____

Person familiar with Bidder's account: _____

10. Attach a financial statement, audited if available, including your organization's latest balance sheet and income statement, prepared in accordance with generally accepted accounting principles. (This statement shall be for the local firm submitting the Bid, unless the local firm is a branch or subsidiary for which separate accounts are not available, in which case the statement shall be for the organization(s) which will contract to be a guarantor of any contract resulting from this Bid. Attach a notarized statement of an officer of that organization describing the relationship to the local firm and stating that the organization will act as guarantor of the local firm's contracts.) Any financial statement shall include:

A. Assets: list

1. Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses)
2. Net Fixed Assets
3. Other Assets
4. Total Assets (the sum of A1, A2 and A3)

B. Liabilities: list

1. Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provisions for income taxes, advances, accrued salaries and accrued payroll taxes)
2. Other Liabilities (e.g., capital, capital stock, authorized and outstanding share par values, earned surplus and retained earnings)
3. Total Liabilities (the sum of B1 and B2)

C. Net Worth (A minus B)

D. Billings: State the firm's average annual billings for the five years prior to the date of this Bid and the total billings for the six months prior to the date of this Bid.

E. State the name and address of the person or firm preparing this financial statement.

F. State the name and address of the person or firm (if any) auditing this financial statement. If this statement was not audited, state "not audited".

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SECTION 00430

NON-COLLUSIVE BIDDING CERTIFICATION

This Non-Collusive Bidding Certificate is made pursuant to Section 103-d of the General Municipal Law of the State of New York.

By submission of this bid, Bidder and each person signing on behalf of 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 or her 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 Bidder and will not knowingly be disclosed by 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.

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

Dated: _____

Bidder: _____
(Legal name of person, firm, or corporation)

By: _____
(Signature)

(Please Print Name)

(Title)

State of New York)

Town of _____)ss.:

On the ____ day of _____ in the year 2022 before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(Notary Public)

SECTION 00520

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2022, by and between The Town of Yorktown hereinafter called "TOWN," acting herein through its Water Superintendent, and _____ doing business as (a corporation) (a limited liability company) (a partnership) (a joint venture) (an individual) * located in the (City) (Town)* of _____, County of _____, and State of _____, hereinafter called "CONTRACTOR."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the TOWN, the CONTRACTOR hereby agrees with the TOWN to commence and complete the project described as follows:

CLEANING AND CEMENT MORTAR LINING OF WATER MAIN ALONG STRAWBERRY ROAD AND HANOVER STREET

hereinafter called the project, for the sum of _____ Dollars and _____ Cents (\$ _____) and all extra work in connection therewith, under the terms as stated in the Contract Documents; and at its own proper cost and expense to furnish superintendence, labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, bailing, shoring, removal, and all other things necessary to complete the said project in accordance with the conditions and prices stated in Section 00410, FORM OF GENERAL BID, Section 00700, GENERAL CONDITIONS, the plans, which include all maps, plates, drawings, blue prints, and the specifications and all other contract documents therefor as prepared by Weston & Sampson, PE, LS, LA, PC, including all bid documents.

The CONTRACTOR hereby agrees to commence work under this contract on or before a date to be fixed in the written Notice to Proceed given by the TOWN to the CONTRACTOR and to fully complete the project within 365 consecutive days of the start date fixed in the Notice to Proceed. The CONTRACTOR further agrees to pay as liquidated damages the sum of \$1,200 for each consecutive calendar day thereafter during which the work has not been fully completed.

The CONTRACTOR shall not discriminate against or exclude any person from participation herein on grounds of race, color, religious creed, national origin, sex, sexual orientation, ancestry, or age; and that it shall take affirmative actions to ensure that applicants are employed, and that employees are treated during their employment, without regard to race, color, religious creed, national origin, sex, sexual orientation, ancestry, age, or handicapped status.

The CONTRACTOR shall not participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code of 1986, as amended, or engage in conduct declared to be unlawful by New York State General Laws.

Applicable provisions of New York General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Agreement and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Federal and State Laws and Regulations exists, the more stringent requirement shall apply.

The TOWN agrees to pay the CONTRACTOR in current funds for the performance of the Agreement, subject to additions and deductions, as provided in Section 00700, GENERAL CONDITIONS, and to make payments on account thereof as provided in Section 00700, GENERAL CONDITIONS.

The Contractor shall submit and shall require all of its subcontractors required to keep a record of hours and wages paid to laborers employed on the project to submit to the awarding authority within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll records, subscribed and affirmed to be true.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in six (6) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

AGREED:

Town of Yorktown , New York
(TOWN)

By _____

(Name)

(Title)

(Contractor)

By _____

(Name)

(Title)

(Address)

(City and State)

Approved as to Form:

By _____
(TOWN's Counsel)

(Name)

This is to certify that an appropriation in the amount of this Contract is available therefor and that the Water Superintendent has been authorized to execute the Contract and approve all requisitions and change orders.

By _____
(TOWN's Accountant)

(Name)

CERTIFICATE OF VOTE
(to be filed if Contractor is a Corporation)

I, _____, hereby certify that I am the duly qualified and acting Secretary of
(Secretary of Corporation)
_____ and I further certify that a meeting of the Directors of said company,
12
duly called and held on _____, at which all members were present and voting, the
(Date of Meeting)
following vote was unanimously passed:

VOTED: To authorize and empower

Anyone acting singly, to execute Forms of General Bid, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By: _____
(Secretary of Corporation)

A True Copy:

Attest: _____
(Notary Public)

My Commission Expires: _____
(Date)

Subcontractor's Certification

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the General Contractor the following certification, which will be deemed a part of the resulting subcontract:

SUBCONTRACTOR'S CERTIFICATION

Name of the Subcontractor

certifies that it:

7. Will not discriminate in their employment practices;
8. Intends to use the following listed construction trades in the work under the contract:

and

9. Will make good faith efforts to comply with the minority employee and women employee workforce participation ratio goals and specific affirmative action steps contained herein; and
10. Is in compliance with all applicable federal and state laws, rules, and regulations governing fair labor and employment practices; and
11. Will provide the provisions of the "Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program" to each and every subcontractor employed on the Project and will incorporate the terms of this Section into all subcontracts and work orders entered into on the Project.
12. Agrees to comply with all provisions contained herein.

Signature of authorized representative of Subcontractor

Date

Printed name of authorized representative of Subcontractor

END OF SECTION

SECTION 00610

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)
a _____ hereinafter called "Principal" and
(Corporation, Partnership, Joint Venture, LLC or Individual)
_____ of _____, State of _____
(Surety) (City)

hereinafter called the "Surety" and licensed by the Department of Financial Services to do business under the laws of New York State are held and firmly bound to the Town of Yorktown, New York, hereinafter called "Town", in the penal sum of _____ Dollars and _____ Cents(\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal has entered into a certain contract with the Town (the "Contract"), dated the _____ day of _____, 20____, which Contract is by reference made a part hereof, for the construction described as follows:

CLEANING AND CEMENT MORTAR LINING OF WATER MAIN ALONG STRAWBERRY ROAD AND HANOVER STREET

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

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1) the Town has declared the Principal in default of the Contract or any provision thereof, or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the Town. The Town need not terminate the Contract to declare a Contractor Default or to invoke its rights under this Bond, and Contractor hereby agrees not to assert any claims against Surety under any indemnity or similar agreements on the grounds that Surety has interfered with the Contract by fulfilling its obligations hereunder in the absence of a termination of said Contract.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Town, shall promptly take one of following steps: (1) arrange for the Principal to perform and complete the work of the Contract; (2) arrange for a contractor other

than the Principal to perform and complete the work of the Contract; (3) reimburse the Town, in a manner and at such time as the Town shall reasonably decide, for all costs and expenses incurred by the Town in performing and completing the work of the Contract. Surety will keep Town reasonably informed of the progress, status, and results of any investigation of any claim of the Town.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Town shall be entitled to enforce any remedy available to the Town.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Contract; (2) additional design, professional services, and legal costs, including attorney's fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligations of the Principal, if any, as provided in the Contract; and (5) liquidated damages as provided in the Contract, or if no such damages are specified, actual damages and consequential damages resulting from the Contractor Default or any default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the State of New York.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

The Surety providing the Bond shall have a rating of A or better within Best's Key Rating Guide.

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

_____	_____
Principal	Witness as to Principal Signature
By _____	_____
Signature	Name and Title
_____	_____
Name and Title	Address
_____	_____
Address	City and State

City and State	(SEAL)

ATTEST:

_____	_____
Surety	Witness as to Surety Signature
By _____	_____
Attorney-in-Fact Signature	Name and Title
_____	_____
Name and Title	Address
_____	_____
Address	City and State

City and State	(SEAL)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

END OF SECTION

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SECTION 00615

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)
a _____ hereinafter called "Principal" and
(Corporation, Partnership, Joint Venture, Limited Liability Company, or Individual)
_____ of _____, State of _____
(Surety) (City) (State)
hereinafter called "Surety" and licensed to do business under the laws of the State of New York
are held and firmly bound to the Town of Yorktown, New York, hereinafter called "Town," in
the penal sum of _____
Dollars and _____ Cents (\$ _____) in
lawful money of the United States, for the payment of which sum well and truly to be made, we
bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly
by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal has
entered into a certain contract with the Town (the "Contract"), dated the _____ day of _____
_____, 20____, which Contract is by reference made a part hereof, for the construction
described as follows:

**CLEANING AND CEMENT MORTAR LINING OF WATER MAIN ALONG
STRAWBERRY ROAD AND HANOVER STREET**

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,
subcontractors, and corporations furnishing materials for or performing labor in the prosecution
of the work provided for in such contract, and any authorized extension or modification thereof,
including all amounts due for materials, lubricants, oil, gasoline, repairs on machinery,
equipment and tools, consumed or used in connection with the construction of such work, and all
insurance premiums on said work, and for all labor, performed in such work whether by
subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force
and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and
agrees that no change, extension of time, alteration or addition to the terms of the Contract or to
the work to be performed thereunder or the specifications accompanying the same shall in any
way affect its obligation on this bond, and it does hereby waive notice of any such change,
extension of time, alteration or addition to the terms of this Contract or to the work or to the
specifications. The Surety Company providing the bond shall have a rating of A or better within
the Best Key Rating Guide.

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

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

_____	_____
Principal	Witness as to Principal Signature
By _____	_____
Signature	Name and Title
_____	_____
Name and Title	Address
_____	_____
Address	City and State

City and State	(SEAL)

ATTEST:

_____	_____
Surety	Witness as to Surety Signature
By _____	_____
Attorney-in-Fact Signature	Name and Title
_____	_____
Name and Title	Address
_____	_____
Address	City and State

City and State	(SEAL)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

END OF SECTION

SECTION 00700
GENERAL CONDITIONS

<u>Section Numbers</u>	<u>Heading</u>
Section 1.	Bid Proposal Form
Section 2.	Pre-Bid Site Inspection
Section 3.	Quality and Samples
Section 4.	Request for information and/or clarification of the Bid Documents
Section 5.	Non-Collusion
Section 6.	Late Bids
Section 7.	Bid Opening
Section 8.	Acceptance and Rejection
Section 9.	Appeal of Determination of Non-Responsiveness and Non-Responsibility
Section 10.	Award
Section 11.	Notice of Award
Section 12.	Performance And Payment Bond
Section 13.	Assignment Prohibited
Section 14.	Special Requirements
Section 15.	Purchase of Additional Quantities of Bid Items
Section 16.	Contractor's Subcontracts and Material Lists
Section 17.	Representative Always Present
Section 18.	Performance
Section 19.	Insurance Requirements
Section 20.	Indemnification
Section 21.	Delivery Point
Section 22.	Date of Delivery
Section 23.	Damages
Section 24.	Warranty/Guarantee

<u>Section Numbers</u>	<u>Heading</u>
Section 25.	Breach of Contract/Termination
Section 26.	Prevailing Wage Rates and Supplements
Section 27.	Estimates and Payments
Section 28.	Payments to Subcontractors and Materialmen by Contractor
Section 29.	Change in Contract Price
Section 30.	Proper Method of Work and Materials
Section 31.	Utilities and Service Lines
Section 32.	Protection, Existing Structures
Section 33.	Acceleration of the Work
Section 34.	Stopping Work
Section 35.	Change in the Contract Time
Section 36.	Disputed Work – Notice of Claims for Damages

Section 1. Bid Proposal Form

- 1.1** The bidder shall complete the Bid Proposal Form by filling in the unit price and the total price in the appropriate designated spaces. Unit price and total price of each item bid shall be written legibly in ink, or typed. All bids shall be signed in ink. Any erasures or alterations shall be initialed in ink by the signer. The completed Bid Proposal Form shall be submitted, along with any documentation in support of the bid proposal if required by the Bid Documents, in a sealed envelope addressed as required in the Invitation to Bidders on or before the time and at the place so designated. Any Bid Proposal Form which has been materially altered in any way may render the bid nonresponsive and the bid rejected.
- 1.2** In the event of a discrepancy between the unit price and the total price of the Bid Proposal Form, the unit price will prevail. In the event of a discrepancy between the written bid amount and the numerical bid amount, the written amount will take precedence and be controlling as to the amount of the Bid. All items not bid shall be indicated as “not bid” in the total price space. When bids are requested on a lump sum basis, bidder must bid on each item in the lump sum group. Any bidder desiring to bid “no charge” on an item in a group must so indicate.
- 1.3** Failure to comply with the provisions of this section may be grounds for rejection of the bid proposal.
- 1.4** Correction or withdrawal of a bid because of an inadvertent, non-judgmental mistake in the Bid Proposal Form requires careful consideration to protect the integrity of the competitive bidding process, and to ensure fairness. If the mistake is attributable to an error in judgment, the Bid Proposal Form may not be corrected. Bid correction or withdrawal by reason of the non-judgmental mistake is permissible at the sole discretion of the Town Clerk, but only to the extent that it is not contrary to the interests of the Town or the fair treatment of other bidders.
- 1.5** By signing the Bid Proposal Form, the bidder certifies that:
 - i.** the person whose signature appears below is legally empowered to bind the bidder;
 - ii.** the bidder has read the complete Bid Documents and understands and agrees to all terms and conditions set forth in the Bid Documents;
 - iii.** if accepted by the Town, the bid is guaranteed as written and will be implemented as stated;
 - iv.** By submission of the 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 its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the New York State Finance Law.¹

¹ List found at <http://ogs.ny.gov/about/regs/docs/ListofEntities.pdf>.

- 1.6 The bidder understands and agrees that quantities shown on the Bid Proposal Form opposite items of the work for which unit prices have been requested are approximate estimated quantities, and that during the progress of the work the Town may find it advisable and shall have the right to omit portions of the work, and to increase or decrease the shown approximate estimated quantities, or the scope of the whole work; and that the Town reserves the right to add to or take from the total amount of the work up to a limit of thirty (30%) percent of the total amount of the contract based upon the executed contract price for all the specified work.
- 1.7 The bidder shall make no claim for anticipated profits or loss of profits, because of any difference between the quantities of the various classes of work actually done, or of the materials actually furnished, and the original specified scope of work and the shown approximate estimated quantities.
- 1.8 All prices bid include a sum sufficient for the preparation and submission of approved final “As-builts”, record drawings, guarantees, warranties, and operations and maintenance manuals.
- 1.9 All plans and other like records compiled by the contractor in completing the work under this contract shall become the property of the Town. The Contractor may retain copies of each such plan or record for its own use.
- 1.10 The contractor shall secure and pay for all necessary permits for the proper executing and completion of work.
- 1.11 The Town is exempt from all federal, state and local taxes.

Section 2. Pre-Bid Site Inspection

- 1.1 The bidder shall satisfy itself by personal examination of the location of the proposed work and surroundings thereof, and by such other means as it may prefer, as to the scope of the work and the accuracy of the approximate estimated quantities; and shall not at any time after submission of the bid dispute such approximate estimated quantities or assert that there was any misrepresentation by the Town or any misunderstanding by the bidder in regard to the quantity or kind of materials to be furnished, or work to be done. Failure to do so will not relieve a successful bidder contractor (“contractor”) of the obligation to furnish all material and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the consideration set forth in its bid.
- 1.2 Unless otherwise stated, the bidder is free and encouraged to examine the work site during normal work hours preceding the submission of the bid. For those bidders requesting further clarification of the conditions, an appointment with the Town's representative, can be requested, by contacting the, Town Clerk.
- 1.3 At the time of the opening of bids each bidder will be presumed to have inspected the sites and to have read and to be thoroughly familiar with the Bid Documents.

Section 3. Quality and Samples

- 3.1 All equipment, material and supplies bid upon must conform to the description and specifications set forth in the in the Bid Documents, or their reasonable equivalent.
- 3.2 References in the Bid Documents to type, style, brand or trade name, and catalog are intended to be descriptive only and not restrictive.

Section 4. Request for information or interpretation and/or clarification of the Bid Documents

- 4.1 The bidder shall have seven (7) business days prior to the bid opening date to notify the Town Clerk in writing of any errors or defects in the Bid Documents which would prevent the bidder from providing a responsive bid.
- 4.2 No interpretation of the Bid Documents will be made to any bidder orally by any representative of the Town.
- 4.3 Any request for information or interpretation and/or clarification of the Bid Documents must be addressed in writing to Diana Quast, Yorktown Town Clerk, 363 Underhill Avenue, Yorktown Height, NY 10598, and be submitted no later than five (5) business days prior to the date fixed for the opening of bids.
- 4.4 Any written response to a request for information or interpretation and/or clarification of the Bid Documents shall be issued by Town Clerk and will be incorporated into and made part of the Bid Documents and will be made available in the same manner and method as the Bid Documents. The Town Clerk's decision shall be final and binding on all parties. The failure of any bidder to receive such Addenda will not relieve the contractor of any obligation to comply with the terms and conditions of the Addenda.
- 4.5 The Bid Documents, including the drawings, Bid Documents, have been prepared with care and are intended to show as clearly as is practicable the work required to be done. The bidder must realize however, that construction details cannot always be accurately anticipated and that in executing the work, field conditions may require reasonable modifications in the details of the plans and quantities of work involved. Work under all items in the contract must be carried out to meet these field conditions to the satisfaction of the Town and in accordance with the Bid Documents. The bidder shall not take advantage of any apparent errors or omission in the Bid Documents. In the event the contractor discovers an error or omission in the Bid Documents, it shall immediately notify the Town. The Town will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Bid Documents.
- 4.6 A bidder's failure to request a clarification, interpretation, etc. of any portion of the Bid Documents or to point out any inconsistency therein will preclude such bidder from thereafter claiming any ambiguity, inconsistency, or error which should have been discovered by a reasonably prudent bidder and from asserting any claim for damages arising directly or indirectly therefrom.

Section 5. Non-Collusion

- 5.1 The bidder shall certify that it has complied with all of the requirements stated in the

non-collusive bidding certificate by signing the form included in the Bid Documents. Failure by the bidder to complete and sign the non-collusive bidding certificate will constitute grounds for rejection of the bid.

Section 6. Late Bids

- 6.1** All bids received after the deadline date and time stated in the Instructions to Bidders will not be considered and will be returned to the bidder unopened. The bidder assumes the risk of any delay in the mail and the handling of the mail by the employees of the Town. Whether sent by mail or by means of personal delivery, the bidder assumes all responsibility for having the bid delivered on time and to the place specified above.

Section 7. Bid Opening

- 7.1** Sealed bids will be publicly opened on the date and time specified in the Instructions to Bidders. Bids may be read aloud to those persons present when practicable. Any bidder may request to review any submitted Bid Proposal Forms by arranging a mutually convenient time with the Town Clerk.
- 7.2** The prices stated in the Bid Proposal Form are irrevocable until the Notice of Award is issued, unless the bid is withdrawn only after the expiration of sixty (60) days from the bid opening and only in writing received by the Town Clerk and in advance of the issuance of the Notice of Award.

Section 8. Acceptance or Rejection

- 8.1** A responsive bid is one that complies with all material terms and conditions of the Bid Documents.
- 8.2** If the lowest price bid or proposal is found non-responsive, a determination setting in detail and with specificity the reasons for such finding shall be issued by the Town Clerk. A copy of such determination shall be mailed to the non-responsive bidder no later than two (2) business days after the determination is made.
- 8.3** The Town reserves the sole right to waive any informality that is a matter of form rather than substance without prejudice to other bidders and what is in the best interests of the Town. The Town's decision shall be final and binding.
- 8.4** Any corporation not incorporated under the Laws of New York State, must furnish a copy of its certificate of authority, from the New York State Secretary of State, to do business in the State of New York, in accordance with Article 13 of the New York State Business Corporation Law.
- 8.5** The Town will consider the qualifications of all bidders and may conduct such investigation as it deems necessary to assist in the evaluation of any bid. The Town reserves the right to reject any bid if the evidence submitted by, or the investigation of such bidder fails to satisfy the Town, in the Town's sole discretion, that it is properly qualified to carry out the obligations of the contract and to complete the contemplated work. In evaluating a bidder's responsibility, the Town may consider the following factors:

- i. financial resources;
- ii. technical qualifications;
- iii. experience;
- iv. organization, material, equipment, facilities, and personnel resources and expertise (or the ability to obtain them) necessary to carry out the work and to comply with required delivery or performance schedules, taking into consideration other business commitments;
- v. a satisfactory record of performance;
- vi. a satisfactory record of business integrity;
- vii. where the contract includes provisions for reimbursement of contractor costs, the existence of accounting and auditing procedures adequate to control property funds, or other assets, accurately delineate costs, and attribute them to their causes; and
- viii. compliance with requirements for the utilization of small, minority-owned, and women-owned businesses as subcontractors.

8.6 The Town reserves the right to require additional information as it deems appropriate concerning the history of any bidder's performance of prior contracts. The final determination of whether the bidder possesses the requisite experience rests in the sole discretion of the Town. Failure of a bidder to provide relevant information specifically requested by the Town may be grounds for a determination of non-responsive and/or non-responsible.

Section 9. Appeal of Determination of Non-Responsiveness or Non-Responsible

- 9.1** Any determination that a bid is non-responsive or a bidder is non-responsible may be appealed as set forth herein.
- 9.2** Time Limit; A bidder shall have five (5) business days from receipt of the determination of non-responsiveness or non-responsible to file an appeal with the Town Clerk. Receipt of notice by the bidder shall be deemed to be no later than five (5) business days from the date of mailing or upon delivery, if delivered. Filing of the appeal shall be accomplished by actual delivery of the appeal document to the Town Clerk. The bidder shall also send a copy of its appeal, for informational purposes, to the Town Attorney.
- 9.3** Form and Content: The appeal shall be in writing and shall briefly state all the facts or other basis upon which the bidder contests the finding of non-responsiveness or non-responsible. Supporting documentation, if any, shall be included.
- 9.4** Stay of Award of Contract Pending. Award of the contract shall be stayed pending the determination of the Town Clerk unless the Town Clerk makes a determination that proceeding with the award without delay is necessary to protect substantial Town's interests. Where such a determination is made, the bidder shall be advised of this action in the determination of non-responsiveness or, if the stay is removed at any time after the bidder has been notified of determination of non-responsiveness or non-responsible, notification shall be provided to the bidder no later than two (2) business days after such determination is made. The Town Clerk shall consider the appeal, and may, in his or her sole discretion, meet with the bidder to discuss the merits of the appeal. The Town Clerk shall make a prompt determination with respect to the merits of the appeal, a copy of which shall be sent to the bidder. The Town Clerk's determination shall be final.

Section 10. Award

- 10.1 Town reserves the right to make an award within sixty (60) days after the date of the bid opening, during which period bids may not be withdrawn.
- 10.2 The Award will be made to the responsible and responsive bidder submitting the lowest bid that fully complies with all the specifications stated in the Bid documents.
- 10.3 Town reserves the right to reject all bids and to purchase any or all items on contracts awarded by agencies or departments of the State of New York or of the Town, if such items can be obtained on substantially the same terms, conditions, specifications, and at a lower price.

Section 11. Notice of Award

- 11.1 If the bid is awarded by Town, a written Notice of Award will be issued by the Town Clerk to the contractor. Such Notice of Award will constitute a binding enforceable contract between the contractor and the Town of Yorktown. These General Terms and Conditions shall be incorporated into the contract as material terms.
- 11.2 The Town may issue a Notice of Award based on either Lowest Responsible Bid or Best Value, in accordance with the 2012 amendments to General Municipal Law § 103, as implemented by Yorktown Town Code Chapter 78 entitled *Procurement for Goods and Services*.
- 11.3 Upon receipt of the Notice of Award the contractor will be required to submit to the Town Clerk a completed W-9 form in addition to any other information or documents required by the Town. Failure to supply a completed W-9 form or such other information or documents required by the Town will invalidate the bid.

Section 12. Performance and Payment Bond

- 12.1 If a Performance and Payment bond is required in accordance with the Instruction to Bidders, the “Bid Bond and Consent of Surety” Form must be executed by the contractor’s Surety Company and submitted to the Town.

Section 13. Assignment Prohibited

- 13.1 The contractor shall not assign, transfer, convey or otherwise dispose of the contract or any part of it or any monies due and payable under the contract, without prior written approval of the Town. If such approvals are granted by the Town, they shall in no way relieve the contractor or from any obligations under the terms of the contract.

Section 14. Special Requirements

- 14.1 Special requirements for any bid may supersede and/or be added to any provision contained in these General Terms and Conditions.

Section 15. Purchase of Additional Quantities of Bid Items

- 15.1** The Town may purchase additional quantities of the bid items at any time during the contract period, for the same price and under the same terms and conditions as set in the Bid Proposal Form.

Section 16. Contractor's Subcontracts and Material Lists

- 16.1** Within fifteen (15) days after execution of the Contract, the contractor shall submit to the Town for approval a list of the subcontractors, materialmen and materials that the contractor plans to use in the performance of the work and statements of the work they are to perform. The format and content of the list shall be in accordance with directives from the Town. No part of the work may be sublet until after the contractor has received the Town's approval. The contractor shall be fully responsible for all acts and omissions of its subcontractors and persons directly or indirectly employed by them, and the Town's approval to sublet parts of the work will in no way relieve the contractor of any of its obligations under the Contract. All dealings of the Town with the subcontractors shall be through the contractor.
- 16.2** The contractor shall insert appropriate clauses in all subcontracts to bind the subcontractors to the contractor by all applicable provisions of the contract documents executed between the contractor and the Town, but this shall not be construed as creating any contractual relationships between subcontractors and the Town. Prior to approval of the subcontractors, the Town has the right to review and recommend changes in the subcontracts. The Town reserves the right to reject any subcontractor proposed by the contractor if in the reasonable opinion of the Town such subcontractor lacks the experience or capability to perform its subcontract work or is otherwise non-responsible.
- 16.3** The contractor shall insert appropriate clauses in each subcontract that require that if the contractor is terminated by the Town either for default or convenience that at the sole option of the Town the subcontract shall automatically at torn to the Town and the subcontractor shall continue without delay or interruption to fully perform all of the obligations required by its subcontract.

Section 17. Representative Always Present

- 17.1** The contractor in case of its absence from the work shall have a competent representative or foreman present, who shall obey without delay, all instructions of the Town in the prosecution and completion of the work in conformity with the contract, and shall have full authority to supply labor and material immediately.
- 17.2** The contractor, or its superintendent, shall attend job meetings with the Town for the purpose of discussing expedition, execution and coordination of the work. Job meetings will be scheduled periodically (the first to be prior to commencement of construction) at a time and place designated by the Town.
- 17.3** The contractor shall not commence any work prior to the first (pre-construction) meeting between the contractor, Town, and other concerned governmental and utility company representatives.

Section 18. Performance

- 18.1** All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions and materials requirements, including tolerances, shown in the Bid Documents.
- 18.2** Plan dimensions and contract specification values are to be considered as the target value to be strived for and complied with as the design value from which any deviations are allowed. It is the intent of the specifications that the materials and workmanship shall be uniform in character and shall conform as nearly as realistically possible to the prescribed target value or to the middle portion of the tolerance range. The purpose of the tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons. When a maximum or minimum value is specified, the production and processing of the material and the performance of the work shall be so controlled that material or work shall not be preponderantly of borderline quality or dimension.
- 18.3** Figured dimensions on the plans shall be given preference over scaled dimensions, but shall be checked by the contractor before starting construction. Information and data on the contract documents shall take precedence in the following order (1) Drawing; Details, Sections, Plans, Notes, General Notes, (2) Technical Specifications, (3) General Specifications. Any errors, omissions or discrepancies shall be brought to the attention of the Town whose decision thereon shall be final.
- 18.4** In the event that the Town determines that the materials or the finished product in which the materials used are not within reasonably close conformity with the Bid Documents, but that reasonably acceptable work had been produced, the Town shall then make a determination if the work shall be accepted and remain in place. In this event, the Town will document the basis of acceptance by contract modification, subject to the approval of the Town Board, which will provide for an appropriate adjustment in the contract price for such work or materials as deems necessary.
- 18.5** In the event that the Town determines that the materials or the finished product in which the materials used are not within reasonably close conformity with the Bid Documents and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by and at the expense of the contractor.
- 18.6** All traffic control devices (signs, signals, markings, and devices placed by the authority of a public body or official having jurisdiction for the purpose of regulating, warning, or guiding traffic) shall be in conformity with the latest edition of the New York State Manual of Uniform Traffic Control Devices or other such standard as directed by the Town.
- 18.7** Time being of the essence, the contractor shall take notice that the timely completion of the work called for under the contract is of the greatest importance. The contractor shall commence its work within ten (10) days after "Notice of Award" has been given it by the Town (unless a definite starting date is otherwise stated). Prior to commencing its work, the contractor shall notify the Town, at least forty-eight (48) hours prior to the planned date of its "start".

Section 19. Insurance Requirements

- 19.1** The contractor, upon award of the contract, shall provide at its own cost and expense the following insurance to the Town from insurance companies licensed in the State of New York, carrying a Best's financial rating of "A" or better, which insurance shall be evidenced by certificates and/or policies as determined by the Town.
- 19.2** Each certificate or policy shall require that, thirty (30) days prior to cancellation or material change in the policies, notice thereof shall be given to the Town Clerk by registered mail, return receipt requested, for all of the following stated insurance policies. All such notices shall name the contractor and identify the contract number or description.
- 19.3** All policies and certificates of insurance shall be approved by the Town prior to the inception of any work.
- i.** Workmen's Compensation: The contractor shall evidence compliance with Workers' Compensation Law, or as otherwise directed by the Town.
 - ii.** Commercial General Liability Insurance with minimum limits of liability per occurrence of \$1,000,000 with the Town named as an additional insured.
 - iii.** Automobile Liability Insurance with minimum limits of liability per occurrence of \$1,000,000 with the Town named as an additional insured.
 - iv.** Additional insurance may be required on an individual basis for extra hazardous contracts and specific service agreements. If such additional insurance is required for a specific contract, that requirement will be described in the Special Requirements of the contract specifications.
 - v.** If any of the insurance requirements are not complied with at their renewal dates, payments to the contractor will be withheld until those requirements have been met, or at the option of the Town, the Town may pay the Renewal Premium and withhold such payments from any monies due the contractor.
 - vi.** If at any time any of the foregoing policies shall be or become unsatisfactory to the Town, as to form or substance, or if a company issuing any such policy shall be or become unsatisfactory to the Town, the contractor shall upon notice to that effect from the Town, promptly obtain a new policy, submit the same to the Town for approval and submit a certificate thereof as herein above provided. Upon failure of the contractor to furnish, deliver and maintain such insurance as above provided, the contract, at the election of the Town, may be forthwith declared suspended, discontinued or terminated. Failure of the contractor to secure and/or maintain or the taking out and/or maintenance of any required insurance, shall not relieve the contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the contractor concerning indemnification.
 - vii.** In the event that claims in excess of the insured amounts provided herein, are filed by reason of any operations under the contract, the amount of excess of such claims or any portion thereof, may be withheld from payment due or to become due the contractor until such time as the contractor shall furnish such additional security covering such claims as may be determined by the Town.

Section 20. Indemnification

- 20.1** The contractor hereby agrees to indemnify and save harmless the Town, its officers, employees, elected officials, and agents from and against all liability, loss or damage the Town may suffer, arising directly or indirectly out of the contract between the contractor

and the Town. The Contractor further agrees to provide defense for and defend any claims or causes of action of any kind or character directly or indirectly arising out of this Agreement at its sole expense and agrees to bear all other costs and expenses relating thereto. The foregoing provisions shall not be construed to cause the contractor to indemnify the Town, its officers, elected officials, agents or employees from its or their sole negligence.

20.2 Neither the acceptance of the completed work nor payment therefore shall release the Contractor from its obligation under this section.

Section 21. Delivery Point

21.1 Shipping of any products shall be FOB Destination. Delivery shall be at the location set forth in the Specifications except on national, state or local holidays when Town buildings are closed. Bidder shall be responsible to verify that the appropriate Town building for delivery is open prior to delivering items. All bid items shall be unloaded and placed within the particular Town building, at points of delivery, and in quantities, as directed by the Town. Any costs incurred by the Town or bidder due to the failure of bidder to comply with this requirement will be the responsibility of bidder. Bidder should be prepared to furnish proof of delivery, if requested by Town. Deliveries shall be made in accordance with the specifications, and shall be made Monday through Friday from 8 a.m. to 2 p.m. unless otherwise stated in the Specific Specifications.

21.2 If bidder is shipping bid items to Town using a third-party carrier (US Postal Service, UPS, FedEx), there shall be no additional shipping charge to the Town.

21.3 Delivery will not be complete until the good are inspected and accepted by the Town.

Section 22. Date of Delivery

22.1 Delivery of all materials included under this bid shall be made not later than the date specified in the Bid Documents or Project Schedule. If contractor cannot meet the delivery date specified in Bid Documents or Project Schedule, contractor shall state on the bid form the proposed date of delivery and such date will be considered when determining responsiveness in awarding the bid.

Section 23. Damages

23.1 The contractor shall be fully responsible for shipping and delivery of materials specified in the Bid Documents or Project Schedule in an undamaged condition. Town will not consider the carrier responsible for damaged or delayed deliveries. Any bid item damaged or broken when delivered to Town shall be replaced immediately by contractor at no cost to the Town.

Section 24. Warranty/Guarantee

24.1 It is the intent of the Bid Documents to require first-class work and materials and any work not fully covered herein Bid Documents shall be interpreted to require first-class work and materials, and such interpretations shall be binding upon the Contractor. The contractor shall be fully responsible for performance of work in a satisfactory manner

with satisfactory results in the discretion of the Town quality materials.

- 24.2** Contractor is deemed to warrant and guarantee all work performed under this agreement.
- 24.3** Unless otherwise stated in other parts of the specifications, all work performed or goods supplied under the contract shall be guaranteed by the contractor against all defects resulting from the use of inferior materials, equipment or workmanship, for a period of one (1) year from the date of final completion and acceptance of the work, which shall be defined as the date of the Town's approval of the final Certificate for Payment or from the date the Town takes possession and makes full use of the constructed facility.
- 24.4** Any goods furnished must be standard, new, latest model of the regular stock product, as required by the specifications, with parts regularly used for the type of equipment offered.
- 24.5** No attachment or part will be substituted or applied contrary to manufacturer's recommended and standard practice. All regularly manufactured stock electrical items must bear the label of the Underwriters Laboratories, Inc. Any equipment, part or constructed item which is or becomes defective during the guarantee period shall be replaced or redone by the contractor, including all labor at no additional charge to the Town. All replacements shall carry the same guarantee as the original equipment. The contractor shall make any such replacement promptly upon receiving written notice from Town.

Section 25. Breach of Contract/Termination

- 25.1** If contractor fails to deliver as ordered, or within the time specified, or within reasonable time as interpreted by Town, or fails to make replacement of rejected or defective goods, whether so requested immediately or as directed by Town, that shall constitute a breach of the contract, and Town may arrange to have the work performed from other sources to take the place of the work product found defective or not delivered. Without limiting the foregoing, Town reserves the right to terminate the contract upon breach within ten (10) days written notice provided to the contractor.

Section 26. Prevailing Wage Rates and Supplements

- 26.1** Wages to be Paid and Supplements to be Provided
- i.** The contractor shall, at its own cost and expense, comply with all provisions of the Labor Law (i.e. prevailing rate of wages and supplements), Lien Law, Workmen's Compensation Law and all other laws and ordinances affecting the contract or order, either Federal, State or local.
- 26.2** Records to be kept on Site
- The contractor, subcontractors at any tier shall certify their payrolls and keep them on site and available, in addition to the following informative records:
- i.** Record of hours worked by each workman, laborer and mechanic on each day;
 - ii.** Record of days worked each week by each workman, laborer and mechanic;
 - iii.** Schedule of occupation or occupations at which each workman, laborer and mechanic on the project is employed during each work day and week;
 - iv.** Schedule of hourly wage rates paid to each workman, laborer and mechanic for each occupation.

- v. A statement or declaration signed by each workman, laborer and mechanic attesting that they have been provided with a written notice, informing them of the prevailing wage rates and supplements requirement for the contract.

Section 27. Estimates and Payments

- 27.1 As the work progresses but not more often than once a month and then on such days as the Town shall direct, the contractor will submit a requisition in writing of the amount and value of the work performed and the materials and equipment provided to the date of the requisition, less any amount previously paid to the contractor.
- 27.2 From each requisition, the Town will retain five percent (5%) plus one hundred fifty percent (150%) of the amount necessary to satisfy any claims, liens or judgments against the contractor that have not been suitably discharged. The Town will thereupon cause the balance of the requisition therein to be paid to the contractor.
- 27.3 As a condition to the making of any progress payment as set forth in this paragraph, the Town, in its sole discretion may require the contractor to submit such document as may be reasonably required to establish that the contractor and its subcontractors have timely and properly paid their respective subcontractors and materialmen at any tier.
- 27.4 When the work or major portion thereof, as contemplated by the terms of the contract are substantially completed in the judgment of the Town, the contractor shall submit a requisition for the remainder of the contract balance. An amount equal to two (2) times the value of the remaining items to be completed plus one hundred fifty percent (150%) of the amount that the Town deems necessary to satisfy any claims, liens or judgments against the contractor which have not been suitably discharged shall be deducted from the requisition. As the remaining items of work are satisfactorily completed or corrected, the Town will, upon receipt of a requisition, pay for these items less one hundred fifty percent (150%) of the amount necessary to satisfy any claims, liens or judgments.
- 27.5 All estimates will be made for actual quantities for work performed and materials and equipment incorporated in the work as determined by the measurements of the Town, and this determination shall be accepted as final, conclusive and binding upon the contractor. All estimates will be subject to correction in any succeeding estimate.
- 27.6 Payment will be made only upon the written request of the contractor. Payment requests shall be processed by the Town no more than one (1) time per month. Payment will be made for materials pertinent to the project which have been delivered to the site or off-site by the contractor suitably stored and secured in first-class condition as required by the Town. The contractor must submit certified copies of the manufacturer's or Contractor's invoices or statements establishing the true purchase value of the material or equipment; freight bills, release of liens and certificate of insurance covering all equipment and materials.
- 27.7 The Contractor shall be responsible for safeguarding stored equipment and materials against loss or damage of any nature whatsoever, shall retain title until incorporated into the work and acceptance by the Town and in case of loss or damage, the contractor shall replace such lost or damaged equipment and materials at no cost to the Town. After receipt of payment, the contractor shall not remove from the site equipment and materials for which such payment was made without written authorization from the Town.

- 27.8** Within thirty (30) days after receiving written notice from the Contractor of substantial completion of the work under this Agreement, the Town will cause an inspection to be made of the work done under the contract. If, upon such inspection, the Town determines that the work is substantially complete, a Substantial Completion Payment to the contractor for the work done under the contract, less any and all deductions authorized to be made by the Town under the contract or by law, will be issued.
- 27.9** As a condition precedent to receiving payment therefore, the Contractor must have received Town approval of all Shop Drawing submittals, the Operation and Maintenance Manuals, and As-Built Drawing(s).
- 27.10** Together with its application for substantial completion payment the Contractor shall also deliver to the Town a verified statement certifying that all claims or liabilities arising from the completed work, including all charges for Extra Work, Change Orders, additional time, damages or credits (collectively referred to as “claims”) have been presented to the Town. All such claims shall be described in sufficient detail so as to be easily identified. The contractor’s failure to submit the verified statement shall constitute a full and final waiver of all claims against the Town from the beginning of the project through the date of substantial completion as established by the Town. The presentation of the verified statement to the Town shall not constitute an acknowledgement by the Town that any such claim is valid. The Town expressly reserves its right to assert that any such claim(s) is waived or precluded by reason of other provisions of the contract documents. Only claims particularly identified on the contractor’s verified statement shall be preserved; all other claims whatever nature shall be deemed waived and released. It shall also submit proof of title of the materials and equipment covered by the contract. The contractor shall also, prior to the issuance of said Substantial Completion Payment, supply to the Town affidavits and certificates for labor, material and equipment (where applicable).
- 27.11** Within ten (10) days after receiving written notice from the contractor of completion of all the work, the Town will make a final inspection. If upon inspection the Town determines that no further work is needed, the Town will request that the Town approve the completion of the project and authorize payment of the Final Estimate.

Section 28. Payments to Subcontractors and Materialmen by Contractor

- 28.1** Within fifteen (15) calendar days of the receipt of any payment from the Town, the contractor shall pay each of its subcontractors and materialmen the proceeds from the payment representing the value of the work performed and/or materials furnished by the subcontractor and/or materialmen as reflected in the payment from the Town less an amount necessary to satisfy any claims, liens or judgment against the subcontractor or materialman which have not been suitably discharged and less any retained amount as hereafter described.
- 28.2** Nothing provided herein shall create any obligation on the part of the Town to pay or to see 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 Town. Notwithstanding anything to the foregoing, the Town may tender payments to the Contractor in the form of joint or dual payee checks.

Section 29. Change in the Contract Price

- 29.1** The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to the contractor for performing the work pursuant to the contract. All duties, responsibilities and obligations assigned to or undertaken by the contractor shall be at its expense without change in the Contract Price.

