

**PHASE VIIB WATER MAIN
REPLACEMENTS
MARTLING AVENUE AND WHITE
PLAINS ROAD/RT 119**

Tarrytown, NY

Bid No. 2023-07



Village of Tarrytown

Mayor and Board of Trustees

Karen G. Brown, Mayor
Rebecca McGovern, Deputy Mayor
Robert Hoyt
David Kim
Paul J. Rinaldi
Thomas Mitchell
Effie Phillips-Staley

One Depot Plaza
Tarrytown, NY 10591
(914) 631-3668

**BID OPENING:
August 29, 2023 at 11:00 AM**

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE NUMBER</u>
A. NOTICE TO BIDDERS	A-1
B. INSTRUCTIONS TO BIDDERS	B-1 - B-5
C. BID PROPOSAL	C-1 - C-7
D. FORMS	
Form of Agreement	D-1 - D-4
Form of Bid Bond	D-1
Form of Performance Bond and Labor & Material Payment Bond	D-1, D-5 - D-8
Form of General Release	D-1, D-9
Form of Maintenance Bond	D-1, D-10 - D-11
E. INSURANCE	E-1 - E-2
F. LABOR PROVISIONS	
N.Y.S. Prevailing Wage Rates	
G. GENERAL CONDITIONS	
101. Definitions	G-1
102. Superintendence of Contractor	G-2
103. Subcontracts	G-2
104. Other Contracts	G-2
105. Responsibilities of Contractor	G-3
106. Fitting and Coordination of the Work	G-3
107. Mutual Responsibility of Contractor	G-3
108. Assignment or Novation	G-3
109. Progress Schedule	G-3 – G-4
110. Communications	G-4
111. Payments to Contractor	G-4 - G-6
112. Changes in the Work	G-6 - G-8
113. Claims for Extra Cost	G-8 - G-9
114. No Options Paid	G-9
115. Time and Materials Work Notification	G-9
116. Termination; Delays and Extensions; Liquidated Damages	G-9 - G-12
117. Engineer's Authority	G-12
118. Technical Specifications and Contract Drawings	G-12
119. Requests for Supplementary Information	G-12
120. Shop Drawings	G-12 - G-13

SECTION**PAGE NUMBER****G. GENERAL CONDITIONS (continued)**

121. Samples, Certificates and Tests	G-13 – G-16
122. Materials and Workmanship	G-16 – G-17
123. Permits and Codes	G-17 – G-18
124. Care of Work	G-18
125. Accident Prevention	G-19
126. Sanitary Facilities	G-19
127. Use of Premises	G-19
128. Removal of Debris, Cleaning, etc.	G-19 – G-20
129. Layout of Work	G-20
130. Blasting	G-20 – G-21
131. Inspection/Acceptance of the Work	G-21 – G-22
132. Final Inspection	G-22
133. Insurance	G-22
134. Warranty of Title	G-22
135. General Guarantee	G-22 – G-23
136. No Arbitration	G-23
137. Risk of Loss	G-23
138. Required Provisions Deemed Inserted	G-23
139. Corrections	G-23
140. Safety Provisions	G-23
141. Connecting to Existing Work	G-24
142. Existing Improvements	G-24
143. Access to Site	G-24 – G-25
144. Access to Adjacent Properties	G-25
145. Use of Roadways	G-25
146. Indemnity Clause	G-25 – G-26
147. Disputes	G-26
148. General Municipal Laws of New York State	G-26
149. "Or Equal" Clause Unless Otherwise Specified	G-26 – G-27
150. Construction, Excavation and Demolition Operations at or near Underground Facilities	G-27
151. Review by Owner	G-27
152. Deductions for Uncorrected Work	G-27
153. Patents	G-27
154. Information from Owner	G-27 – G-28
155. Existing Utilities, Structures and Fixtures	G-28
156. Control of Existing Flows	G-28 – G-29
157. Sewage, Surface, Groundwater & Flood Flows	G-29
158. Weather Conditions/Work in Freezing Weather	G-29 – G-30
159. Maintenance and Protection of Traffic	G-30
160. Hours of Work	G-30 – G-31
161. Watchman	G-31
162. Field Copies	G-31
163. Emergency Work	G-31
164. Protection	G-31 – G-32
165. Payment for General Conditions	G-32
166. Damage to Private Property	G-32