Section 30. Proper Method of Work and Proper Materials

- 30.1** The Town shall have the power in general to direct the order and sequence of the work, which will be such as to permit the entire work under the contract to be begun and to proceed as rapidly as possible, and such as to bring the several parts of the work to a successful completion at about the same time.
- 30.2** If at any time before the commencement or during the progress of the work the materials and appliances used or to be used appear to the Town as insufficient or improper for securing the quality of work required, or the required rate of progress, he may order the contractor to increase its efficiency or to improve their character, and the contractor shall promptly conform to such order; but the failure of the Town to demand any increase of such efficiency or improvement shall not release the Contractor from its obligation to secure the quality of work or the rate of progress specified.
- 30.3** The Contractor will establish the lines, grades and measurements necessary in his opinion to properly locate the work, by setting suitably marked offset or reference stakes. These stakes are referenced to the control points, coordinates and similar data that may be shown on the contract drawings, but the Town reserves the right to modify that information.
- 30.4** The Contractor shall carefully and properly preserve all stakes, pins and markers required at no additional costs to the Town. All existing property lines and survey monuments which may, of necessity have to be disturbed during the construction work, will be properly tied to fixed points and reset by the Contractor at no cost to the Town.

Section 31. Utilities and Service Lines

- 31.1** The Contractor is hereby warned that a reasonable opportunity is to be given the municipalities and public service corporations to alter and install pipes, conduits or other structures prior to placing to pavement. No guarantee is given that public utility structures and service lines herein shown are correctly located. Locations given are from the best available information.

Section 32. Protection, Existing Structures

- 32.1** The Contractor, at his expense, shall protect adjacent and other property or premises from damage of any kind during the progress of the work and shall erect and maintain guards around his work in such a way as to afford protection to the public. The Contractor shall be held responsible for improper, illegal, or negligent conduct of himself, his subcontractors, employees and agents in and about said work or in the execution of the work covered by this Contract.
- 32.2** The Contractor shall, at his expense, sustain in their places and permanently protect from direct or indirect injury any and all pipelines, subways, pavements, sidewalks, curbs,

railways, buildings, trees, poles, wells, and other property in the vicinity of his work, whether over-or underground, or which appear within the trench or excavations, and he shall assume all costs and expenses for direct or indirect damage which may be occasioned by injury to any of them.

- 32.3** The Contractor's liability shall also include the damage or injury sustained by any structure whatsoever due to settlement of trenches or excavations or to settlement or lateral movement of the sides of such trenches or excavations, whether such movement occurs during or after excavation or backfilling of such trenches or excavations. His liability to so support and protect all such structures from damage or injury shall continue without limitation, throughout the Contract period and during the period of guarantee.
- 32.4** The Contractor shall at all times have on the ground suitable and sufficient material and shall use the same as may be necessary or required for sustaining and supporting any and all such structures which are uncovered, undermined, weakened, endangered, threatened, or otherwise materially affected.
- 32.5** In case injury occurs to any portion of a pipeline or structure, or to the material surrounding or supporting the same, through blasting or similar operations, the Contractor shall immediately notify the Engineer, and, at his expense, shall remove such injured work and shall rebuild the pipeline or structure and shall replace the material surrounding the supporting the same, or shall furnish such material and perform such work of repairs or replacement as the Town may order. Any damage whatsoever shall be promptly, completely and satisfactorily repaired by the Contractor at his expense.

Section 33. Acceleration of the Work

- 33.1** The Town may, at its sole discretion and as circumstances reasonably require, require the contractor to accelerate the schedule of performance by providing overtime, extended day, extra crews, Saturday, Sunday and/or holiday work and/or by having all or any subcontractors designated by the Town provide overtime, extended day, extra crews, Saturday, Sunday or holiday work by the contractor's or his subcontractor's own forces.
- 33.2** The Town, pursuant to a validly issued written change order, may reimburse the contractor for the direct cost to the contractor of the premium time for the labor utilized by the contractor in such overtime, extended day, extra crews, Saturday, Sunday or holiday work (but not for the straight time costs of such labor) together with any social security and state or federal unemployment insurance taxes in connection with such premium time. However, no overhead, supervision costs, commissions, profit or other costs and expenses of any nature whatsoever, including impact costs or costs associated with lost efficiency or productivity, shall be payable in connection therewith.
- 33.3** Anything to the foregoing notwithstanding, in the event that the contractor has fallen behind schedule or in the Town's judgment appears likely to fall behind schedule, Town shall have the absolute right to direct the contractor to accelerate the performance of its work, including that of its subcontractors, and the full costs for such acceleration shall be borne solely by the contractor.

Section 34. Stopping Work

- 34.1** Town May Suspend Work:

- i. The Town may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the contractor which shall fix the date on which work shall be resumed. The contractor shall resume the Work on the date so fixed. Subject to the approval of the Town Board, the contractor may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

34.2 The Town May Terminate:

A. Upon the occurrence of any one or more of the following events:

1. If the contractor is adjudged bankrupt or insolvent,
2. If the contractor makes a general assignment for the benefit of creditors,
3. If a trustee or receiver is appointed for the contractor or for any of the contractor's property,
4. If the contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws,
5. If the contractor repeatedly fails to supply sufficient skilled workers or suitable materials or equipment,
6. If the contractor repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment,
7. If the contractor disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction,
8. If the contractor disregards the authority of the Town, or
9. If the contractor otherwise violates in any substantial way any provisions of the Bid Documents or the Contract. The Town may after giving the contractor and its Surety seven (7) days written notice, terminate the services of the contractor, exclude the contractor from the site, incorporate in the Work all materials and equipment stored at the site or for which Town has paid the contractor but which are stored elsewhere, and finish the Work as Town may deem expedient. In such case the contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the work, including compensation for additional professional services, such excess shall be paid to the contractor. If such costs exceed such unpaid balance, the contractor shall pay the difference to the Town.

- B.** Where the contractor's services have been so terminated by the Town, the termination shall not affect any rights of Town against the contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the contractor by Town will not release the contractor from liability.

- C. Upon seven (7) days written notice to the contractor, Town may, without cause and without prejudice to any other right or remedy, elect to abandon the work and terminate the Agreement. In such case, the 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 or termination, including fair and reasonable sum of overhead and profit on such work;
 2. For expenses sustained prior to 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 amounts paid in settlement of terminated contracts with Subcontractors, manufacturers, fabricators, suppliers or distributors and others; and
 4. For reasonable expenses directly attributable to termination. contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss or any consequential damages arising out of such termination.

Section 35. Change in the Contract Time

- 35.1** The contractor agrees that it will make no claim against the Town or any of its representatives for damages for delay, interference or disruption in the performance of its Contract occasioned by any act or omission to act by the Town or any of its representatives, or occasioned by any act or omission of any other contractor and further agrees that any such claim shall be fully compensated for by an extension of time to complete the performance of the work as provided herein.
- 35.2** The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to Town within fifteen (15) days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within twenty (20) days of such occurrence unless the Town allows an additional period of time to ascertain more accurate data. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.
- 35.3** The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the contractor. Such delays shall include, but not be limited to, acts or neglect by Town, or to fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God. No extension of the Contract Time will be granted where the delay is attributable to a subcontractor, manufacturer, fabricator, supplier or distributor or any other party performing services or furnishing material or equipment on behalf of the contractor unless such party's delay is attributable to one of the above enumerated causes.
- 35.4** The time limits concerning Substantial Completion and final completion as stated in the Contract Documents are of the essence. The provisions of this section shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party, provided, however that the contractor shall not be entitled to

damages for any delay occurring as a consequence of a delay if the performance of said additional work was noted in the Contract Documents and the delay (by others) was not directly caused by the fault of the Town.

Section 36 Disputed Work - Notice of Claims for Damages

- 36.1** If the contractor is of the opinion that any work required, necessitated, or ordered violates or conflicts with or is not required by the terms and provisions of the contract, he must promptly, within five (5) calendar days after being directed to perform such work, notify the Town, in writing, of its contentions with respect thereto and request a final determination thereon. If the Town determines that the work in question is contract and not extra work, or that the order complained of is proper, he will direct the Contractor in writing to proceed and the Contractor shall promptly comply. In order, however, to preserve its right to claim compensation for such work or damages resulting from such compliance, the Contractor must, within seven (7) calendar days after receiving notice of the Town's determination and direction, notify the Town, in writing that the work is being performed or that the determination and direction is being complied with, under protest. Failure of the Contractor to so notify shall be deemed as a waiver of claim for extra compensation or damages therefore.
- 36.2** The contractor is bound by the provisions of all applicable laws, including but not limited to the General Municipal Law and the Town Law, as related to the presentation of claims.
- 36.3** While the contractor is performing disputed work or complying with a determination or order under protest in accordance with this Article, in each such case the contractor shall furnish the Town daily with three copies of written statements signed by the Contractor's representatives at the site showing:
- i.** the name of each workman employed on such work or engaged in complying with such determination or order, the number of hours employed thereon, and the character of the work each is doing; and
 - ii.** the nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such work or compliance with such order, and from whom purchased or rented.
- 36.4** The contractor shall carry on the work and maintain the progress schedule during all disputes or disagreements with the Town. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the contractor and Town may otherwise agree in writing.
- 36.5** Before final acceptance of the work by the Town, all matters of dispute must be adjusted to the mutual satisfaction of the parties thereto. Determinations and decisions in case any question shall arise, shall constitute a condition precedent to the right of the Contractor to receive the money therefore, until the matter in question has been adjusted.

SECTION 00830

WAGE DETERMINATION SCHEDULES

STATE OF NEW YORK
DEPARTMENT OF LABOR
BUREAU OF PUBLIC WORK

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

Westchester County General Construction

Boilermaker **01/01/2020**

JOB DESCRIPTION Boilermaker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2019	01/01/2020
Boilermaker	\$ 59.17	\$ 61.24
Repairs & Renovations	59.17	61.24

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2019	01/01/2020
Boilermaker	32% of hourly	32% of hourly
Repair \$ Renovations	Wage Paid + \$ 25.35	Wage Paid + \$ 25.38

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY

See (D, O) on OVERTIME PAGE
 Repairs & Renovation see (B,E,Q)

HOLIDAY

Paid: See (8, 16, 23, 24) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 12, 15, 16, 22, 23, 24, 25) on HOLIDAY PAGE

NOTE: *Employee must work in pay week to receive Holiday Pay.
 **Employee gets 4 times the hourly wage rate for working Labor Day.

REGISTERED APPRENTICES

Wage per hour:
 (1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th
65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

Apprentice(s)	07/01/2019	01/01/2020
	32% of Hourly Wage Paid Plus Amount Below	32% of Hourly Wage Paid Plus Amount Below
1st Term	\$ 19.38	\$ 19.41
2nd Term	20.24	20.26
3rd Term	21.08	21.11
4th Term	21.94	21.96
5th Term	22.79	22.82
6th Term	23.65	23.68
7th Term	24.48	24.52

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Carpenter **01/01/2020**

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2019

Piledriver	\$ 54.63
Dockbuilder	\$ 54.63

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 51.63

OVERTIME PAY

See (B, E2, O) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour

(1)year terms:

	1st	2nd	3rd	4th
	\$21.85	\$27.32	\$35.51	\$43.70

Supplemental benefits per hour:

All Terms: \$ 33.97

8-1556 Db

Carpenter **01/01/2020**

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2019

Carpet/Resilient

Floor Coverer \$ 50.50

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 45.83

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE.

Paid for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour - (1) year terms:

	1st	2nd	3rd	4th
	\$20.20	\$25.25	\$32.83	\$40.40

Supplemental benefits per hour - all apprentice terms:

\$ 31.09

8-2287

Carpenter **01/01/2020**

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2019

Marine Construction:

Marine Diver \$ 69.22
Marine Tender 49.14

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 51.58

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 13, 16, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:
One (1) year terms.

1st year \$ 21.85
2nd year 27.32
3rd year 35.51
4th year 43.70

Supplemental Benefits
Per Hour:

All terms \$ 33.97

8-1456MC

Carpenter

01/01/2020

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2019

Building
Millwright \$ 54.20

SUPPLEMENTAL BENEFITS

Per hour:

Millwright \$ 53.66

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19) on HOLIDAY PAGE.

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms:

1st. 2nd. 3rd. 4th.
\$29.16 \$34.46 \$39.76 \$50.36

Supplemental benefits per hour:

One (1) year terms:

1st.	2nd.	3rd.	4th.
\$34.51	\$38.16	\$42.46	\$49.12

8-740.1

Carpenter

01/01/2020

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:

07/01/2019

Timberman

\$ 50.05

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2019

\$ 50.88

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices

See (5,6,11,13,25)

Overtime:

See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms:

1st	2nd	3rd	4th
\$20.02	\$25.03	\$32.53	\$40.04

Supplemental benefits per hour:

All terms

\$ 33.61

8-1556 Tm

Carpenter

01/01/2020

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES

Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.

Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.

Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour:

07/01/2019

10/18/2019

Core Drilling:

Driller

\$ 40.44

\$41.19

Driller Helper

32.12

32.62

Note: Hazardous Waste Pay Differential:

For Level C, an additional 10% above wage rate per hour

For Level B, an additional 10% above wage rate per hour

For Level A, an additional 10% above wage rate per hour

Note: When required to work on water: an additional \$ 0.50 per hour.

SUPPLEMENTAL BENEFITS

Per hour:

07/01/2019

10/18/2019

Driller and Helper \$ 26.70 \$ 27.95

OVERTIME PAY

OVERTIME: See (B,E,K*,P,R**) on OVERTIME PAGE.

HOLIDAY

Paid: See (5,6) on HOLIDAY PAGE.

Overtime: * See (5,6) on HOLIDAY PAGE.

** See (8,10,11,13) on HOLIDAY PAGE.

8-1536-CoreDriller

Carpenter - Building / Heavy&Highway

01/01/2020

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

WAGES

WAGES:(per hour)

	07/01/2019	07/01/2020	07/01/2021
BUILDING/HEAVY & HIGHWAY/TUNNEL:		Additional	Additional
Carpenter	\$ 37.69 + 7.61*	\$ 0.40	\$ 0.40

* Amount paid on all hours, it is not subject to overtime premium

SHIFT DIFFERENTIAL: When it is mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen percent (15%) of wage plus applicable benefits.

NOTE:Carpenters employed in the removal or abatement of asbestos or any toxic or hazardous material or required to work near asbestos or any toxic or hazardous material and required to wear protective equipment shall receive two (2) hours extra pay per day, plus applicable supplemental benefits.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 31.13

OVERTIME PAY

BUILDING:

See (B, E, Q) on OVERTIME PAGE.

HEAVY&HIGHWAY/TUNNEL:

See (B, E, P, *R, **T, X) on OVERTIME PAGE.

*R applies to Heavy&Highway/Tunnel Overtime Holiday Code 25 with benefits at straight time rate.

**T applies to Heavy&Highway/Tunnel Overtime Holiday Codes 5 & 6 with benefits at straight time rate.

HOLIDAY

BUILDING:

Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE.

Holidays that fall on Sunday will be observed Monday.

HEAVY&HIGHWAY/TUNNEL:

Paid: See (5, 6, 25) on HOLIDAY PAGE including benefits.

Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

1 year terms at the following wage rates:

Indentured after July 1 2016

1st	2nd	3rd	4th	5th
\$18.85	\$22.61	\$24.50	\$26.38	\$30.15
+ 3.55*	+ 3.55*	+ 3.55*	+ 3.55*	+ 3.55*

Indentured before July 1 2016

1st	2nd	3rd	4th
\$18.85	\$22.61	\$26.38	\$30.15
+ 3.55*	+ 3.55*	+ 3.55*	+ 3.55*

* Amount paid on all hours, it is not subject to overtime premium

SUPPLEMENTAL BENEFITS per hour:

All terms \$ 16.33 11-279.1B/HH

Electrician 01/01/2020

JOB DESCRIPTION Electrician **DISTRICT 8**

ENTIRE COUNTIES
 Westchester

WAGES

Per hour: 07/01/2019

Electrician/A-Technician \$ 52.75
 Teledata \$ 52.75

Note: On a job where employees are required to work on bridges over navigable waters, transmission towers, light poles, bosun chairs, swinging scaffolds , etc. 40 feet or more above the water or ground or under compressed air, or tunnel projects under construction or where assisted breathing apparatus is required, they will be paid at the rate of time and one-half for such work except on normal pole line or building construction work.

SUPPLEMENTAL BENEFITS

Per hour: 7/01/2019
 Journeyworker \$ 50.55

OVERTIME PAY

See (A, G, *J, P) on OVERTIME PAGE

*NOTE: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

07/01/2019
 1st term \$ 13.00
 2nd term 15.00
 3rd term 17.00
 4th term 19.00
 MIJ 1-12 months 23.00
 MIJ 13-18 months 26.50

Supplemental Benefits per hour:

07/01/2019
 1st term \$ 9.49
 2nd term 12.39
 3rd term 13.73
 4th term 15.06
 MIJ 1-12 months 12.08
 MIJ 13-18 months 13.38

8-3/W

Electrician 01/01/2020

JOB DESCRIPTION Electrician **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, New York, Queens, Richmond, Westchester

WAGES

Per hour: 07/01/2019

Service Technician \$ 32.40

Service and Maintenance on Alarm and Security Systems.

Maintenance, repair and /or replacement of defective (or damaged) equipment on, but not limited to, Burglar - Fire - Security - CCTV - Card Access - Life Safety Systems and associated devices. (Whether by service contract of T&M by customer request.)

SUPPLEMENTAL BENEFITS

Per hour:
 Journeyworker: \$ 16.10

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

9-3H

Electrician

01/01/2020

JOB DESCRIPTION Electrician

DISTRICT 8

ENTIRE COUNTIES

Westchester

WAGES

07/01/2019

Electrician \$ 26.50
 H - Telephone \$ 26.50

Electrical and Teledata work of limited scope, consisting of repairs and /or replacement of defective electrical and teledata equipment.
 - Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

See Electrician/A Technician classification for all new installations of wiring, conduit, junction boxes and light fixtures.

SUPPLEMENTAL BENEFITS

07/01/2019

Electrician &
 H - Telephone \$ 13.38

OVERTIME PAY

See (B, G, *J, P) on OVERTIME PAGE

*Note: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

8-3m

Elevator Constructor

01/01/2020

JOB DESCRIPTION Elevator Constructor

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES

Rockland: Entire County except for the Township of Stony Point

Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per hour:	07/01/2019	03/17/2020
Elevator Constructor	\$ 66.95	\$ 69.56
Modernization & Service/Repair	\$ 52.44	\$ 54.56

SUPPLEMENTAL BENEFITS

Per Hour:		
Elevator Constructor	\$ 40.93	\$ 41.92
Modernization & Service/Repairs	\$ 39.90	\$ 40.86

OVERTIME PAY

Constructor See (D, M, T) on OVERTIME PAGE.

Modern/Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

*Note:1st Term is based on Average wage of Constructor & Modernization.
 Terms 2 thru 4 Based on Journeymans wage of classification Working in.

1 YEAR TERMS:

1st Term*	2nd Term	3rd Term	4th Term
50%	55%	65%	75%

SUPPLEMENTAL BENEFITS

Elevator Constructor

1st Term	\$ 32.72	\$ 33.38
2nd Term	33.51	34.20
3rd Term	34.80	35.55
4th Term	36.09	36.89

Modernization &
 Service/Repair

1st Term	\$ 32.66	\$ 33.33
2nd Term	33.13	33.82
3rd Term	34.36	35.09
4th Term	35.58	36.36

4-1

Elevator Constructor

01/01/2020

JOB DESCRIPTION Elevator Constructor

DISTRICT 1

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Putnam, Sullivan, Ulster

PARTIAL COUNTIES

Delaware: Towns of Andes, Bovina, Colchester, Davenport, Delhi, Harpersfield, Hemdon, Kortright, Meredith, Middletown, Roxbury, Hancock & Stamford

Rockland: Only the Township of Stony Point.

Westchester: Only the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per Hour	07/01/2019	01/01/2020
Mechanic	\$ 58.57	\$ 60.49
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate

Four (4), ten (10) hour days may be worked for New Construction and Modernization Work at straight time during a week, Monday thru Thursday or Tuesday thru Friday.

***Four (4), ten (10) hour days are not permitted for Contract Work/Repair Work

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	07/01/2019	01/01/2020
Journeyman/Helper	\$ 33.705*	\$ 34.825*

(*)Plus 6% of regular hourly if less than 5 years of service. Plus 8% of regular hourly rate if more than 5 years of service.

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

Note: When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

Wages per hour:				
0-6 mo*	6-12 mo	2nd yr	3rd yr	4th yr
50 %	55 %	65 %	70 %	80 %

(*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits per hour worked:

Same as Journeyman/Helper

1-138

Glazier **01/01/2020**

JOB DESCRIPTION Glazier

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per hour: 7/01/2019

Glazier	\$ 56.25
*Scaffolding	57.25
Glass Tinting & Window Film	28.74
**Repair & Maintenance	28.74

*Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 24' or more, but not pipe scaffolding.

**Repair & Maintenance- All repair & maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$148,837. All Glass tinting, window film, regardless of material or intended use, and all affixing of decals to windows or glass.

SUPPLEMENTAL BENEFITS

Per hour: 7/01/2019

Journeyworker	\$ 33.39
Glass tinting & Window Film	19.39
Repair & Maintenance	19.39

OVERTIME PAY

See (B,H,V) on OVERTIME PAGE.

For 'Repair & Maintenance' and 'Glass Tinting & Window Film' see (B, B2, I, S) on overtime page.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6, 16, 25) on HOLIDAY PAGE

For 'Repair & Maintenance' and 'Glass Tinting & Window Film' Only

Paid: See(5, 6, 16, 25)
Overtime: See(5, 6, 16, 25)

REGISTERED APPRENTICES

Wage per hour:
(1) year terms at the following wage rates:

7/01/2019

1st term	\$ 19.44
2nd term	27.59
3rd term	33.35
4th term	44.77

Supplemental Benefits:

(Per hour)

1st term	\$ 15.86
2nd term	22.12
3rd term	24.41
4th term	28.76

8-1087 (DC9 NYC)

Insulator - Heat & Frost

01/01/2020

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Westchester

WAGES

Per hour: 07/01/2019

Insulator \$ 54.00

Discomfort & Additional Training** \$ 56.94

Fire Stop Work* \$ 28.94

* Applies on all exclusive Fire Stop Work (When contract is for Fire Stop work only). No apprentices on these contracts only.

**Applies to work requiring: garb or equipment worn against the body not customarily worn by insulators; psychological evaluation; special training, including but not limited to "Yellow Badge" radiation training

Note: Additional \$0.50 per hour for work 30 feet or more above floor or ground level.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 33.35

Discomfort & Additional Training \$ 35.27

Fire Stop Work:
 Journeyworker \$ 17.02

OVERTIME PAY

See (B, E, E2, Q, *T) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Note: Last working day preceding Christmas and New Years day, workers shall work no later than 12:00 noon and shall receive 8 hrs pay.

Overtime: See (2*, 4, 6, 16, 25) on HOLIDAY PAGE.

*Note: Labor Day triple time if worked.

REGISTERED APPRENTICES

(1) year terms:

Insulator Apprentices:

1st	2nd	3rd	4th
\$ 28.94	\$ 33.95	\$ 38.96	\$ 43.98

Discomfort & Additional Training Apprentices:

1st	2nd	3rd	4th
\$ 30.41	\$ 35.71	\$ 41.02	\$ 46.33

Supplemental Benefits paid per hour:

Insulator Apprentices:

1st term	\$ 17.02
2nd term	20.28
3rd term	23.55
4th term	26.82

Discomfort & Additional Training Apprentices:

1st term	\$ 17.98
2nd term	21.43
3rd term	24.90
4th term	28.36

8-91

Ironworker

01/01/2020

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2019

Ironworker Rigger \$ 62.84

Ironworker Stone
 Derrickman \$ 62.84

SUPPLEMENTAL BENEFITS

Per hour: \$ 39.79

OVERTIME PAY

See (B, D1, *E, Q, **V) on OVERTIME PAGE

*Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.

** Benefits same premium as wages on Holidays only

HOLIDAY

Paid: See (18) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 25) on HOLIDAY PAGE

*Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES

Wage per hour:

1/2 year terms at the following hourly wage rate:

	1st	2nd	3rd	4th	5th	6th
07/01/2018	\$31.42	\$31.42	\$44.54	\$43.07	\$54.41	\$54.41

Supplemental benefits:

Per hour:	\$19.97	\$19.97	\$30.02	\$30.02	\$30.02	\$30.02
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9-197D/R

Ironworker

01/01/2020

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2019 01/01/2020

Ornamental \$ 45.15 \$ 45.40

Chain Link Fence \$ 45.15 \$ 45.40

Guide Rail \$ 45.15 \$ 45.40

SUPPLEMENTAL BENEFITS

Per hour:
 Journeyworker: \$ 56.05 \$ 57.05

OVERTIME PAY

See (B, B1, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Apprentices hired before 8/31/2018:

(1/2) year terms at the following percentage of Journeyman's wage.

4th 5th
 70% 80%

Supplemental Benefits per hour:

4th Term	\$ 48.15	\$ 49.00
5th Term	50.78	51.68

Apprentices Hired after 9/1/18:
 1 year terms

1st Term	\$ 20.663	\$ 21.13
2nd Term	24.22	24.77
3rd Term	TBD	36.32
4th Term	TBD	TBD

Supplemental Benefits per hour:

1st Term	\$ 17.89	\$ 17.89
2nd Term	19.14	19.14
3rd Term	TBD	51.68
4th Term	TBD	TBD

4-580-Or

Ironworker **01/01/2020**

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

PER HOUR:

	07/01/2019	01/01/2020
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Ironworker:

Structural	\$ 51.45	\$ 51.95
Bridges		
Machinery		

SUPPLEMENTAL BENEFITS

PER HOUR:

Journeyman	\$ 78.43	\$ 80.35
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OVERTIME PAY

See (B, B1, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

6 month terms at the following rate:

1st	\$26.82	\$27.07
2nd	\$27.42	\$27.67
3rd - 6th	\$28.03	\$28.28

Supplemental Benefits

PER HOUR:

All Terms	\$54.54	\$55.38
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4-40/361-Str

Ironworker **01/01/2020**

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES

Per hour: 07/01/2019

Reinforcing & Metal Lathing \$ 56.23

"Base" Wage \$ 46.23
 plus \$ 10.00

"Base" Wage is used to calculate overtime hours only.

SUPPLEMENTAL BENEFITS

Per hour:

Reinforcing & Metal Lathing \$ 35.30

OVERTIME PAY

See (B, E, Q, *X) on OVERTIME PAGE

*Only \$22.00 per Hour for non worked hours

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 13, 18, 19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

Wages Per Hour:

1st term	2nd term	3rd term	4th Term
\$ 26.38	\$ 30.38	\$ 35.38	\$ 37.38

SUPPLEMENTAL BENEFITS

Per Hour:

1st term	2nd term	3rd term	4th Term
\$ 15.37	\$ 17.37	\$ 19.33	\$ 20.33

4-46Reinf

Laborer - Building

01/01/2020

JOB DESCRIPTION Laborer - Building

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

WAGES

07/01/2019

Laborer \$ 39.90

Laborer - Asbestos & Hazardous Materials Removal \$ 41.55*

* Abatement/Removal of:

- Lead based or lead containing paint on materials to be repainted is classified as Painter.
- Asbestos containing roofs and roofing material is classified as Roofer.

NOTE: Upgrade/Material condition work plan for work performed during non-outage under a wage formula of 90% wage/100% fringe benefits at nuclear power plants.

SUPPLEMENTAL BENEFITS

Per hour: 07/01/2019

Journeyworker \$ 26.30

OVERTIME PAY

See (B, E, E2, Q, *V) on OVERTIME PAGE

*Note: For Sundays and Holidays worked benefits are at the same premium as wages.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

LABORER ONLY

Hourly terms at the following wage:

Level A	Level B	Level C	Level D	Level E
0-1000	1001-2000	2001-3000	3001-4000	4001+
\$ 23.90	\$ 27.50	\$ 31.50	\$ 38.00	\$ 39.80

Supplemental Benefits per hour:

Apprentices

Level A	\$ 12.35
Level B	15.20
Level C	17.80
Level D	18.20
Level E	26.40

8-235/B

Laborer - Heavy&Highway

01/01/2020

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

WAGES

****PUTNAM: APPLIES TO ALL HEAVY & HIGHWAY WORK EXCLUDING HIGHWAYS, STREETS, AND BRIDGES****

GROUP I: Blaster and Quarry Master

GROUP II: Burner, Drillers(jumbo, joy, wagon, air track, hydraulic), Drill Operator, Self Contained Rotary Drill, Curbs/ Asphalt Screedman/Raker, Bar Person.

GROUP III: Pavement Breakers, Jeeper Operator, Jack Hammer, Pneumatic Tools (all), Gas Driller, Guniting, Railroad Spike Puller, Pipelayer, Chain Saw, Deck winches on scows, Power Buggy Operator, Power Wheelbarrow Operator, Bar Person Helper.

GROUP IV: Concrete Laborers, Asph. Worker, Rock Scaler, Vibrator Oper., Bit Grinder, Air Tamper, Pumps, Epoxy (adhesives, fillers and troweled on), Barco Rammer, Concrete Grinder, Crack Router Operator, Guide Rail-digging holes and placing concrete and demolition when not to be replaced, distribution of materials and tightening of bolts.

GROUP V: Drillers Helpers, Common Laborer, Mason Tenders, Signal Person, Pit Person, Truck Spotter, Powder Person, Landscape/Nursery Person, Dump Person, Temp. Heat.

GROUP VIA: Asbestos/Toxic Waste Laborer-All removal (Roads, Tunnels, Landfills, etc.) Confined space laborer

Wages:(per hour)	07/01/2019	03/29/2020 Additional
GROUP I	\$43.28*	\$ 2.25
GROUP II	41.93*	
GROUP III	41.53*	
GROUP IV	41.18*	
GROUP V	40.83*	
GROUP VIA	42.83*	
Operator Qualified		
Gas Mechanic	53.28*	
Flagperson	34.48*	

*NOTE: To calculate overtime premiums, deduct \$0.10 from above wages

SHIFT WORK: A shift premium will be paid on Public Work contracts for off-shift or irregular shift work when mandated by the NYS D.O.T. or other Governmental Agency contracts. Employees shall receive an additional 15% per hour above current rate for all regular and irregular shift work. Premium pay shall be calculated using the 15% per hour differential as base rate.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:

First 40 Hours

Per Hour	\$23.32
Over 40 Hours	
Per Hour	17.42

OVERTIME PAY

See (B, E, P, R, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE

NOTE: For Holiday Overtime: 5, 6 - Code 'S' applies
 For Holiday Overtime: 8, 9, 15, 25 - Code 'R' applies

REGISTERED APPRENTICES

	1st term 1-1000hrs	2nd term 1001-2000hrs	3rd term 2001-3000hrs	4th term 3001-4000hrs
07/01/2019	\$ 23.26	\$ 27.44	\$ 31.62	\$ 35.71

Supplemental Benefits per hour:

1st term	\$ 3.85 - After 40 hours: \$ 3.60
2nd term	\$ 3.95 - After 40 hours: \$ 3.60
3rd term	\$ 4.45 - After 40 hours: \$ 4.00
4th term	\$ 5.00 - After 40 hours: \$ 4.50

8-60H/H

Laborer - Tunnel

01/01/2020

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 11

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Otsego, Putnam, Rockland, Sullivan, Ulster, Westchester

PARTIAL COUNTIES

Chenango: Townships of Columbus, Sherburne and New Berlin.
 Delaware: Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Merideth and Davenport.

WAGES

Class 1: All support laborers/sandhogs working above the shaft or tunnel.

Class 2: All laborers/sandhogs working in the shaft or tunnel.

Class 4: Safety Miners

Class 5: Site work related to Shaft/Tunnel

WAGES: (per hour)

	07/01/2019	07/01/2020	07/01/2021	07/01/2022
Class 1	\$ 49.05	\$ 50.45	\$ 51.95	\$ 53.45
Class 2	51.20	52.60	54.10	55.60
Class 4	57.60	59.00	60.50	62.00
Class 5	41.00	42.25	43.50	44.80

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional \$ 3.00 an hour.

SHIFT DIFFERENTIAL...On all Government mandated irregular shift work:

- Employee shall be paid at time and one half the regular rate Monday through Friday.
- Saturday shall be paid at 1.65 times the regular rate.
- Sunday shall be paid at 2.15 times the regular rate.

SUPPLEMENTAL BENEFITS

Per hour:

Benefit 1	\$ 31.03	\$ 32.15	\$ 33.25	\$ 34.45
Benefit 2	46.48	48.15	49.80	51.60
Benefit 3	61.93	64.15	66.35	68.75

Benefit 1 applies to straight time hours, paid holidays not worked.

Benefit 2 applies to over 8 hours in a day (M-F), irregular shift work hours worked, and Saturday hours worked.

Benefit 3 applies to Sunday and Holiday hours worked.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

When a recognized Holidays falls on Saturday or Sunday, holidays falling on Saturday shall be recognized or observed on Friday and holidays falling on Sunday shall be recognized or observed on Monday. Employees ordered to work on the Saturday or Sunday of the holiday or on the recognized or the observed Friday or Monday for those holidays falling on Saturday or Sunday shall receive double time the established rate and benefits for the holiday.

REGISTERED APPRENTICES

FOR APPRENTICE RATES, refer to the appropriate Laborer Heavy & Highway wage rate contained in the wage schedule for the County and location where the work is to be performed.

11-17/60/235/754Tun

Lineman Electrician

01/01/2020

JOB DESCRIPTION Lineman Electrician

DISTRICT 6

ENTIRE COUNTIES

Westchester

WAGES

Below rates apply to electrical overhead and underground distribution and maintenance work and overhead and underground transmission line work, electrical substations, switching structures, continuous pipe-type underground fluid or gas filled transmission conduit and cable installations, maintenance jobs or projects, railroad catenary installations and maintenance, third rail installations, the bonding of rails and the installation of fiber optic cable. (Ref #14.04.01)

Includes Teledata Work performed within ten (10) feet of high voltage (600 volts or over) transmission lines.

Per hour:	07/01/2019	05/04/2020
Lineman, Tech, Welder	\$ 54.81	\$ 56.51
Crane, Crawler Backhoe	54.81	56.51
Cable Splicer-Pipe Type	60.29	62.16
Digging Mach Operator	49.33	50.86
Cert. Welder-Pipe Type	57.55	59.34
Tractor Trailer Driver	46.59	48.03
Groundman, Truck Driver	43.85	45.21
Equipment Mechanic	43.85	45.21
Flagman	32.89	33.91

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%

**** 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.

*Effective 05/06/2013, 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	\$ 24.15	\$ 24.90
	*plus 6.75% of hourly wage	*plus 6.75% of hourly wage

*The 6.75% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q,) on OVERTIME PAGE. *Note* Double time for 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.

	07/01/2019	05/04/2020
1st term	\$ 32.89	\$ 33.91
2nd term	35.63	36.73
3rd term	38.37	39.56
4th term	41.11	42.38
5th term	43.85	45.21
6th term	46.59	48.03
7th term	49.33	50.86

SUPPLEMENTAL BENEFITS: Same as Journeyman

6-1249aWest

Lineman Electrician - Teledata

01/01/2020

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).

	07/01/2019	01/01/2020	01/01/2021
Cable Splicer	\$ 32.78	\$ 33.77	\$ 34.78
Installer, Repairman	\$ 31.12	\$ 32.05	\$ 33.01
Teledata Lineman	\$ 31.12	\$ 32.05	\$ 33.01
Tech., Equip. Operator	\$ 31.12	\$ 32.05	\$ 33.01
Groundman	\$ 16.49	\$ 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	\$ 4.73	\$ 4.73	\$ 4.73
	*plus 3% of wage paid	*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

Lineman Electrician - Traffic Signal, Lighting

01/01/2020

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting

DISTRICT 6

ENTIRE COUNTIES

Westchester

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/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.
 (Ref #14.01.03)

Per hour:

	07/01/2019	05/04/2020
Lineman, Technician	\$ 50.16	\$ 51.61
Crane, Crawler Backhoe	50.16	51.61
Certified Welder	52.67	54.19
Digging Machine	45.14	46.45
Tractor Trailer Driver	42.64	43.87
Groundman, Truck Driver	40.13	41.29
Equipment Mechanic	40.13	41.29
Flagman	30.10	30.97

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%

**** 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.

*Effective 05/06/2013, 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	\$ 24.15	\$ 24.90
	*plus 6.75% of hourly wage	*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 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 and Governor of NYS Election Day.
Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and 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.

	07/01/2019	05/04/2020
1st term	\$ 30.10	\$ 30.97
2nd term	32.60	33.55
3rd term	35.11	36.13
4th term	37.62	38.71
5th term	40.13	41.29
6th term	42.64	43.87
7th term	45.14	46.45

SUPPLEMENTAL BENEFITS: Same as Journeyman

6-1249aWestLT

Mason - Building

01/01/2020

JOB DESCRIPTION Mason - Building

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

PARTIAL COUNTIES

Orange: Only the Township of Tuxedo.

WAGES

Per hour:

07/01/2019

Bricklayer	\$ 42.09
Cement Mason	42.09
Plasterer/Stone Mason	42.09
Pointer/Caulker	42.09

Additional \$1.00 per hour for power saw work

Additional \$0.50 per hour for swing scaffold or staging work

SHIFT WORK: When shift work or an irregular work day is mandated or required by state, federal, county, local or other governmental agency contracts, the following premiums apply:

Irregular work day requires 15% premium

Second shift an additional 15% of wage plus benefits to be paid

Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 35.00

OVERTIME PAY

OVERTIME:

Cement Mason See (B, E, Q, W) on OVERTIME PAGE.

All Others See (B, E, Q) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

REGISTERED APPRENTICES

Wages per hour:

750 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%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5wp-b

Mason - Building **01/01/2020**

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building:

	07/01/2019	01/01/2020	06/01/2020
Wages per hour:		Additional	Additional
		\$0.95	\$0.95

Mosaic & Terrazzo Mechanic \$56.41

Mosaic & Terrazzo Finisher \$54.81

SUPPLEMENTAL BENEFITS

Per hour:

Mosaic & Terrazzo Mechanic \$ 25.11* plus \$11.13

Mosaic & Terrazzo Finisher \$ 25.11* plus \$11.11

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

Deduct \$6.50 from hourly wages before calculating overtime.

*This portion of benefits subject to same premium rate as shown for overtime wages.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

Easter Sunday is an observed holiday. Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES

Wages per hour:

(750 Hour) terms at the following wage rate.

	1st	2nd	3rd	4th	5th	6th	7th	8th
07/01/2019	\$ 24.95	\$ 27.43	\$ 29.94	\$ 32.42	\$ 34.94	\$ 37.41	\$ 42.40	\$ 47.40

Supplemental benefits per hour:

07/01/2019	\$ 12.56*	\$ 13.82*	\$ 15.07*	\$ 16.33*	\$ 17.58*	\$ 18.84*	\$ 21.35*	\$ 23.86*
	+\$8.82	+\$9.71	+\$10.58	+\$11.47	+\$12.34	+\$13.24	+\$15.02	+\$16.67

Apprentices hired after 07/01/2017`:

Wages Per hour:

	1st	2nd	3rd	4th	5th	6th
	0-1500	1501-3000	3001-3750	3751-4500	4501-5250	5251-6000
07/01/2019	\$19.73	\$25.37	\$33.84	\$39.49	\$45.13	\$50.71

Supplemental Benefits per hour:

07/01/2019	\$8.79*	\$11.30*	\$15.07*	\$17.58*	\$20.09*	\$22.60*
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REGISTERED APPRENTICES

Wage Per Hour:

7500 hour terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6751	6751-7500
07/01/2019									
\$23.72	\$26.69	\$29.66	\$32.65	\$36.21	\$38.59	\$41.56	\$44.55	\$50.50	\$56.47

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$21.14	\$22.44	\$23.76	\$25.04	\$26.35	\$27.65	\$28.95	\$30.24	\$32.84	\$35.43 9-7/4

Mason - Building **01/01/2020**

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2019	01/01/2020	07/01/2020
Marble, Stone, etc.		Additional	Additional
Maintenance Finishers:	\$ 24.31	\$0.68	\$0.67

Note 1: An additional \$2.00 per hour for time spent grinding floor using "60 grit" and below.

Note 2: Flaming equipment operator shall be paid an additional \$25.00 per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Marble, Stone, etc	
Maintenance Finishers:	\$ 13.72

OVERTIME PAY

See (B, *E, Q, V) on OVERTIME PAGE

*Double hourly rate after 8 hours on Saturday

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

1st term apprentice gets paid for all observed holidays.

REGISTERED APPRENTICES

WAGES per hour:

07/01/2019

0-750	\$16.97
751-1500	\$17.95
1501-2250	\$18.93
2251-3000	\$19.90
3001-3750	\$21.38
3751-4500	\$23.33
4501+	\$24.31

Supplemental Benefits:

Per hour:

0-750	\$ 13.65
751-1500	\$ 13.66

1501-2250	\$ 13.67
2251-3000	\$ 13.68
3001-3750	\$ 13.69
3751-4500	\$ 13.71
4501+	\$ 13.72

9-7/24M-MF

Mason - Building

01/01/2020

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2019	12/02/2019	06/01/2020
		Additional	Additional
Tile Setters	\$ 58.95	\$0.88	\$0.88

SUPPLEMENTAL BENEFITS

Per Hour: \$ 24.56* + \$9.34

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

* This portion of benefits subject to same premium rate as shown for overtime wages.

Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

Tile Setters:
 (750 hour) term at the following wage rate:

Term:	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
	1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6501-7000
	\$19.73	\$24.39	\$31.20	\$35.85	\$39.19	\$42.34	\$45.70	\$50.35	\$53.02	\$56.68

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 13.20	\$ 13.25	\$ 15.85	\$ 15.90	\$ 17.27	\$ 18.82	\$ 20.17	\$ 20.22	\$22.26	\$28.01 9-7/52A

Mason - Building

01/01/2020

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2019	12/02/2019	06/01/2020
		Additional	Additional
Tile Finisher	\$ 45.54	\$0.73	\$0.72

SUPPLEMENTAL BENEFITS

Per Hour: \$ 21.26* + \$9.17

OVERTIME PAY

See (B, E, Q, *V) on OVERTIME PAGE

*This portion of benefits subject to same premium rate as shown for overtime wages

Work beyond 10 hours on a Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88A-tf

Mason - Building / Heavy&Highway **01/01/2020**

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT 9**

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES			
Per hour:	07/01/2019	12/30/2019	06/29/2020
Marble-Finisher	\$ 47.41	Additional \$0.41	Additional \$0.60

SUPPLEMENTAL BENEFITS
Journeyworker:
per hour

Marble- Finisher \$ 34.49

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
* Work beyond 8 hours on a Saturday shall be paid at double the rate.
** When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Heavy&Highway **01/01/2020**

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT 11**

ENTIRE COUNTIES
Putnam, Rockland, Westchester

PARTIAL COUNTIES
Orange: Only the Township of Tuxedo.

WAGES	
Per hour:	07/01/2019
Bricklayer	\$ 42.60
Cement Mason	42.60
Marble/Stone Mason	42.60
Plasterer	42.60
Pointer/Caulker	42.60

Additional \$1.00 per hour for power saw work
Additional \$0.50 per hour for swing scaffold or staging work

SHIFT WORK: When shift work or an irregular work day is mandated or required by state, federal, county, local or other governmental contracts, the following rates apply:
Irregular work day requires 15% premium
Second shift an additional 15% of wage plus benefits to be paid
Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman \$ 34.99

OVERTIME PAY
Cement Mason See (B, E, Q, W, X)
All Others See (B, E, Q, X)

HOLIDAY
Paid: See (5, 6, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 25) on HOLIDAY PAGE

Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

REGISTERED APPRENTICES

Wages per hour:

750 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%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5WP-H/H

Operating Engineer - Building

01/01/2020

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I:

Cranes (All Types up to 49 tons), Boom Trucks, Cherry Pickers (All Types), Clamshell Crane, Derrick (Stone and Steel), Dragline, Franki Pile Rig or similar, High Lift (Lull or similar) with crane attachment and winch used for hoisting or lifting, Hydraulic Cranes, Pile Drivers, Potain and similar.

Cranes (All types 50-99 tons), Drill Rig Casa Grande (CAT or similar), Franki Pile Rig or similar, Hydraulic Cranes (All types including Crawler Cranes- No specific boom length).

Cranes (All types 100 tons and over), All Tower Cranes, All Climbing Cranes irrespective of manufacturer and regardless of how the same is rigged, Franki Pile Rig or similar, Conventional Cranes (All types including Crawler Cranes-No specific boom length), Hydraulic Cranes.

GROUP I-A: Barber Green Loader-Euclid Loader, Bulldozer, Carrier-Trailer Horse, Concrete Cleaning Decontamination Machine Operator, Concrete-Portable Hoist, Conway or Similar Mucking Machines, Elevator & Cage, Excavators all types, Front End Loaders, Gradall, Shovel, Backhoe, etc.(Crawler or Truck), Heavy Equipment Robotics Operator/Mechanic, Hoist Engineer-Material, Hoist Portable Mobile Unit, Hoist(Single, Double or Triple Drum), Horizontal Directional Drill Locator, Horizontal Directional Drill Operator and Jersey Spreader, Letourneau or Tournapull(Scrapers over 20 yards Struck), Lift Slab Console, etc., Lull HiLift or Similar, Master Environmental Maintenance Mechanics, Mucking Machines Operator/Mechanic or Similar Type, Overhead Crane, Pavement Breaker(Air Ram), Paver(Concrete), Post Hole Digger, Power House Plant, Road Boring Machine, Road Mix Machine, Ross Carrier and Similar Machines, Rubber tire double end backhoes and similar machines, Scoopmobile Tractor-Shovel Over 1.5 yards, Shovel (Tunnels), Spreader (Asphalt) Telephie(Cableway), Tractor Type Demolition Equipment, Trenching Machines-Vermeer Concrete Saw Trencher and Similar, Ultra High Pressure Waterjet Cutting Tool System, Vacuum Blasting Machine operator/mechanic, Winch Truck A Frame.

GROUP I-B: Compressor (Steel Erection), Mechanic (Outside All Types), Negative Air Machine (Asbestos Removal), Push Button (Buzz Box) Elevator.

GROUP II: Compactor Self-Propelled, Concrete Pump, Crane Operator in Training (Over 100 Tons), Grader, Machines Pulling Sheep's Foot Roller, Roller (4 ton and over), Scrapers (20 yards Struck and Under), Vibratory Rollers, Welder.

GROUP III-A: Asphalt Plant, Concrete Mixing Plants, Forklift (All power sources), Joy Drill or similar, Tractor Drilling Machine, Loader (1 1/2 yards and under), Portable Asphalt Plant, Portable Batch Plant, Portable Crusher, Skid Steer (Bobcat or similar), Stone Crusher, Well Drilling Machine, Well Point System.

GROUP III-B: Compressor Over 125 cu.Feet, Conveyor Belt Machine regardless of size, Compressor Plant, Ladder Hoist, Stud Machine.

GROUP IV-A: Batch Plant, Concrete Breaker, Concrete Spreader, Curb Cutter Machine, Finishing Machine-Concrete, Fine Grading Machine, Hepa Vac Clean Air Machine, Material Hopper(sand, stone, cement), Mulching Grass Spreader, Pump Gypsum etc, Pump-Plaster-Grout-Fireproofing. Roller(Under 4 Ton), Spreading and Fine Grading Machine, Steel Cutting Machine, Siphon Pump, Tar Joint Machine, Television Cameras for Water, Sewer, Gas etc. Turbo Jet Burner or Similar Equipment, Vibrator (1 to 5).

GROUP IV-B: Compressor (all types), Heater (All Types), Fire Watchman, Lighting Unit (Portable & Generator) Pump, Pump Station(Water, Sewer, Portable, Temporary), Welding Machine (Steel Erection & Excavation).

GROUP V: Mechanics Helper, Motorized Roller (walk behind), Stock Attendant, Welder's Helper.

GROUP VI-B: Utility Man, Warehouse Man.

WAGES: (per hour)

07/01/2019

GROUP I	
Cranes- up to 49 tons	\$ 61.70
Cranes- 50 tons to 99 tons	63.86
Cranes- 100 tons and over	72.99
GROUP I-A	53.95
GROUP I-B	49.68
GROUP II	52.03
GROUP III-A	50.11
GROUP III-B	47.67
GROUP IV-A	49.60
GROUP IV-B	41.85
GROUP V	45.17
GROUP VI-A	52.96
GROUP VI-B	
Utility Man	42.83
Warehouse Man	44.92

An additional 20% to wage when required to wear protective equipment on hazardous/toxic waste projects.
 Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional \$2.00 per hour.
 Engineers operating cranes with booms 149 feet or over in length will be paid an additional \$3.00 per hour.
 Loader operators over 5 cubic yard capacity additional .50 per hour.
 Shovel operators over 4 cubic yard capacity additional \$1.00 per hour.

SUPPLEMENTAL BENEFITS

Per hour:

07/01/2019

Journeyworker	\$ 28.52
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OVERTIME PAY

OVERTIME:..... See (B, E,P,R*,T**,U***,V) on OVERTIME PAGE.

HOLIDAY

Paid:..... See (5, 6, 11, 12, 15, 25) on HOLIDAY PAGE.
 Overtime:..... See (5, 6, 11, 12, 15, 25) on HOLIDAY PAGE.
 * For Holiday codes 11, 12, 15, 25, code R applies.
 ** For Holiday code 28, code T applies
 *** For Holiday codes 5 & 6, code U applies

8-137B

Operating Engineer - Building

01/01/2020

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Putnam, Queens, Richmond, Westchester

PARTIAL COUNTIES

Dutchess: that part of Dutchess County lying south of the North City Line of the City of Poughkeepsie.

WAGES

NOTE:Construction surveying
 Party chief--One who directs a survey party
 Instrument Man--One who runs the instrument and assists Party Chief.
 Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour) 07/01/2019

Building Construction:

Party Chief	\$ 74.75
Instrument Man	\$ 59.53

Rodman \$ 40.79

Steel Erection:

Party Chief \$ 75.46
Instrument Man \$ 60.19
Rodman \$ 42.35

Heavy Construction-NYC counties only:
(Foundation, Excavation.)

Party Chief \$ 80.74
Instument man \$ 61.03
Rodman \$ 52.26

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2019

Building Construction & Steel \$ 22.85* + 6.90

Heavy Construction \$ 23.10* + 6.90

* This portion subject to same premium as wages

Non-Worked Holiday Supplemental Benefit:
\$ 16.45

OVERTIME PAY

See (A, B, E, Q) on OVERTIME PAGE

Code "A" applies to Building Construction and has double the rate after 7 hours on Saturdays.

Code "B" applies to Heavy Construction and Steel Erection and had double the rate after 8 hours on Saturdays.

HOLIDAY

Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

9-15Db

Operating Engineer - Heavy&Highway

01/01/2020

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane, (Crawler, Truck), Dragline, Drill Rig (Casa Grande, Cat, or Similar), Floating Crane (Crane on Barges) under 100 tons, Gin Pole, Hoist Engineer-Concrete (Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger (Truck or Truck Mounted), Boat Captain, Bulldozer-All Sizes, Central Mix Plant Operator, Chipper (all types), Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader (Motor Grader), Elevator & Cage (Materials or Passenger), Excavator (and all attachments), Front End Loaders (1 1/2 yards and over), High Lift Lull and similar, Hoist (Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer (Material), Jack and Bore Machine, Log Skidders, Mill Machines, Mucking Machines, Overhead Crane, Paver (concrete), Post Pounder (of any type), Push Cats, Road Reclaimer, Robot Hammer (Brokk or similar), Robotic Equipment (Scope of Engineer Schedule), Ross Carrier and similar, Scrapers (20 yard struck and over), Side Boom, Slip Form Machine, Spreader (Asphalt), Trenching Machines (Telephies-Vermeer Concrete Saw), Tractor Type Demolition Equipment, Vacuum Truck.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver (Asphalt).

GROUP II-A: Ballast Regulators, Compactor Self Propelled, Fusion Machine, Rail Anchor Machines, Roller (4 ton and over), Scrapers (20 yard struck and under), Vibratory Roller (Riding), Welder.

GROUP II-B: Mechanic (Outside) All Types.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler (High Pressure), Concrete Breaker (Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift (all types), Gas Tapping (Live), Hydroseeder, Loader (1 1/2 yards and under), Locomotive (all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher (Apprentice), Powerhouse Plant, Roller (under 4 ton), Sheer Excavator, Skid Steer/Bobcat, Stone Crusher, Sweeper (with seat), Well Drilling Machine.

GROUP IV: Service Person (Grease Truck).

GROUP IV-B: Conveyor Belt Machine (Truck Mounted), Heater (all types), Lighting Unit (Portable), Maintenance Engineer (For Crane Only), Mechanics Helper, Pump (Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck (Sewer Jet or Similar), Welders Helper, Welding Machine (Steel Erection), Well Point System.

GROUP V: All Tower Cranes-All Climbing Cranes and all cranes of 100-ton capacity or greater (3900 Manitowac or similar) irrespective of manufacturer and regardless of how the same is rigged, Hoist Engineer (Steel), Engineer-Pile Driver, Jersey Spreader, Pavement Breaker/Post Hole Digger.

WAGES: Per hour:	07/01/2019	03/02/2020
Group I	\$ 61.03	\$ 62.38
Group I-A	53.80	54.95
Group I-B	56.69	57.92
Group II-A	51.52	52.61
Group II-B	53.13	54.26
Group III	50.61	51.68
Group IV-A	46.00	46.93
Group IV-B	39.49	40.24
Group V-A		
Engineer All Tower, Climbing and Cranes of 100 Tons	69.14	70.72
Hoist Engineer(Steel)	62.61	64.00
Engineer(Pile Driver)	66.77	68.27
Jersey Spreader,Pavement Breaker (Air Ram)Post Hole Digger	52.71	53.83

SHIFT DIFFERENTIAL:

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts on all government mandated off-shift work

Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional \$2.00 per hour over the rate listed in the Wage Schedule. Engineers operating cranes with booms 149 feet or over in length will be paid an additional \$3.00 per hour over the rate listed in the Wage Schedule. Loader and Excavator Operators: over 5 cubic yards capacity \$0.50 per hour over the rate listed in the Wage Schedule. Shovel Operators: over 4 cubic yards capacity \$1.00 per hour over the rate listed in the Wage Schedule.

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 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:

Journeyworker:	07/01/2019	03/02/2020
	\$ 29.55 up to 40 Hours	\$ 30.50 up to 40 Hours
	After 40 hours \$ 20.50* PLUS \$ 1.05 on all hours worked	After 40 hours \$ 21.35* PLUS \$ 1.15 on all hours worked

*This amount is subject to premium

OVERTIME PAY

See (B, E, E2, P, *R, **U) on OVERTIME PAGE

HOLIDAY

Paid:..... See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE

Overtime..... See (5, 6, 8, 9, 15, 25) on OVERTIME PAGE

* For Holiday codes 8,9,15,25 code R applies
 ** For Holiday Codes 5 & 6 code U applies

Note: If employees are required to work on Easter Sunday they shall be paid at the rate of triple time.

REGISTERED APPRENTICES

(1)year terms at the following rate.

	07/01/2019	03/02/2020
1st term	\$ 26.90	\$ 27.48
2nd term	32.28	32.97
3rd term	37.66	38.47
4th term	43.04	43.96

Supplemental Benefits per hour:

Apprentices:	07/01/2019	03/02/2020
	\$ 21.55	\$ 22.50

8-137HH

Operating Engineer - Heavy&Highway

01/01/2020

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: South of the North city line of Poughkeepsie

WAGES

Party Chief - One who directs a survey party
 Instrument Man - One who runs the instrument and assists Party Chief
 Rodman - One who holds the rod and in general, assists the Survey Crew
 Categories cover GPS & Underground Surveying

Per Hour: 07/01/2019

Party Chief	\$ 78.00
Instrument Man	58.81
Rodman	50.26

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2019

All Categories
 Straight Time: \$ 23.10* plus \$6.90

Premium:
 Time & 1/2 \$ 34.65* plus \$6.90

Double Time \$ 46.20* plus \$6.90

Non-Worked Holiday Supplemental Benefits:
 \$ 16.45

OVERTIME PAY

See (B, *E, Q) on OVERTIME PAGE

* Doubletime paid on all hours in excess of 8 hours on Saturday

HOLIDAY

Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

9-15Dh

Operating Engineer - Heavy&Highway - Tunnel

01/01/2020

JOB DESCRIPTION Operating Engineer - Heavy&Highway - Tunnel

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane(Crawler,Truck), Dragline, Drill Rig Casa Grande(Cat or Similar), Floating Crane(Crane on Barge-Under 100 Tons), Hoist Engineer(Concrete/Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger(Truck or Truck Mounted), Boat Captain, Bull Dozer-all sizes, Central Mix Plant Operator, Chipper-all types, Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader(Motor Grader), Elevator & Cage(Materials or Passengers), Excavator(and all attachments), Front End Loaders(1 1/2 yards and over), High Lift Lull, Hoist(Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer(Material), Jack and Bore Machine, Log Skidder, Milling Machine, Moveable Concrete Barrier Transfer & Transport Vehicle, Mucking Machines. Overhead Crane, Paver(Concrete), Post Pounder of any type, Push Cats, Road Reclaimer, Robot Hammer(Brokk or similar), Robotic Equipment(Scope of Engineer Schedule), Ross Carrier and similar machines, Scrapers(20 yards struck and over), Side Boom, Slip Form Machine, Spreader(Asphalt), Trenching Machines, Telephies-Vermeer Concrete Saw, Tractor type demolition equipment, Vacuum Truck.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver(Asphalt).

GROUP II-A: Ballast Regulators, Compactor(Self-propelled), Fusion Machine, Rail Anchor Machines, Roller(4 ton and over), Scrapers(20 yard struck and under), Vibratory Roller(riding), Welder.

GROUP II-B: Mechanic(outside)all types.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler(High Pressure), Concrete Breaker(Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift(all types of power), Gas Tapping(Live), Hydroseeder, Loader(1 1/2 yards and under), Locomotive(all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher(Apprentice), Powerhouse Plant, Roller(under 4 ton), Sheer Excavator, Skidsteer/Bobcat, Stone Crusher, Sweeper(with seat), Well Drilling Machine.

GROUP IV-A: Service Person(Grease Truck).

GROUP IV-B: Conveyor Belt Machine(Truck Mounted), Heater(all types), Lighting Unit(Portable), Maintenance Engineer(for Crane only), Mechanics Helper, Pump(Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck(Sewer Jet or similar), Welding Machine(Steel Erection), Welders Helper.

GROUP V-A: Engineer(all Tower Cranes, all Climbing Cranes & all Cranes of 100 ton capacity or greater),Hoist Engineer(Steel-Sub Structure), Engineer-Pile Driver, Jersey-Spreader, Pavement breaker, Post Hole Digger

WAGES: (per hour)

	07/01/2019	03/02/2020
GROUP I	\$ 61.03	\$ 62.38
GROUP I-A	53.80	54.95
GROUP I-B	56.69	57.92
GROUP II-A	51.52	52.61
GROUP II-B	53.13	54.26
GROUP III	50.61	51.68
GROUP IV-A	46.00	46.93
GROUP IV-B	39.49	40.24
GROUP V-A		
Engineer-Cranes	69.14	70.72
Engineer-Pile Driver	66.77	68.27
Hoist Engineer	62.61	64.00
Jersey Spreader	52.71	53.83
Pavement Breaker	52.71	53.83
Post Hole Digger	52.71	53.83

SHIFT DIFFERENTIAL:

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts on all government mandated off-shift work

An additional 20% to wage when required to wear protective equipment on hazardous/toxic waste projects. Operators required to use two buckets pouring concrete on other than road pavement shall receive \$0.50 per hour over scale. Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional \$2.00 per hour. Engineers operating cranes with booms 149 feet or over in length will be paid an additional \$3.00 per hour. Operators of shovels with a capacity over (4) cubic yards shall be paid an additional \$1.00 per hour. Operators of loaders with a capacity over (5) cubic yards shall be paid an additional \$0.50 per hour.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:	03/04/2019	03/02/2020
	\$ 21.55	\$ 22.50
	+ \$8.00	+ \$8.00
	(Limited to	(Limited to
	first 40 hours)	first 40 hours)

OVERTIME PAY

See (D, O, *U, V) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE

* Note: For Holiday codes 5 & 6, code U applies.

Note: If employees are required to work on Easter Sunday, they shall be paid at the rate of triple time.

REGISTERED APPRENTICES

(1)year terms at the following rates:

	07/01/2019	03/02/2020
1st term	\$ 26.90	\$ 27.48
2nd term	32.28	32.97
3rd term	37.66	38.47
4th term	43.04	43.96

Supplemental Benefits per hour:

	07/01/2019	03/02/2020
All terms	\$ 21.55	\$ 22.50

8-137Tun

Operating Engineer - Marine Dredging

01/01/2020

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:	07/01/2019	10/01/2019
CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more.	\$ 39.23	\$ 40.31
CLASS A2 Crane Operator (360 swing)	34.96	35.92
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)	33.93	34.86

Spider/Spill Barge Operator
 Operator II, Fill Placer,
 Engineer, Chief Mate, Electrician,
 Chief Welder, Maintenance Engineer
 Licensed Boat, Crew Boat Operator

CLASS B2 Certified Welder	31.94	32.82
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CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	31.07	31.92
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CLASS C2 Boat Operator	30.06	30.89
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CLASS D Shoreman, Deckhand, Oiler, Rodman, Scowman, Cook, Messman, Porter/Janitor	24.97	25.66
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SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B	07/01/2019 \$11.23 plus 7.5% of straight time wage, Overtime hours add \$ 0.63	10/01/2019 \$11.88 plus 7.5% of straight time wage, Overtime hours add \$ 0.63
All Class C	\$10.93 plus 7.5% of straight time wage, Overtime hours add \$ 0.48	11.58 plus 7.5% of straight time wage, Overtime hours add \$ 0.48
All Class D	\$10.63 plus 7.5% of straight time wage, Overtime hours add \$ 0.33	11.28 plus 7.5% 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 - Consulting Engineer **01/01/2020**

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
 Dutchess: That part in Dutchess County lying South of the North City line of Poughkeepsie.

WAGES
 Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour: 07/01/2019
 Survey Classifications

Party Chief	\$ 43.71
Instrument Man	36.43
Rodman	31.84

SUPPLEMENTAL BENEFITS

Per Hour:

All Crew Members: \$ 19.50

OVERTIME PAY

OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.

*Doubletime paid on the 9th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Painter

01/01/2020

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2019

Brush \$ 48.20*

Abatement/Removal of lead based
or lead containing paint on
materials to be repainted. 48.20*

Spray & Scaffold \$ 51.20*

Fire Escape 51.20*

Decorator 51.20*

Paperhanger/Wall Coverer 50.97*

*Subtract \$ 0.10 to calculate premium rate.

SUPPLEMENTAL BENEFITS

Per hour: 07/01/2019

Paperhanger \$ 29.47

All others 27.59

Premium 30.35**

**Applies only to "All others" category,not paperhanger journeyworker.

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

One (1) year terms at the following wage rate.

Per hour: 07/01/2019

Appr 1st term... \$ 18.39*

Appr 2nd term... 24.02*

Appr 3rd term... 29.12*

Appr 4th term... 38.95*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental benefits:

Per Hour: 07/01/2019

Appr 1st term... \$ 14.16

Appr 2nd term... 17.17

Appr 3rd term... 19.77

Appr 4th term... 24.91

8-NYDC9-B/S

Painter

01/01/2020

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Putnam, Suffolk, Westchester

PARTIAL COUNTIES

Nassau: All of Nassau except the areas described below: Atlantic Beach, Ceaderhurst, East Rockaway, Gibson, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on the South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave., Rockville Centre is the boundary line up to Lawson Blvd. turn right going west all the above territory. Starting at Union Turnpike and Lakeville Rd. going north to Northern Blvd. the west side of Lakeville road to Northern blvd. At Northern blvd. going east the district north of Northern blvd. to Port Washington Blvd. West of Port Washington blvd. to St. Francis Hospital then north of first traffic light to Port Washington and Sands Point, Manor HAven, Harbour Acres.

WAGES

Per hour: 07/01/2019
Drywall Taper \$ 48.20*

*Subtract \$ 0.10 to calculate premium rate.

SUPPLEMENTAL BENEFITS

Per hour: 07/01/2019
Journeyman \$ 27.59

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages - Per Hour: 07/01/2019

1500 hour terms at the following wage rate:

1st term \$ 18.39*
2nd term \$ 24.02*
3rd term \$ 29.12*
4th term \$ 38.95*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental Benefits - Per hour:

One year term (1500 hours) at the following dollar amount.

1st year \$ 14.16
2nd year \$ 17.17
3rd year \$ 19.77
4th year \$ 24.91

8-NYDCT9-DWT

Painter - Bridge & Structural Steel

01/01/2020

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per Hour:
STEEL:
Bridge Painting: 07/01/2019
\$ 49.50
+ 6.38*

ADDITIONAL \$6.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

NOTE: Generally, 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.

SUPPLEMENTAL BENEFITS

Per Hour:
 Journeyworker: 07/01/2019
 \$ 9.50
 +26.05*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

OVERTIME PAY

See (A, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage - Per hour:

Apprentices: (1) year terms 07/01/2019
 1st year \$ 23.13
 2nd year 34.73
 3rd year 46.30

Supplemental Benefits - Per hour:

1st year \$ 13.44
 2nd year 20.16
 3rd year 26.88

8-DC-9/806/155-BrSS

Painter - Line Striping

01/01/2020

JOB DESCRIPTION Painter - Line Striping

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per hour:

Painter (Striping-Highway): 07/01/2019
 Striping-Machine Operator* \$ 29.93
 Linerman Thermoplastic \$ 36.06

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety.

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 paid: 07/01/2019
 Journeyworker:
 Striping-Machine operator \$ 7.44
 Linerman Thermoplastic \$ 7.44

OVERTIME PAY

See (B, B2, E2, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 20) on HOLIDAY PAGE
Overtime: See (5, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES

One (1) year terms at the following wage rates:

07/01/2019

1st term	\$ 11.97
2nd term	17.96
3rd term	23.94

Supplemental Benefits per hour:

1st term	\$ 7.44
2nd term	7.44
3rd term	7.44

8-1456-LS

Painter - Metal Polisher

01/01/2020

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, Schuylers, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

07/01/2019

Metal Polisher	\$ 30.58
Metal Polisher*	31.53
Metal Polisher**	34.08

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2019

Journeyworker:

All classification \$ 7.72

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:

07/01/2019

1st year	\$ 15.00
2nd year	15.00
3rd year	15.75
1st year*	\$ 17.39
2nd year*	17.44
3rd year*	18.29
1st year**	\$ 19.50
2nd year**	19.50
3rd year**	20.25

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:
 Per hour:

1st year	\$ 5.52
2nd year	5.52
3rd year	5.52

8-8A/28A-MP

Plumber **01/01/2020**

JOB DESCRIPTION Plumber **DISTRICT 8**

ENTIRE COUNTIES
 Putnam, Westchester

WAGES

Per hour:

	07/01/2019
Plumber and Steamfitter	\$ 56.96

SHIFT WORK:

When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker	\$ 35.61
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OVERTIME PAY

See (B, E, E2, Q, V) on OVERTIME PAGE
 OVERTIME:... See on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1)year terms at the following wages:

1st Term	\$ 21.09
2nd Term	24.22
3rd Term	27.96
4th Term	39.97
5th Term	42.90

Supplemental Benefits per hour:

1st term	\$ 14.83
2nd term	16.52
3rd term	19.68
4th term	25.81
5th term	27.34

8-21.1-ST

Plumber - HVAC / Service **01/01/2020**

JOB DESCRIPTION Plumber - HVAC / Service **DISTRICT 8**

ENTIRE COUNTIES
 Dutchess, Putnam, Westchester

PARTIAL COUNTIES

Delaware: Only the townships of Middletown and Roxbury
 Ulster: Entire County(including Walkill and Shawangunk Prisons) except for remainder of Town of Shawangunk and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES

Per hour: 07/01/2019

HVAC Service \$ 38.18
+ \$ 4.32*

*Note: This portion of wage is not subject to overtime premium.

SUPPLEMENTAL BENEFITS

Per hour: 07/01/2019

Journeyworker HVAC Service \$ 22.44

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

HVAC SERVICE

(1)year terms at the following wages:

07/01/2019

1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
\$ 17.37	\$ 20.50	\$ 25.69	\$ 31.56	\$ 34.11
+\$2.37*	+\$2.67*	+\$3.22*	+\$3.84*	+\$4.07*

*Note: This portion of wage is not subject to overtime premium.

Supplemental Benefits per hour:

Apprentices 07/01/2019

1st term	\$ 17.82
2nd term	18.61
3rd term	19.54
4th term	20.74
5th term	21.63

8-21.1&2-SF/Re/AC

Plumber - Jobbing & Alterations

01/01/2020

JOB DESCRIPTION Plumber - Jobbing & Alterations

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Putnam, Westchester

PARTIAL COUNTIES

Ulster: Entire county (including Walkill and Shawangunk Prisons in Town of Shawangunk) EXCEPT for remainder of Town of Shawangunk, and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES

Per hour: 07/01/2019
Journeyworker: \$ 44.19

Repairs, replacements and alteration work is any repair or replacement of a present plumbing system that does not change existing roughing or water supply lines.

SHIFT WORK:

When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

\$ 30.04

OVERTIME PAY

See (B, *E, E2, Q, V) on OVERTIME PAGE

*When used as a make-up day, hours after 8 on Saturday shall be paid at time and one half.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wages:

1st year	\$ 19.24
2nd year	21.33
3rd year	23.05
4th year	32.41
5th year	34.21

Supplemental Benefits per hour:

1st year	\$ 9.60
2nd year	11.36
3rd year	15.07
4th year	20.31
5th year	22.11

8-21.3-J&A

Roofer

01/01/2020

JOB DESCRIPTION Roofer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

Per Hour: 07/01/2019

Roofer/Waterproofer \$ 49.50*

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

SUPPLEMENTAL BENEFITS

Per Hour: \$ 26.37

OVERTIME PAY

See (B, H) on OVERTIME PAGE

*When calculating overtime pay, subtract \$7.00 from wages.

Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year term

1st	2nd	3rd	4th
\$ 14.88	\$ 24.75	\$ 29.70	\$ 37.14

Supplements:

1st	2nd	3rd	4th
\$ 3.30	\$ 13.21	\$ 15.84	\$ 19.79

9-8R

Sheetmetal Worker

01/01/2020

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

SheetMetal Worker 07/01/2019
 \$ 44.74

SHIFT WORK

For all NYS D.O.T. and other Governmental mandated off-shift work:
 10% increase for additional shifts for a minimum of five (5) days

SUPPLEMENTAL BENEFITS

Journeyworker \$ 42.48

OVERTIME PAY

OVERTIME:.. See (B, E, Q,) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES

1st	2nd	3rd	4th	5th	6th	7th	8th
\$16.60	\$18.67	\$ 20.75	\$ 22.83	\$ 24.89	\$ 26.98	\$ 29.53	\$ 32.08

Supplemental Benefits per hour:

Apprentices

1st term	\$ 18.30
2nd term	20.59
3rd term	22.85
4th term	25.17
5th term	27.44
6th term	29.72
7th term	31.51
8th term	33.34

8-38

Sheetmetal Worker

01/01/2020

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2019

Sign Erector \$ 50.45

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTURAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2019

Sign Erector \$ 46.66

OVERTIME PAY

See (A, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:

6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS

Per Hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$13.11	\$14.85	\$16.59	\$18.34	\$25.56	\$27.80	\$30.76	\$33.07	\$35.36	\$37.65

4-137-SE

Sprinkler Fitter

01/01/2020

JOB DESCRIPTION Sprinkler Fitter

DISTRICT 1

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

Per hour

07/01/2019

Sprinkler \$ 45.42
 Fitter

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 25.54

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

For Apprentices HIRED ON OR AFTER 04/01/2010:

One Half Year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
45%	50%	55%	60%	65%	70%	75%	80%	85%	90%

Supplemental Benefits per hour worked

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 9.30	\$ 9.36	\$ 18.04	\$ 18.10	\$ 18.66	\$ 18.72	\$ 18.78	\$ 18.83	\$ 18.89	\$ 18.95

For Apprentices HIRED ON OR AFTER 04/01/2013:

One Half Year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
45%	50%	55%	60%	65%	70%	75%	80%	85%	90%

Supplemental Benefits per hour worked

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 8.27	\$ 8.27	\$ 18.04	\$ 18.04	\$ 18.29	\$ 18.29	\$ 18.29	\$ 18.29	\$ 18.29	\$ 18.29 1-669.2

Teamster - Building / Heavy&Highway

01/01/2020

JOB DESCRIPTION Teamster - Building / Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

WAGES

GROUP A: Straight Trucks (6-wheeler and 10-wheeler), A-frame, Winch, Dynamite Seeding, Mulching, Agitator, Water, Attenuator, Light Towers, Cement (all types), Suburban, Station Wagons, Cars, Pick Ups, any vehicle carrying materials of any kind.

GROUP B: Tractor & Trailers (all types).

GROUP BB: Tri-Axle, 14 Wheeler

GROUP C: Low Boy (carrying equipment).

GROUP D: Fuel Trucks, Tire Trucks.

GROUP E: Off-road Equipment (over 40 tons): Athey Wagons, Belly Dumps, Articulated Dumps, Trailer Wagons.

GROUP F: Off-road Equipment (over 40 tons) Euclid, DJB.

GROUP G: Off-road Equipment (under 40 tons) Athey Wagons, Belly Articulated Dumps, Trailer Wagons.

GROUP H: Off-road Equipment (under 40 tons), Euclid.

GROUP HH: Off-road Equipment (under 40 tons) D.J.B.

GROUP I: Off-road Equipment (under 40 tons) Darts.

GROUP II: Off-road Equipment(under 40 tons) RXS.

WAGES:(per hour)

07/01/2019

GROUP A	\$ 41.67*
GROUP B	42.29*
GROUP BB	41.79*
GROUP C	44.42*
GROUP D	42.12*
GROUP E	42.67*
GROUP F	43.67*
GROUP G	42.42*
GROUP H	43.04*
GROUP HH	43.42*
GROUP I	43.17*
GROUP II	43.54*

* To calculate premium wage, subtract \$.20 from the hourly wage.

Note: Fuel truck operators on construction sites addit. \$5.00 per day.
For work on hazardous/toxic waste site addit. 20% of hourly rate.

Shift Differential:NYS DOT or other Governmental Agency contracts shall receive a shift differential of Fifteen(15%)percent above the wage rate

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Fridays and Saturdays may be used as make-up days at straight time when a day during the work week has been lost due to inclement weather.

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:

Journeyworker

First 40 hours	\$ 30.67
41st-45th hours	13.38
Over 45 hours	0.25

NOTE: Employees entitled to 1 week of paid vacation based on group classification after 90 days of employment.

OVERTIME PAY

See (B, E, P, R) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE

8-456

Welder

01/01/2020

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 07/01/2019

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

Westchester County Residential

Carpenter - Residential **01/01/2020**

JOB DESCRIPTION Carpenter - Residential **DISTRICT 11**

ENTIRE COUNTIES
 Putnam, Rockland, Westchester

WAGES

***IMPORTANT NOTE: Residential construction consists of those projects involving the construction, alteration, or repair of single-family houses or apartment buildings of no more than four (4) floors in height, town homes, row houses, single family homes, mobile homes, multi-family houses, apartment building of four (4) floors or less and assisted living facilities of four (4) floors or less. Excluding dormitories and student housing. Fours (4) stories shall be above ground level and shall not include the building's basement nor unfinished attic space.

Per hour:	07/01/2019	07/01/2020	07/01/2021
		Additional	Additional
Carpenter	\$ 24.50	\$ 0.26	\$ 0.26
	+ 4.97*		

* Amount paid on all hours, it is not subject to overtime premium

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 20.29

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE
 Holidays that fall on Sunday will be observed Monday.

REGISTERED APPRENTICES

(1)year terms at the following wages.

Indentured before July 1 2016

1st	2nd	3rd	4th
\$12.25	\$14.70	\$17.15	\$19.60
+2.32*	+2.32*	+2.32*	+2.32*

Indentured after July 1 2016

1st	2nd	3rd	4th	5th
\$12.25	\$14.70	\$15.93	\$17.15	\$19.60
+ 2.32*	+ 2.32*	+ 2.32*	+ 2.32*	+ 2.32*

*Amount paid on all hours, it is not subject to overtime premium

Supplemental Benefits per hour:

Apprentice all terms \$ 10.69

11-279.1r

Insulator - Heat & Frost - Residential **01/01/2020**

JOB DESCRIPTION Insulator - Heat & Frost - Residential **DISTRICT 8**

ENTIRE COUNTIES
 Dutchess, Orange, Putnam, Rockland, Westchester

WAGES

***IMPORTANT NOTE: All residential plumbing, heating and air conditioning and site work in a single-family residence or a single family residential development under one roof, regardless of cost and garden type apartment buildings or developments which do not exceed three stories high.

Per hour:	07/01/2019
Asbestos Worker	\$ 43.98
Apprentices	28.94

Fire Stop Work*
Asbestos Worker 28.94

* Applies on all exclusive Fire Stop Work (when contract is for Fire Stop Work only). No apprentices on these contracts only.

Note: Additional \$0.50 per hour for work 30 feet or more above floor or ground level.

SUPPLEMENTAL BENEFITS

Per hour:
Journeyworker \$ 28.94
Apprentice 17.02
Fire Stop Work:
Journeyworker 17.02

OVERTIME PAY

OVERTIME: See (B, E, Q, T, V) on OVERTIME PAGE.

HOLIDAY

Paid:..... See (1) on HOLIDAY PAGE.
Overtime... See (2, 4, 6, 16, 25) on HOLIDAY PAGE.

8-91R

Laborer - Residential **01/01/2020**

JOB DESCRIPTION Laborer - Residential **DISTRICT 8**

ENTIRE COUNTIES

Putnam, Westchester

WAGES

***IMPORTANT NOTE: Residential building up to three stories

07/01/2019

Laborer \$ 31.60

SUPPLEMENTAL BENEFITS

Per hour:
Journeyworker \$ 18.15

OVERTIME PAY

OVERTIME: See (B, E, Q, V*) on OVERTIME PAGE.
*Note: For Sundays and Holidays worked, benefits are at the same premium as wages.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

8-235r

Sheetmetal Worker - Residential **01/01/2020**

JOB DESCRIPTION Sheetmetal Worker - Residential **DISTRICT 8**

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

***IMPORTANT NOTE: HVAC work on single family dwellings, multiple family housing units, apartments and condominium homes where each individual family apartment is individually conditioned by separate and independent unit or system.

Per hour: 07/01/2019

Sheetmetal Worker \$ 31.73

SHIFT WORK

For all NYS D.O.T. and other Governmental mandated off-shift work:
 10% increase for additional shifts for a minimum of five (5) days

SUPPLEMENTAL BENEFITS

Journeyworker \$ 21.46

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 15, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES - Per hour:

(1/2) year terms at the following rates.

1st	2nd	3rd	4th	5th	6th	7th	8th
\$16.58	\$18.14	\$19.71	\$21.21	\$23.11	\$24.82	\$26.80	\$28.47

Supplemental Benefits - Per hour:

1st	\$ 12.69
2nd	13.77
3rd	14.88
4th	16.02
5th	16.80
6th	17.73
7th	18.43
8th	19.40

8-38r

Sprinkler Fitter - Residential

01/01/2020

JOB DESCRIPTION Sprinkler Fitter - Residential

DISTRICT 1

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

IMPORTANT NOTE: "Residential fire protection work" is applicable to one or two family dwellings, all multiple family dwelling units which are permitted to have a single exterior up to and including four stories, townhouses with units stacked vertically up to and including four stories and group residential care facilities and protective care homes (sheltered housing), not to include nursing homes or ambulatory care facilities.

Per hour

07/01/2019

Sprinkler \$ 34.07
 Fitter

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 25.54

OVERTIME PAY

See (B, H) 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.

1-669r2

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

SECTION 01014

SCOPE AND SEQUENCE OF WORK

PART 1 – GENERAL

1.01 WORK INCLUDED:

A. Strawberry Road:

The project includes but is not limited to the following items: cleaning and cement lining of approximately 1,400 lf of 8-inch diameter cast iron pipe, installation of new valves, fittings and fire hydrants, installation of temporary water service for all impacted users, trench restoration, paving, traffic control, erosion and sedimentation control, and site restoration.

B. Hanover Street:

The project includes but is not limited to the following items: cleaning and cement lining of approximately 1,800 lf of 6-inch diameter cast iron pipe, cleaning and cement lining of approximately 4,200 lf of 8-inch diameter cast iron pipe, installation of new valves, fittings and fire hydrants, installation of temporary water service for all impacted users, installation of drain pipe, trench restoration, paving, traffic control, erosion and sedimentation control, and site restoration.

1.02 RELATED WORK:

A. SECTION 01110 – CONTROL OF WORK AND MATERIALS

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL:

A. The Contractor shall be responsible for scheduling its activities and the activities of any subcontractors involved, to meet the completion date, or milestones, established for the contract. Scheduling of the work shall be coordinated with the Owner and Engineer.

B. The Construction Sequence Requirements shall be used by the Contractor to form a complete schedule for the project, which shall be coordinated with the Owner and Engineer. Prior to performing any work at the site, the Contractor shall submit a

detailed plan to the Engineer for review. The plan shall describe the proposed sequence, methods, and timing of the work.

3.02 CONSTRUCTION SEQUENCING REQUIREMENTS:

- A. Contractor shall submit a detailed temporary water service plan showing phasing, water main connection and feed locations, and house connections to Engineer for approval prior to start of work.

END OF SECTION

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SECTION 01110

CONTROL OF WORK AND MATERIALS

PART 1 – GENERAL

Not Used.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 HAULING, HANDLING AND STORAGE OF MATERIALS:

- A. The Contractor shall, at his own expense, handle and haul all materials furnished by him or the Town and shall remove any of his surplus materials at the completion of the work.
- B. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by him that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise.
- C. All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.
- D. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

3.02 EASEMENTS:

- A. As indicated on the drawings, the work is located in easements obtained by the Owner. The Contractor has no rights outside of the easements unless they are obtained from the property owner.
- B. Contractor shall schedule work so that it will cause minimum inconvenience and nuisance to abutting property owners, over the shortest possible time.

- C. Easements shall be kept clean; no rubbish or discarded construction materials shall be allowed to accumulate. Storage of excess construction materials, including soil, ledge, equipment, or machinery on easements will not be allowed.
- D. Restoration of fences, shrubs, trees and grass shall be completed promptly following completion of the work in an easement, to minimize disruption and inconvenience to property owners.
- E. Unless approved by the Engineer, the use of easements for ease of access to and egress from other areas of the project will not be permitted.