SECTION

PAGE NUMBER

G. GENERAL CONDITIONS (continued)

- 167. Restoration
- 168. Site Visitation

G-32 – G-33
G-33

H. SPECIAL CONDITIONS (201-207)

H-1 - H-2

I. INDEX TO TECHNICAL SPECIFICATIONS

I-1

This page intentionally left blank

NOTICE TO BIDDERS

VILLAGE OF TARRYTOWN WESTCHESTER COUNTY, NEW YORK

NOTICE IS HEREBY GIVEN that sealed bids will be received by the Village Clerk of the Village of Tarrytown until 11:00 a.m. on Tuesday, August 29, 2023, One Depot Plaza, Tarrytown, New York, 10591, at which time and place said sealed bids will be publicly opened and read aloud for the:

Contract No. 2023-07

**Phase VIIB Water Main Replacements – Martling Avenue and White Plains Road/ RT 119
Village of Tarrytown**

The work consists of provision and installation of new water main on Martling Avenue and White Plains Road in the Village of Tarrytown.

Specifications will be available on **Tuesday, August 8, 2023** in the Office of the Village Engineer in Tarrytown Village Hall at 1 Depot Plaza, Tarrytown, NY 10591 for a non-refundable fee of \$100.00, New York Contract Reporter www.nyscr.ny.gov and will also be posted on the Village of Tarrytown's website <https://www.tarrytownny.gov>. Contractors who obtain a hard copy set may receive an electronic version as well by contacting Eli Barkovic at: ebarkovic@woodardcurran.com

A bid bond in the amount of 5% of the bid must accompany the bid proposal. In lieu of a bid bond, a certified check or bank check in the amount of 5% of the bid, accompanied by a Consent of Surety, must accompany the bid proposal.

An optional pre-bid site walk will be held on August 17, 2023. The pre-bid site walk shall begin at the intersection of Martling Avenue and Prospect Avenue in Tarrytown.

All bids must be submitted in sealed envelopes plainly marked **“Bid for Phase VIIB Water Main Replacement – Martling Avenue and White Plains Road/ RT 119, Village of Tarrytown – Tuesday, August 29, 2023.”**

Bidders shall provide the non-collusive bidding certificate required by Section 103-d of the General Municipal Law of the State of New York. Bidders on this work will be required to comply with the President's Executive Order No. 11246, as amended by Executive Order No. 11375. The requirements for Bidders and Contractors under this Order, which concerns non-discrimination in employment, are explained in the Information for Bidders.

The Village of Tarrytown reserves the right to accept or reject any or all bids and to waive any informalities at their discretion, and to award contracts in a manner deemed to be in the best interests of the Village of Tarrytown even if such award is to other than the lowest bidder.

All questions should be submitted in writing to the Village Clerk. **Questions submitted later than noon on August 21, 2023 will not receive a response.**

Krissy Gilligan kgilligan@tarrytowngov.com.

**Krissy Gilligan, RMC
Village Clerk**

Dated: August 3, 2023

SECTION B

INSTRUCTIONS TO BIDDERS

PHASE VII-B WATER MAIN REPLACEMENTS VILLAGE OF TARRYTOWN, NEW YORK CONTRACT # 2023-07

1. **DOCUMENTS:** Complete sets of Bidding Documents will be issued for bidding purposes as stated in the "Notice to Bidders." A complete set of Documents consists of the following:
 - a. A bound copy of the Specifications
 - b. Addenda (if any)
 - c. Contract Plans

2. **PROPOSALS:** To be considered, proposals on the forms included herein, must be a set in accordance with these Instructions to Bidders. All bids must be submitted on the prescribed forms which are bound in the specifications as Section C. All blank spaces for bid prices must be filled in, in both words and figures, either typed or in ink.