3.03 OPEN EXCAVATIONS:

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.
- B. The length of open trench will be controlled by the particular surrounding conditions but shall always be confined to the limits prescribed by the Engineer.
- C. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, then special construction procedures shall be taken, such as limiting the length of trench and prohibiting stocking excavated material in the street.
- D. All street excavations shall be completely closed at the end of each work day. Backfilling or use of steel plates of adequate strength to carry traffic shall be used.
- E. The Contractor shall furnish, install, maintain and remove plates over street openings where, in the opinion of the Engineer, traffic requires unrestricted use of the street. At such locations, work may be suspended during periods of heavy traffic to insure the public safety.
- F. All decking costs at such locations, maintain traffic and safeguarding open excavations shall be included in the price bid for the cleaning and lining water mains.
- G. Before the decking and supporting system are placed, the Contractor shall submit to the Engineer for approval detailed plans showing the structure he proposes to use. The decking and supports shall be of sufficient strength to carry a load of 200 psi. over the entire deck area of 10 tons or an axle with wheels five (5) ft. on centers without exceeding the allowable stress specified in AASHO Standard Specifications for Highway and Bridges

3.04 MAINTENANCE OF TRAFFIC:

- A. Unless permission to close the street is received in writing from the proper authority, all excavated materials and equipment shall be placed so that vehicular and pedestrian traffic may be safely maintained at all times.
- B. Should the Chief of Police deem it necessary, uniformed officers will be assigned to direct traffic. The Contractor shall make all arrangements in obtaining uniformed officers required.
- C. The Contractor shall at his own expense, as directed by the Police Traffic Control/Safety Officer, provide and erect acceptable barricades, barrier fences, traffic signs, and all other traffic devices not specifically covered in a bid item, to protect the work from traffic, pedestrians, and animals. He shall provide sufficient temporary lighting such as lanterns/flashers (electric battery operated) or other approved illuminated traffic signs and devices to afford adequate protection to the traveling public, at no additional cost to the Owner.
- D. The Contractor shall furnish all construction signs that are deemed necessary by and in accordance with Part VI of the Manual on Uniform Traffic Control Devices as published by the U.S. Department of Transportation, as well as in accordance with as well as in accordance with the latest edition of the 17 NYCRR Chapter 5 (New York State supplement). In addition, the Contractor may be required to furnish up to 128 square feet of additional special construction warning signs. Size and exact wording of signs shall be determined by the Engineer during construction.
- E. The intent of policing is to ensure public safety by direction of traffic. Police officers are not to serve as watchmen to protect the Contractor's equipment and materials.
- F. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract.

3.05 CARE AND PROTECTION OF PROPERTY:

The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, to the satisfaction of the Engineer.

3.06 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES:

- A. All existing buildings, utilities, pipes, poles, wires fences, curbing, property line markers and other structures which the Engineer decides must be preserved in place

without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the contractor. Should such property be damaged, it shall be restored by the Contractor, at no additional cost to the Owner.

- B. The Contractor shall determine the location of all underground structures and utilities (including existing water services, drain lines, electrical lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by Contractor.
- C. When fences interfere with the Contractor's operations, he shall remove and (unless otherwise specified) promptly restore them in accordance with Section 01564 EXISTING FENCES.
- D. On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment with treads or wheels which are shaped so as to cut or otherwise damage such surfaces.
- E. All property damaged by the Contractor's operations shall be restored to a condition at least equal to that in which it was found immediately before work was begun. Suitable materials and methods shall be used for such restoration.
- F. Restoration of existing property and structures shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

3.07 MAINTENANCE OF FLOW:

- A. The Contractor shall at his own cost, provide for the flow of sewers and drains interrupted during the progress of the work, and shall immediately cart away and dispose of all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer well in advance of the interruption of any flow.
- B. All existing drainage facilities including, but not limited to; brooks, streams, canals, channels, ditches, culverts, catch basins and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas in any manner whatsoever. If the Contractor damages or impairs any of the aforesaid drainage facilities, he shall repair the same within the same day.
- C. At the conclusion of the work, the Contractor shall remove all silt in drainage structures caused by his operations as described in Section 01740, CLEANING UP.

3.08 REJECTED MATERIALS AND DEFECTIVE WORK:

- A. Materials furnished by the Contractor and condemned by the Engineer as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor, and shall not be made use of elsewhere in the work.

- B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Engineer.
- C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Engineer, occurring previous to the final payment.

3.09 SANITARY REGULATIONS:

Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Engineer. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.

3.10 SAFETY AND HEALTH REGULATIONS:

This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and the New York State Department of Labor set forth in 12 NYCRR. Contractors shall be familiar with the requirements of these regulations.

3.11 SITE INVESTIGATION:

The Contractor acknowledges that he has satisfied himself as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the drawings and specifications made a part of this contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner.

3.12 ELECTRIC SERVICE:

- A. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

- B. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight.

END OF SECTION

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SECTION 01140

SPECIAL PROVISIONS

PART 1 - GENERAL

Not used

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.01 WATER FOR CONSTRUCTION PURPOSES:

- A. In locations where water is in sufficient supply, the Contractor may be allowed to use water without charge for jetting backfill and other construction purposes. The express approval of the Owner shall be obtained before water is used. Waste of water by the Contractor shall be sufficient cause for withdrawing the privilege of unrestricted use.
- B. If no water is available, the Contractor shall supply water at his own expense (i.e. at no additional cost to the Owner).

3.02 PIPE LOCATION:

Pipe shall be located substantially as indicated on drawings. The Owner reserves the right, acting through the Engineer, to make such modifications as may be deemed desirable to avoid interference with existing structures or for other reasons.

3.03 DIMENSIONS OF EXISTING STRUCTURES:

Where the dimensions and locations of existing structures are of critical importance in the installation or connections of new work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment that is dependent on the correctness of such information.

3.04 OCCUPYING PRIVATE PROPERTY:

The Contractor shall not enter upon nor occupy with men, equipment or materials any property outside of the public highways or Owner's easements, except with the written consent of the property owner or property owner's agent.

3.05 EXISTING UTILITY LOCATIONS – CONTRACTOR'S RESPONSIBILITY:

- A. The location of existing underground services and utilities shown on the drawings is based on available records. It is not warranted that all existing utilities and services are

shown, or that shown locations are correct. The Contractor shall be responsible for having the utility companies locate their respective utilities on the ground prior to excavating.

- B. To satisfy the requirements of New York law, Part 753 – Protection of Underground Facilities, the Contractor shall, at least 2 days (48 hours) and no earlier than 10 days, exclusive of Saturdays, Sundays, and holidays, prior to excavation in the proximity of telephone, gas, cable television and electric utilities, notify the utilities concerned by calling "DIG SAFELY, NEW YORK" at telephone number: 1-888-962-7962 or 811.
- C. The Contractor shall coordinate all work involving utilities and shall satisfy himself as to the existing conditions of the areas in which he is to perform his work. He shall conduct and arrange his work so as not to impede or interfere with the work of other contractors working in the same or adjacent areas.

3.06 COORDINATION OF WORK:

The General Contractor shall be responsible for coordinating his own work as well as that of any subcontractors. He shall be responsible for notification of the Engineer when each phase of work is expected to begin and the approximate completion date.

3.07 TIME FOR COMPLETION OF CONTRACT:

The time for completion of this contract is stipulated in the Form of General Bid. The Bidder shall base his bid on completing the proposed work by the completion date stipulated in Section 00410, FORM OF GENERAL BID.

3.08 MAINTENANCE OF TRENCH SURFACE:

After backfilling and compaction of the trench, the Contractor shall be responsible for keeping the ground surface dry and passable at all times until the surface has been restored to original conditions.

3.09 COMPLIANCE WITH PERMITS:

The Contractor shall perform all work in conformance with requirements of the Westchester County Department of Health and any other Permits.

3.10 CUTTING, FITTING AND PATCHING:

- A. The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors, as shown upon or reasonably implied by the drawings and the specifications for the completed structure, including all existing work.

- B. The Contractor shall not endanger any work by cutting, digging, or otherwise and shall not cut or alter the work of any other Contractor, save with the consent of the Engineer.
- C. All holes or openings required to be made in new or existing work, particularly at pipe, conduit, or other penetrations not covered by escutcheons or plates shall be neatly patched. All such holes shall be made completely watertight as approved by the Engineer.
- D. Size and locations of holes required in steel, concrete, or other structural or finish materials for piping, wiring, ducts, etc., which have not been located and detailed on the drawings shall be approved by the Engineer prior to layout and cutting thereof. All holes shall be suitably reinforced as required by the Engineer.
- E. Workmanship and materials of patching and repair work shall match the adjacent similar work and shall conform to the applicable sections of the specification. Patches and joints with existing work shall provide, as applicable in each case, visual, structural, and waterproofing continuity.

3.11 CONNECTIONS TO EXISTING WATER SYSTEMS:

- A. The Owner will, upon 24-hour notice from the Contractor, assist the Contractor by locating and opening or closing any and all valves required for draining or admitting water to the various sections of the water main as required to perform the proposed work. No damages shall be claimed by the Contractor for delays in dewatering pipelines nor shall any damages be claimed because of water leaking through closed valves after dewatering is completed.
- B. Connections to the existing distribution system shall be made with the mains under pressure unless the lines can be temporarily taken out of service as approved by the Owner.
- C. The Contractor will be required to make test excavations to ascertain that the proposed position of the connections will be clear of joints, fittings, or other obstructions.
- D. If any failure occurs in connection to existing mains, service shall be restored in the shortest possible time, the Contractor working around the clock, if necessary. He shall cooperate with the Owner in notifying the consumers or supplying emergency water. If required by Owner, the Contractor shall make connections to water mains during night hours, on Sunday or at other times of off-peak demand for water.

3.12 CONTRACTOR'S REPRESENTATIVE:

The Contractor shall designate a representative who will be available to respond to emergency calls by the Owner at any time day and night and on weekends and holidays should such a situation arise.

3.13 HOURS OF CONSTRUCTION ACTIVITY:

- A. The Contractor shall conduct all construction activity between 8:00 a.m. and 4:30 p.m., Monday through Friday. No construction work shall be allowed on Saturdays, Sundays or Holidays without written authorization from the Owner.
- B. The Owner will provide personnel for assistance in locating and operating valves at no cost to the Contractor during the Owner's normal working hours. When this assistance is required by the Contractor outside of the Owner's normal working hours the cost will be incurred by the Contractor at the prevailing overtime rate of pay for the personnel providing the assistance. The Owner will bill the Contractor directly.

3.14 CONSTRUCTION CREWS:

The Contractor shall not increase the number of construction crews assigned to the work without providing one-week advance notice to the Engineer.

3.15 SALVAGED MATERIALS:

Materials and items that are to be salvaged as required by the contract documents and drawings shall be removed in a manner such that the item is not damaged. The material or item shall be cleaned and restored to a "like new" functional condition to the fullest extent possible to the satisfaction of the Engineer. Salvaged items shall be delivered to the Yorktown Consolidated Water Department located at 1080 Spillway Road, Shrub Oak, New York 10588 or at another location specified by the Owner or Engineer.

END OF SECTION

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SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 - DESCRIPTION

1.01 GENERAL:

- A. The following subsections describe the measurement of and payment for the work to be done.
- B. All work performed as described in these contract documents will be paid for under one or more of the items listed in the FORM OF GENERAL BID. All other activities required in connection with performance of the work, including all work required under Division 1, GENERAL REQUIREMENTS, whether described in the contract documents or mandated by applicable codes, permits and laws, will not be separately paid for unless specifically provided for in the form of general bid, but will be considered incidental to performance of the overall project.
- C. Each lump-sum price stated in the FORM OF GENERAL BID shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications, including cleanup.
- D. The payment items listed herein and in the FORM OF GENERAL BID are intended to provide full payment for the work shown on the drawings and specified herein. Any work called for or implied in the documents but not listed as a payment item shall be considered incidental to the overall project.
- E. Unless otherwise noted, each item shall be furnished and installed in accordance with the technical section whether a specific applicable payment item exists or not.

1.02 BID ITEMS:

STRAWBERRY ROAD

ITEM SR-1: MOBILIZATION, BONDS, AND INSURANCE (LS)

- A. Payment for “Mobilization, Bonds, and Insurance” will be a LUMP SUM basis and shall include costs for equipment mobilization and demobilization, bonds and insurance and other incidentals related to the project not specifically covered in other bid items.

ITEM SR-2: TRAFFIC CONTROL (LS)

- A. Payment for “Traffic Control” will be a LUMP SUM basis. The LUMP SUM price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications or as required by local officials to complete the project.

ITEM SR-3: CLEANING AND LINING OF 8” WATER MAINS FURNISHED & INSTALLED (LF)

- A. Cleaning and cement lining of water mains shall be measured per linear foot of main cleaned and lined, along the centerline of the pipe as laid, including fittings that are lined through, and paid at the contract unit prices under the subdivision of the item “Cleaning and Lining of 8” Water Mains Furnished & Installed.” Unless otherwise indicated, CCTV inspection, pipe segment replacement as access pits, and excavation including backfilling and paving (or other surface treatment) required for pipe access openings shall be considered incidental to the project and shall not be separately measured for payment.
- B. Ten percent of the payment for the subdivisions of the item "Cleaning and Lining of 8” Water Mains" shall be withheld until the pipeline has satisfactorily passed the pressure test and disinfection requirements.
- C. The cost of making connections to existing water mains shall be considered incidental to the project. The cost of reinstating water service connections shall be considered incidental to the project.
- D. Cement lined water mains, including all fittings noted on plans, compacted select backfill (as shown in the watermain trench detail), couplings, joint and thrust restraints, and concrete backing, shall be measured per linear foot of water main lined, and shall be paid at the contract unit prices under the subdivisions of the item "Cleaning and Lining of 8” Water Mains Furnished & Installed."
- E. Measurement shall not include valves. The laying length of all valves shall be taken as 12 inches and, for each valve; this length shall be subtracted from the length of pipe measured.
- F. Additional fittings beyond those required and noted on the plans shall be measured per pound and paid under the item "Additional Fittings." The weight of fittings up through 64-inch size shall be measured as compact ductile iron fittings (body weight only).

ITEM SR-4: TEMPORARY BYPASS SYSTEM, FURNISHED & INSTALLED (LS)

- A. Payment for “Temporary Bypass System Furnished & Installed” shall be LUMP SUM for all components of the bypass system. The lump sum price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes the 2” and 4” temporary bypass piping, temporary fire hydrants, WCDOH coordination and bacteriological sampling, water meter removal, coordination with local homeowners, and temporary water services, all furnished & installed. This item will include required pipe burial for temporary bypass piping as shown on the plans.

ITEM SR-5: HYDRANTS, VALVES AND CONNECTIONS (EA)

- A. Payment for “Hydrants, Valves, and Connections” will be on a per EACH basis.
- B. All costs for labor, material, and equipment needed to successfully complete this item shall be included in the per EACH unit cost.
- C. The limit for payment for “Hydrants, Valves, and Connections” shall be considered to be at the connecting point to the water main (existing or new) and as indicated on the details within the contract drawings. All work within the payment limits of the hydrant is considered to be incidental to the bid item. Such work items include the furnishing and installation of the 6-inch gate valve and associated valve box appurtenances, the required length of ductile iron pipe to position the hydrant away from the main as noted on the contract drawings, the required fittings to install the hydrant, the backfilling materials including the concrete thrust block, the hydrant itself with all associated appurtenances, and all fittings and/or mechanical joints required.

ITEM SR-6: 8” WATER VALVES FURNISHED & INSTALLED (EA)

- A. Payment for “8” Water Valve Furnished & Installed” shall be measured per EACH 8” valve furnished and installed. The per each price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Valves shall be measured per valve installed, relocated or removed.
- C. Valve sets and valves shall be paid at the contract price under the subdivisions of the item “8” Water Valves Furnished & Installed.”
- D. The cost of making connections to existing mains, and the cost of joint restraints, couplings and concrete backing shall be considered incidental to the cost of the project.
- E. The cost of providing valve boxes shall be considered incidental to the project.
- F. The cost of removing abandoned valves and/or valve boxes shall be considered incidental to the project.
- G. The cost of excavating, backfilling and compaction of valves shall be considered incidental to the project.
- H. Removal of existing water meters shall be considered incidental to the project.
- I. WCDOH disinfection requirements must be met.

ITEM SR-7: 8" DUCTILE IRON PIPE & FITTINGS FURNISHED & INSTALLED (LF)

- A. Payment for "8" Ductile Iron Pipe & Fittings Furnished & Installed" will be on a LINEAR FOOT basis.
- B. Water mains, including all fittings noted on plans, compacted select backfill (as shown in the water main trench detail), couplings, joint and thrust restraints, and concrete backing, shall be measured per linear foot of water main installed, and shall be paid at the contract unit prices under the subdivisions of the item "8" Ductile Iron Pipe & Fittings Furnished & Installed."
- C. Measurement shall not include valves. The laying length of all valves shall be taken as 12 inches and, for each valve; this length shall be subtracted from the length of pipe measured.
- D. All fittings used to provide clearance beneath existing utilities shall be measured and paid for under the item "Additional Fittings".
- E. Additional fittings beyond those required and noted on the plans shall be measured per pound and paid under the item "Additional Fittings." The weight of fittings up through 64-inch size shall be measured as compact ductile iron fittings (body weight only).
- F. The cost to perform all required tests per the specifications and as listed on the contract drawings shall be included in this bid item.
- G. Ten percent of the payment for the subdivisions of the item "8" Ductile Iron Pipe & Fittings Furnished & Installed" shall be withheld until the pipeline has satisfactorily passed the pressure test and disinfection requirements.
- H. The cost of making connections to existing water mains shall be considered incidental to the project.

ITEM SR-8: ADDITIONAL NYSDOT TYPE 2 SELECT FILL FURNISHED & INSTALLED (CY)

- A. Payment for "Additional NYSDOT Type 2 Select Fill Furnished & Installed" shall be measured per CY furnished and installed. The per cubic yard price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. This item shall only be used if determined necessary by the Engineer in writing.

ITEM SR-9: PAVEMENT DRIVEWAY RESTORATION FURNISHED & INSTALLED (SY)

- A. Payment for "Pavement Driveway Restoration Furnished & Installed" shall be measured per square yard furnished and installed. The per square yard price for this item shall

constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes both temporary and permanent pavement.

- B. This item shall include all required striping restoration, milling, and application of tack coat.

ITEM SR-10: PAVEMENT ROADWAY RESTORATION FURNISHED & INSTALLED (SY)

- A. Payment for “Pavement Roadway Restoration Furnished & Installed” shall be measured per square yard furnished and installed. The per square yard price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes both temporary and permanent pavement.
- B. This item shall include all required striping restoration, milling, and application of tack coat.

ITEM SR-11: EXPLORATORY EXCAVATIONS (EA)

- A. Payment for “Exploratory Excavations” shall be measured per each excavation. The per each price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings, called for in the specifications and as determined by the Engineer.

ITEM SR-12: CONCRETE SIDEWALK REPLACEMENT FURNISHED & INSTALLED (SF)

- A. Payment for “Concrete Sidewalk Replacement Furnished & Installed” shall be measured per square foot furnished and installed. The price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Demolition of existing sidewalks shall be considered incidental to this project.

ITEM SR-13: LOAMING AND SEEDING FURNISHED & INSTALLED (LS)

- A. Payment for “Loaming and Seeding Furnished & Installed” shall be measured as a lump sum furnished & installed. The lump sum price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Loaming and seeding required above building service connections shall not be separately measured for payment but shall be considered incidental to construction of the building service connection.
- C. The work of furnishing and installing a temporary cover crop shall not be separately measured for payment but shall be considered incidental to the permanent seeding.

ITEM SR-14: ADDITIONAL FITTINGS, FURNISHED & INSTALLED (EA)

- A. Payment for “Additional Fittings” will be on a per EACH (EA) basis.
- B. All fittings required, but not noted on the plans, used to provide clearance beneath existing utilities or other unforeseen obstacles shall be measured and paid for under the item “Additional Fittings” on a per EACH (EA) basis.
- C. Contractor shall submit catalog cuts and/or original packaging slips.

HANOVER STREET

ITEM HS-1: MOBILIZATION, BONDS, AND INSURANCE (LS)

- A. Payment for “Mobilization, Bonds, and Insurance” will be a LUMP SUM basis and shall include costs for equipment mobilization and demobilization, bonds and insurance and other incidentals related to the project not specifically covered in other bid items.

ITEM HS-2: TRAFFIC CONTROL (LS)

- A. Payment for “Traffic Control” will be a LUMP SUM basis. The LUMP SUM price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.

ITEM HS-3: CLEANING AND LINING OF 6” WATER MAINS FURNISHED & INSTALLED (LF)

- A. Cleaning and cement lining of water mains shall be measured per LF of main cleaned and lined, along the centerline of the pipe as laid, including fittings that are lined through, and paid at the contract unit prices under the subdivision of the item “Cleaning and Lining of 6” Water Mains Furnished & Installed.” Unless otherwise indicated, CCTV inspection, pipe segment replacement as access pits, and excavation including backfilling and paving (or other surface treatment) required for pipe access openings shall be considered incidental to the project and shall not be separately measured for payment.
- B. Ten percent of the payment for the subdivisions of the item "Cleaning and Lining of 6” Water Mains Furnished & Installed" shall be withheld until the pipeline has satisfactorily passed the pressure test and disinfection requirements.
- C. The cost of making connections to existing water mains shall be considered incidental to the project. The cost of reinstating water service connections shall be considered incidental to the project.
- D. Cement lined water mains, including all fittings noted on plans, compacted select backfill (as shown in the watermain trench detail), couplings, joint and thrust restraints, and concrete backing, shall be measured per linear foot of water main lined, and shall be paid

at the contract unit prices under the subdivisions of the item "Cleaning and Lining of 6” Water Mains Furnished & Installed."

- E. Measurement shall not include valves. The laying length of all valves shall be taken as 12 inches and, for each valve; this length shall be subtracted from the length of pipe measured.
- F. Additional fittings beyond those required and noted on the plans shall be measured per pound and paid under the item "Additional Fittings." The weight of fittings up through 64-inch size shall be measured as compact ductile iron fittings (body weight only).

ITEM HS-4: CLEANING AND LINING OF 8” WATER MAINS FURNISHED & INSTALLED (LF)

- A. Cleaning and cement lining of water mains shall be measured per linear foot of main cleaned and lined, along the centerline of the pipe as laid, including fittings that are lined through, and paid at the contract unit prices under the subdivision of the item “Cleaning and Lining of 8” Water Mains Furnished & Installed.” Unless otherwise indicated, CCTV inspection, pipe segment replacement as access pits, and excavation including backfilling and paving (or other surface treatment) required for pipe access openings shall be considered incidental to the project and shall not be separately measured for payment.
- B. Ten percent of the payment for the subdivisions of the item "Cleaning and Lining of 8” Water Mains" shall be withheld until the pipeline has satisfactorily passed the pressure test and disinfection requirements.
- C. The cost of making connections to existing water mains shall be considered incidental to the project. The cost of reinstating water service connections shall be considered incidental to the project.
- D. Cement lined water mains, including all fittings noted on plans, compacted select backfill (as shown in the watermain trench detail), couplings, joint and thrust restraints, and concrete backing, shall be measured per linear foot of water main lined, and shall be paid at the contract unit prices under the subdivisions of the item "Cleaning and Lining of 8” Water Mains Furnished & Installed."
- E. Measurement shall not include valves. The laying length of all valves shall be taken as 12 inches and, for each valve; this length shall be subtracted from the length of pipe measured.
- F. Additional fittings beyond those required and noted on the plans shall be measured per pound and paid under the item "Additional Fittings." The weight of fittings up through 64-inch size shall be measured as compact ductile iron fittings (body weight only).

ITEM HS-5: TEMPORARY BYPASS SYSTEM FURNISHED & INSTALLED (LS)

- A. Payment for “Temporary Bypass System Furnished & Installed” shall be LUMP SUM

for all components of the bypass system. The lump sum price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes the 2" and 4" temporary bypass piping, temporary fire hydrants, WCDOH coordination and bacteriological sampling, water meter removal, coordination with local homeowners, and temporary water services, all furnished & installed. This item will include required pipe burial for temporary bypass piping as shown on the plans.

ITEM HS-6: HYDRANTS, VALVES AND CONNECTIONS (EA)

- A. Payment for "Hydrants, Valves, and Connections" will be on a per EACH basis.
- B. All costs for labor, material, and equipment needed to successfully complete this item shall be included in the per EACH unit cost.
- C. The limit for payment for "Hydrants, Valves, and Connections" shall be considered to be at the connecting point to the water main (existing or new) and as indicated on the details within the contract drawings. All work within the payment limits of the hydrant is considered to be incidental to the bid item. Such work items include the furnishing and installation of the 6-inch gate valve and associated valve box appurtenances, the required length of ductile iron pipe to position the hydrant away from the main as noted on the contract drawings, the required fittings to install the hydrant, the backfilling materials including the concrete thrust block, the hydrant itself with all associated appurtenances, and all fittings and/or mechanical joints required.

ITEM HS-7: 6" WATER VALVES FURNISHED & INSTALLED (EA)

- A. Payment for "6" Water Valve Furnished & Installed" shall be measured per EACH 6" valve furnished and installed. The per each price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Valves shall be measured per valve installed, relocated, or removed.
- C. Valve sets and valves shall be paid at the contract price under the subdivisions of the item "6" Water Valves Furnished & Installed."
- D. The cost of making connections to existing mains, and the cost of joint restraints, couplings and concrete backing shall be considered incidental to the cost of the project.
- E. The cost of providing valve boxes shall be considered incidental to the project.
- F. The cost of removing abandoned valves and/or valve boxes shall be considered incidental to the project.
- G. The cost of excavating, backfilling and compaction of valves shall be considered

incidental to the project.

- H. Removal of existing water meters shall be considered incidental to the project.
- I. WCDOH disinfection requirements must be met.

ITEM HS-8: 8" WATER VALVES FURNISHED & INSTALLED (EA)

- A. Payment for "8" Water Valve Furnished & Installed" shall be measured per EACH 8" valve furnished and installed. The per each price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Valves shall be measured per valve installed, relocated, or removed.
- C. Valve sets and valves shall be paid at the contract price under the subdivisions of the item "8" Water Valves Furnished & Installed."
- D. The cost of making connections to existing mains, and the cost of joint restraints, couplings and concrete backing shall be considered incidental to the cost of the project.
- E. The cost of providing valve boxes shall be considered incidental to the project.
- F. The cost of removing abandoned valves and/or valve boxes shall be considered incidental to the project.
- G. The cost of excavating, backfilling and compaction of valves shall be considered incidental to the project.
- H. Removal of existing water meters shall be considered incidental to the project.
- I. WCDOH disinfection requirements must be met.

ITEM HS-9: 8" DUCTILE IRON PIPE & FITTINGS FURNISHED & INSTALLED (LF)

- A. Payment for "8" Ductile Iron Pipe & Fittings Furnished & Installed" will be on a LINEAR FOOT basis.
- B. Water mains, including all fittings noted on plans, compacted select backfill (as shown in the water main trench detail), couplings, joint and thrust restraints, and concrete backing, shall be measured per linear foot of water main installed, and shall be paid at the contract unit prices under the subdivisions of the item "8" Ductile Iron Pipe & Fittings Furnished & Installed."
- C. Measurement shall not include valves. The laying length of all valves shall be taken as 12 inches and, for each valve; this length shall be subtracted from the length of pipe

measured.

- D. All fittings used to provide clearance beneath existing utilities shall be measured and paid for under the item "Additional Fittings".
- E. Additional fittings beyond those required and noted on the plans shall be measured per pound and paid under the item "Additional Fittings." The weight of fittings up through 64-inch size shall be measured as compact ductile iron fittings (body weight only).
- F. The cost to perform all required tests per the specifications and as listed on the contract drawings shall be included in this bid item.
- G. Ten percent of the payment for the subdivisions of the item "8" Ductile Iron Pipe & Fittings Furnished & Installed" shall be withheld until the pipeline has satisfactorily passed the pressure test and disinfection requirements.
- H. The cost of making connections to existing water mains shall be considered incidental to the project.

ITEM HS-10: 12" DRAINPIPE FURNISHED & INSTALLED (LF)

- A. Payment for "12" Drainpipe Furnished & Installed" shall be measured per LF furnished and installed. The per linear foot price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes all required excavation, backfilling, and compaction.

ITEM HS-11: ADDITIONAL NYSDOT TYPE 2 SELECT FILL FURNISHED & INSTALLED (CY)

- A. Payment for "Additional NYSDOT Type 2 Select Fill Furnished & Installed" shall be measured per CY furnished and installed. The per cubic yard price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.

ITEM HS-12: PAVEMENT DRIVEWAY RESTORATION FURNISHED & INSTALLED (SY)

- A. Payment for "Pavement Driveway Restoration Furnished & Installed" shall be measured per square yard furnished and installed. The per square yard price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes both temporary and permanent pavement.
- B. This item shall include all required striping restoration, milling, and application of tack coat.

ITEM HS-13: PAVEMENT ROADWAY RESTORATION FURNISHED & INSTALLED (SY)

- A. Payment for “Pavement Roadway Restoration Furnished & Installed” shall be measured per square yard furnished and installed. The per square yard price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications. This includes both temporary and permanent pavement.
- B. This item shall include all required striping restoration, milling, and application of tack coat.

ITEM HS-14: EXPLORATORY EXCAVATIONS (EA)

- A. Payment for “Exploratory Excavations” shall be measured per each excavation. The per each price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings, called for in the specifications and as determined by the Engineer.

ITEM HS-15: CONCRETE SIDEWALK REPLACEMENT FURNISHED & INSTALLED (SF)

- A. Payment for “Concrete Sidewalk Replacement Furnished & Installed” shall be measured per square foot furnished and installed. The per square foot price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Demolition of existing sidewalks shall be considered incidental to this project.

ITEM HS-16: LOAMING AND SEEDING FURNISHED & INSTALLED (LS)

- A. Payment for “Loaming and Seeding Furnished & Installed” shall be measured as a lump sum furnished & installed. The lump sum price for this item shall constitute full compensation for furnishing all labor, materials, tools, and equipment for constructing the project, complete, as shown on the drawings and called for in the specifications.
- B. Loaming and seeding required above building service connections shall not be separately measured for payment but shall be considered incidental to construction of the building service connection.
- C. The work of furnishing and installing a temporary cover crop shall not be separately measured for payment but shall be considered incidental to the permanent seeding.

ITEM HS-17: ADDITIONAL FITTINGS, FURNISHED & INSTALLED (EA)

- A. Payment for “Additional Fittings” will be on a per EACH (EA) basis.

- B. All fittings required, but not noted on the plans, used to provide clearance beneath existing utilities or other unforeseen obstacles shall be measured and paid for under the item “Additional Fittings” on a per EACH (EA) basis.
- C. Contractor shall submit catalog cuts and/or original packaging slips.

END OF SECTION

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SECTION 01310

CONSTRUCTION SCHEDULING

(For Construction Scheduling Requirements See Section 00700 – General Conditions, paragraph 2.05, and Section 00810 – Modifications to General Conditions, paragraph 2.05)

END OF SECTION

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SECTION 01330

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. The Contractor shall provide the Engineer with submittals as required by the contract documents.

1.02 RELATED WORK:

- A. Divisions 1 – 3 of these specifications that require submittals.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL:

- A. As required by the General Conditions, Contractor shall submit a schedule of shop and working drawing submittals.
- B. The Contractor shall submit the shop and working drawing submittals either electronically or hard copy.

3.02 ELECTRONIC SUBMITTALS:

- A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Engineer by email (zongolj@wseinc.com) or on Compact Disc (mail to Weston & Sampson, PE, LS, LA, PC), one electronic copy in Portable Document Format (PDF) of shop or working drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.
- B. Each electronic copy of the shop or working drawing shall be accompanied by the Engineer's standard shop drawing transmittal form (to be provided by the Engineer), included as Exhibit 1 of this section (use only for electronic submittals), on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, Contractor and building, equipment or structure.
- C. The Contractor shall receive a shop drawing memorandum with the Engineer's approval or comments via email.

3.03 HARD COPY SUBMITTALS (IF ELECTRONIC IS NOT USED):

- A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Engineer, by mail (to Weston & Sampson Engineers, attention: Joseph M. Zongol, PE, 301 Manchester Road, Suite 201A, Poughkeepsie, New York 12603), six (6) copies each of shop or working drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.
- B. Each shipment of drawings shall be accompanied by the Engineer's (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, Contractor and building, equipment or structure.

3.04 SHOP AND WORKING DRAWINGS:

- A. Shop and working drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish of shop coat, grease fittings, etc., depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.
- B. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24-inch by 36-inch sheets, except those, which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the Owner, Project, Contractor and building, equipment or structure to which the drawing applies, and shall be suitably numbered. Each shipment of drawings shall be accompanied by the Engineer's (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names mentioned above.
- C. Only drawings that have been prepared, checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Contract Documents in all respects. Shop drawings shall be reviewed and marked with the date, checker's name and indication of the Contractor's approval, and only then shall be submitted to the Engineer. Shop drawings unsatisfactory to the Contractor shall be returned directly to their source for correction, without submittal to the Engineer. Shop drawings submitted to the Engineer without the Contractor's approval stamp and signature will be rejected. Any deviation from the Contract Documents indicated on the shop drawings must be identified on the drawings and in a separate submittal to the Engineer, as required under subsection 6.17 Shop Drawings and Samples; D. Submittal Procedures, Paragraph 3 of the 1996 General Conditions.

- D. The Contractor shall be responsible for the prompt submittal and resubmittal, as necessary, of all shop and working drawings so that there will be no delay in the work due to the absence of such drawings.
- E. The Engineer will review the shop and working drawings as to their general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections of comments made on the drawings during the review do not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The review of the shop drawings is general and shall not relieve the Contractor of the responsibility for details of design, dimensions, code compliance, etc., necessary for interfacing with other components, proper fitting and construction of the work required by the Contract and for achieving the specified performance. The Engineer will review submittals two times: once upon original submission and a second time if the Engineer requires a revision or corrections. The Contractor shall reimburse the Owner amounts charged to the Owner by the Engineer for performing any review of a submittal for the third time or greater.
- F. With few exceptions, shop drawings will be reviewed and returned to the Contractor within 30 days of submittal.
- G. No material or equipment shall be purchased or fabricated especially for this Contract nor shall the Contractor proceed with any portion of the work, the design and details of which are dependent upon the design and details of equipment or other features for which review is required, until the required shop and working drawings have been submitted and reviewed by the Engineer as to their general conformance and compliance with the project and its Contract Documents. All materials and work involved in the construction shall then be as represented by said drawings.
- H. Two copies of the shop and working drawings and/or catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when he needs more than two copies or when so requested.

3.05 SAMPLES:

- A. Samples specified in individual Sections include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the work.

- B. The number of samples submitted shall be as specified. Submittal and processing of samples shall follow the procedures outlined for shop and working drawings unless the specifications call for a field submittal or mock-up.
- C. Acceptance of samples will be acknowledged via a copy of the transmittal noting status. When samples are not acceptable, prompt resubmittal will be required.

EXHIBIT 1 – SHOP DRAWING TRANSMITTAL

Shop Drawing Transmittal **Weston & Sampson**
ENGINEERS, INC.

Instructions for Preparing Transmittal
No action will be taken on any item unless accompanied by this form. Type or print all entries.

TRANSMITTAL NOS. to be consecutive (1, 2, 3, etc.). Each resubmittal of same item shall use same number with suffix letter (A, B, etc.).

SPEC. SECT. NO. Only one spec. section no. to each transmittal.

DESCRIPTION: Complete identification of document or group of documents.

SOURCE: Originator of document(s) being submitted.

DRAWING NO.: Identification of document(s).

NO. OF COPIES: Usually 6 or as directed/specified.

CONTRACT DRAWING REFERENCE: Contract drawing number(s) showing details of document(s) being submitted.

SPECIAL INSTRUCTIONS: Special cases and emergencies, changes in distribution and special handling requests, etc. should be entered here.

SIGNATURE OF CONTRACTOR: Signature of individual who reviews and approves material prior to submittal to engineer.

Contractor to retain last copy. Submit original with two pink and two yellow copies.

THIS SECTION TO BE COMPLETED BY CONTRACTOR							
TRANSM. NO.	SPEC. SECT. NO.	DATE	CONTRACTOR'S JOB NO. / W&S JOB NO.				
PROJECT NAME & CONTRACT NO.							
LOCATION							
F R O M (CONTRACTOR) Weston & Sampson, PE, LS, LA, PC 301 Manchester Road, Suite 201A Poughkeepsie, New York 12603							
ITEM NO.	DESCRIPTION	SOURCE	DRAWING NO. / CATALOG NO. / PROCEDURE, ETC.	NO. OF COPIES	CONTRACT DRAWING REF.	BY W&S ACTION CODE	REVIEWED BY
1							
2							
3							
4							

THIS CERTIFIES THAT ALL ITEMS SUBMITTED HEREIN HAVE BEEN CHECKED BY THE CONTRACTOR, ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, EXCEPT AS NOTED, AND ARE APPROVED BY THE CONTRACTOR FOR THIS PROJECT.

SPECIAL INSTRUCTIONS:

(FOR CONTRACTOR)
 SIGNATURE _____
 & TITLE _____

THIS SECTION TO BE COMPLETED BY W&S			
ACTION CODE	FIELD OFFICE	RECD BY	DATE
1. NO EXCEPTIONS TAKEN 2. MAKE CORRECTIONS NOTED 3. AHEAD AND RESUBMIT 4. REJECTED - SEE REPAIRS 5. ACKNOWLEDGMENT	WESTON & SAMPSON ENGINEERS, INC.		BY _____ DATE ____/____/____

Please! BEAR DOWN WHEN HANDWRITING – THIS IS A 6 COPY FORM & THE LAST COPY IS YOURS!

END OF SECTION

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SECTION 01550

SIGNAGE (TRAFFIC CONTROL)

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers furnishing and installing traffic control signs and other devices.

1.02 SYSTEM DESCRIPTION:

The Contractor shall furnish and install all construction signs deemed necessary by and in accordance with the latest edition of Part VI of the Manual on Uniform Traffic Control Devices(MUTCD) as published by the U.S. Department of Transportation, as well as in accordance with the latest edition of the 17 NYCRR Chapter 5 (New York State supplement).

PART 2 - PRODUCTS

2.01 TRAFFIC WARNING AND REGULATING DEVICES:

Contractor shall provide warning signs, barricades and other devices in accordance with the specifications provided in the MUTCD and the New York State supplement. Size of signs, lettering, colors, method of support and other factors prescribed in the MUTCD/NYS supplement shall be adhered to.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Contractor shall erect barricades; barrier fences, traffic signs, and other traffic control devices as required by the MUTCD/NYS supplement, or as required by the Engineer, to protect the work area from traffic, pedestrians, and animals.
- B. Contractor shall relocate barricades, signs and other devices as necessary as the work progresses.
- C. Unless extended protection is required for specific areas, when the work has been completed, all temporary warning and regulatory devices used by the Contractor shall be removed so that traffic can move unimpeded through the area.

END OF SECTION

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SECTION 01562

DUST CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION:

This section of the specification covers the control of dust via calcium chloride and water, complete.

PART 2 - PRODUCTS

2.01 CALCIUM CHLORIDE:

- A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.
- B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky in shipment may be rejected by the Engineer.

2.02 WATER:

- A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART 3 - EXECUTION

3.01 APPLICATION:

- A. Calcium chloride shall be applied when ordered by the Engineer and only in areas which will not be adversely affected by the application. See Section 01570, ENVIRONMENTAL PROTECTION.
- B. Calcium chloride shall be uniformly applied at the rate of 1-1/2 pounds per square yard or at any other rate as required by the Engineer. Application shall be by means of a mechanical spreader, or other approved methods. The number and frequency of applications shall be determined by the Engineer.
- C. Water may be sprinkler applied with equipment including a tank with gauge-equipped pressure pump and a nozzle-equipped spray bar.

- D. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

END OF SECTION

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SECTION 01564

EXISTING FENCES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This section of the specification covers the removal and resetting of existing fences.
- B. Where the removal of existing fences, at locations shown on the plans and where required by the Engineer, is required, the Contractor shall remove and reset such fences as required by the Engineer.

PART 2 - PRODUCTS

2.01 FENCING:

- A. The materials removed shall be utilized to reset the fence. Where necessary, new posts and bases shall be furnished and installed by the Contractor. Any materials damaged or lost during or subsequent to removal shall be replaced by the Contractor without additional compensation.
- B. All new materials required shall be equal in quality and design to the materials in the present fences.

PART 3 - EXECUTION

3.01 REMOVAL OF EXISTING FENCES:

- A. The present fences shall be carefully removed together with all appurtenances and satisfactorily stored and protected until required for resetting.

3.02 ERECTION:

- A. Fences shall be reset plumb and to the grades required and shall conform to the original fence or as the Engineer requires. Backfilling around the posts shall consist of suitable material satisfactorily compacted. If the fence posts were originally set in concrete bases they shall be reset in concrete bases.

3.03 PAINTING:

- A. Painting, if required, shall be done as required by the Engineer.

END OF SECTION

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SECTION 01570

ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. The requirements set forth in this section of the specifications apply to cross-country areas, river and stream crossings, and construction in and adjacent to wetlands, unless otherwise specifically stated.
- C. All work under this Contract shall be in accordance with the New York State Department of Environmental Conservation (NYSDEC) Stormwater Management Design Manual as well as any conditional requirements applied.
- D. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance of the environmental protection program.

1.02 RELATED WORK:

- A. Section 01330, SUBMITTALS
- B. Section 01562, DUST CONTROL
- D. Section 02240, DEWATERING
- E. Section 02252, SUPPORT OF EXCAVATION
- G. Section 02300, EARTHWORK
- F. Section 02920, LOAMING AND SEEDING

1.03 SUBMITTALS:

- A. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands or across areas designated as wetlands.

PART 2 - PRODUCTS

2.01 SILT FENCE:

- A. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a 22-foot wide, continuous length support netting, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1½-inches by 1½-inches (Minimum Dimension) by 48 inches and shall be tapered. The support netting shall be industrial strength polypropylene. The bottom edge of the sediment control fabric shall be buried as shown on the drawings. The sediment control fabric shall conform to the following properties:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
1. Grab Strength (lbs.)	124	ASTM D-4632
2. Elongation (%)	15%	ASTM D-4632
3. Puncture Strength (lbs.)	65	ASTM D-4833
4. Burst Strength (psi)	300	ASTM D-3786
5. Trapezoid Tear (lbs.)	60	ASTM D-4533
6. Equivalent Opening Size (U.S. Sieve)	No. 30	ASTM D-4571
7. Permittivity (sec ⁻¹)	0.10	ASTM D-4491
8. Water Flow Rate (gal/min/sf.)	10	ASTM D-4491
9. UV Resistance (%)	70	ASTM D-4355

- B. The silt fence shall be Mirafi Envirofence manufactured by Mirafi, Inc. or approved equal.

PART 3- EXECUTION

3.01 NOTIFICATION AND STOPPAGE OF WORK:

The Engineer will notify the Contractor in writing of any non-compliance with the provisions of the New York State Department of Environmental Conservation (NYSDEC) Stormwater Management Design Manual. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner, through the Engineer, may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3.02 AREA OF CONSTRUCTION ACTIVITY:

- A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after

completion of construction at least equal to that which existed prior to work under this contract.

3.03 PROTECTION OF WATER RESOURCES:

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

3.04 CONSTRUCTION IN AREAS DESIGNATED AS WETLANDS ON THE DRAWINGS:

- A. Insofar as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetlands. Total easement widths shall be limited to the widths shown.
- B. The Contractor shall perform his work in such a way that these areas are left in the condition existing prior to construction.
- C. The elevations of areas designated as wetlands shall not be unduly disturbed by the Contractor's operations outside of the trench limits. If such disturbance does occur, the Contractor shall take all measures necessary to return these areas to the elevations which existed prior to construction.
- D. In areas designated as wetlands, the Contractor shall carefully remove and stockpile the top 24 inches of soil. This topsoil material shall be used as backfill for the trench excavation top layer. The elevation of the trench shall be restored to the preconstruction elevations wherever disturbed by the Contractor's operation.
- E. The Contractor shall use a trench box, sheeting or bracing to support the excavation in areas designated as wetlands.
- F. Excavated materials shall not be permanently placed or temporarily stored in areas designated as wetlands. Temporary storage areas for excavated material shall be as required by the Engineer.
- G. The use of a temporary gravel roadway to construct the pipeline in the wetlands area is not acceptable. The Contractor will be required to utilize timber or rubber matting to support his equipment in these areas. The timber or rubber matting shall be constructed in such a way that it is capable of supporting all equipment necessary to install the pipeline. The timber or rubber matting shall be constructed of materials and placed in such a way that when removed the material below the matting will not be unduly disturbed, mixed or compacted so as to adversely affect recovery of the existing plant life.

- H. Bentonite dams shall be placed in wetlands to prevent drainage. Locations for dams are as indicated on the drawings or as required by the Engineer.
- I. During construction, easements within wetlands shall be lined with a continuous hay bale/siltation fence barrier.

3.05 PROTECTING AND MINIMIZING EXPOSED AREAS:

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Engineer.

3.06 LOCATION OF STORAGE AREAS:

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Owner/Engineer. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Owner/Engineer.
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled hay or straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.
- C. There shall be no storage of equipment or materials in areas designated as wetlands.
- D. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.
- E. Storage areas in cross-country locations shall be restored to pre-construction conditions with the planting of native species of trees and shrubs.

3.07 PROTECTION OF LANDSCAPE:

- A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable

type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.

- B. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as required.
- C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Engineer may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230, CLEARING AND GRUBBING.
- D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

3.08 CLEARING AND GRUBBING:

- A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for construction operations, as approved by the Engineer. Removal of mature trees (4 inches or greater DBH) will not be allowed on temporary easements.
- B. The Contractor shall not remove trees in the Owner's temporary easements without permission of the Engineer.

3.09 DISCHARGE OF DEWATERING OPERATIONS:

- A. Any water that is pumped and discharged from the trench and/or excavation as part of the Contractor's water handling shall be filtered by an approved method prior to its discharge into a receiving water or drainage system.
- B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge

water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.

- C. The pumped water shall be filtered through filter fabric and baled hay, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

3.10 DUST CONTROL:

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as required. Calcium chloride shall be as specified under Section 01562, DUST CONTROL.
- B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

3.11 SEPARATION AND REPLACEMENT OF TOPSOIL:

- A. Topsoil shall be carefully removed from cross-country areas where excavations are to be made, and separately stored to be used again as required. The topsoil shall be stored in an area acceptable to the Engineer and adequate measures shall be employed to prevent erosion of said material.

3.12 BALED STRAW:

- A. To trap sediment and to prevent sediment from clogging drainage systems, straw shall be used where shown on the drawings. Care shall be taken to keep the bales from breaking apart. The bales should be securely staked to prevent overturning, flotation, or displacement. All deposited sediment shall be removed periodically. Straw bales shall not be placed within a waterway during construction of the pipeline crossing.

3.13 ERECTION AND MAINTENANCE OF SILT FENCE:

- A. Where indicated on the drawings or where required by the Engineer, the Contractor shall erect and maintain a temporary silt fence. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.

3.14 SURFACE RESTORATION OF CROSS COUNTRY AREAS:

- A. Cross Country areas that are disturbed as a result of the Contractor's operations shall be restored in accordance with Section 02920, LOAMING AND SEEDING.

3.15 CATCH BASIN PROTECTION:

- A. Catch basin protection shall be used for every catch basin, shown on the plans or as required by the Engineer, to trap sediment and prevent it from clogging drainage systems and entering wetlands. The Contractor shall install a storm drain inlet protection measure in accordance with accepted NYSDEC Standards and Specifications for Erosion and Sediment Control that best meets the existing field conditions and configurations, and as approved by the Engineer.
- B. The Contractor shall take care to maintain all catch basin protection devices by monitoring and maintaining them in accordance with NYSDEC regulations, as well as at times prior to predicted precipitation to allow free drainage flow. Prior to working in areas where catch basins are to be protected, each catch basin sump shall be cleaned of all debris and protected. The contractor shall properly dispose of all debris at no additional cost to the Owner.

END OF SECTION

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SECTION 01735

CUTTING, CORING AND PATCHING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers the cutting, coring, rough and finish patching of holes and openings in existing structures.

PART 2 - PRODUCTS

2.01 SEALING MATERIALS:

- A. Mechanical seals shall be modular, adjustable, bolted, mechanical type consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and sleeve. The seal shall be rated by the manufacturer for 40 feet of head or 20 psig. Mechanical seals shall be Link-Seal, manufactured by Thunderline Corp., Wayne, MI., or approved equal.
- B. Sealant shall be a two part foamed silicone elastomer as manufactured by Dow Corning Co., product No. 3-6548 silicone R.T.V.; 3M brand fire barrier products caulk C.P. 25 and 3M brand putty 303; Flame-Safe fire stop systems Fig. No. FS-500 by Thomas & Betts Corporation, or approved equal. Packing shall be a fire retardant pliable material, Fig. 310 by Sealtite Co.; White Oakum W.S.-600 by American Manufacturing Co., or approved equal. Sealant bead configuration, depth and width shall be in accordance with manufacturer's recommendations.

2.02 MISCELLANEOUS MATERIALS:

- A. Bonding compound shall be Sikadur Hi-Mod epoxy by Sika Corporation, or equivalent by Euclid Chemical Corporation, Master Builders Company, or approved equal.
- B. Non-shrink grout shall be Masterflow 713 by Master Builders Company; Euco N-S by Euclid Chemical Co.; Five Star Grout by U.S. Grout Corp. or approved equal.
- C. Materials for finish patching shall be equal to those of adjacent construction.

PART 3 - EXECUTION

3.01 GENERAL:

- A. The Contractor shall leave all chases or openings for the installation of his own or any other contractor's or subcontractor's work, or shall cut the same in existing work, and shall see that all sleeves or forms are at the work and properly set in ample time to prevent delays. He shall see that all such chases, openings, and sleeves are located accurately and

are of proper size and shape and shall consult with the Engineer and the contractors and subcontractors concerned in reference to this work.

- B. In case of his failure to leave or cut all such openings or have all such sleeves provided and set in proper time, Contractor shall cut them or set them afterwards at his own expense, but in so doing he shall confine the cutting to the smallest extent possible consistent with the work to be done. In no case shall piers or structural members be cut without the written consent of the Engineer.
- C. The Contractor shall not cut or alter the work of any subcontractor or any other contractor, nor permit any of his subcontractors to cut or alter the work of any other contractor or subcontractor, except with the written consent of the contractor or subcontractor whose work is to be cut or altered or with the written consent of the Engineer. All cutting and patching or repairing made necessary by the negligence, carelessness, or incompetence of the Contractor or any of his subcontractors shall be done by or at the expense of the Contractor and shall be the responsibility of the Contractor.
- D. All cutting and coring shall be performed in such a manner as to limit the extent of patching.
- E. All holes cut through concrete and masonry walls, slabs or arches shall be core drilled unless otherwise approved. No structural members shall be cut without the approval of the Engineer and all such cutting shall be done in a manner required by him. No holes may be drilled in beams or other structural members without obtaining prior approval. All work shall be performed by mechanics skilled in this type of work.

3.02 CORING:

- A. Coring shall be performed with an approved non-impact rotary tool with diamond core drills. Size of holes shall be suitable for pipe, conduit, sleeves, equipment or mechanical seals to be installed.
- B. If holes are cored through floor slabs they shall be drilled from below.
- C. All equipment shall conform to OSHA standards and specifications pertaining to plugs, noise and fume pollution, wiring and maintenance.
- D. Provide protection for existing equipment, utilities and critical areas against water or other damage caused by drilling operation.
- E. Slurry or tailings resulting from coring operations shall be vacuumed or otherwise removed from the area following drilling.

3.03 CUTTING:

- A. Cutting shall be performed with a concrete saw and diamond saw blades of proper size and application.
- B. Provide for control of slurry generated by sawing operation on both sides of wall or slab.
- C. When cutting a reinforced concrete wall, the cutting shall be done so as not to damage bond between the concrete and reinforcing steel left in the structure. Cut shall be made so that steel neither protrudes nor is recessed from the face of the cut.
- D. Adequate bracing of area to be cut shall be installed prior to start of cutting. Check area during sawing operations for partial cracking and provide additional bracing as required to prevent a partial release of cut area during sawing operations.
- E. Provide equipment of adequate size to remove cut panel.
- F. For cutting a trench in a floor slab, a full-depth cut shall be made using a concrete saw for the desired width of the trench. A partial-depth cut shall be made to expose the reinforcing bars. The width of the partial cut shall be to the required lap length of the reinforcing bars. Care shall be taken not to cut exposed reinforcing bars but if any are cut, dowel holes shall be drilled and dowels epoxied in. Reinforcing of the same size, as the existing shall be tied to the existing exposed reinforcing and/or dowels with the proper lap length.

3.04 PATCHING:

Rough patching shall be such as to bring the cut or cored area flush with existing construction unless otherwise shown. Finish patching shall match existing surfaces as approved.

Trenches in floor slabs shall be repaired as described in 3.03F above and concrete meeting the requirements of Section 03300 CAST-IN-PLACE CONCRETE shall be poured and cured.

END OF SECTION

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SECTION 01740

CLEANING UP

PART 1 - GENERAL

1.01 DESCRIPTION:

The Contractor must employ at all times during the progress of his work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon request by the Engineer provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Engineer.

1.02 RELATED WORK:

- A. Section 00700 GENERAL CONDITIONS
- B. Section 01110 CONTROL OF WORK AND MATERIALS
- C. Section 01140 SPECIAL PROVISIONS
- D. Section 01570 ENVIRONMENTAL PROTECTION

PART 2 - PRODUCTS

Not applicable

PART 3 - EXECUTION

2.01 DAILY CLEANUP:

- A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Upon written notification by the Engineer, the Contractor shall within 24 hours clean up those areas, which in the Engineer's opinion are in violation of this section and the above referenced sections of the specifications.
- C. If in the opinion of the Engineer, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

2.02 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

- A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, work done under this contract, or otherwise during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc., shall, upon completion of the work, be left in a clean and neat condition.

2.03 REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

- A. On or before completion of the work, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; shall remove silt fences and hay bales used for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by his operations in a neat and satisfactory condition.

2.04 RESTORATION OF DAMAGED PROPERTY:

- A. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, sidewalks, gutters, driveways, curbs, walk and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Engineer.

2.05 FINAL CLEANUP:

- A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off of the premises. Before acceptance, the Engineer shall approve the condition of the site.

END OF SECTION

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SECTION 01770

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers administrative and procedural requirements for closing out the project, including, but not limited to:
 - 1. Project as-built documents
 - 2. Checkout and Certification
 - 3. Final Cleaning
 - 4. Substantial Completion
 - 5. Closeout Procedures
 - 6. Final Completion
 - 7. Correction/Warranty Period
- B. Closeout checklist to be completed by the Engineer.

1.02 RELATED WORK:

- A. General Requirements in their entirety.
- B. Section 01740, CLEANING UP

1.03 AS-BUILT DOCUMENTS:

- A. Contractor shall maintain on site, separate from the documents used for construction, one set of the documents listed below, and as construction progresses, shall legibly record on these documents all changes made during construction.
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.

5. Reviewed shop drawings, product data, and samples.
 6. Written interpretations and clarifications.
 7. Field Orders.
 8. Field test reports properly verified.
- B. The completed set of as-built documents shall be submitted to the Engineer with the final Application for Payment.

1.04 CHECKOUT AND CERTIFICATIONS:

- A. Prior to checkout and certifications the following tasks shall be completed:
1. Construction shall be complete. For this purpose, completion of construction is defined as follows:
 - a. The Contractor has completed construction and erection of the work in conformance with the Contract Drawings and Specifications.
 - b. The Contractor has installed and adjusted operating equipment, systems, or facilities, as applicable, as defined by the manufacturers' erection, installation, operation and maintenance instructions.
 2. All shop drawings shall have final approval.
 3. All shop tests shall be complete and approved test results submitted to the Engineer.
 4. All pressure and disinfection tests shall be complete and approved test results submitted to the Engineer.

1.05 FINAL CLEANING:

- A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
1. Clean the site, including landscape development areas of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to smooth, even textured surfaces.
 2. Remove waste and surplus materials, rubbish, fencing equipment, temporary utilities and construction facilities from the site, unless otherwise required by the Engineer.
 3. Comply with requirements of Section 01740 CLEANING UP.

1.06 SUBSTANTIAL COMPLETION:

- A. Substantial Completion is officially defined in the General and Supplementary Conditions. The date of substantial completion will be certified by the Engineer. This date will not be certified until the following requirements have been satisfied by the Contractor:
1. All Contract requirements are coordinated into a fully operational system. All individual units of equipment and treatment are fully operative and performing at specified efficiencies. Where efficiencies are not specified, performance shall meet acceptable standards for the particular unit.
 2. All field tests have been satisfactorily completed and reports forwarded to the Engineer.
 3. All final training has been completed by the manufacturers' representatives.
 4. All spare parts and lubricants have been satisfactorily delivered to the Owner. Spare parts are for the exclusive use of the Owner when the facility has been turned over. Contractor is responsible for all maintenance and repair materials required until the facility is accepted by the Owner.

1.07 CLOSEOUT PROCEDURES:

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and is complete in accordance with Contract Documents and ready for Engineer's and Owner's inspection.
- B. Accompany Engineer and Owner on inspection to verify conformance with the Contract Documents. Prepare a punch list of work items that have been determined by inspection to not conform to Contract Documents. Punch list items shall include work items that are missing, incomplete, damaged, incorrect items, or improperly installed or constructed. The Contractor shall correct the punch list deficiencies by re-work, modifications, or replacement, as appropriate, until the items conform to the Contract Documents. The initial punch list shall be produced by the Contractor, with copies to the Engineer and Owner. When the Contractor has reduced the number of deficient items to a reasonable level, the Engineer will develop a definitive punch list for the use of the Contractor.
- C. Provide submittals to Engineer that are required by governing or other authorities.
- D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The Contractor shall submit the following documents with or prior to Final Application for Payment: Set of as-built documents, Contract Completion and Acceptance Certificate, Consent of Surety to Final Payment, Release and Waiver of Liens and Claims, Affidavit of Payment of Debts and Claims, and remaining releases, waivers, warranties/guarantees, and all other data required by the Contract Documents.

1.08 FINAL COMPLETION:

- A. Prior to final completion, the following tasks shall be completed:
 - 1. All items in the punch list shall be completed.
 - 2. All Contract closeout documentation shall be submitted to and accepted by the Engineer.

1.09 CORRECTION/WARRANTY PERIOD:

- A. During the correction period, the Contractor shall correct all deficiencies in equipment and materials.
- B. During the warranty period, the Contractor shall perform all corrective work on warranty deficiencies.
- C. Corrective work will be identified by the Engineer or Owner, as appropriate. The Contractor will be notified of the item(s) requiring corrective work.
- D. The Contractor shall begin work on all corrective work within ten days of being notified of the deficiency by the Engineer and shall then work continuously until the deficiency is corrected. Upon completion of the corrective work, the Contractor shall submit a letter report to the Engineer describing the deficiency and the corrective action that was taken.
- E. The Contractor shall coordinate all corrective work with the Engineer and/or the Owner.

1.11 COMPLETION CHECKLIST:

- A. When the project has been fully completed, Final Payment can be approved.

PROJECT COMPLETION CHECKLIST

Owner _____ Job No.

Project _____

As part of the project closeout, all items listed below must be checked off as being complete or otherwise accounted for. The person verifying completion of the item shall list the completion date and his/her initials.

Project Closeout Checklist		
	Date Completion Verified	Verified by
AS-BUILT DOCUMENTS HANDED OVER		
1. Contract Drawings		
2. Specifications		
3. Addenda		
4. Change Orders/Contract Modifications		
5. Reviewed Shop Drawings, Product Data and Samples		
6. Written Interpretations/Clarifications		
7. Field Orders		
8. Field Test Reports		
EQUIPMENT CHECKOUT AND CERTIFICATIONS		
1. Construction Complete per Drawings/Specifications		
2. Equipment Installed and Adjusted		
3. All Shop Drawings have Final Approval		
4. All Shop Tests Complete and Results Submitted		
5. All Pressure and Disinfection Test Results Submitted		

Project Closeout Checklist		
	Date Completion Verified	Verified By
FINAL CLEANING		
1. All Construction Facilities Removed		
2. All Construction Debris Removed		
3. All Areas Swept/Cleared		
SUBSTANTIAL COMPLETION		
1. All Items Coordinated Into a Fully Operational System		
2. All Equipment Units Operational at Specified Efficiencies		
3. All Field Tests Completed and Reports Submitted		
4. All Spare Parts and Lubricants Provided		
CLOSEOUT PROCEDURES		
1. Written Certification Submitted that Work is Ready for Owner & Engineer Inspector		
2. Inspection by Owner, Engineer, Contractor completed		
3. Punch List of Nonconforming Items Prepared		
4. Documents Required by Governing or Other Authorities Submitted (List Them)		
5. Final Application for Payment Received		
6. Contact Completion and Acceptance Certificate Submittal		
7. Consent of Surety to Final Payment Submittal		
8. Release and Waiver of Liens and Claims Submitted		
9. Affidavit of Payment of Debts and Claims Submitted		
10. Warranties/Guarantees Submitted		
11. Other Required Releases and Waivers Submitted (List Them)		
12. Permits Submitted (List Them)		
13. Weekly Payrolls Submitted as Required by Law		

Project Closeout Checklist

	Date Completion Verified	Verified By
FINAL COMPLETION		
1. All Items in Punch List Completed		
2. All Other Required Documentation Submitted (List It)		
CORRECTION/WARRANTY PERIOD		
1. Correction Period Start Date: _____ End Date: _____		
2. Specific Warranties Provided <p align="center"><u>Item</u> <u>Warranty Duration</u></p>		

Full name of persons signing their initials on this checklist:

END OF SECTION

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SECTION 02072

FILTER FABRIC / GEOTEXTILE FABRIC

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall furnish all labor, materials and equipment and install the filter fabric / geotextile fabric in locations shown on the plans, in the specifications or as required by the Engineer.

PART 2 - PRODUCTS

2.01 MANUFACTURERS/MATERIALS:

- A. The filter fabric shall be Mirafi 140N as manufactured by Mirafi Inc., Pendergrass, GA; Foss-65, as manufactured by Foss Manufacturing Co., Hampton, NH; US 120NW, as manufactured by US Fabrics, Cincinnati, OH; or approved equal, in the locations as shown on the drawings.
- B. The geotextile fabric shall be Mirafi 500X as manufactured by Mirafi Inc., or approved equal, in the locations as shown on the drawings.

PART 3 - EXECUTION

3.01 INSTALLATION:

The filter fabric / geotextile fabric shall be installed in the final graded excavation bottom prior to placement of the crushed stone / rip rap bedding. The filter fabric in place shall cover the entire top, bottom and sides of excavation as shown on the drawings. The geotextile fabric shall cover the entire bottom and sides of the outlet protection excavation as shown on the drawings. Each width of filter fabric / geotextile fabric shall be overlapped by the subsequent width in accordance with manufacturer's recommendations, but not less than two feet, to ensure no intrusion of soil fines into the bedding.

END OF SECTION

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SECTION 02080

DUCTILE IRON PIPE AND FITTINGS FOR WATER MAINS

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers the furnishing, handling, hauling, laying, jointing, testing and disinfecting of all ductile iron pipe, including fittings and appurtenant work as indicated on the drawings and as specified.

1.02 RELATED WORK:

- A. Section 02300, EARTHWORK
- B. Section 02514, HYDRANTS AND VALVES FOR POTABLE WATER WORK
- C. Section 02515, WATER SERVICE CONNECTIONS
- D. Section 02516, CONNECTIONS TO EXISTING WATER MAINS

1.03 QUALITY ASSURANCE:

- A. All pipe and fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. The Contractor shall furnish in duplicate to the Engineer sworn certificates of such tests.
- B. In addition, the Owner reserves the right to have any or all pipe, fittings and special castings inspected and/or tested by an independent service at either the manufacturer's plant or elsewhere. Such inspection and/or tests shall be at the Owner's expense.

1.04 REFERENCES:

- A. The following standards form a part of this specification as referenced:

American Water Works Association (AWWA)

AWWA	C104	Cement-Mortar Lining for Ductile- Iron Pipe and Fittings
AWWA	C105	Polyethylene Encasement for Ductile Iron Pipe Systems
AWWA	C110	Ductile-Iron and Gray-Iron Fittings Water
AWWA	C111	Rubber Gasket Joints for Ductile- Iron Pressure Pipe and Fittings

AWWA	C150	Thickness Design of Ductile-Iron Pipe
AWWA	C151	Ductile-Iron Pipe, Centrifugally Cast for Water
AWWA	C153	Ductile-Iron Compact Fitting for Water Service.
AWWA	C600	Installation of Ductile-Iron Water Mains & Their Appurtenances
AWWA	C651	Disinfecting Water Mains

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Six sets of all shop drawings shall be submitted to the Engineer for review.
- B. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs including descriptive literature and complete characteristics and specifications, and code requirements. Shop drawings shall be submitted for the ductile iron pipe, type of joint, fittings, couplings, filling rings, restrained joints, and lining and coating in accordance with specifications.

PART 2 – PRODUCTS

(TO BE SUPPLIED BY THE OWNER UNLESS OTHERWISE NOTED)

2.01 PIPE:

- A. The Contractor shall use push-on joint type ductile iron pipe unless otherwise indicated on the plans or specified herein.
- B. All ductile iron pipe shall be designed in accordance with AWWA C150 and shall be manufactured in accordance with AWWA C151.
- C. Unless otherwise indicated or specified, ductile iron pipe shall be Thickness Class 52.

2.02 JOINTS:

- A. Joints for ductile iron pipe shall conform to AWWA C111.
- B. Pipe and fittings shall be furnished with approved joint restraining appurtenances as specified herein, or as indicated on the drawings, to keep the piping from pulling apart under pressure.

2.03 FITTINGS:

- A. Fittings shall conform to the requirements of AWWA C110 or C153 as appropriate and shall be of a pressure classification at least equal to that of the pipe with which they are used.
- B. The Contractor shall use ductile iron fittings. Cast-iron, Class 250 fittings may be substituted, upon approval of the Engineer, for ductile iron fittings.
- C. Unless otherwise indicated, fittings shall have all bell mechanical joint ends.

2.04 GASKETS, GLANDS, NUTS AND BOLTS:

- A. Gaskets, glands, nuts, bolts and accessories shall conform to AWWA C111 or C153 as appropriate.
- B. Gaskets shall be of plain tipped rubber, suitable for exposure to the liquid within the pipe.
- C. Glands shall be ductile or cast iron.
- D. Bolts and nuts shall be high strength alloy.

2.05 LINING AND COATING:

- A. The inside of pipe and fittings shall be given a cement lining and asphaltic seal coat in accordance with AWWA C104. The thickness of the lining shall be double that specified in AWWA C104.
- B. The outside of pipe and fittings shall be coated with the standard asphaltic coating specified under the appropriate AWWA Standard Specification for pipe and fittings.
- C. Machined surfaces shall be cleaned and coated with a suitable rust preventative coating at the shop immediately after being machined.

2.06 FLEXIBLE COUPLINGS:

- A. The Contractor shall use solid sleeve coupling fittings for joining pipe. Sleeve-type flexible couplings may be substituted only with the approval of the Engineer. Acceptable solid sleeve couplings include Tyler Union Model #081968, or approved equal.
- B. All couplings and accessories shall be of a pressure rating at least equal to that of the pipeline in which they are to be installed.
- C. Couplings shall be cast or ductile iron and shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.

2.07 JOINT RESTRAINTS:

- A. Where indicated or necessary to prevent joints or sleeve couplings from pulling apart under pressure, anchoring and joint restraint methods shall be utilized. Methods shall be restrained joint systems. The number of joints to be restrained shall be determined in accordance with Table 1 (found on plans), as shown on the construction plans or provided by the Engineer.
- B. Restrained joint system for standard mechanical joint or push on joint pipe shall be Megalug or Coverall by EBAA Iron Sales Inc., Eastland, TX; Fast-grip joint by American Cast Iron Pipe Company, Birmingham, AL; Field Lok 350 Gasket by United States Pipe and Foundry Company, Birmingham, AL; or approved equal. Methods that rely on the use of friction clamps and/or retainer glands with set screws alone are not acceptable.
- C. Restrained joint systems for non-standard or modified joints shall be Flex-Ring or Lok-Ring by American Cast Iron Pipe Company, Birmingham, AL; TR-Flex Joint by United States Pipe and Foundry Company, Birmingham, AL; Super-Lock Joint by Clow Corporation, Bensenville, IL; Fastite Joint by Atlantic States Cast Iron Pipe Company, Philipsburg, NJ; Snap-Lok or Bolt-Lok by Griffin Pipe Products Company, Oak Brook, IL; or approved equal.
- D. Concrete thrust blocks may only be used for 6-inch, 8-inch, 10-inch, or 12-inch pipe where use of a joint restraint system is not feasible. If concrete thrust blocks are required, the Contractor shall supply all of the necessary materials. Use of concrete thrust blocks shall be installed with the minimum bearing area (in square feet) against undisturbed material in accordance with the following:

Size of Main	90° Bends, Tees, Caps and Plugs	45° Bends and Wyes	22-½° Bends	11-¼° Bends
6- & 8-inch	5	4	2	2
10- & 12-inch	12	9	5	2

- E. Tie rods may only be used for 6-inch, 8-inch, 10-inch, or 12-inch pipe where use of a joint restraint system is not feasible. If tie rods are necessary, the Contractor shall provide all necessary materials. Bolts shall have adequate length to allow nuts on both sides of the gland. Tie bolts shall have the same diameter as the tie rods and be in accordance with the following:

Pipe Size	Tie Rod	
	Number	Diameter
6	2	½"
8	2	¾"
10	2	¾"
12	4	¾"

- F. Location of restrained joints shall be based on Table 1 (found on plans), as shown on the construction plans or provided by the Engineer. All joints that occur within the

restrained length listed in Table 1 (found on plans), for the specific application, shall be restrained. For example, for a 90° bend, 8-inch unwrapped pipe, the restrained length required is 33 feet. Therefore, all joints within 33 feet of the 90° bend must be restrained.

PART 3 - EXECUTION

3.01 INSPECTION BEFORE INSTALLATION:

Pipes and fittings shall be subjected to a careful inspection just before being laid or installed.

3.02 HANDLING AND CUTTING:

- A. The Contractor's attention is directed to the fact that cast iron used for pipe and fittings and the cement linings are comparatively brittle. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe and linings, scratching or marring machined surfaces, and abrasion of the pipe coating or lining.
- B. Any pipe or fitting which has a damaged lining, scratched or marred machine surface and/or abrasion of the pipe coating or lining shall be rejected and removed from the job-site.
- C. Any fitting showing a crack and any fitting or pipe which has received a severe blow that may have caused incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.
- D. In any pipe showing a distinct crack and in which it is believed there is no incipient fracture beyond the limits of the visible crack, the cracked portions, if so approved, may be cut off by and at the expense of the Contractor before the pipe is laid so that the pipe used will be perfectly sound. The cut shall be made in the sound barrel at a point at least 12 inches from the visible limits of the crack.
- E. Except as otherwise approved, all cutting shall be done with a power operated cutter suitable for cutting ductile iron pipe. Hydraulic squeeze cutters or hammer and chisels are not acceptable for cutting ductile iron pipe. Travel type cutters or rotary type abrasive saws may be used. All cut ends shall be examined for possible cracks caused by cutting and all damaged sections shall be replaced by the Contractor at their expense.
- F. Lined and coated pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.
- G. Each pipe and fitting shall be cleared of all debris, dirt, etc., before being laid and shall be kept clean until accepted in the complete work

- H. Pipe and fittings shall be laid accurately to the lines and grades indicated on the drawings, or required care shall be taken to ensure a good alignment both horizontally and vertically
- I. Lined and coated pipe and fittings shall be assembled and installed with approved packing or gaskets of the type recommended by the pipe manufacturer for the particular lining used.

3.03 INSTALLATION:

A. DEPTH:

1. The pipe shall be installed with a minimum of 4'-6" of cover, unless specifically indicated otherwise on the plans or required by the Engineer.
2. Where pipe is installed at less than the required cover, the Contractor shall furnish and install insulation in accordance with Section 02513, INSULATION FOR PIPELINES, or as required by the Engineer.

B. PIPE AND FITTINGS:

1. No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.
2. Each pipe and fitting shall be cleared of all debris, dirt, etc., before being laid and shall be kept clean until accepted in the complete work.
3. Pipe and fittings shall be laid accurately to the lines and grades indicated on the drawings or as required. Care shall be taken to ensure good alignment both horizontally and vertically.
4. In buried pipelines, each pipe shall have firm bearing along its entire length.
5. Castings to be encased in masonry shall be accurately set, with the bolt holes, if any, carefully aligned.
6. Immediately prior to being set, castings shall be thoroughly cleaned of all rust, scale and other foreign material.
7. Fittings shall not be used to clear beneath or above an existing structure or pipeline unless approved by the Engineer. The water main shall be brought to a depth sufficient to clear the structure or pipeline without the use of bends.

C. TEMPORARY PLUGS:

At all times when pipe laying is not actually in progress, the open ends of pipe shall be closed by temporary watertight plugs or by other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

D. PUSH ON JOINTS:

1. Joining of push-on joint pipe shall conform to AWWA C600.
2. If effective sealing of the joint is not attained, the joint shall be disassembled, thoroughly cleaned, a new gasket inserted and joint reassembled.
3. Deflection of alignment at a joint shall not exceed the appropriate permissible deflection as specified in AWWA C600. The tables in AWWA C600 indicate the maximum permissible deflection for 18 and 20-foot pipe lengths. Maximum permissible deflections for other lengths shall be in proportion to such lengths.

E. MECHANICAL JOINTS:

1. Assembling of fittings with mechanical joint ends shall conform to AWWA C600.
2. If effective sealing of the joint is not attained at the maximum torque indicated in the above standard, the joint shall be disassembled and thoroughly cleaned, then reassembled. Bolts shall not be overstressed to tighten a leaking joint.
3. The deflection of alignment at a joint shall not exceed the appropriate permissible deflection as specified in the following table. These values indicate the maximum permissible deflection for 18-foot lengths. Maximum permissible deflections for other lengths shall be in proportion to such lengths.

Pipe Deflection Allowances
Maximum permissible deflection, inches

<u>Diameter of Pipe (inches)</u>	<u>Mechanical-Joint</u>
6	27
8-12	20
16	13.5
20	11
24	9

F. RESTRAINED JOINTS:

1. Joining of restrained joint piping shall conform to the manufacturer's recommendations.
2. If effective sealing of the joint is not attained, the joint shall be disassembled, thoroughly cleaned, a new gasket inserted and joint reassembled.
3. Deflection of alignment at a joint shall not exceed the appropriate permissible deflection recommended by the manufacturer.
4. All restraining appurtenances (and tie rods) shall be coated with an approved bituminous paint after assembly. The completed joint shall be inspected and the paint repaired/touched-up as necessary.

G. SLEEVE-TYPE COUPLINGS:

1. The Contractor shall furnish ductile iron sleeve-type couplings to make closure pieces watertight.
3. The ductile iron sleeve-type couplings supplied by the Contractor for plain end cast-iron pipe, shall be Style 3503n by Clow Corporation, or approved equal.
4. The bolts and nuts used for assembling the couplings shall have a corrosion-resistant metallic finish. After assembling the entire coupling, including the nuts and bolts, shall be thoroughly coated with an approved bituminous paint.
5. Pipe ends shall be cleaned thoroughly prior to installation. After the bolts have been inserted and all nuts have been made up finger tight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint, preferable by use of a torque wrench of the appropriate size and torque for the bolts. The correct torque as indicated by a torque wrench shall not exceed 90 foot-lb.

3.04 TESTING:

- A. Prior to the hydrostatic pressure test, the piping shall be thoroughly flushed clean of all dirt, dust, oil, grease and other foreign material. This work shall be done with care to avoid damage to linings and coatings.
- B. The installed pipe shall be pressure tested in accordance with AWWA Standard C600.
- C. HYDROSTATIC PRESSURE TEST:

1. Unless otherwise approved, all pipelines shall be given a hydrostatic pressure test between line valves. The Contractor shall furnish and install suitable temporary testing plugs or caps; all necessary pressure pumps, pipe connections, meters,

gates, and other necessary equipment; and all labor required. The Owner or Engineer shall have the privilege of using its own gauges.

2. Subject to approval and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when desired.
3. Pipelines intended for buried service shall be tested after backfill and compaction of the trench.
4. The section of pipe to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe. The Contractor shall follow established procedures for filling the pipe and expelling trapped air to avoid exposing the piping system to water-hammer. If blowoffs are not available at high points for releasing air, the Contractor shall excavate as required and install the necessary taps. If the Contractor changes the grade of pipe installation, he will be responsible for locating the taps at the correct location in the system for testing. Taps shall be installed at the beginning and end of each disinfection run. After completion of the test, if so required by the Engineer, the Contractor shall remove corporations used for testing; plug the holes; and backfill as necessary.
5. The section under test shall be maintained full of water at working pressure for a period of 24 hours prior to the hydrostatic pressure test being applied to stabilize the pipeline with respect to movement under pressure, water absorption by the lining, etc. The pipeline may require several cycles of pressurizing and bleeding trapped air prior to beginning the test.
6. When hydrants are in the pipeline test section, the hydrostatic test shall be made against the main valve in the hydrant. The hydrostatic test shall not be conducted against the branch valve.
7. The hydrostatic test shall consist of raising the water pressure within the test section to operating pressure of the pipeline measured at the highest elevation along the test section. The specified test pressure shall be corrected to the elevation of the test gauge.
8. The hydrostatic test shall be of at least a two (2) hour duration. The test pressure shall not vary by more than +/- 5 psi for the duration of the test. Test pressure shall be maintained within this tolerance by adding makeup water through the pressure test pump into the pipeline test section.
9. The amount of makeup water (testing allowance) added to the test section shall be accurately measured by suitable methods and shall not exceed the maximum allowable quantity of makeup water. No pipe installation will be accepted if the quantity of makeup water is greater than that determined by the following formula:

$$L = \frac{S D \sqrt{P}}{148,000}$$

Where:

- L = makeup water, in gallons per hour
- S = length of test section, in feet
- D = nominal diameter of pipe, in inches
- P = average test pressure, in psi (gauge)

10. If the section fails to pass the hydrostatic pressure test, the Contractor shall do everything necessary to locate, uncover, and repair or replace the defective pipe, fitting, or joint, all at his own expense and without extension of time for completion of the work. Additional tests and repairs shall be made until the section passes the specified hydrostatic test.

3.05 DISINFECTION AND FLUSHING:

- A. The Contractor shall disinfect the lines carrying potable water.
- B. The Contractor shall furnish all equipment and materials necessary to do the work of disinfecting, and shall perform the work in accordance with the procedure outlined in AWWA C651 and all amendments thereto.
- C. In general, the procedure of disinfecting the main shall be to apply the chlorine through a tap in one end of the section and bleed it off through a tap at the other end.
- D. After a section of the main has been tested and found acceptable, it shall be flushed thoroughly by the contractor. Upon completion of flushing operation, the Contractor shall disinfect the main with a solution consisting of 50 ppm. Chlorine (which shall be retained in the main for at least 24 hours) in accordance with AWWA Standard Specifications for Disinfecting Water Mains (C651).
- E. The applied dosage shall be such as to produce a chlorine concentration of not less than 10 mg/l after a contact time of not less than 24 hours.
- F. During the disinfection period, care shall be exercised to prevent contamination of water in existing mains.
- G. Any temporary connection to the mains or other facilities required to accomplish the disinfection of the mains shall be at the Contractor's expense.
- H. After treatment, the main shall be flushed with clean water until the residual chlorine concentration is less than 0.2 mg/l.

- I. Before disposing of the water used in disinfecting and flushing water mains the Contractor shall thoroughly neutralize it through the application of a reducing agent, as referenced in AWWA C651.
- J. Bacteriological sampling and testing shall be done in accordance with AWWA C651 for each main and each branch. Sampling shall be accomplished with sterile bottles treated with sodium thiosulfate, as required by Standard Methods. No hose or fire hydrants shall be used in collection of samples. A corporation stop installed on the main, with a removable copper tube gooseneck assembly, is the recommended method.
- K. Bacteriological sampling and testing shall be conducted by a state certified laboratory certified for total and fecal coliform analyses of potable water.
- L. Testing shall be done by a laboratory approved by the Engineer, in accordance with Standard Methods, and shall show the absence of coliform organisms. A standard plate count may be required at the option of the Engineer.
- M. Following chlorination, all treated water shall be thoroughly flushed from the pipe at its extremities. Flushing shall be in accordance with ANSI/AWWA C-651 Standard of DISINFECTING WATER MAINS. Should the initial treatment fail to result in the conditions specified, the entire procedure shall be repeated until satisfactory results are obtained.
- N. Immediately after final flushing, and before water mains are placed in service, PH sample(s) will be collected by the Contractor or his authorized representative. Testing will be paid for by the Contractor. The Contractor shall notify the Engineer forty-eight (48) hours in advance of the final flushing of any section of lined water main, since water mains will not be placed in service until the PH test results are approved by the Engineer.
- O. The Contractor shall furnish all equipment, disinfectants, sample bottles and personnel for proper performance of the tests. The pipeline shall be flushed and rechlorinated until satisfactory bacteriological quality has been achieved. The Contractor or his authorized representative shall obtain certificates of satisfactory bacteriological quality from a laboratory certified by the New York State Department of Health and furnish them to the Engineer before request is made for acceptance of work.
- P. Samples shall be obtained from the pipeline and tests made in accordance with the most recent edition of Standard Methods for the Examination of Water and Wastewater and in accordance with the requirements of the Westchester County Department of Health. All testing and sampling shall be witnessed by the Engineer or his authorized representative.

END OF SECTION

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SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section specifies designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems as required to lower and control water levels and hydrostatic pressures during construction; disposing of pumped water; constructing, maintaining, observing and, except where indicated or required to remain in place, removing of equipment and instrumentation for control of the system.

1.02 RELATED WORK:

- A. Section 01570, ENVIRONMENTAL PROTECTION
- B. Section 02252, SUPPORT OF EXCAVATION
- C. Section 02300, EARTHWORK

1.03 SYSTEM DESCRIPTION:

- A. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.

1.04 QUALITY ASSURANCE:

- A. The Contractor is responsible for the adequacy of the dewatering systems.
- B. The dewatering systems shall be capable of effectively reducing the hydrostatic pressure and lowering the groundwater levels to a minimum of 2 feet below excavation bottom, unless otherwise required by the Engineer, so that all excavation bottoms are firm and dry.
- C. The dewatering system shall be capable of maintaining a dry and stable subgrade until the structures, pipes and appurtenances to be built therein have been completed to the extent that they will not be floated or otherwise damaged.
- D. The dewatering system and excavation support (see Section 02252, SUPPORT OF EXCAVATION) shall be designed so that lowering of the groundwater level outside the excavation does not adversely affect adjacent structures, utilities or wells.

1.05 SUBMITTALS

- A. Contractor shall submit six copies of a plan indicating how they intend to control the discharge from any dewatering operations on the project, whether it is discharge of groundwater from excavations or stormwater runoff during the life of the project.

PART 2 - PRODUCTS:

NOT APPLICABLE

PART 3 - EXECUTION

3.01 DEWATERING OPERATIONS:

- A. All water pumped or drained from the work shall be disposed of in a manner that will not result in undue interference with other work or damage to adjacent properties, pavements and other surfaces, buildings, structures and utilities. Suitable temporary pipes, flumes or channels shall be provided for water that may flow along or across the site of the work. All disposal of pumped water shall conform to the provisions of Section 01570 ENVIRONMENTAL PROTECTION.
- B. Dewatering facilities shall be located where they will not interfere with utilities and construction work to be done by others.
- C. Dewatering procedures to be used shall be as described below:
 - 1. Crushed stone shall encapsulate the suction end of the pump to aid in minimizing the amount of silt discharged.
 - 2. For dewatering operations with relatively minor flows, pump discharges shall be directed into hay bale sedimentation traps lined with filter fabric. Water is to be filtered through the hay bales and filter fabric prior to being allowed to seep out into its natural watercourse.
 - 3. For dewatering operations with larger flows, pump discharges shall be into a steel dewatering basin. Steel baffle plates shall be used to slow water velocities to increase the contact time and allow adequate settlement of sediment prior to discharge into waterways.
 - 4. Where indicated on the contract drawings or in conditions of excess silt suspended in the discharge water, silt control bags shall be utilized in catch basins.
- D. The Contractor shall be responsible for repair of any damage caused by his dewatering operations, at no cost to the Owner.

END OF SECTION

SECTION 02252

SUPPORT OF EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This section of the specification covers wood sheeting and bracing for support of excavations. The requirements of this section shall also apply, as appropriate, to other methods of excavation support and underpinning which the Contractor elects to use to complete the work.
- B. The Contractor shall furnish and place timber sheeting of the kinds and dimensions required, complying with these specifications, where indicated on the drawings or required by the Engineer.

1.02 RELATED WORK:

- A. Section 02240, DEWATERING.
- B. Section 02300, EARTHWORK.

1.03 QUALITY ASSURANCE:

- A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926; and the New York State Department of Labor set forth in 12 NYCRR. Contractors shall be familiar with the requirements of these regulations.
- B. The excavation support system shall be of sufficient strength and be provided with adequate bracing to support all loads to which it will be subjected. The excavation support system shall be designed to prevent any movement of earth that would diminish the width of the excavation or damage or endanger adjacent structures.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Timber sheeting shall be sound spruce, pine, or hemlock, planed on one side and either tongue and grooved or splined. Timber sheeting shall not be less than nominal 2-inches thick.
- B. Timber and steel used for bracing shall be of such size and strength as required in the excavation support design. Timber or steel used for bracing shall be new or undamaged used material which does not contain splices, cutouts, patches, or other alterations which would impair its integrity or strength.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Work shall not be started until all materials and equipment necessary for their construction are either on the site of the work or satisfactorily available for immediate use as required.
- B. The sheeting shall be securely and satisfactorily braced to withstand all pressures to which it may be subjected and be sufficiently tight to minimize lowering of the groundwater level outside the excavation, as required in Section 02240, DEWATERING.
- C. The sheeting shall be driven by approved means to the design elevation. No sheeting may be left so as to create a possible hazard to safety of the public or a hindrance to traffic of any kind.
- D. If boulders or very dense soils are encountered, making it impractical to drive a section to the desired depth, the section shall, as required, be cut off.
- E. The sheeting shall be left in place where indicated on the drawings or required by the Engineer in writing. At all other locations, the sheeting may be left in place or salvaged at the option of the Contractor. Steel or wood sheeting permanently left in place shall be cut off at a depth of not less than two feet below finish grade unless otherwise required.
- F. All cut-off will become the property of the Contractor and shall be removed by him from the site.
- G. Responsibility for the satisfactory construction and maintenance of the excavation support system, complete in place, shall rest with the Contractor. Any work done, including incidental construction, which is not acceptable for the intended purpose shall be either repaired or removed and reconstructed by the Contractor at his expense.
- H. The Contractor shall be solely responsible for repairing all damage associated with installation, performance, and removal of the excavation support system.

END OF SECTION

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SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall make excavations of normal depth in earth for trenches and structures, shall backfill and compact such excavations to the extent necessary, shall furnish the necessary material and construct embankments and fills, and shall make miscellaneous earth excavations and do miscellaneous grading.

1.02 RELATED WORK:

- A. Section 01110, CONTROL OF WORK AND MATERIALS
- B. Section 01570, ENVIRONMENTAL PROTECTION
- C. Section 02240, DEWATERING
- D. Section 02252, SUPPORT OF EXCAVATION
- E. Section 02745, PAVING
- F. Section 02920, LOAMING AND SEEDING

1.03 REFERENCES:

American Society for Testing and Materials (ASTM)

ASTM	C131	Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM	C136	Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM	C330	Specification for Lightweight Aggregate for Structural Concrete.
ASTM	D1556	Test Method for Density of Soil in Place by the Sand Cone Method.
ASTM	D1557	Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop.
ASTM	D2922	Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth).

New York State Department of Transportation (NYSDOT) Standard Specifications

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Samples of all materials proposed for the project shall be submitted to the Engineer for review. Size of the samples shall be as approved by the Engineer.

1.05 PROTECTION OF EXISTING PROPERTY:

- A. The work shall be executed in such manner as to prevent any damage to facilities at the site and adjacent property and existing improvements, such as but not limited to streets, curbs, paving, service utility lines, structures, monuments, bench marks, observation wells, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.
- B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing roads, sidewalks, and curbs damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at his own cost, existing benchmarks, observation wells, monuments, and other reference points which are disturbed or destroyed.
- C. Buried drainage structures and pipes, observation wells and piezometers, including those which project less than eighteen inches (18") above grade, which are subject to damage from construction equipment shall be clearly marked to indicate the hazard. Markers shall indicate limits of danger areas, by means which will be clearly visible to operators of trucks and other construction equipment, and shall be maintained at all times until completion of project.

1.06 DRAINAGE:

- A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff will not adversely affect construction procedures nor cause excessive disturbance of underlying natural ground or abutting properties.

1.07 FROST PROTECTION AND SNOW REMOVAL:

- A. The Contractor shall, at its own expense, keep earthwork operations clear and free of accumulations of snow as required to carry out the work.
- B. The Contractor shall protect the subgrade beneath new structures and pipes from frost penetration when freezing temperatures are expected.

PART 2 - PRODUCTS

2.01 MATERIAL:

A. GRAVEL BORROW:

1. Gravel borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials, meeting the requirements of NYSDOT 667-2.02 for gravel materials for base.
2. The gradation shall meet the following requirements:

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
50 mm (2 in.)	100
37.5 mm (1 1/2 in.)	85-100
6.3 mm (1/4 in.)	30-50
0.425mm (No. 40)	5-20
0.075mm (No. 200)	0-5

B. CRUSHED STONE:

1. Crushed stone shall consist of clean, durable, sharp-angled fragments of rock of uniform quality. It shall meet the requirements of NYSDOT 703-0201.
2. The gradation shall meet the following requirements:

- A. NYSDOT #1 (3/8" Stone): Imported material, to be approved by the Engineer.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
25.0mm (1")	100
12.5mm (1/2")	90-100
6.3mm (1/4")	0-15

- B. NYSDOT #1A (1/4" Stone): Imported material, to be approved by the Engineer.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
12.5mm (1/2")	100
6.3mm (1/4")	90-100
3.2mm (1/8")	0-15

C. NYSDOT #2 (3/4" Stone): Imported materials, to be approved by the Engineer.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
37.5mm (1 1/2")	100
25.0mm (1")	90-100
12.5mm (1/2")	0-15

D. NYSDOT #3 (1 1/2" Stone): Imported materials, to be approved by the Engineer.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
63mm (2 1/2")	100
50mm (2")	90-100
37.5mm (1 1/2")	35-70
25.0mm (1")	0-15

E. ASTM 57 Stone: Imported materials, to be approved by the Engineer.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
37.5mm (1 1/2")	100
25mm (1")	95-100
12.5mm (1/2")	25-60
4.75mm (#4)	0-10
2.36mm (#8)	0-5

C. SAND:

Sand shall consist of clean, hard, durable, uncoated particles, free from lumps of clay and all deleterious materials. It shall meet the requirements of NYSDOT 703-07.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
12.5mm (1/2")	100
6.3mm (1/4")	90-100

D. PEASTONE:

Peastone shall be smooth, hard, naturally occurring, rounded stone meeting the following gradation requirements:

Passing 5/8 inch square sieve opening	-	100%
Passing No. 8 sieve opening	-	0%

E. BACKFILL MATERIALS:

1. Class B Backfill:

Class B backfill shall be granular, well graded friable soil; free of rubbish, ice, snow, tree stumps, roots, clay and organic matter; with 30 percent or less passing the No. 200 sieve; no stone greater than two-third (2/3) loose lift thickness, or six inches, whichever is smaller.

2. Select Backfill:

Select backfill shall be granular, well graded friable soil, free of rubbish, ice, snow, tree stumps, roots, clay and organic matter, and other deleterious or organic material; graded within the following limits:

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
75 mm (3 in.)	100
2.0 mm (No. 10)	30-95
0.425 mm (No. 40)	10-70
0.075 mm (No. 200)	0-10

F. STATE HIGHWAY TRENCH BACKFILL:

When required by the Highway Work Permit, Controlled Low Strength Material (CLSM) shall be used to backfill trenches. The CLSM shall satisfy the requirements of NYSDOT Section 204.

H. SPECIAL PIPE BEDDING MATERIAL

1. The special pipe bedding material shall consist of a filter cloth installed on the trench bottom before backfilling with crushed stone as specified and as shown on the contract drawings.
2. The filter cloth shall be composed of needle punch, stapled fibers thermally bonded together to form a sheet.
3. The filter cloths shall possess the following minimum properties:

Grab strength:	120 lbs	ASTM D 4632.
Elongation:	50%	ASTM D 4632
Burst Strength:	240 psi	ASTM D 3786
Puncture Strength:	65 lbs.	ASTM D 4833
Trapezoid Tear:	4 0 lbs.	ASTM D 4533
Equivalent opening size:	No. 70 sieve	ASTM D 4751
Permittivity (sec ⁻¹)	1.8	ASTM D 4491
Flow Rate (gal/min/ft ²)	135	ASTM D-4491

4. The filter cloth shall be Mirafi 140N by Mirafi, Inc. Charlotte, NC; Foss-65 by Foss Manufacturing Co., Haverhill, MA; Supac 4NP, Phillips Fibers Corp., Greenville, SC or approved equal.

I. PROCESSED GRAVEL:

1. Processed gravel shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials, meeting the requirements of NYSDOT 667-2.02 for gravel materials for subbase.
2. The gradation shall meet the following requirements:

A. PROCESSED GRAVEL TYPE 1: Imported material approved by the Engineer, conforming to the NYSDOT, Section 304-2.02 Type 1 Specifications.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
75 mm (3")	100
50 mm (2")	90-100
6.3 mm (¼")	30-65
425 um (No. 40)	5-40
75 um (No. 200)	0-10

B. PROCESSED GRAVEL TYPE 2 (CRUSHER RUN): Imported materials, approved by the Engineer, conforming to the NYSDOT, Section 304-2.02 Type 2 Specifications.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
50 mm (2")	100
6.3 mm (¼")	25-60
425 um (No. 40)	5-40
75 um (No. 200)	0-10

C. PROCESSED GRAVEL TYPE 3: Imported material, approved by the Engineer conforming to the NYSDOT, Section 304-2.02 Type 3 Specifications.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
100 mm (4")	100
6.3 mm (¼")	30-75
425 um (No. 40)	5-40
75 um (No. 200)	0-10

- D. PROCESSED GRAVEL TYPE 4: Imported material, approved by the Engineer, conforming to the NYSDOT, Section 304-2.02 Type 4 Specifications.

<u>Sieve (U.S. Sieve)</u>	<u>Percent Passing by Weight</u>
50 mm (2")	100
6.3 mm (¼")	30-65
425 um (No. 40)	5-40
75 um (No. 200)	0-10

3. The approved source of bank-run gravel material shall be processed by mechanical means. The equipment for producing crushed gravel shall be of adequate size with sufficient adjustments to produce the desired materials. The processed material shall be stockpiled in such a manner to minimize segregation of particle sizes. All processed gravel shall come from approved stockpiles.

PART 3 - EXECUTION

3.01 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION:

- A. Contractor shall take the necessary steps to avoid disturbance of subgrade during excavation and filling operations, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials, dewatering and other acceptable control measures.
- B. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with a minimum 12-inch layer of compacted crushed stone wrapped all around in non-woven filter fabric. Costs of removal and replacement shall be borne by the Contractor.
- C. The Contractor shall place a minimum of 12-inch layer of special bedding materials and crushed stone wrapped in filter fabric over the natural underlying soil to stabilize areas which may become disturbed as a result of rain, surface water runoff or groundwater seepage pressures, all at no additional cost to the Owner. The Contractor also has the option of drying materials in-place and compacting to specified densities.

3.02 EXCAVATION:

A. GENERAL:

1. The Contractor shall perform all work of any nature and description required to accomplish the work as shown on the Drawings and as specified.
2. Excavations, unless otherwise required by the Engineer, shall be carried only to the depths and limits shown on the Drawings. If unauthorized excavation is

carried out below required subgrade and/or beyond minimum lateral limits shown on Drawings, it shall be backfilled with gravel borrow and compacted at the Contractor's expense as specified below, except as otherwise indicated. Excavations shall be kept in dry and good conditions at all times, and all voids shall be filled to the satisfaction of the Engineer.

3. In all excavation areas, the Contractor shall strip the surficial topsoil layer and underlying subsoil layer separate from underlying soils. In paved areas, the Contractor shall first cut pavement as specified in paragraph 3.02 B.1 of this specification, strip pavement and pavement subbase separately from underlying soils. All excavated materials shall be stockpiled separately from each other within the limits of work.
4. The Contractor shall follow a construction procedure, which permits visual identification of stable natural ground. Where groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the Contractor's chosen method of dewatering and which will allow visual observation of the bottom and backfill in the dry.
5. The Contractor shall excavate unsuitable materials to stable natural ground where encountered at proposed excavation subgrade, as required by the Engineer. Unsuitable material includes topsoil, loam, peat, muck, organic silt, other organic materials, snow, ice, and trash. Unless specified elsewhere or otherwise required by the Engineer, areas where unsuitable materials have been excavated to stable ground shall be backfilled with compacted special bedding materials or crushed stone wrapped all around in non-woven filter fabric.

B. TRENCHES:

1. Prior to excavation, trenches in pavement shall have the traveled way surface cut in a straight line by a concrete saw or equivalent method, to the full depth of pavement. Excavation shall only be between these cuts. Excavation support shall be provided as required to avoid undermining of pavement. Cutting operations shall not be done by ripping equipment, except in areas otherwise noted on plans or as approved by the engineer (eg. trench work related to installation of temporary HDPE water main).
2. The Contractor shall satisfy all dewatering requirements specified in Section 02240 DEWATERING, before performing trench excavations.
3. Trenches shall be excavated to such depths as will permit the pipe to be laid at the elevations, slopes, and depths of cover indicated on the Drawings. Trench widths shall be as shown on the Drawings or as specified.
4. Where pipe is to be laid in bedding material, the trench may be excavated by machinery to, or just below, the designated subgrade provided that the material remaining in the bottom of the trench is not disturbed.

5. If pipe is to be laid in embankments or other recently filled areas, the fill material shall first be placed to a height of at least 12-inches above the top of the pipe before excavation.
6. Pipe trenches shall be made as narrow as practicable and shall not be widened by scraping or loosening materials from the sides. Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed.
7. If, in the opinion of the Engineer, the subgrade, during trench excavation, has been disturbed as a result of rain, surface water runoff or groundwater seepage pressures, the Contractor shall remove such disturbed subgrade to a minimum of 12-inches and replace with crushed stone wrapped in filter fabric. Cost of removal and replacement shall be borne by the Contractor.

C. BUILDING AND FOUNDATION EXCAVATION (IF APPLICABLE):

1. Excavations shall not be wider than required to set, brace, and remove forms for concrete, or perform other necessary work.
2. After the excavation has been made, and before forms are set for footings, mats, slabs, or other structures, and before reinforcing is placed, all loose or disturbed material shall be removed from the subgrade. The bearing surface shall then be compacted to meet the requirements of this specification.
3. If, in the opinion of the Engineer, the existing material at subgrade elevation is unsuitable for structural support, the Contractor shall excavate and dispose of the unsuitable material to the required width and depth as required by the Engineer. If, in the opinion of the Engineer, filter fabric is required; the Contractor shall place filter fabric, approved by the Engineer, as per manufacturer's recommendations. Crushed stone shall then be placed in lifts and compacted to required densities. Backfill shall be placed to the bottom of the proposed excavation.

D. EXCAVATION NEAR EXISTING STRUCTURES:

1. Attention is directed to the fact that there are pipes, manholes, drains, and other utilities in certain locations. An attempt has been made to locate all utilities on the drawings, but the completeness or accuracy of the given information is not guaranteed.
2. As the excavation approaches pipes, conduits, or other underground structures, digging by machinery shall be discontinued and excavation shall be done by means of hand tools, as required. Such manual excavation, when incidental to normal excavation, shall be included in the work to be done under items involving normal excavation.

3. Where determination of the exact location of a pipe or other underground structure is necessary for properly performing the work, the Contractor shall excavate test pits to determine the locations.

3.03 BACKFILL PLACEMENT AND COMPACTION:

A. GENERAL:

1. Prior to backfilling, the Contractor shall compact the exposed natural subgrade to the densities as specified herein.
2. After approval of subgrade by the Engineer, the Contractor shall backfill areas to required contours and elevations with specified materials.
3. The Contractor shall place and compact materials to the specified density in continuous horizontal layers. The degree of compaction shall be based on maximum dry density as determined by ASTM Test D1557, Method C. The minimum degree of compaction for fill placed shall be as follows:

<u>Location</u>	<u>Percent of Maximum Density</u>
Below pipe centerline	95
Above pipe centerline	92
Below pavement (upper 3 ft.)	95
Embankments	95
Below pipe in embankments	95
Adjacent to structures	92
Below structures	95

4. The Engineer reserves the right to test backfill for conformance to the specifications and Contractor shall assist as required to obtain the information. Compaction testing will be performed by the Engineer or by an inspection laboratory designated by the Engineer, engaged and paid for by the Owner. If test results indicate work does not conform to specification requirements, the Contractor shall remove or correct the defective Work by re-compacting where appropriate or replacing as necessary and approved by the Engineer, to bring the work into compliance, at no additional cost to the Owner. All backfilled materials under structures and buildings shall be field tested for compliance with the requirements of this specification.
5. Where horizontal layers meet a rising slope, the Contractor shall key each layer by benching into the slope.
6. If the material removed from the excavation is suitable for backfill with the exception that it contains stones larger than permitted, the Contractor has the option to remove the oversized stones and use the material for backfill or to

provide replacement backfill at no additional cost to the Owner.

7. The Contractor shall remove loam and topsoil, loose vegetation, stumps, large roots, etc., from areas upon which embankments will be built or areas where material will be placed for grading. The subgrade shall be shaped as indicated on the Drawings and shall be prepared by forking, furrowing, or plowing so that the first layer of the fill material placed on the subgrade will be well bonded to the subgrade.
8. In areas where noted on the Drawings, the Contractor shall surcharge the organic layers to control post construction consolidation settlement. The Contractor shall apply the surcharge loads in a manner and for a duration acceptable to the Engineer. The lateral extent of surcharge load should be as narrow as practical to provide stable slopes and within the restriction of the project permits. The surcharge load in these areas shall remain for a minimum of 6 months or as required by the Engineer. After approval by the Engineer, remove the surcharge load and grade to the proposed elevation. During surcharge loading in this location, the Contractor shall provide survey results of settlement on the top of the berm. The frequency of the survey data shall be as follows:
 - 1 survey per day during 1st week
 - 2 surveys per week during 2nd & 3rd week
 - 1 survey per week for 2 months thereafter
 - 1 survey per month for the remaining period

The periodic surveys for settlement monitoring shall be taken at the same locations, not more than 100 feet apart.

B. TRENCHES:

1. Bedding as detailed and specified shall be furnished and installed beneath the pipeline prior to placement of the pipeline. A minimum bedding thickness shall be maintained between the pipe and undisturbed material, as shown on the Drawings.
2. All trenches and pits within Town roadways shall be backfilled according to details shown on drawings in this contract. Backfill will include placement of Select Backfill, as required.
3. As soon as practicable after pipes have been laid, backfilling shall be started.
4. Unless otherwise indicated on the Drawings, select backfill shall be placed by hand shovel in 6-inch thick lifts up to a minimum level of 12-inches above the top of pipe. This area of backfill is considered the zone around the pipe and shall be thoroughly compacted before the remainder of the trench is backfilled. Compaction of each lift in the zone around the pipe shall be done by use of power-driven tampers weighing at least 20 pounds or by vibratory compactors.

Care shall be taken that material close to the bank, as well as in all other portions of the trench, is thoroughly compacted to densities required.

5. Backfill located between the zone 12-inches above the top of the pipe and the proposed surface (i.e. pavement, loam/seed, etc.) shall be furnished and installed as detailed on the Drawings. Fill compaction shall meet the density requirements of this specification.
6. If the materials above the trench bottom are unsuitable for backfill, the Contractor shall furnish and place backfill materials meeting the requirements for trench backfill, as shown on the drawings or specified herein.
7. Should the Engineer order crushed stone for utility supports or for other purposes, the Contractor shall furnish and install the crushed stone as required.
8. In shoulders of streets and road, the top 12-inch layer of trench backfill shall consist of processed gravel for sub-base, satisfying the requirements listed in paragraph 2.01I of this specification.

C. BACKFILLING UNDER BUILDINGS AND FOUNDATIONS (IF APPLICABLE):

Material to be used as structural fill under structures shall be special bedding material or gravel borrow, as shown on the Drawings or as required by the Engineer. Where gravel borrow fill is required to support proposed footings, walls, slabs, and other structures, the material shall be placed in a manner accepted by the Engineer. Compaction of each lift shall meet the density requirements of this specification.

D. BACKFILLING ADJACENT TO STRUCTURES (IF APPLICABLE):

1. The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads to which they will be subjected. Excavated material approved by the Engineer may be used in backfilling around structures. Backfill material shall be thoroughly compacted to meet the requirements of this specification.
2. Contractor shall use extra care when compacting adjacent to pipes and drainage structures. Backfill and compaction shall proceed along sides of drainage structures so that the difference in top of fill level on any side of the structure shall not exceed two feet (2') at any stage of construction.
3. Where backfill is to be placed on only one side of a structural wall, only hand-operated roller or plate compactors shall be used within a lateral distance of five feet (5') of the wall for walls less than fifteen feet (15') high and within ten feet (10') of the wall for walls more than fifteen feet (15') high.

3.04 DISPOSAL OF SURPLUS MATERIALS:

- A. No excavated material shall be removed from the site of the work or disposed of by the Contractor unless approved by the Engineer.
- B. Surplus excavated materials, which are acceptable to the Engineer, shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill. Surplus excavated materials shall also be used in areas designated on the plans or as directed by the Town/Engineer (i.e. for the Town's use for leveling off of The Great Lawn). Upon written approval of the Engineer, surplus excavated materials shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions; or shall be neatly deposited for other purposes as indicated by the Owner, within its jurisdictional limits; all at no additional cost to the Owner.
- C. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.

END OF SECTION

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SECTION 02370

EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. The Work shall consist of furnishing, installing, inspecting, maintaining, and removing soil and erosion control measures as shown on the contract documents or as ordered by the Engineer during the life of the contract to provide erosion and sediment control.
- B. Temporary structural measures provide erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion. These are used during construction to prevent offsite sedimentation. Temporary structural measures shall include check dams, construction road stabilization, stabilized construction entrance, dust control, earth dike, level spreader, perimeter dike/swale, pipe slope drain, portable sediment tank, rock dam, sediment basin, sediment traps, silt fence, storm drain inlet protection, straw/hay bale dike, access waterway crossing, storm drain diversion, temporary swale, turbidity curtain, water bars or other erosion control devices or methods as required.
- C. Permanent structural measures also control protection to a critical area. They are used to convey runoff to a safe outlet. They remain in place and continue to function after completion of construction. Permanent structural measures shall include debris basins, diversion, grade stabilization structure, land grading, lined waterway (rock), paved channel, paved flume, retaining wall, riprap, rock outlets, and stream bank protection or other erosion control devices or methods as required.
- D. Vegetative measures shall include brush matting, dune stabilization, grassed waterway, vegetating waterway, mulching, protecting vegetation, seeding, sod, straw/hay bale dike, stream bank protection, temporary swale, topsoil, and vegetating waterways.
- E. Biotechnical measures shall include wattling (live fascines, brush matting, brush layering, live cribwall, and branchpacking) vegetated rock gabions, live staking, tree revetment, and fiber rolls.
- F. Weekly inspections will be completed by the Engineer. Comply with and correct all deficiencies found as a result of these inspections. At the end of the construction season when soil disturbance activities will be finalized or suspended until the following spring, the frequency of the inspections may be reduced. If soil disturbance is completely suspended and the site is properly stabilized, a minimum of monthly inspections must be maintained. The stabilization activities must be completed before snow cover or frozen ground. If vegetation is required, seeding, planting and/or sodding must be scheduled to avoid die-off from fall frosts and allow for proper germination/establishment. Weekly inspections must resume no later than March 15.

1.02 RELATED WORK:

- A. Section 02300, EARTHWORK

1.03 REFERENCES:

- A. Erosion and Sediment Control Guidelines: Conform to the latest edition of “NEW YORK STANDARDS and SPECIFICATIONS for EROSION and SEDIMENT CONTROL” by NYS Department of Environmental Conservation DOW (i.e., Bluebook). Refer to these guidelines for construction and maintenance of all items (Temporary and Permanent Structural, Vegetative and Biotechnical) included in the plans and specifications.
- B. Storm water Management: Conform to the latest edition of “NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL” prepared by Center for Watershed Protection for NYS Department of Environmental Conservation.

1.04 CONTRACTOR’S RESPONSIBILITY:

- A. A Storm Water Pollution and Prevention Plan (SWPPP) has not been prepared for this project. It is the responsibility of the Contractor to install and maintain the temporary storm water and diversion control items and provide any temporary sediment and erosion control measures that may be required within limits of the work, including any staging areas, throughout construction in conformance with the plans, these specifications, and the documents referenced above in Section 1.02. Place permanent control practices required before the removal of the temporary storm water diversion and control items.
- B. During construction, conduct operations in such a manner as to prevent or reduce to a minimum any damage to any water body from pollution by debris, sediment, chemical or other foreign material, or from the manipulation of equipment and/or materials in or near a stream or ditch flowing directly to a stream. Any water which has been used for wash purposes or other similar operations which become polluted with sewage, silt, cement, concentrated chlorine, oil, fuels, lubricants, bitumens, or other impurities shall not be discharged into any water body.
- C. In the event of conflict between these specifications and the regulation of other Federal, State, or local jurisdictions, the more restrictive regulations shall apply.
- D. Comply with all applicable NYSDEC regulatory requirements.

1.05 DEFINITIONS – TEMPORARY STRUCTURAL MEASURES:

- A. Check Dam: Small barrier or dam constructed of stone, bagged sand or gravel to reduce velocity of flow.

- B. Construction Road Stabilization: Stabilization of construction roads to control erosion.
- C. Stabilized Construction Entrance: A stabilized pad of aggregate underlain with geotextile where traffic enters a construction site to reduce or eliminate tracking of sediment to public roads.
- D. Dust Control: Prevent surface and air movement of dust from disturbed soil surfaces.
- E. Earth Dike: A temporary berm or ridge of compacted soil, located to channel water to a sediment trapping device.
- F. Level Spreader: A non-erosive outlet for concentrated runoff to disperse flow uniformly across a slope.
- G. Perimeter Dike/Swale: A temporary ridge of soil excavated from an adjoining swale located along the perimeter of the site or disturbed area to prevent runoff from entering a disturbed area and preventing sediment laden runoff from leaving a construction site.
- H. Pipe Slope Drain: A structure placed from the top of a slope to the bottom of a slope to convey runoff without causing erosion.
- I. Portable Sediment Tank: A compartmented tank to which sediment laden water is pumped to retain sediment before pumping the water to adjoining drainage ways.
- J. Rock Dam: A rock embankment located to capture sediment.
- K. Sediment Basin: A barrier constructed across a drainage way to intercept and trap sediment.
- L. Sediment Traps: A control device formed by excavation to retain sediment at a storm inlet or other points of collection.
- M. Silt Fence: A barrier of geo-textile fabric installed on contours across the slope to intercept runoff by reducing velocity. Replace after 1 year.
- N. Storm Drain Inlet Protection: A semi-permeable barrier installed around storm inlets to prevent sediment from entering a storm drainage system.
- O. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.
- P. Access Waterway Crossing: A structure placed across a waterway to provide circulation for construction purposes.
- Q. Storm drain Diversion: The redirection of a storm drain line or outfall channel for discharge into a sediment trapping device.

- R. Temporary Swale: A temporary excavated drainage swale.
- S. Turbidity Curtain: A flexible, impenetrable barrier used to trap sediment when construction occurs within water bodies or along a shoreline.
- T. Water Bars: A ridge or channel constructed diagonally across a sloping road or right-of-way.

1.06 DEFINITIONS – PERMANENT STRUCTURAL MEASURES:

- A. Diversion: A parabolic or trapezoidal swale with a supporting ridge on the lower side constructed across a slope to intercept and convey runoff to stable outlets at non-erosive velocities.
- B. Debris Basin: A barrier or dam constructed across a waterway to form a basin for catching and storing sediment or debris that gives protection downstream.
- C. Grade Stabilization Structure: A structure to stabilize the grade by providing channel linings that can withstand high velocities.
- D. Lined Waterway (rock): A waterway lined with stone to dispose of high velocity runoff.
- E. Paved Channel (concrete): A waterway lined with concrete to dispose of high velocity runoff.
- F. Paved Flume: A concrete lined channel to convey water down a steep slope.
- G. Retaining Wall: A structural wall constructed to prevent soil movement down steep slopes.
- H. Riprap: A layer of stone designed to protect slopes that are subject to erosion.
- I. Rock Outlets: Rock placed at the outlet end of culverts, conduits or channels.
- J. Stream Bank Protection: Stabilization of eroding stream banks through use of riprap, gabions or pre-cast concrete units.

1.07 DEFINITIONS – VEGETATIVE MATERIALS MEASURES:

- A. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as a mulch for seedlings established in the bank.
- B. Dune Stabilization: Stabilization and reinforcement of sand dunes.
- C. Grassed or Vegetating Waterway: A parabolic or trapezoidal channel below adjacent ground level stabilized by vegetation to convey water without causing erosion.

- D. Mulches: Hay, straw, wood cellulose, fiber mats, flexible growth medium and other materials approved by the Owner's Representative.
- E. Protecting Vegetation: Protecting trees, shrubs, ground cover and other vegetation from damage.
- F. Temporary Seeding: Erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.
- G. Permanent Seeding: Grasses established and combined with shrubs to provide perennial vegetative cover on disturbed, denuded, slopes subject to erosion.
- H. Sod: Used where a quick vegetative cover is required.
- I. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.
- J. Stream Bank Protection: Stabilization of eroding stream banks through use of vegetation.
- K. Temporary Swale: A temporary excavated drainage swale.
- L. Topsoil: Placed before permanent seeding or sod is installed.

1.08 DEFINITIONS – BIOTECHNICAL MATERIALS MEASURES:

- A. Vegetative Rock Gabions: A combination of vegetation and rock gabions for slope stabilization. Live branch cuttings are layered through the gabion protruding beyond the face of the gabion.
- B. Live Fascines: Bundles of branches staked into shallow trenches, which are then filled with soil. They are oriented along a contour and placed in multiple rows.
- C. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as a mulch for seedlings established in the bank.
- D. Live Staking: Large stakes sharpened at the bottom end and forced vertically into the ground.
- E. Brush Layering: Stabilize slope areas above the flow line of stream banks. Long branches are placed with cut ends into a terraced slope.
- F. Live Crib Wall: A combination of vegetation and structural elements used along streams where flowing water is a hazard. Layers of logs are alternated with long branches protruding out between them.
- G. Tree Revetment: Used for bank stabilization by placing tree trunks and branches overlapped and anchored to absorb energy, reduce velocity and capture sediment.

- H. Branch Packing: Alternates live branch cuttings and tamped backfill to repair small localized holes in slopes. Used for areas less than 4' deep and 6' wide.
- I. Fiber Roll: A coconut fiber, straw, or excelsior woven roll encased in a netting of jute, nylon, or burlap to dissipate water energy and provide a medium for introduction of herbaceous vegetation. Anchor into a bank and provide suitable backfill behind the roll where vegetation can be planted.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Plant Materials for biotechnical slope protection: Locate stands of specified species and obtain approval to harvest material from these stands or obtain from managed production beds that are maintained for commercial distribution. Install all plant materials within 8 hours of cutting or provide proper storage.
 - 1. Shrub willows: "Streamco" purpleosier willow, and "Bankers" dwarf willow.
 - 2. Redosier Dogwood
- B. Seeding: Permanent see Section 02925.

2.02 COMPANIES-TEMPORARY STRUCTURAL:

- A. Mirafi, 365 South Holland Drive, Pendergrass, GA, 30567, (888) 795-0808, www.mirafi.com.
- B. North American Green, 14649 Highway 41 North, Evansville, IN 47725, (800) 772-2040, www.nagreen.com.
- C. Siltdam Inc., P.O. Box 960, Brockton MA, 02303, (800) 699-2374, www.spilldam.com.
- D. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888) 725-6999, www.nedia.com.
- E. Belton Industries, 5600 Oakbrook Parkway, Norcross GA., 30093, (800) 225-4099, www.beltonindustries.com.
- F. KriStar, 1219 Briggs Ave., Santa Rosa, CA 95401, (800) 579-8819, www.kristar.com.
- G. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800) 760-3215, www.rolanka.com.
- H. Apex Resources Inc., 12910 Shelbyville Road, Louisville, KY 40243 (888) 677-2739, www.apexr.com.

- I. MonoSol, LLC, 707 E. 80th PL., Merrillville, IN 46410 (800) 237-9552, www.terraloc.com.
- J. Brockton Equipment Inc., P.O. Box 960, Brockton, MA 02303 (800) 699-2374, www.spilldam.com.
- K. Aer-Flo Inc., 4455 18th St. East, Bradenton, FL 34203 (800) 823-7356, www.aerflo.com.
- L. Contech Construction Products Inc., 9025 Centre Point Drive, Suite 400, West Chester, Ohio 45069, (800) 338-1122, www.contech-cpi.com.

2.03 COMPANIES-PERMANENT STRUCTURAL:

- A. Contech Construction Products Inc., 9025 Centre Point Drive, Suite 400, West Chester, Ohio 45069, (800) 338-1122, www.contech-cpi.com.

2.04 COMPANIES-VEGETATIVE:

- A. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888) 725-6999, www.nedia.com.
- B. Agrecol Corporation, 2918 Agriculture Drive, Madison, WI, 53718, (608) 226-2544, www.agrecol.com.

2.05 COMPANIES-BIOTECHNICAL:

- A. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800) 760-3215, www.rolanka.com.
- B. Nedia Enterprises, Inc., www.nedia.com.
- C. Kristar (800) 579-8819.

PART 3 - EXECUTION

3.01 WORK AREAS:

- A. The Engineer has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion measures to minimize damage to property and contamination of watercourses and water impoundments. Under no circumstances will the area of erodible earth material exposed at one time exceed 40,000 sq. ft. The Engineer may increase or decrease this area of erodible earth material exposed at one time as determined by his analysis of project, weather and other conditions. The Engineer may limit the area of clearing and grubbing and earthwork operations in progress commensurate with the Contractor's demonstrated capability in protecting erodible earth surfaces with temporary, permanent, vegetative or biotechnical erosion control measures.

- B. Schedule the work so as to minimize the time that earth areas will be exposed to erosive conditions. Provide temporary structural measures immediately to prevent any soil erosion.
- C. Provide temporary seeding on disturbed earth or soil stockpiles exposed for more than 7 days or for any temporary shutdown of construction. In spring, summer or early fall, apply rye grass at a rate of 1 lb/ 1000 sq. ft. In late fall or early spring, apply certified Aroostook Rye at a rate of 2.5 lbs./ 1000 sq. ft. Apply hay or straw at a rate of 2 bales/ 1000 sq. ft. or wood fiber hydromulch at the manufacturer's recommended rate. Hay or straw shall be anchored.
- D. Contractor is to maintain all roadways free of dust, dirt, mud and debris.
- E. Coordinate the use of permanent controls or finish materials shown with the temporary erosion measures.
- F. All erosion and sediment control devices must be maintained in working order until the site is stabilized. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, or re-mulching, must be performed immediately.
- G. After final stabilization has been achieved, temporary sediment and erosion controls must be removed. Areas disturbed during removal must be stabilized immediately.

END OF SECTION

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SECTION 02371

RIPRAP

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers riprap for bank and channel protection, stream banks, slope protection, drainage swales and culvert inlets/outlets, complete.
- B. Grading and compaction of earth slopes and other slope preparation for the riprap are included under other sections of the specification.

1.02 RELATED WORK:

- A. Section 02300, EARTHWORK.
- B. Section 02072, GEOTEXTILE FABRICS.

1.03 REFERENCES:

- A. The following standard forms a part of these specifications and indicates minimum standards required:

New York State Department of Transportation (NYSDOT) Standard Specifications

Section 620 Bank and Channel Protection

PART 2 - PRODUCTS

2.01 MATERIALS:

A. DRY RIPRAP:

Riprap shall be NYSDOT section 620, a uniform blend of light and medium stone fill, a minimum of 18-inches deep, set over bedding material.

B. BEDDING MATERIAL:

Bedding material shall be composed of crushed stone, crushed air-cooled blast furnace slag, or gravel, free of soft, nondurable [particles, organic material, and thin or elongated particles. Bedding material shall meet the following gradations requirements:

<u>Sieve Designation</u>	<u>Percent by Weight Passing</u>
100 mm (4 in.)	100
25.0 mm (1 in.)	15 – 60
6.3 mm (1/4 in.)	0 – 25
0.425 mm (no. 40)	0 - 10

C. GEOTEXTILE FABRIC:

Geotextile fabric shall be Mirafi 500X, as manufactured by Mirafi Inc., as specified in specified in Section 02072, FILTER FABRIC / GEOTEXTILE FABRIC.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. The ground surface on which riprap is to be placed shall be free of brush, trees, stumps, and other objectionable material and shall be dressed to a smooth surface. All soft or spongy materials shall be removed to the depth shown on the plans or as required by the Engineer and replaced with approved material. Filled areas shall be compacted.
- B. Bedding material and/or geotextile fabric shall be installed on the prepared surface where shown on the drawings, prior to placing the riprap.
- C. Dry riprap shall be placed on the prepared slope or area so that the dimension approximately equal to the layer thickness is perpendicular to the slope surface and that the weight of the stone is carried by the underlying material and not by the adjacent stones. On slopes, the largest stones shall be placed at the bottom of the slope. The dry riprap shall be properly aligned and placed so as to minimize void spaces between adjacent stones. The spaces between the stones shall be filled with spalls of suitable size.
- D. It is the intent of these specifications to produce compact riprap protection in which all required sizes of stone are placed in the proper proportions. Hand placing or rearranging of individual stones by mechanical equipment shall be utilized to the extent necessary to secure the desired results. Smaller stones shall be chinked into larger voids to provide a uniform dense surface.

END OF SECTION

SECTION 02441

TELEVISION INSPECTION OF PIPELINES

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. The Contractor shall furnish all materials, tools, labor and equipment necessary to visually inspect by means of a closed-circuit television all water mains to be cement lined under this Contract, as hereinafter specified. The water main shall be inspected throughout their entire length.
- B. The Contractor shall repair all defects in the system discovered during the television inspection. Prior to making the repairs, the Contractor shall submit to the Engineer a plan for making the repairs.

1.02 RELATED WORK:

- A. Section 01330, SUBMITTALS

1.03 QUALITY ASSURANCE:

- A. The work described herein shall be performed by a company with not less than five years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than three years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Prior to beginning work, submit six (6) sets of the following:
 - 1. Qualifications of the firm/personnel who will perform the work;
 - 2. Description of system proposed for handling existing flows during the various procedures to be carried out;
 - 3. Description of the system and equipment proposed for televising the pipe.

PART 2 - PRODUCTS

2.01 EQUIPMENT:

- A. Video system capable of producing DVD's in MPEG-1 format with audio.
- B. The television camera used for the inspection shall be a pan and tilt closed circuit color television camera specifically designed and constructed for such inspections. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. The camera shall be operative in 100 percent humidity conditions. The camera, television monitor and other components of the video system shall be capable of producing a minimum 400-line resolution color video picture. Picture quality and definition shall be to the satisfaction of the Engineer and, if unsatisfactory, equipment shall be removed and no payment made for the unsatisfactory inspection.

PART 3 - EXECUTION

3.01 INSPECTION:

- A. The inspection shall be done one section at a time and the section being inspected shall be suitably isolated from the rest of the water system as required. No water lines shall be inspected until they have been cleaned. The camera shall be moved through the line in either direction at a uniform slow rate, stopping when necessary to insure proper documentation of the sewer's condition, but in no case will the television camera be pulled at a speed greater than 30 feet per minute.
- B. Manual winches, power winches, TV cable and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the pipe conditions shall be used to move the camera through the water line. If, during the inspection operation, the television camera will not pass through the entire section, the Contractor shall reset up his equipment in a manner so that the inspection can be performed from the opposite end. The Contractor is required to repeat the TV inspection of areas repaired subsequent to the original TV inspection.
- C. Whenever nonremote powered and controlled winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be set up between the two winches, the pumping unit and the monitor control.
- D. Measurement for location of defects shall be at the ground level by means of a meter device. Marking on cable, or the like, which would require interpolation for depth of manhole, will not be allowed. Measurement meters will be accurate to 0.2 feet. A measuring target in front of the television shall be used as an exact measurement reference point, and the meter reading shall show this exact location of the measurement reference point.

3.02 DOCUMENTATION:

- A. Documentation shall be provided for all pipe reaches.
- B. The Contractor shall furnish printed internal inspection logs and two flash drives of the entire inspection to the Owner on completion.

END OF SECTION

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SECTION 02511

TEMPORARY WATER SERVICE

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. The Contractor shall furnish, install, maintain, and remove temporary water service pipe of the size required from which connections shall be made to all water customers. Temporary service pipe shall not be installed without prior approval of the Engineer.
- B. The Contractor shall do all excavating for connections of temporary service pipes to existing live water mains and make all such connections. The Contractor shall also furnish, install, maintain, connect, disconnect, and remove individual temporary service lines to all water customers.

1.02 REFERENCES:

The following standard forms a part of this specification, as referenced:

American Water Works Association (AWWA)

AWWA C651 Disinfecting Water Mains

1.03 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF THE GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Shop drawings shall consist of manufacturer's scale drawings, cuts, or catalogs including descriptive literature. Shop drawings shall be submitted for the pipe, type of joint, fittings, couplings, and valves.

PART 2 - PRODUCTS

- 2.01 The temporary service pipe, connections, and branches shall be of the highest quality and shall be fully adequate to withstand the pressures and all conditions of use. The temporary service shall be made of fused-joint HDPE, steel or PVC suitable for above-ground use. The installation shall be watertight.

PART 3 - EXECUTION

3.01 RESPONSIBILITIES:

- A. The Contractor shall notify the Engineer forty-eight (48) hours in advance of making service connections, so that individual home owners can be notified.

- B. A bypass pipe or pipes shall be installed to provide temporary service connections for property owners as each main is removed from service. Pipe or hose used for the temporary service connections from the bypass pipe shall be capable of withstanding a maximum service pressure of 150 psi.
- C. At the same time temporary service connections are made, a blowback line is to be installed at water meter inlet connection. This is to be done in order that water customers' premises will not have to be entered between the time the water meter is disconnected and the time it is reconnected.
- D. Pending approval of the property owners, temporary service connections may be made to existing sill cocks where available. All work of installing and removing temporary service connections shall be done by the Contractor under the requirements of the Engineer without exception.
- E. The Owner shall shut off curb stops and the Contractor shall pull water meters on individual services after the Contractor has installed temporary services to the satisfaction of the Engineer and prior to the Contractor starting work which will affect service to customers.
- F. The Contractor shall be responsible for all repairs and maintenance required to the temporary services. The Contractor shall immediately repair and/or replace any leaking or faulty temporary service pipe as ordered by the Engineer.
- G. The work of providing suitable safety precautions to prevent any interruptions of water service during the temporary service period, including taking any steps necessary to prevent freezing, shall be the responsibility of the Contractor. If freezing does occur, the Contractor shall thaw the lines, make any necessary repairs, and promptly restore temporary service.
- H. Before placing the temporary water pipe into service, a representative from the local Fire Department shall be contacted by the Contractor to inspect any connections to existing fire hydrants, the placement of emergency fire connections, and shall be familiar with the operation of the emergency fire connections. The Contractor shall make any adjustments to the layout of the temporary water piping and hydrants requested by the local Fire Department. The Contractor shall provide any tools required to operate the emergency fire connections to the Fire Department. The Fire Department shall be contacted at least 48 hours in advance of placing the temporary water pipe into service.

3.02 INSTALLATION:

- A. Generally, temporary service pipe shall be laid in gutters or several feet back from the edge of pavement. At driveways, crossings over the pipe shall be made by hot-mix pavement berm, wood or rubber mat ramp or other approved method. At street intersections and road crossings, pipe shall be laid in a shallow trench covered with temporary surfacing.

- B. The Contractor shall install and maintain bypass pipes of the size and at locations shown on the drawings to provide temporary service connections for property owners on the streets on which normal service has been disrupted during the period that the main is removed from service. This pipe shall be capable of withstanding a maximum of 150 psi.
- C. Connections to bypass lines shall be made to hydrants on adjacent streets as determined by the Engineer. No connection shall be made across streets until permission has been granted by the Engineer.
- D. Hydrants to which connections are to be made shall be properly flushed prior to making any connections, so that stagnant or discolored water will be prevented from entering the bypass line. The bypass pipe shall be installed, all temporary connections made, and all pipes and connections tested for required pressure leaks, before the street main is removed from service. All testing of pipes and connections shall be done in that presence of the Engineer.
- E. Adequate pressure reducers will be installed as required by the Engineer to insure that water pressure to each service connection will not exceed 65 psi.
- F. All service pipe shall be suitably valved to meet the approval of the Engineer. Line valves shall be located at all intersecting streets but no further than 1,000 feet apart.
- G. Suitably threaded 2-1/2-inch valved emergency fire connections shall be installed and maintained adjacent to each fire hydrant which is scheduled to be out of service. Hydrant nozzle caps shall be placed on all emergency fire connections.
- H. Temporary connections to live hydrants or water mains shall be of the same size as the temporary pipe that they feed. No restrictions or reduction in size will be allowed.
- I. All hydrants that are out of service shall be covered with burlap bags, securely held in place.
- J. The Contractor shall be responsible for all consumer connections. The connection shall be made via a temporary hose from the temporary main to a suitable location in the house; via a temporary pipe or hose from the temporary main to the meter pit, if one exists; or by making a below-ground connection at the street edge to the existing service.
- K. In the event that any one, or all, of smaller-than-existing-pipe-diameter bypass lines prove in any way to be inadequate, the Contractor shall have readily available a sufficient quantity of 6-in and 8-in. bypass pipe to replace inadequate pipe. The replacement pipe shall be capable of withstanding a maximum pressure of 150 psi and shall be available for immediate installation. No replacement pipe shall be paid for unless authorized in writing by the Engineer.

- L. The Owner shall enter all private property and assist the Contractor in making or removing temporary service connections if determined necessary by the Engineer. The Contractor shall notify the Owner at least 48 hours in advance so that personnel may be available when required.
- M. All service connections shall be valved at the temporary service pipe.
- N. Care shall be taken at all times, during the installation and removal of the temporary bypass and connections, to prevent any contamination of Town mains or service connections.
- O. The Contractor shall maintain the temporary bypass connections and service connections while they are in use, and when they are no longer required, the Contractor shall remove and dispose of them and shall restore the ground surface and pavement to a condition at least to that before the start of work.
- P. See Section 02745 - PAVING, for both temporary and permanent paving over the temporary service pipe trench.

3.03 DISINFECTING AND FLUSHING:

- A. For all work involved, the Contractor shall furnish all equipment, materials, and labor required. The Contractor shall also furnish means for disposal of the water used in disinfecting and flushing the main. The water shall be wasted in such a manner as to eliminate possibility of damaging roadways, adjacent property, and contamination of water supply.
- B. The Contractor shall disinfect the temporary mains and services carrying temporary water.
- C. The Contractor shall furnish all equipment and materials necessary to do the work of disinfecting, and shall perform the work in accordance with the procedure outlined in AWWA C651 and all amendments thereto.
- D. Before the bypass pipes and service connections are put into use, the Contractor shall disinfect the piping with a solution consisting of 50 ppm. of chlorine, which shall be retained in the pipe for at least 8 hours. Disinfection shall be in accordance with the above mentioned AWWA Specifications insofar as applicable.
- E. In general, the procedure of disinfecting the main shall be to apply the chlorine through a tap in one end of the section and bleed off through a tap at the other end.
- F. The applied dosage shall be such as to produce a chlorine concentration of not less than 10 mg/l after a contact time of not less than 24 hours.
- G. During the disinfection period, care shall be exercised to prevent contamination of water in existing mains.

- H. Any temporary connection to the mains or other facilities required to accomplish the disinfection of the mains as described below, shall be at the Contractor's expense.
- I. After treatment, the main shall be flushed with clean water until the residual chlorine concentration is less than 0.2 mg/l.
- J. The Contractor shall dispose of the water used in disinfecting and flushing in an approved manner.
- K. Bacteriological sampling and testing shall be done by the Contractor in accordance with AWWA C651 for each main and each branch. Sampling shall be accomplished with sterile bottles treated with sodium thiosulfate, as required by Standard Methods. No hose or fire hydrants shall be used in collection of samples. A corporation stop installed on the main, with a removable copper tube gooseneck assembly, is the recommended method.
- L. Testing shall be done by a laboratory approved by the Engineer, in accordance with Standard Methods, and shall show the absence of coliform organisms. A standard plate count may be required at the option of the Engineer.
- M. The Contractor shall handle all sampling and coordinating of testing of such samples through a laboratory approved by the Engineer.
- N. The Contractor shall furnish all equipment, disinfectants, sample bottles and personnel for proper performance of the tests. The pipeline shall be flushed and rechlorinated until satisfactory bacteriological quality has been achieved. The Contractor or his authorized representative shall obtain certificates of satisfactory bacteriological quality from a laboratory certified by the New York State Department of Health and furnish them to the Engineer before request is made for acceptance of work.
- O. Samples shall be obtained from the pipeline and tests made in accordance with the most recent edition of Standard Methods for the Examination of Water and Wastewater and in accordance with the requirements of the Westchester County Department of Health. All testing and sampling shall be witnessed by the Engineer or his authorized representative.

END OF SECTION

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SECTION 02514

HYDRANTS AND VALVES FOR POTABLE WATER WORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers the furnishing and installation of all outside hydrants, hydrant valves and appurtenances as indicated on the drawings and as specified herein.
- B. Pipe and couplings shall be specified under the appropriate pipe sections.

1.02 RELATED WORK:

- A. Section 02080, DUCTILE IRON PIPE AND FITTINGS FOR WATER MAINS
- B. Section 02300, EARTHWORK
- C. Section 02516, CONNECTIONS TO EXISTING WATER MAINS

1.03 REFERENCES:

- A. The following standards form a part of this specification:

American Society for Testing and Materials (ASTM)

**All information must be from the most recent version if standard has been updated*

ASTM	A48	Gray Iron Castings
ASTM	A126	Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM	A536	Ductile Iron Castings
ASTM	B62	Composition Bronze or Ounce Metal Castings
ASTM	D429	Test Method for Rubber Property Adhesion to Rigid Substrate.

American Water Works Association (AWWA)

**All information must be from the most recent version if standard has been updated*

AWWA	C500	Metal Seated Gate Valves Water Supply Service
AWWA	C502	Dry-Barrel Fire Hydrants
AWWA	C504	Rubber-Seated Butterfly Valves

AWWA	C509	Resilient-Seated Gate Valves for Water Supply Service
AWWA	C515	Reduced Wall, Resilient-Seated Gate Valves for Water Supply Service
AWWA	C550	Protective Interior Coatings for Valves and Hydrants Federal Specifications (FS)
FS	TT-V-51F	Varnish, Asphalt

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF THE GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Six sets of all shop drawings shall be submitted to the Engineer for review.
- B. Shop drawings shall be submitted for the hydrants, valves and appurtenances indicating type of joint, and lining and coating, etc., in accordance with the specifications.
- C. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs including descriptive literature and complete characteristics and specifications, and code requirements.
- D. Refer to Paragraph 3.01.A for Affidavit of Compliance required to be submitted.

PART 2 – PRODUCTS

(TO BE SUPPLIED BY THE OWNER UNLESS OTHERWISE NOTED)

2.01 GENERAL:

- A. Valves shall open left (counterclockwise).
- B. Hydrants shall open left (counterclockwise).

2.02 HYDRANTS:

- A. Hydrants shall conform to the requirements of AWWA C502. They shall be equipped with a 5-1/4-inch main valve and 6-inch mechanical joint inlet.
- B. Hydrants shall have one 4-1/2-inch pumper and two 2-1/2- inch hose connections. Threads shall be NST.

- C. Hydrant operating and nozzle cap nuts shall be of pentagonal shape and measure one and one half inches from flat to point. The height of the nut shall not be less than one inch.
- D. All internal operating parts including main valve, main valve seat, drain valve mechanism, operating rod, etc., shall be removable without excavating.
- E. Main valve seats shall be made of brass or bronze, and shall screw into a seat ring or sub-seat, which shall also be made of brass or bronze.
- F. Hydrants shall be traffic models with frangible bolts or breakaway couplings. Details of hydrant design shall meet the requirements of the Owner.
- G. For purposes of standardization, hydrants shall be Mueller "Super Centurion 250," Model A-423 as manufactured by Mueller Co., Decatur, IL; no approved equal will be considered.

2.03 HYDRANT PAINT:

- A. Hydrants shall be thoroughly cleaned and given two shop or field coats of paint in accordance with AWWA C502 and the instructions of the paint manufacturer. Paint color shall be the standard hydrant color of the Owner as follows:
 - 1. Barrel - OSHA red
 - 2. Bonnet – OSHA red
 - 3. Nozzle Caps - OSHA red
- B. If the hydrants are delivered with the Owner's standard color, they shall be given one matching field coat of an alkyd gloss enamel. If the hydrants are not delivered with the Owner's standard color, they shall be given two coats of an alkyd gloss enamel, colors as indicated above.
- C. Hydrant paint shall be as manufactured by Sherwin-Williams, Cleveland, OH; Tnemec Company, Inc., Kansas City, MO; or Minnesota Mining and Manufacturing Co. (3M), St. Paul, MN; or approval equal.
- D. Alkyd gloss enamel shall be 801 DTM by Sherwin-Williams, 2H-Tneme by Tnemec; or approved equal. Reflective paint shall be Scotchlite #7211 by 3M.

2.05 TAPPING SLEEVES AND VALVES (SUPPLIED BY CONTRACTOR):

- A. Tapping sleeves and valves shall consist of a split cast iron or ductile iron sleeve tee with mechanical joint ends on the main and a flange on the branch. Tapping-type gate valves shall have one flange and one mechanical joint end. The valves shall conform to the requirements hereinbefore specified for gate valves and shall be furnished with a 2-inch square operating nut. The Contractor shall be responsible for verifying the outside diameter of the pipe to be tapped.

- B. Oversized valves shall be provided as required to permit the use of full size cutters. Before backfilling, all exposed portions of bolts used to hold the two halves of the sleeve together shall be heavily coated with two coats of bituminous paint comparable to Inertol No. 66, Special Heavy. Sleeves shall be of cast iron furnished with rubber gaskets. Gaskets shall cover the entire area of flange surfaces.
- C. Tapping sleeves and valves shall be as manufactured by Clow Valve Co., Oskaloosa, IA; Mueller Co., Decatur, IL; American Valve and Hydrant, Birmingham, AL; MH Valve, Anniston, AL; Kennedy Valve, Elmira, NY; US Pipe, Chattanooga, TN; or approved equal.

2.06 VALVE BOXES AND EXTENSIONS:

- A. Valve boxes shall be manufactured in North America. The minimum outside diameter of the boxes shall be 5¼-inches and the lengths shall be as necessary to suit the ground elevation and the depth of each valve operator, regardless of the depth of cover.
- B. When there is more than 6 feet of cover, valve operators shall have non-rising extension stems which raise the operating nut to a depth of approximately 4 feet below grade. The extension stem shall have a centering support ring at the upper end. The lower socket shall be tapped with a set screw into the valve nut to prevent the extension stem from lifting off the valve nut.
- C. Each valve shall be provided with a box which has a close fitting 7-1/4-inch diameter cover and is substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. The word "WATER" shall be cast in the top of the cover.
- D. Valve boxes shall be of cast iron and of the adjustable sliding, heavy pattern type. They shall be so designed and constructed as to prevent direct transmission of traffic loads to the pipe or valve. The upper or sliding section of the box shall be provided with a flange on the top of the section (not on the bottom) having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and to rest on the backfill. The boxes shall be adjustable through at least 6 inches vertically without reduction of lap between sections to less than 8 inches.

PART 3 - EXECUTION

3.01 AFFIDAVIT OF COMPLIANCE

- A. The manufacturer shall furnish as part of the shop drawing submittal the ENGINEER with an affidavit stating that valve(s), hydrants conform to the applicable requirements of the applicable AWWA Standard and the ENGINEER's specifications, and that all tests specified therein have been performed and all test requirements have been met and the test date.

- B. A copy of the Affidavit of Compliance shall be delivered to the construction site attached to each valve and/or hydrant furnished. The Affidavit shall be attached to the valve or hydrant inside a waterproof pouch.
- C. Any valve or hydrant received without the required affidavit shall be removed from the project and replaced at no expense to the Owner.
- D. All materials shall be certified "NEW". No reconditioned or repaired materials are permitted. Any reconditioned or repaired materials furnished or installed shall be removed and replaced with new materials at no expense to the Owner.

3.02 INSTALLATION:

- A. If the Engineer or his designated representative determines that an existing 6 inch or 8 inch gate valve should be replaced, the Contractor shall install and test all valves and appurtenances as required. Payment for item shall be paid for under proposal item for valve replacement.
- B. All valves, cut-in sleeves and valve boxes shall be supplied by the Town of Yorktown Water Department.
- C. The Contractor shall install and test all valves and appurtenances as indicated on the drawings and as herein specified.
- D. All valves shall be carefully installed and supported in their respective positions free from distortion and strain. Care shall be taken to prevent damage or injury to the valves and appurtenances during handling and installation.
- E. All material shall be carefully inspected for defects in workmanship and all debris and foreign material cleaned out of valve openings and seats. All mechanisms shall be operated to check for proper functioning, and all nuts and bolts checked for tightness.
- F. Valves and other equipment that do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense.
- G. Hydrants shall be set plumb. Earth fill shall be carefully tamped around the hydrants to a distance of 4 feet on all sides of the hydrant, or to the undisturbed trench face, if less than 4 feet. Hydrants and connecting pipe shall have at least the same depth of cover as the distributing main. Hydrants shall be set upon a layer of stone or a slab of concrete not less than 4 inches thick and 15 inches square. The side of the hydrant opposite the pipe connection shall be firmly wedged against the vertical face of the trench with a concrete thrust block, as indicated on the drawings.
- H. Crushed stone shall be placed around the base of the hydrant at the location of the drain hole, and backfill around the hydrant shall be thoroughly compacted to the grade line in a

satisfactory manner. Hydrants shall have the interiors cleaned of all foreign matter before installation, and shall be inspected in both the open and closed positions.

- I. Valve boxes shall be set plumb, flush with the ground or paved surface, and centered directly over the operating nut of the valves. Earth fill shall be carefully tamped around the valve boxes to a distance of 4 feet on all sides of the boxes or to the undisturbed trench face, if less than 4 feet.
- J. Valves shall be operational and accessible at all times during construction and warranty period. The Contractor shall verify proper operation of all valves in the presence of the Engineer and/or Owner following completion of the project and prior to the acceptance of substantial completion.

END OF SECTION

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SECTION 02515

SERVICE CONNECTIONS (WATER SERVICES)

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers the furnishing and installation of new water service connections and the repair, replacement, and/or transfer of existing water service connections as shown on the drawings, as specified herein, and as required by the Engineer.

1.02 RELATED WORK:

- A. Section 02080, DUCTILE IRON PIPE AND FITTINGS
- B. Section 02745, PAVING
- C. Section 02920, LOAMING AND SEEDING

1.03 REFERENCES:

- A. The following standards form a part of this specification:

American Society for Testing and Materials (ASTM)

- | | | |
|------|-------|---|
| ASTM | B88 | Seamless Copper Water Tube |
| ASTM | B584 | Copper Alloy Sand Castings for General Applications |
| ASTM | D2737 | Polyethylene (PE) Plastic Tubing |

American Water Works Association (AWWA)

- | | | |
|------|------|--|
| AWWA | C800 | Water-Service Line Fittings |
| AWWA | C651 | Disinfecting Water Mains |
| AWWA | C901 | Polyethylene Pressure Pipe & Tubing, 1/2-inch through 3-inch for Water Service |

Federal Specifications (FS)

- | | | |
|----|-----------|------------------------|
| FS | WW-T-799C | Tube, Copper, Seamless |
|----|-----------|------------------------|

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF THE GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six sets of manufacturer's literature of the materials of this section for review.

PART 2 – PRODUCTS

(TO BE SUPPLIED BY THE OWNER UNLESS OTHERWISE NOTED)

2.01 SERVICE PIPING:

- A. Piping for buried copper water services shall be continuous Type K annealed seamless copper water tubing conforming to ASTM B88 Standard Specification for Seamless Copper Water Tube or U.S. Federal Specification WW-T-799C for Tube, Copper, Seamless. Tubing shall be ¾” or 1-inch diameter or shall match existing unless otherwise indicated.
- B. Couplings, if required, for existing to new service pipe connections shall have flared connections on the inlet and flared connections on the outlet. Couplings shall be made of brass as specified in AWWA C800. All brass components that come into contact with potable water shall be made from either CDA/UNS Brass Alloys C89520 or C89833 and shall not contain more than twenty five hundredths of one percent (0.25% or less) total lead content by weight. The lead leach limit of the coupling shall be 5 parts per billion (ppb). Couplings shall be NSF/ANSI 61 Annex F and Annex G and NSF/ANSI 372 certified by an ANSI accredited organization and shall be stamped or embossed with a mark or name indicating that the product is manufactured from a low-lead alloy, as specified above. Couplings shall be by Mueller.

2.02 CORPORATION STOPS:

- A. Corporations stops shall be made of brass as specified in AWWA C800. All brass components that come into contact with potable water shall be made from either CDA/UNS Brass Alloys C89520 or C89833 and shall not contain more than twenty five hundredths of one percent (0.25% or less) total lead content by weight. The lead leach limit of the corporation stops shall be 5 ppb. Corporation stops shall be NSF/ANSI 61 Annex F and Annex G and NSF/ANSI 372 certified by an ANSI accredited organization and shall be stamped or embossed with a mark or name indicating that the product is manufactured from a low-lead alloy, as specified above.
- B. The inlet shall have AWWA taper thread (CC) connections and the outlet shall have flared connections.
- C. Service clamps shall be installed with all corporation stops 2-inches and larger in size and with all corporation stops installed. Clamps shall be all bronze, ductile iron or stainless steel, double strap, AWWA taper thread (CC) with O-ring seal.
- D. Corporation stops shall be type H15000N by Mueller Co., Decatur, IL; or approved equal.

2.03 CURB STOPS:

- A. Curb stops shall be of brass as specified in AWWA C800. All brass components that come into contact with potable water shall be made from either CDA/UNS Brass Alloys C89520 or C89833 and shall not contain more than twenty five hundredths of one percent (0.25% or less) total lead content by weight. The lead leach limit of the curb stops shall be 5 ppb. Curb stops shall be NSF/ANSI 61 Annex F and Annex G and NSF/ANSI 372 certified by an ANSI accredited organization and shall be stamped or embossed with a mark or name indicating that the product is manufactured from a low-lead alloy, as specified above.
- B. Curb stops shall be inverted key or ball ¼ turn check with drain style and the inlet and the outlet shall have flared connections to match existing.
- C. Curb stops shall be H15241N by Mueller Co., Decatur, IL; or approved equal.

2.04 CURB BOXES:

- A. The cast iron box shall be the sliding Buffalo type with Arch pattern or Minneapolis pattern base to match existing. Minimum inside diameter of the upper section shall be 1-1/2-inch for 3/4-inch and 1-inch curb stops and 2-inch for 1-1/2-inch and 2-inch curb stops. Curb box lid shall have brass pentagonal nut or shall be Erie pattern to match existing.
- B. Boxes shall be equipped with 30-inch stationary extension rods with pinned connections to the curb stop.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Where new water mains are being installed and existing water services are to be transferred to the new main, the Contractor shall discontinue the existing water services by shutting down the corporation stop at the old water main, unless specifically otherwise required by the Engineer. The Contractor shall take special care to minimize the interruption of existing water service.
- B. The Contractor shall tap a new corporation stop, cut the existing service piping and connect the new service piping to the old service piping using an approved coupling at a point between the main and the existing curb stop and box.
- C. Where transfers are to be made and the existing curb stop and box cannot be utilized or a new curb stop and box is required, the Contractor shall connect the new service piping to the existing service piping using an approved coupling approximately 12-inches from the curb stop on the building side of the stop.

- D. Where transfers are being made and the existing service is of lead, galvanized steel, or iron, the service shall be replaced to the curb stop and box unless otherwise required. If required, the curb stop and box shall be replaced as specified above.
- E. Curb stops and boxes shall be set plumb, flush with the ground or paved surface, and centered with the box located directly over the stop. The box shall be set on a concrete block or flat stone. Earth fill shall be carefully tamped around the boxes to a distance of 4 feet on all sides of the box or to the undisturbed face of the trench, if less than 4 feet.
- F. Curb stops shall be operational and accessible at all times during construction and warranty period. The Contractor shall verify the proper operation of all curb stops in the presence of the Engineer and/or Owner following completion of the project and prior to the acceptance of substantial completion.
- G. All services shall be installed at 4 feet 6 inches of cover unless otherwise required by the Engineer.
- H. Service connections shall be tested and disinfected in accordance with AWWA standards.

END OF SECTION

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SECTION 02516

CONNECTIONS TO EXISTING WATER MAINS

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This section covers connections to existing water mains, complete.
- B. The Contractor shall furnish all pipe, fittings, valves, tapping machines, if required, and appurtenances. The Contractor shall do all excavation and backfill as required.

1.02 RELATED WORK:

- A. Section 02080, DUCTILE IRON PIPE AND FITTINGS.
- B. Section 02511, TEMPORARY WATER SERVICE.
- C. Section 02514, HYDRANTS AND VALVES. (Tapping sleeves and valves specified)
- D. Section 03302, FIELD CONCRETE.

PART 2 - PRODUCTS: NOT APPLICABLE

PART 3 - EXECUTION

3.01 CONTRACTOR OPERATIONS:

- A. The Contractor shall make all connections to the existing mains as indicated on the drawings and as herein specified.
- B. The Contractor shall develop a program for the construction and putting into service of the new work subject to the approval of the Engineer. All work involving cutting into and connecting to the existing work shall be planned so as to interfere with operation of the existing facilities for the shortest possible time and when the demands on the system best permit such interference even to the extent of working outside of normal working hours to meet these requirements.
- C. The Contractor shall have all possible preparatory work done prior to making the connection and shall provide all labor, tools, material, and equipment required to do the work in one continuous operation.
- D. The Contractor shall have no claim for additional compensation, by reason of delay or inconvenience, for adapting his operations to the needs of the Owner's water supply. No

damages shall be claimed by the Contractor for delays in dewatering pipelines nor shall any damages be claimed because of water leaking through closed valves after dewatering is completed.

- E. Under no circumstances shall any customers be without water for a period of more than 4 hours without prior approval of the Owner. Should it appear that any customer will be without water for more than 4 hours, the Contractor shall install temporary water service as specified in Section 02511, TEMPORARY WATER SERVICE where required by the Engineer.
- F. Existing pipeline that is not to be abandoned but is damaged by the Contractor during the work shall be replaced by him at his own expense in a manner approved by the Engineer.

3.02 TAPPING CONNECTION TO EXISTING MAINS:

- A. Tapping connections to the existing mains, where indicated on the drawings, shall be made with service pressure in the main, using tapping sleeves and valves and a suitable tapping machine.
- B. Other connections to existing mains shall be made with the main out of service, unless otherwise required by the Engineer. Such connections will not require tapping sleeves and valves but connections as indicated on the drawings.

END OF SECTION

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SECTION 02518

TRACER TAPE

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers the furnishing, handling and installation of tracer tape, as called for on the drawings.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Six sets of manufacturer's literature on the materials, colors and printing specified herein, shall be submitted to the Engineer for review.
- B. Tape samples shall also be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

Tracer tape shall be by Reef Industries, Houston, TX; Empire Level, Mukwonago, WI; Pro-Line Safety Products Co., W. Chicago, IL; or approved equal.

2.02 TRACER TAPE:

- A. Tracer tape shall be at least 3-inches wide.
- B. Tracer tape for non-ferrous pipe or conduit shall be constructed of a metallic core bonded to plastic layers. The metallic tracer tape shall be a minimum 5-mil thick and must be locatable at a depth of 18 inches with ordinary pipe locaters.
- C. Tracer tape for ferrous pipe or conduit shall consist of multiple bonded plastic layers. The non-metallic tracer tape shall elongate at least 500% before breaking.
- D. The tape shall bear the wording: "BURIED DRAIN LINE BELOW" (with "DRAIN" replaced by "WATER", "SEWER", "ELECTRICAL", "GAS", "TELEPHONE", or "CHEMICAL" as appropriate), continuously repeated every 30 inches to identify the pipe.

- E. Tape colors shall be as follows, as recommended by the American Public Works Association (APWA):

Electric	Red
Gas & Oil	Yellow
Communications	Orange
Water	Blue
Sewer & Drain	Green
Chemical	Red (not APWA)

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Tracer tape shall be installed directly above the pipe or conduit it is to identify, approximately 12 inches below the proposed ground surface.
- B. The Contractor shall follow the manufacturer's recommendations for installation of the tape, as approved by the Engineer.

END OF SECTION

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SECTION 02745

PAVING

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall furnish all labor, materials and equipment and shall replace the pavements as indicated on the drawings and as herein specified.

1.02 RELATED WORK:

- A. Section 01562, DUST CONTROL
- B. Section 02300, EARTHWORK

1.03 SYSTEM DESCRIPTION:

A. GENERAL

The types of pavement systems to be utilized on this project are as follows:

TYPE 1: TEMPORARY TRENCH PAVEMENT

Temporary trench pavement shall consist of 3-inches of NYSDOT Type 3 Binder with 6-inches or compacted subbase.

TYPE 2: PERMANENT TRENCH PAVEMENT

Permanent trench pavement shall consist of 3-inches of NYSDOT Type 3 Binder with 1 1/2-inches of NYSDOT Type 7 top course pavement.

TYPE 3: PERMANENT DRIVEWAY PAVEMENT

Permanent driveway pavement shall consist of 2-inches of NYSDOT Type 3 Binder with 1-inch of NYSDOT Type 7 top course pavement

1.04 REFERENCES

The following standards form a part of these specifications and indicate the minimum standards required:

American Society for Testing and Materials (ASTM)

ASTM D1557 Test for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 Pound Rammer and 18-Inch Drop

ASTM D6690 Standard specifications for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

New York State Department of Transportation
Standard Specifications (NYSDOT)

NYSDOT 204 Controlled Low Strength Material (CLSM)

NYSDOT 304 Subbase Course

NYSDOT 403 Hot Mix Asphalt (HMA) Pavements For Municipalities

NYSDOT 407 Tack Coat

NYSDOT 490 Cold Milling

NYSDOT 703-09 Reclaimed Asphalt Pavement

NYSDOT 633 Conditioning Existing Pavement Prior to Hot Mix Asphalt (HMA) Overlay

NYSDOT 635 Cleaning and Preparation of Pavement Surfaces for Pavement Markings

NYSDOT 640 Reflectorized Pavement Marking Paints

NYSDOT 685 Epoxy Reflectorized Pavement Markings

NYSDOT 687 Thermoplastic Reflectorized Pavement Markings

NYSDOT 688 Preformed Reflectorized Pavement Markings

AASHTO Standard Specifications for Materials and Methods of Sampling and Testing

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six sets of complete job mix formula shall be submitted to the Engineer at least two weeks before any of the work of this section is to begin.

PART 2 - PRODUCTS

2.01 GRAVEL SUBBASE:

- A. Gravel subbase shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials.
- B. Gradation requirements for gravel subbase shall be as specified in Section 02300, EARTHWORK for Processed Gravel Type 2.

2.02 HOT MIX ASPHALT PAVEMENT:

- A. HMA mixtures shall be within the composition limits of base courses, binder courses, shim/leveling courses and top courses, in accordance with NYSDOT 403-2.03 (Table 403-1), with constituents that conform to Table A, below.

TABLE A
COMPOSITION OF HOT MIX ASPHALT MIXTURES
PERCENT BY WEIGHT PASSING SIEVE DESIGNATION

Screen sizes	Standard Sieves (in.)	Base Course Type 1	Binder Course Type 3	Shim/Leveling Course Type 5	Top Course Type 7
50.0 mm	2 in	100			
37.5 mm	1 1/2 in.	90-100	100		
25.0 mm	1 in	78-95	95-100		100
12.5 mm	1/2 in	57-84	70-90		95-100
6.3 mm	1/4 in.	40-72	48-74	100	65-85
3.2 mm	1/8 in.	26-57	32-62	80-100	36-65
0.85 mm	No.20	12-36	15-39	32-72	15-39
0.425 mm	No.40	8-25	8-27	18-52	8-27
0.18 mm	No.80	4-16	4-16	7-26	4-16
0.075 mm	No.200	2-8	2-8	2-12	2-6
PGB Content, %		4.0-6.0	4.5-6.5	7.0-9.5	5.7-8.0

All aggregate percentages are based on the total weight of the aggregate.

The asphalt content is based on the total weight of the mix. When using slag aggregates in the mix, increase the PGB content accordingly, a minimum of 25 percent for an all slag mix.

Type 6 mix requires friction coarse aggregates.

- B. The joint sealant shall be a hot-applied joint sealant meeting the requirements of NYSDOT 705-02 Highway Joint Sealants.

- C. The tack coat shall be an asphalt emulsion conforming to NYSDOT Section 702.
- D. Performance-Graded Binder (PGB) will meet the requirements of NYSDOT 401-2.04, unless otherwise specified. Use PG 64-22.

2.03 PAVEMENT MARKINGS:

- A. Pavement markings shall conform to the requirements of NYSDOT 640, 685, 687, or 688 as applicable.
- B. Materials shall conform to the requirements of NYSDOT 727 Pavement Marking Materials. Paints shall be selected from NYSDOT's "Approved List of White and Yellow ReflectORIZED Pavement Marking Paints". ReflectORIZED Pavement Markings for this project shall be as follows:
 - 1. ReflectORIZED Pavement Marking Paints.
 - 2. Epoxy ReflectORIZED Pavement Markings.
 - 3. Thermoplastic ReflectORIZED Pavement Markings.
 - 4. Preformed ReflectORIZED Pavement Markings.
- C. Glass beads for reflectORIZED pavement marking paints shall conform to NYSDOT 727-05.
- D. Glass beads for epoxy and thermoplastic reflectORIZED pavement markings shall conform to NYSDOT 727-03.

PART 3 - EXECUTION

3.01 GENERAL:

- A. Paving courses required for the project shall be as shown on the drawings and as specified herein. Pavement thicknesses specified are measured in compacted inches. If a pavement course thickness exceeds 2-1/2 compacted inches, the course shall be installed in multiple lifts with each lift not exceeding 2-1/2 compacted inches in thickness.
- B. Pavement replacement shall be with new materials. All pavement damaged or removed in the Contractor's operations shall be replaced at his expense.

3.02 GRAVEL SUBBASE:

- A. The gravel subbase to be placed under pavement shall consist of a thickness as shown on drawings evenly spread and thoroughly compacted.
- B. The gravel shall be spread in layers not more than 4-inches thick, compacted measure. All layers shall be compacted to not less than 95 percent of the maximum dry density of the material as determined by ASTM D1557 Method C at optimum moisture content.

3.03 TEMPORARY PAVEMENT:

- A. Where specified and required by the Engineer and after placement of the gravel subbase, the Contractor shall place temporary pavement above the trench, between the edges of the existing pavement. It shall consist of Type 3 binder course, 3-inches thick, in accordance with NYSDOT 403.
- B. The temporary pavement shall be repaired as necessary to maintain the surface of the pavement until replaced by permanent pavement. When so required by the Engineer, the Contractor shall remove the temporary pavement and install or regrade the subbase for installation of permanent pavement.

3.04 PERMANENT PAVEMENT:

- A. The bituminous paving mixture, equipment, methods of mixing and placing, and the precautions to be observed as to weather, condition of base, etc., shall be in accordance with NYSDOT 403.

B. BINDER COURSE PAVEMENT:

- 1. Immediately prior to installing the binder course, the trimmed edges shall be made stable and unyielding, free of loose or broken pieces and all edges shall be thoroughly broomed clean. Contact surfaces of trench sides, curbs, manholes, catch basins, or other appurtenant structures in the pavement shall be painted thoroughly with a uniform coating of tack coat, just before any mixture is placed against them.
- 2. The binder course shall be repaired as necessary to maintain the surface of the pavement until placement of the permanent overlay. If required, the Contractor shall fill depressions and wheel path ruts and, then place a leveling course before placing the permanent overlay.

C. TOP COURSE:

- 1. Top course shall be placed over the trench or full width as shown on the drawings or as specified.

2. Prior to placement of the top course, the entire surface over which the top course or surface treatment is to be placed shall be broom cleaned and tack coated.
3. Top course pavement placed over trenches may be feathered to meet existing paved surfaces, if approved by the Engineer.
4. Prior to placing full width top course pavement, keyways shall be cut in all intersecting streets.

3.05 PAVEMENT PLACEMENT:

- A. All excavations must be allowed to settle for a minimum of 90 days before placement of final paving.
- B. Unless otherwise permitted by the Engineer for particular conditions, only machine methods of placing the pavement shall be used. The equipment for spreading and finishing shall be mechanical, self-powered pavers, capable of spreading and finishing the mixture true to line, grade, width and crown. The mixtures shall be placed and compacted only at such times as to permit proper inspection and checking by the Engineer.
- C. Compaction shall be performed by one of three methods as appropriate:

Option A Three Roller Compaction Train

1. After the paving mixtures have been properly spread, initial compaction shall be obtained by the use of self-propelled steel wheel rollers operating in a static mode. Roller shall be either 9 to 11 metric ton tandem three-axle type or 7 to 9 metric ton tandem two-axle type.
2. An intermediate rolling, using a pneumatic rubber-tired roller, shall be performed. The roller shall be self-propelled, two-axle type, meeting the following requirements:

Maximum Wheel Load	2600 kg (2.865 tons)
Tire Compression on Pavement	550+/- 35 kPa (80 +/- 5 psi)
Maximum Axle Load	10,160 kg (11.2 tons)

3. Final rolling shall be performed by a steel wheel roller to remove all shallow ruts, ridges, roller marks, and other irregularities from the surface.
4. Roller speeds shall not exceed 5 km per hour (3.1 miles per hour).

5. The number of passes for each course are as follows:

	<u>Steel Wheel</u>	<u>Pneumatic Tire</u>
Binder	2	3
Top	2	3

Option B Vibratory Compaction

1. Use rollers appearing on the NYSDOT current approved list –“HMA Concrete Vibratory Compaction Equipment.” Furnish a vibrating reed tachometer for the exclusive use of the Engineer. The tachometer must have a frequency range of 17 Hz to 67 Hz with a minimum reed interval of 1 Hz between 17 Hz and 33 Hz and a minimum reed interval of 2 Hz between 33 Hz and 67 Hz.
2. Operate vibratory rollers at a uniform speed not exceeding 4 kilometers per hour (2.5 miles per hour). Complete turning of the compaction equipment on material that has had a minimum of one roller pass.
3. The number of required passes for each course are as follows (unless adequate density is achieved with a different number of passes and the Engineer determines that the number may be decreased or must be increased):

	<u>Vibratory Passes</u>	<u>Static Passes</u>
Binder	2	2
Top	2	2

4. If damage to highway components to adjacent property is occurring, the Engineer shall require the cessation of this option of compaction and the Contractor will use Option A at no additional cost to the Owner. This also applies to the situation where the Engineer determines that unsatisfactory compaction is being obtained.

Option C Trench Pavement

1. Use a vibratory sled compactor or a minimum 1.5 ton roller to compact the trench pavement.
2. The number of required passes for each course are as follows (unless adequate density is achieved with a different number of passes and the Engineer determines that the number may be decreased or must be increased):

	<u>Vibratory Passes</u>	<u>Static Passes</u>
Binder	2	2
Top	2	2

- D. Immediately after placement of top course pavement, all joints between the existing and new top course pavements shall be filled with an asphalt filler meeting the requirements of NYSDOT 702.
- E. Where there is no backing for the edges of the curb-to-curb pavement, the Contractor shall provide a gravel transition. The gravel transition shall be installed immediately after the pavement is placed, shall be feathered and extend a minimum of 27 inches, and shall be compacted using the same equipment as for pavement compaction. The gravel shall be uniformly graded material with a maximum size of 3/8 to 1/2 inch.
- F. When required by the Engineer, the Contractor shall furnish and install additional paving to provide satisfactory transition for driveways and walkways impacted by a new curb-to-curb pavement installation. The transition installation will be considered incidental to the curb-to-curb pavement installation.

3.07 ADDITIONAL PAVING:

- A. If the Engineer determines that the existing HMA pavement on local streets is thicker than the permanent pavement specified herein, the Contractor might be required to install additional HMA pavement to obtain the depth of the existing pavement.
- B. If for the installation of full width paving, the Engineer determines that the existing road surface requires additional leveling pavement, then the Contractor shall install additional Type 5 leveling course HMA to bring the section to proper line and cross section. Additional paving required to restore the proper line and cross section of binder course installed by the Contractor which has become rough and uneven shall be furnished and installed at the expense of the Contractor.

3.08 PARKING LOTS AND DRIVEWAYS:

- A. Adjacent concrete work, slate work, sidewalks, structures, etc., shall be protected from stain and damage during the entire operation. Damaged or stained areas shall be replaced or repaired to equal their original condition.
- B. After final rolling, no vehicular traffic of any kind shall be permitted on the pavement until it has cooled and hardened sufficiently to prevent distortion and loss of fines, and in no case in less than 6 hours.
- C. Smoothness of all areas of the finished surface shall not vary more than 1/4-inch when tested with a 16 foot straight-edge, applied both parallel to and at right angles to the centerline of the paved area. At building entrances, curbs, and other locations where an essentially flush transition is required, pavement elevation tolerance shall not exceed plus or minus 1/8-inch. Irregularities exceeding these amounts, or which retain water on the surface, shall be corrected by removing the defective work and replacing or repairing it to the satisfaction of the Engineer.

- F. The surface area to be seal coated, as shown on the drawings, shall be swept and air cleaned. The first coat shall be applied with eight (8) pounds of #30 silica sand blended with each gallon of emulsion applied at a rate of 0.15 gallons per square yard. The second coat shall be a straight sealer applied at the rate of 0.1 gallons per square yard.
- G. The Contractor shall prepare the pavement surface for painting lines according to the recommendations of the paint manufacturer. Applied markings shall have clean-cut edges, true and smooth alignment and uniform film thickness of 15 mils, +/- 1.0. The Contractor shall be responsible for removing, to the satisfaction of the Engineer, tracing marks, and spilled paint applied in an unauthorized area.

3.09 PAVEMENT MARKINGS:

- A. The Contractor shall replace all pavement markings removed or covered-over in carrying out the work, and as required by the Engineer, no sooner than 48 hours after completion of permanent pavement. The markings shall be 4-inches wide, white or yellow, single or double lines as required.
- B. When required by the Engineer, the Contractor shall provide temporary markings at no additional cost to the Owner.

3.10 PAVEMENT REPAIR:

- A. If required in the contract or if permanent pavement becomes rough or uneven, permanent pavement patches and trenches shall be repaired and brought to grade utilizing "infrared" paving methods following completion of the construction.
- B. The Contractor performing the work shall use care to avoid overheating the pavement being repaired.
- C. Pavement repair shall extend a minimum of 6-inches beyond all edges of the pavement patch to assure adequate bonding at the pavement joints.

END OF SECTION

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SECTION 02920

LOAMING AND SEEDING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers all labor, materials, and equipment necessary to do all loaming, seeding and related work as indicated on the drawings and as herein specified. All lawns disturbed by the Contractor's operations shall be repaired as herein specified.

1.02 RELATED WORK:

- A. None.

1.03 QUALITY ASSURANCE:

- A. For a particular source of loam, the Engineer may require the Contractor to send approximately 10 pounds of loam to an approved testing laboratory and have the following tests conducted:

1. Organic concentration
2. pH
3. Nitrogen concentration
4. Phosphorous concentration
5. Potash concentration

- B. These tests shall be at the Contractor's expense. Test results, with soil conditioning and fertilizing recommendations, shall be forwarded to the Engineer.

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Six sets of information detailing the seed mixes, fertilizers, mulch material, slope protection material (if required) and origin of loam shall be submitted to the Engineer for review.
- B. Three sets of test results shall be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. LOAM:

1. Loam shall be a natural, fertile, friable soil, typical of productive soils in the vicinity, obtained from naturally well-drained areas, neither excessively acid nor alkaline, and containing no substances harmful to grass growth. Loam shall not be delivered to the site in frozen or muddy condition and shall be reasonably free of stumps, roots, heavy or stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter.
2. The loam shall contain not less than 4 percent nor more than 20 percent organic matter as determined by the loss of weight by ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F.

B. LIME:

Lime shall be standard commercial ground limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide), and 50 percent of the material must pass through a No. 100 mesh sieve with 98 percent passing a No. 2 mesh sieve.

C. FERTILIZER:

Fertilizer shall be commercial fertilizer, 10-10-10 fertilizer mixture containing at least 40 percent of organic nitrogen. It shall be delivered to the site in the original sealed containers, each showing the manufacturer's guaranteed analysis. Fertilizer shall be stored so that when used it will be dry and free flowing. No fertilizer shall be used which has not been marketed in accordance with State and Federal Laws, relating to fertilizers.

D. MULCH:

1. Materials to be used in mulching shall conform to the following requirements:
2. Straw Mulch - Straw Mulch shall consist of stalks or stems of grain after threshing.
3. Wood Fibre Mulch - Wood Fibre Mulch shall consist of wood fibre produced from clean, whole uncooked wood, formed into resilient bundles having a high degree of internal friction and shall be dry when delivered to the project.

E. SEED:

1. Seed shall be of an approved mixture, the previous year's crop, clean, high in germinating value, a perennial variety, and low in weed seed. Seed shall be obtained from a reliable seed company and shall be accompanied by certificates relative to mixture purity and germinating value.
2. Grass seed for lawn areas shall conform to the following requirements:

	Proportion by Weight	Germination Purity	Purity Minimum
Chewing's Fescue	30%	70%	97%
Kentucky 31 Fescue	30%	90%	98%
Kentucky Blue Grass	20%	80%	85%
Domestic Rye Grass	20%	90%	98%

Grass seed for cross-country areas, slopes and other areas not normally mowed shall conform to the following requirements:

	Proportion by Weight	Germination Minimum	Purity Minimum
Creeping Red Fescue	50%	85%	95%
Kentucky 31	30%	85%	95%
Domestic Rye	10%	90%	98%
Red Top	5%	85%	92%
Ladino Clover	5%	85%	96%

F. TEMPORARY COVER CROP:

1. Temporary cover crop shall conform to the following requirements:

	% Weight	Germination Minimum
Winter Rye	80 min.	85%
Red Fescue (creeping)	4 min.	80%
Perennial Rye Grass	3 min.	90%
Red Clover	3 min.	90%
Other Crop Grass	0.5 max.	
Noxious Weed Seed	0.5 max.	
Inert Matter	1.0 max.	

G. SLOPE EROSION PROTECTION:

1. Erosion control blanket shall be 100% degradable plastic mesh with 100% degradable straw or straw/coconut fill. Fill shall be held together by degradable fastening. Weight shall be 0.50 lb/sq. yd. Erosion control blankets shall be applied parallel to direction of water flow. The erosion control blankets shall be by North American Green, Evansville, IN or approved equal. For slopes 2:1 or greater, Model SC150 shall be used. For slopes less than 2:1, Model S150 shall be used.
2. Six inch wire staples shall be placed according to manufacturers recommendations to anchor the mesh material. Staples shall be designed to decompose.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION:

- A. After approval of rough grading, loam shall be placed on areas affected by the Contractor's operations. Loam shall be at least 6-inches compacted thickness.
- B. Lime shall be applied to bring the pH to 6.5 or, without a soil test, at the rate of 2-3 tons of lime per acre.
- C. Fertilizer shall be applied according to the soil test, or without a soil test, at the rate of 1000 pounds per acre.
- D. Loam shall be worked a minimum of 3-inches deep, thoroughly incorporating the lime and fertilizer into the soil. The loam shall then be raked until the surface is finely pulverized and smooth and compacted with rollers, weighing not over 100 pounds per linear foot of tread, to an even surface conforming to the prescribed lines and grades. Minimum depth shall be 6-inches after completion.

3.02 SEEDING:

- A. Seeding shall be done when weather conditions are approved as suitable, in the periods between April 1 and May 30 or August 15 to October 1, unless otherwise approved.
- B. If there is a delay in seeding, during which weeds grow or soil is washed out, the Contractor shall remove the weeds or replace the soil before sowing the seed, without additional compensation. Immediately before seeding is begun, the soil shall be lightly raked.
- C. Seed shall be sown at the approved rate, on a calm day by machine.

- D. One half the seed shall be sown in one direction and the other half at right angles. Seed shall be raked lightly into the soil to a depth of 1/4-inch and rolled with a roller weighing not more than 100 pounds per linear foot of tread.
- E. The surface shall be kept moist by a fine spray until the grass shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than 3 sq. ft., the Contractor shall reseed, roll, and water as necessary to obtain proper germination.
- F. The Contractor shall water, weed, cut and otherwise maintain and protect seeded areas as necessary to produce a dense, healthy growth of perennial lawn grass.
- G. If there is insufficient time in the planting season to complete the fertilizing and seeding, permanent seeding may be left until the following planting season, at the option of the Contractor or as required by the Engineer. In that event, a temporary cover crop shall be sown. This cover crop shall be cut and watered as necessary until the beginning of the following planting season, at which time it shall be plowed or harrowed into the soil, the area shall be fertilized and the permanent seed crop shall be sown as specified.

3.03 PLACING MULCH:

- A. Straw Mulch shall be loosely spread to a uniform depth over all areas designated on the plans, at the rate of 4-1/2 tons per acre, or as otherwise required.
- B. Straw Mulch may be applied by mechanical apparatus, if in the judgment of the Engineer the apparatus spreads the mulch uniformly and forms a suitable mat to control slope erosion. The apparatus shall be capable of spreading at least 80 percent of the hay or straw in lengths of 6-inches or more, otherwise it shall be spread by hand without additional compensation.
- C. Wood Fibre Mulch shall be uniformly spread over certain selected seeded areas at the minimum rate of 1,400 pounds per acre unless otherwise required. It shall be placed by spraying from an approved spraying machine having pressure sufficient to cover the entire area in one operation.

3.04 SEEDING AND MULCHING BY SPRAY MACHINE:

- A. The application of lime, fertilizer, grass seed and mulch may be accomplished in one operation by the use of an approved spraying machine. The materials shall be mixed with water in the machine and kept in an agitated state in order that the materials may be uniformly suspended in the water. The spraying equipment shall be so designed that when the solution is sprayed over an area, the resulting deposits of lime, fertilizer, grass seed and mulch shall be equal to the specified quantities.

- B. A certified statement shall be furnished, prior to start of work, to the Engineer by the Contractor as to the number of pounds of limestone, fertilizer, grass seed and mulch per 100 gallons of water.
- C. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above. If the results of the spray operation are unsatisfactory, the Contractor will be required to abandon this method and to apply the lime, fertilizer, grass seed and mulch by other methods.

3.05 INSPECTION AND ACCEPTANCE:

At the beginning of the planting season following that in which the permanent grass crop is sown, the seeded areas will be inspected. Any section not showing dense, vigorous growth at that time shall be promptly reseeded by the Contractor at his own expense. The seeded areas shall be watered, weeded, cut and otherwise maintained by the Contractor until the end of that planting season, when they will be accepted if the sections show dense, vigorous growth.

END OF SECTION

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SECTION 02957

CLEANING AND LINING WATER MAINS IN-PLACE

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. The Contractor shall furnish all labor, materials, tools and equipment necessary for cleaning and cement-mortar lining in place existing water mains and all other incidental work as indicated on the contract drawings and as herein specified.
- B. The Contractor shall furnish all materials, tools, labor, and equipment to visually inspect by means of a closed-circuit television all water mains cleaned, **prior to lining**, and **after lining** under this Contract, as hereinafter specified. The water mains shall be inspected throughout their entire length.
- C. The Contractor shall repair all defects in the system discovered during the television inspection. Prior to making the repairs, the Contractor shall submit to the Engineer a plan for making the repairs.
- D. The work of cleaning and lining the cast iron water mains will be performed by experienced workmen under constant supervision of a foreman who has at least three (3) years of experience in this type of work. All work will be inspected and approved by the Engineer or his authorized representative. The Engineer will have access to and have the Contractor's cooperation for all required inspections.

1.02 RELATED WORK:

- A. Section 01570, ENVIRONMENTAL PROTECTION
- B. Section 01740, CLEANING-UP
- C. Section 02080, DUCTILE IRON PIPE AND FITTINGS
- D. Section 02240, DEWATERING
- E. Section 02252, SUPPORT OF EXCAVATION
- F. Section 02300, EARTHWORK
- G. Section 02511, TEMPORARY WATER SERVICE
- H. Section 02745, PAVING

1.03 QUALITY ASSURANCE:

- A. The Contractor shall guarantee all materials and workmanship furnished under this Contract against deterioration and failure for a period of one year after final acceptance of the work. Any deteriorated cement-mortar lining shall be repaired by patching or by removal and replacement as may be deemed necessary by the Engineer.
- B. Repairs or replacement shall include removal of defective lining, cleaning of the pipes, cutting and repairing or replacing access openings, and all incidental work. Repair work shall be in conformity with these Specifications and at the sole expense of the Contractor.

1.04 REFERENCES:

- A. The following standards form a part of this specification as referenced:

American Standards for Testing and Materials (ASTM)

- ASTM C143 Test method for slump of Portland Cement Concrete.
- ASTM C150 Specifications for Portland Cement.
- ASTM C494 Specifications for Chemical Admixtures for Concrete.
- ASTM C618 Specifications for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete.

American Water Works Association (AWWA)

- AWWA C651 Standard for Disinfecting Water Mains.
- AWWA C602 Cement - Mortar Lining of Water Pipelines - 4 in. (100 mm) and Larger-In Place.

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Six sets of the complete detailed description of the methods and materials to be used in cleaning and lining shall be submitted.
- B. Submittals shall include the anticipated excavation locations and a time line progress/completion schedule.

1.06 SITE CONDITIONS:

- A. The approximate location of water mains and valves within the limits of the proposed work are shown on the contract drawings. The Owner will locate all water mains and valves required by the Contractor to conduct the work.

- B. Where the exact location of a main may be in question, the Contractor shall, at the request of the Engineer, dig a test pit for the purpose of locating such main.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. The composition of all cement-mortar and the materials used shall conform to the applicable requirements of AWWA Standard for Cement-Mortar Lining of Water Pipelines - 4 in. (100 mm) and Larger-In-Place, AWWA C602 and all amendments thereto, unless otherwise specified.
- B. Portland cement shall conform to ASTM C150, Type II.
- C. Natural cement shall conform to ASTM Standard Specification for Natural Cement, Designation C10-64, for Type N Cement.
- D. Pozzolanic material, if used, shall consist of siliceous or a combination of siliceous and aluminous material in a finely divided form that in the presence of moisture will react with calcium hydroxide, at ordinary temperatures, to form compounds possessing cementing properties. Pozzolanic material shall fulfill the requirements of ASTM C618, as last revised.
- E. No admixtures shall be added to cement-mortar unless specifically approved by the Engineer. Admixtures that are used shall conform to the latest edition of ASTM C494 and shall not have any deleterious effect on the potable water flowing in the pipe after completion of the cleaning and lining.
- F. Sand shall consist of inert granular material. The grains shall be hard, strong, durable and uncoated produced from hard crystalline rock. The sand shall be well graded and shall pass a No. 16 mesh screen with not more than 5 percent passing the No. 100 sieve.
- G. Sand shall be clean and free from injurious amounts of dust, clay, lumps, shale, soft or flaky particles, mica, loam, oil, alkali, and other deleterious substances.
- H. Sand shall not show a color value darker than the "reference standard color solution" prepared as required in ASTM Method of Test for Organics Impurities in Sand for Concrete, Designation C40-66.
- I. Water for mixing mortar shall be potable, clean and free of mud, oil, and injurious amounts of organic material or other deleterious substances.
- J. The Contractor shall take water from the nearest hydrant, or other source approved by the Engineer.

2.02 MIXES:

A. The composition of all cement mortar and materials from which it is made shall conform to ANS Standard Specification for Cement-Mortar Lining and AWWA Specifications for Cast-Iron Pipe & Fittings for Water insofar as applicable. Mortar for the lining shall be composed of cement, sand and water that are well-mixed and of proper consistency to obtain a dense, homogenous lining that will adhere firmly to the pipe surface.

B. Mortar for the lining shall exhibit good quality as determined by the following minimum comprehensive strengths:

	<u>28 days</u>
Individual minimum	4,000 psi.
Average minimum	5,000 psi.

C. The approximate proportions of cement and sand in the mortar for the lining shall be 1 part of Portland cement to 1 to 1-1/2 parts of sand by volume. The exact proportions shall be determined by the characteristics of sand used.

D. The mortar shall be proportioned and prepared as to produce sound, dense, waterproof, durable lining in accordance with the requirements for cement-mortar lining.

E. Pozzolanic material, if used, shall be substituted in approximately 1 part pozzolanic matter to 5 parts Portland cement by volume. Admixtures, if added, shall be used in strict compliance with the manufacturer's recommendations.

F. The water content shall be carefully controlled at all times and be the minimum quantity that produces a workable mixture with full allowance made for moisture collecting on the interior of the pipe surface.

G. Samples of the cement shall be made, cured, and tested as approved by the Engineer. At least one set of three test samples shall be taken for each day mortar is used, or as directed by the Engineer.

H. The Contractor shall be responsible for taking, storing, packing, and shipping of all samples. The Town will make arrangements for and pay for the tests.

I. Slump tests shall be performed by the Engineer on freshly mixed mortar immediately prior to the mortar being conveyed to the lining machine. The test shall be made in accordance with ASTM C143. Maximum allowable slumps are as follows:

Pipe Inside Diameter (in.)	Maximum Allowable Slump (in.)
4	5.5
6	5.4
8	5.3
10	5.2
12	5.1

Pipe Inside Diameter (in.)	Maximum Allowable Slump (in.)
16	5.0

- J. The cement-mortar shall be mixed by machine for not less than three minutes and for a longer time if necessary to obtain maximum plasticity. The water for mixing cement-mortar shall be added after the cement and sand have been mixed dry. Mortar shall be used promptly after mixing and no mortar which has attained its initial set shall be used.
- K. Natural cement may be substituted for Portland cement in a proportion of no more than one part of natural cement to five parts of Portland cement by volume.
- L. The Contractor shall submit detailed information regarding the proportions and preparation of the cement mortar to the Engineer at least seven (7) days before the material is to be used.
- M. The materials and mortar shall be subject to the approval of the Engineer. Any sample failing to meet the specified requirements may be cause for rejection of the batch from which the sample was taken.

PART 3 - EXECUTION

3.01 INSPECTION:

- A. The entire procedure of applying the cement-mortar lining as herein specified will be rigidly inspected, by the Engineer or his designated representative. However, such inspection shall not relieve the Contractor of his responsibility to furnish material and perform the work in accordance with these specifications. If at any time it is found that the procedure of applying cement-mortar lining is not in accordance with these specifications, all lining applied will be subject to rejection.
- B. For each 3,000 feet of pipe lined, at random locations designated by the Engineer, the Contractor shall cut and remove one section of cleaned and cement-lined pipe for the purpose of inspection of the lining thickness and quality. Upon completion of the inspection the section shall be replaced. All work for the removal of pipe sections shall be at the expense of the Contractor.
- C. Lining rejected by the Engineer shall be removed and replaced by the Contractor at his own expense with lining that complies with these specifications.
- D. The Engineer or his designated representative shall have free access to all areas, places or facilities concerned with the furnishing of materials or the performance of the work under this contract and these specifications.
- E. The Contractor shall furnish the Engineer reasonable assistance, without charge, for inspection and for obtaining such information as he desires in respect to the character of the material used and the progress and manner of the work.

- F. The Contractor shall furnish a minimum of a 6-inch diameter mirror and a high-powered spot light to the Engineer to be used for inspection purposes at all times during construction.

3.02 PREPARATION:

A. EXCAVATIONS:

1. All excavations required to provide pipe, valve and other access openings shall be made in accordance with Section 02300 EARTHWORK.

B. PIPE ACCESS OPENINGS:

1. The Contractor shall make openings in the pipeline as necessary to properly perform the work. Openings in the pipe shall be made by cutting and removing pipe sections. All pipes shall be cut square and true.
2. Except as otherwise approved, all cutting shall be done with a machine suitable for cutting cast iron pipe. Hydraulic squeeze cutters are not acceptable for cutting cast iron pipe. Travel type cutters or rotary type abrasive saws are acceptable.
3. All cut pipe ends and pipe sections shall be examined for possible cracks caused by cutting. If the pipe end is not cut square, or is damaged, the Contractor shall cut the pipe end back a minimum of 4 feet on each end to eliminate any defects to the satisfaction of the Engineer.
4. At openings adjacent to sections under pressure or in service, the Contractor shall install adequate blocking and support to prevent movement of closed valves, plugs or caps.
5. Where bends in the main prevent the Contractor's apparatus from satisfactorily inspecting a full section of main, the Contractor shall make all access openings required at these bends to satisfactorily accomplish the cleaning and lining work.
6. At locations where obstructions, which are not shown on the drawings, are encountered that will not permit the passage of cleaning and cement mortar lining equipment, the Contractor shall provide additional pipe access openings.

3.03 INSTALLATION AND APPLICATION:

A. TEMPORARY PLUGS:

1. At all times when the cleaning and lining work is not actually in progress, the openings in the pipe shall be closed by temporary watertight plugs or other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

B. CLEANING MAINS:

1. The pipe cleaning apparatus shall utilize the dry method of a mechanical scraping machine or other approved type. Water propelled methods shall not be allowed.
2. All rust, tubercle deposits, chemical or other deposits, loose and deteriorated remains of old coating materials, sharp projections of iron, oil, grease, and all accumulations of water, dirt, and debris, and other foreign materials shall be removed from the inside of the pipe, leaving the surface satisfactory for the application of cement-mortar lining. Several passages of the cleaning machine through the pipe shall be made, if required, to produce the specified results. Debris shall be disposed of by Contractor as required by the Engineer, local and state regulations. Debris shall be treated as solid waste.
3. The metal surface shall be free from deposits or residue, which could prevent the bonding of the cement-mortar lining. If necessary, the interior of the pipe shall be washed or wiped clean. If the cleaner is cable propelled, the section being cleaned shall be flushed or sprayed with water to remove debris upon completion of the cleaning and again wiped clean.
4. Where the cleaning method fails to produce satisfactory results or where the device cannot be used, machine-operated wire brushes or other cleaning methods shall be required, at no additional cost to the Owner.
5. The Contractor shall safeguard the Owner against any obstruction of lateral pipelines with debris from the cleaning and lining operations and will be required, at his own expense, to restore the normal condition of these pipelines.
6. All tools and equipment used in the work shall be removed from the line. If any such tools or equipment are left in the pipelines, they shall be retrieved by the Contractor at their expense.
7. The Contractor shall take all precautions so the cleaning debris does not interfere with the operations or air valves, service laterals, gate valves, and other appurtenances. To this end, the Contractor shall satisfactorily flush all such taps or branches, or shall excavate, open, ream or otherwise repair all whose operation is impaired by the cleaning operation.
8. After completion of the cleaning operations, the Engineer or his authorized representative will, as soon as possible, examine the pipe for defect or any evidence of leakage, so that repairs, if necessary, can be made. No pipe will be lined unless authorized by the Engineer.

C. REPAIR AND REPLACEMENT

1. It is anticipated that repair work may be required to make the pipeline watertight; or portions of the pipeline may need to be replaced.

2. The Contractor shall, as directed, do all work necessary to repair or replace defective pipe. Repair and replacement shall be as approved by the Engineer and to the extent approved.
3. THE TOWN RESERVES THE RIGHT TO HAVE PART OR ALL OF THE REPAIR OR REPLACEMENT DONE BY OTHERS IF IT IS IN THE BEST INTEREST OF THE TOWN TO DO SO.
4. Pipe which has been damaged by the negligence of the Contractor shall be repaired or replaced, as required by the Engineer, at the Contractor's expense.

D. APPLICATION OF CEMENT-MORTAR LINING:

1. As soon as possible after a section of pipeline has been cleaned and approved by the Engineer, cement-mortar lining shall be applied to the interior of the pipeline. The lining shall be uniform in thickness except at joints or deformations in the pipeline. Cement-mortar lining thickness for mains shall be not less than 3/16-inch and nowhere in excess of 1/4-inch with every effort being made to keep it uniformly at 3/16-inch.
2. Immediately prior to the application of the cement lining, the Contractor shall conduct one final pass of the cleaning apparatus through the inside of the pipe to ensure that all standing and residual water has been completely removed. Any evidence of water that still remains inside the pipe shall be removed to the satisfaction of the Engineer.
3. The lining shall consist of a one-course application of cement-mortar and each section of main shall be lined continuously without interruption by a machine having an applicator head that will centrifugally project the mortar against the wall of the pipe without rebound and with sufficient velocity to cause the mortar to be densely packed and to firmly adhere to the pipe in place. To eliminate rebound, compressed air shall not be used in the process of application. The lining machine shall be designed and propelled in such a manner that it will travel smoothly through the pipe without variation in speed, rate of application of the mortar or thickness of lining. Sand pockets or lack of homogeneity will not be permitted.
4. The rate of travel of the machine and the rate of discharge of mortar against the wall of the pipe shall be entirely mechanically controlled so as to produce a smooth, uniform thickness of lining throughout the interior of the pipeline.

5. The lining machine shall have an attachment with rotating or drag steel trowels following the applicator head, troweling the cement-mortar lining to a smooth, hard surface of uniform thickness. The trowels shall be cleaned at frequent intervals to prevent accumulated mortar from obtaining initial set and drawing sanded unglazed finish. The operation of the trowels shall be continuous during the application of cement-mortar and forward movement of the applicator head. The trowel arrangement shall be such that the pressure applied to the lining will be uniform, will produce a smooth surface without ripples or shoulders, and will produce a lining of uniform thickness.
6. The machine shall move ahead of the lining so that nothing will come in contact with the troweled surface until it has attained its final set. Control of the forward movement of the machine and of the mechanical placing of the mortar shall be provided to assure a uniform thickness of mortar lining as specified above.
7. Hand placing of mortar shall not be permitted except adjacent to sharp bends, specials, and areas closely adjacent to valves where machine placing is impossible or impracticable, together with the correcting of defective areas, shall be done by hand. Hand-placed mortar shall have surface which has a uniform appearance, with smooth transitions to the adjacent machine-placed lining. The Contractor shall make determinations of the thickness of lining as frequently as the Engineer may direct in order to maintain the proper control of application operations.
8. Cement mortar for handwork shall be of the same material as the mortar for machine lining.
9. Areas shall be thoroughly cleaned of all loose and foreign materials and, if necessary, shall be moistened with water just prior to the placing of the mortar being applied by hand.
10. Steel finishing trowels shall be used for the hand application of cement mortar, except at bends. The outer edges of hand-troweled areas may be brushed to reduce the abutting offset.
11. All hand finishing work in a section of the pipeline shall be completed within 24 hours after the machine application of mortar lining to that particular section of the pipeline has been completed. Machine application of mortar lining shall be slowed down or stopped, is necessary, to assure patching of defective machine-lined areas in accordance with this schedule.
12. All waste material, spatter, and mortar of improper consistency such as may result from starting or stopping the machine shall be removed from the pipe ahead of the trowels. Only mortar of suitable consistency and which adheres firmly to the pipe shall be troweled finally to form the finished lining.

13. Where in limited areas the machine fails to produce a smooth finish, free from trowel marks and imperfections, hand troweling may be used to correct the imperfections. Hand troweling if allowed, shall be done as soon as possible after the application of the machine lining. Freshly mixed mortar of approved consistency shall be used to fill voids.
14. Mortar shall be applied by hand to sections of pipe used to close access openings in mains.
15. Every precaution shall be taken to prevent injury to the finished lining. Should the finished lining be damaged by fault or negligence of the Contractor or found to be defective in materials or workmanship, such damaged or defective portions shall be corrected to the satisfaction of the Engineer.
16. If any section of lining shows evidence of failure, undue irregularity, or inferior workmanship requiring excessive patching, or shows segregation or deficiency in cement content, the Contractor shall remove the faulty section, re-clean the pipe, and reline in accordance with these specifications.
17. Samples of cement-mortar lining furnished by the Contractor will be used by the Engineer as a standard of comparison in determining the acceptability of the finished surface of cement-mortar linings.
18. The Contractor shall take all precautions so the cement mortar does not interfere with the operations or air valves, service laterals, gate valves, and other appurtenances. To this end, the Contractor shall satisfactorily flush all such taps or branches, or shall excavate, open, ream or otherwise repair all whose operation is impaired by the lining operation.

E. MAIN LINE GATE VALVES:

1. If the existing gate valve is shown to be inoperable, the Engineer shall determine whether or not the valve shall be removed and replaced.

F. CONTROL AND DISPOSAL OF CLEANING DEBRIS:

1. All water and debris removed from the mains shall be promptly removed from the trench and satisfactorily disposed of by the Contractor in accordance with Section 01570 ENVIRONMENTAL PROTECTION.
2. The area of work shall be adequately bermed or sandbagged to prevent cleaning wastes from flooding streets, adjacent structures or private property.
3. Immediately following cleaning, streets and other affected areas shall be hosed and swept clean.

G. CURING:

1. The Contractor shall be responsible for the careful curing of the mortar lining of completed sections of the pipeline.
2. Immediately upon the satisfactory completion of the lining of a section of the main between access openings or at the end of a day's run, that section of pipe shall be closed at each end with a cap type approved by the Engineer and the access openings covered to prevent the circulation of air.
3. As soon as practicable after the placing of the lining, a sufficient amount of water shall be introduced into the section between bulkheads or gate valve to create a moist atmosphere and keep the lining damp for proper curing until the section is placed in service.
4. The exterior surface of the pipe exposed to sunlight shall be sprinkled with water in the daytime during lining, finishing, and curing period.
5. The Contractor shall coordinate lining, finishing, and curing operations so as to permit use by the Owner of each section of completed pipeline as soon as possible after placing mortar lining.
6. The quality of the cement-mortar lining at the completion of the work shall be such as to produce a Hazen-Williams coefficient of at least 110 as determined by the Engineer.
7. Curing operations shall begin immediately after completion of the mortar lining. The pipe shall be closed, and the lining kept damp to prevent evaporation of water from the mortar lining for a period of at least 24 hours.

H. CLEARING CONNECTIONS AND APPURTENANCES:

1. After placing the lining in mains, all valves, laterals, air valves, appurtenances, and service lines shall be cleared of mortar or other materials deposited during the lining operations.
2. Service lines are to be cleared by means of compressed air applied at the service line meter connection; blow back shall be done before initial set has occurred in the cement-mortar applied to the pipe. Compressed air pressure for blow-back operations shall be regulated to produce a clear service opening and prevent dislodging or blistering of cement-mortar lining in the main. The maximum blow back pressure shall be 50 psi.
3. Where admittance to consumer's premises is denied or impossible by virtue of absence, and it is impossible to clear the connection following the lining operation, the Contractor shall, when required by the Engineer, make the necessary excavations at the main to restore the connection.

I. CLOSING PIPE OPENINGS:

1. The Contractor shall furnish all labor, materials, tools and equipment necessary to satisfactorily close and make watertight all access openings in the mains.
2. The Contractor shall open the pipe at each end of the section to be cleaned and lined, at intermediate gates, bends, fittings, and obstructions indicated on the drawings, and at other locations which may be necessary to permit satisfactory cleaning and lining.
3. The Contractor's attention is directed the fact that cast iron used for pipe is comparatively brittle. Every care shall be taken to protect the pipeline from damage.
4. The section of pipe removed to permit access to the interior of the pipeline shall be carefully removed, cleaned, cement-mortar lined, and stored in a safe place for future reuse except that if found to be unsuitable for reuse, it shall be discarded and a new pipe of sufficient size and strength (properly lined) shall be installed. New pipe will be supplied by the Town of Yorktown Water Department.
5. The Engineer shall be the judge as to the suitability of the existing pipe sections for reuse as closure pieces. If he should determine that the pipe is unsuitable due to damage caused by the Contractor, the cost of the replacement shall be the responsibility of the Contractor.
6. Closures shall be made with new cement-lined ductile iron pipe of equivalent diameter as the existing pipe as specified in Section 02080 DUCTILE IRON PIPE AND FITTINGS.

J. DISINFECTION AND FLUSHING:

1. The Contractor shall disinfect with chlorine the mains carrying potable water.
2. After a section of the main has been tested and found acceptable, it shall be flushed thoroughly by the contractor. Upon completion of flushing operation, the Contractor shall disinfect the main with a solution consisting of 50 ppm. Chlorine (which shall be retained in the main for at least 24 hours) in accordance with AWWA Standard Specifications for Disinfecting Water Mains (C651). The Contractor shall furnish all equipment and materials necessary to do the work of disinfecting.
3. Whenever possible, the water injector for introducing the chlorine bearing water into the pipe shall be supplied from a tap on the pressure side of the gate valve controlling the flow into the pipe being disinfected. The method and rate of application shall be in accordance with ANSI/AWWA C-651 Standard for DISINFECTING WATER MAINS, except for section 5.1. The method of disinfection shall be approved by the Engineer or his representative prior to the disinfection of the pipe.
4. In general, the procedure of disinfecting the main shall be to apply the chlorine through a tap in one end of the section and bleed off through a tap at the other end.

5. Any temporary connection to the mains or other facilities required to accomplish the disinfection of the mains described above, shall be at the Contractor's expense.
6. The applied dosage shall be such as to produce a chlorine concentration of not less than 10 mg/l after a contact time of not less than 24 hours.
7. After treatment, the main shall be flushed with clean water until the residual chlorine concentration is less than 0.2 mg/l.
8. During the disinfection period, care shall be exercised to prevent contamination of water in existing mains.
9. The Contractor shall dispose of the water used in disinfecting and flushing in an approved manner.
10. Following chlorination, all treated water shall be thoroughly flushed from the pipe at its extremities. Flushing shall be in accordance with ANSI/AWWA C-651 Standard of DISINFECTING WATER MAINS. Should the initial treatment fail to result in the conditions specified, the entire procedure shall be repeated until satisfactory results are obtained.
11. Immediately after final flushing, and before water mains are placed in service, PH sample(s) will be collected by the Contractor or his authorized representative. Testing will be paid for by the Contractor. The Contractor shall notify the Engineer forty-eight (48) hours in advance of the final flushing of any section of lined water main, since water mains will not be placed in service until the PH test results are approved by the Engineer.
12. The Contractor shall furnish all equipment, disinfectants, sample bottles and personnel for proper performance of the tests. The pipeline shall be flushed and re-chlorinated until satisfactory bacteriological quality has been achieved. The Contractor or his authorized representative shall obtain certificates of satisfactory bacteriological quality from a laboratory certified by the New York State Department of Health and furnish them to the Engineer before request is made for acceptance of work.
13. Samples shall be obtained from the pipeline and tests made in accordance with the most recent edition of Standard Methods for the Examination of Water and Wastewater and in accordance with the requirements of the Westchester County Department of Health. All testing and sampling shall be witnessed by the Engineer or his authorized representative.
14. Bacteriological sampling and testing shall be done in accordance with AWWA C651 for each main and each branch. Sampling shall be accomplished with sterile bottles treated with sodium thiosulfate, as required by Standard Methods. No hose or fire hydrants shall be used in collection of samples. A corporation cock installed on the main, with a removable copper tube gooseneck assembly, is the recommended method.

15. Testing shall be done by a laboratory approved by the Engineer, in accordance with Standard Methods, and shall show the absence of coliform organisms. A standard plate count may be required at the option of the Engineer.

K. LEAKAGE:

1. Before backfilling excavations the Contractor shall subject all joints created by him in closing pipe openings to normal system pressure for purpose of determining whether the joints are completely watertight.
2. If there is any visible leakage at normal system pressure, the main will not be accepted as watertight and it shall be repaired and disinfected at the Contractor's expense.
3. The Contractor shall, at his own expense, uncover and satisfactorily repair any leaks in the mains that are due to his operations until the one-year guarantee period has expired or reimburse the Owner for costs associated with the repair.

L. BACKFILLING EXCAVATIONS:

1. As soon as practicable after pipe openings have been closed, backfilling shall be started. All backfilling shall be done in accordance with Section 02300 EARTHWORK. Excavations shall not be backfilled at pipe openings until after those joints created in closing pipe openings have successfully passed required leakage tests.
2. The Contractor's attention is directed to the fact that he will be responsible for replacement of pavement damaged or removed in carrying out his activities. In backfilling excavations where pavement is to be replaced, the Contractor will be responsible for replacing excavated material with material equal in depth and quality to that previously existing under the pavement. Additional requirements for paving are specified under Section 02745 PAVING. All replacement pavement work shall be performed without additional cost to the Owner.

END OF SECTION

SECTION 03302

FIELD CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers concrete and all related items necessary to place and finish the concrete work.
- B. Concrete thrust, and anchor blocks, to be provided at all water main bends, tees, plugs and wyes and at other locations required by the Engineer shall be installed in accordance with the details shown on the drawings and as specified in this section.
- C. Concrete encasement for piping with shallow cover and for encasement of telephone, and electrical duct bank when specified shall be installed in accordance with the details shown on the drawings and as specified in this section.

1.02 RELATED WORK:

- A. Section 02300, EARTHWORK
- B. Section 02080, DUCTILE IRON PIPE AND FITTINGS

1.03 REFERENCES:

- A. The following standards form a part of this specification:

American Concrete Institute (ACI)

- ACI 304 Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
- ACI 305 Recommended Practice for Hot Weather Concreting
- ACI 306 Recommended Practice for Cold Weather Concreting
- ACI SP-66 ACI Detailing Manual
- ACI 318 Building Code Requirements for Reinforced Concrete

American Society for Testing and Materials (ASTM)

- ASTM A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

ASTM C33	Concrete Aggregates
ASTM C94	Ready-Mixed Concrete
ASTM C143	Test for Slump of Portland Cement Concrete
ASTM C150	Portland Cement
ASTM C260	Air Entraining Admixtures for Concrete
ASTM C494	Chemical Admixtures for Concrete

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six copies of the statement of materials constituting the design of mixes for each size aggregate as required by ASTM C94 shall be submitted to the Engineer within one week following award of the Contract.

PART 2 - PRODUCTS

2.01 CONCRETE:

- A. All concrete, reinforced or non-reinforced shall have a 28 day compressive strength of 3000 psi unless otherwise noted on the design drawings. A minimum of 5.5 sacks of cement per cubic yard and a maximum water cement ratio of 6.9 gallons per sack shall be used.
- B. Concrete shall conform to ASTM C94. The Contractor shall be responsible for the design of the concrete mixtures. Slump shall be a maximum of 4-inches and a minimum of 2-inches, determined in accordance with ASTM C143.
- C. Admixtures shall be as specified in subsection 2.05. No additional admixtures shall be used unless approved by the Engineer.
- D. No additional water, except for the amount indicated by the design mix shall be added to the concrete without the prior permission of the Engineer.

2.03 CEMENT:

The cement shall be an approved brand of American manufactured Portland Cement, Type II conforming to the applicable requirements of ASTM C150.

2.04 AGGREGATES

- A. Except as otherwise noted, aggregate shall conform to the requirements of ASTM C33.

- B. Maximum size aggregate shall be 3/4-inch.

2.05 ADMIXTURES:

- A. All concrete (unless otherwise directed) shall contain an air entraining agent. Air entrained concrete shall have air content by volume of 4 to 8 percent for 3/4-inch aggregate.
- B. Air entraining agent shall be in accordance with ASTM C260 and shall be Darex AEA, as manufactured by W.R. Grace & Company; Placewel (air entraining Type), as manufactured by Johns Manville; Sika AER as manufactured by Sika Chemical Company; or an approved equal product.
- C. Water reducing agent shall be WRDA, as manufactured by W.R. Grace & Company; Placewel (non-air entraining Type), as manufactured by Johns Manville; Sika Plastiment as manufactured by Sika Chemical Company; or an approved equal product.
- D. Water reducing agent-retarder shall be "Daratard," as manufactured by W.R. Grace & Company; Sika Plastiment as manufactured by Sika Chemical Company; or an approved equal product.

2.06 WATER:

- A. Water for concrete shall be potable, free of deleterious amounts of oil, acid, alkali, organic matter and other deleterious substances.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. Before placing concrete, forms and the space to be occupied by the concrete shall be thoroughly cleaned, and reinforcing steel and embedded metal shall be free from dirt, oil, mill scale, loose rust, paint or the material which would tend to reduce the bond.
- B. Earth, concrete, masonry, or other water permeable material against which concrete is to be placed shall be thoroughly saturated with water immediately before concrete is placed.
- C. No concrete shall be placed until the consolidation of the ground and the arrangement and details of forms and reinforcing have been inspected and approved by the Engineer.

3.02 THRUST AND ANCHOR BLOCKS:

- A. Minimum bearing areas for thrust blocks and dimensions of anchor blocks shall be as shown on the drawings.

- B. Concrete for thrust and anchor blocks shall be placed against undisturbed earth, and wooden side forms shall be used to provide satisfactory lines and dimensions. Felt roofing paper shall be placed to protect joints. No concrete shall be placed so as to cover joints, bolts or nuts, or to interfere with the removal of the joints.

3.03 FILL CONCRETE:

- A. Fill concrete shall be placed in those locations as indicated on the design drawings. Fill concrete shall consist of materials as previously specified, with a minimum 28-day compressive strength of 3000 psi.
- B. Before fill concrete is placed, the following procedures shall be used to prepare surfaces; all dirt, scum and laitance shall be removed by chipping and washing. The clean, roughened base surface shall be saturated with water, but shall have no free water on the surface. A coat of 1:2 cement-sand grout, approximately 1/8-inch thick, shall be well scrubbed into the thoroughly dampened concrete base. The concrete fill shall be placed immediately, before grout has dried or set.
- C. Fill concrete shall be brought to lines and grades as shown on the design drawings.

3.04 CONCRETE PLACING DURING COLD WEATHER:

- A. Concrete shall not be placed on frozen ground, and no frozen material or material containing ice shall be used. Materials for concrete shall be heated when temperature is below 40°F, or is expected to fall to below 40°F, within 73 hours, and the concrete after placing shall be protected by covering, heat, or both.
- B. All details of Contractor's handling and protecting of concrete during freezing weather shall be subject to the approval of the Engineer. All procedures shall be in accordance with provisions of ACI 306.

3.05 CONCRETE PLACING DURING HOT WEATHER:

- A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing, shall be sprinkled with cold water. The Contractor shall make every effort to minimize delays, which will result in excessive mixing of the concrete after arrival on the job.
- B. During periods of excessively hot weather (90°F or above), ingredients in the concrete shall be cooled insofar as possible and cold mixing water shall be used to maintain the temperature of the concrete at permissible levels all in accordance with the provisions of ACI 305. Any concrete with a temperature above 90°F, when ready for placement, will not be acceptable, and will be rejected.

3.06 FIELD QUALITY CONTROL:

- A. Concrete inspection and testing shall be performed by the Engineer or by an inspection laboratory, designated by the Engineer, engaged and paid for by the Owner. Testing equipment shall be supplied by the laboratory, and the preparation of samples and all testing shall be performed by the laboratory personnel. Full assistance and cooperation, concrete for samples, and such auxiliary personnel and equipment as needed shall be provided by the Contractor.
- B. At least 4 standard compression test cylinders shall be made and tested and 1 slump test from each day's placement of concrete. A minimum of four compression test cylinders shall be made and tested for each 100 cubic yards of each type and design strength of concrete placed. One cylinder shall be tested at 7 days, and two at 28 days. The fourth cylinder from each set shall be kept until the 28 day test report on the second and third cylinders in the same set has been received. If the average compressive strength of the two 28 day cylinders do not achieve the required level, the Engineer may elect to test the fourth cylinder immediately or test it after 56 days. If job experience indicates additional cylinder tests or other tests are required for proper control or determination of concrete quality, such tests shall be made.
- C. The Engineer shall have the right to reject concrete represented by low strength tests. Rejected concrete shall be promptly removed and replaced with concrete conforming to the specification. The decision of the Engineer as to whether substandard concrete is to be accepted or rejected shall be final.

END OF SECTION

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