Proposals that contain any omission, erasures, alterations, additions, or items not called for in itemized Proposal, or that contains irregularities of any kind, may constitute sufficient cause for rejection of the bid. In case of any discrepancy in the price or amount bid in the Proposal, the price, as expressed in words, shall govern. All bids must be submitted in sealed envelopes addressed to Village Clerk, Village of Tarrytown, Westchester County, New York and be clearly identified with (1) Project Name, (2) Name of Bidder and address. Proposals shall be signed with name typed below signature. The Bidder's seal, if a corporation, shall be affixed under the Bidder's signature. Telephone or telegraphic bids will not be accepted.

3. **QUALIFICATIONS OF BIDDERS:** The Owner may make such investigations as he deems necessary to determine the qualifications of the Bidder to perform the work, and the Bidder shall furnish information and data for this purpose as may be required. The Owner reserves the right to reject any bid if the evidence submitted by a Bidder, or the investigation of such Bidder, fails to satisfy the Owner, that such Bidder is properly qualified to carry out obligations of the Contract and to complete the work contemplated therein within the time designated. Fraudulent statements shall cause rejection of Proposal and forfeiture of bid security.
4. **CONDITIONS OF WORK:** Each bidder must inform himself fully of conditions relating to the construction and labor under which work will be performed. 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 the contract and to complete the work for the consideration set forth in his Bid. Bidders' attention is directed to Paragraph 1 of the Bid Proposal, in which the Bidder certifies that he has examined the site. If rock probes or test borings have been made by the Owner, they will be made available to the Contractor for inspection on the same conditions. Bid shall include the complete costs of furnishing all

als, with the Drawings and Specifications and all other expenses incidental thereto. Local and State sales taxes shall not be included in the bid. Insofar as possible, any Contractor in the carrying out of his work must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor, or of the proper functioning of the existing facilities of adjacent or contingent properties.

5. **ADDENDA AND INTERPRETATION:** Every request for information or interpretation of Bidding Documents or Drawings must be addressed in writing to the Village Clerk of the Village of Tarrytown, Krissy Gilligan at:

Email: kgilligan@tarrytowngov.com
Phone: 914-631-1652

and, to be given any consideration, must be received at least ten (10) days prior to the date fixed for the opening of bids. Any and all such interpretations, any supplemental instructions, will be in the form of written Addenda and will be mailed to all prospective Bidders. The failure of any Bidder to receive any such Addenda will not relieve the Bidder of any obligation under his Bid submitted. Any Addenda so issued shall become part of the Bidding Documents. Reception of Addenda shall be noted on the "Bid Form."

6. **BID SECURITY:** Each bidder is required to deposit at the time of submission of his bid, a Bid Bond or certified check in an amount representing five percent (5) of his bid payable to the Owner, which amount the Bidder agrees is to be forfeited as liquidated damages and not as a penalty if in case he is awarded the contract, and he shall thereafter fail to execute a Contract with the Owner under the conditions of his Proposal or to furnish the bonds required for the faithful performance of this Contract. Bidders who submit certified checks must accompany them with a Consent of Surety from a recognized Bonding Company agreeing to supply a Performance Bond and Labor and Materials Bond if the contract is awarded to the Bidder.

Such bid security will be returned to all except the three lowest formal Bidders within three days after the formal opening of the Bids, and the remaining bid security will be returned to the other bidders after the Owner and the accepted Bidder have executed the Contract Documents. In the event no Contract has been so executed within forty-five (45) calendar days after the date of the opening of the bids, upon the demand of the Bidder, so long as he has not been notified of the acceptance of his bid, his bid security will be returned. The Bid Security of the successful Bidder will be retained until the filing and approval of the bonds and insurance.

7. **INSURANCE REQUIRED:** The successful Bidder will be required to procure and pay for the following types of insurance, in accordance with the provision listed in Pages E-1 through E-3.
- a. General Liability Insurance
 - b. Automobile Liability Insurance
 - c. Compensation, Disability and Employer's Liability Insurance
 - d. Unemployment Insurance

8. **SECURITY FOR FAITHFUL PERFORMANCE:** The Contractor shall, prior to execution of the Contract submit two separate executed bonds, (1) a Performance Bond in an amount equal to one hundred percent (100%) of the accepted bid as security for the faithful performance of the terms, covenants and conditions of the Contract; and (2) a Labor and Material Payment Bond for the full amount of the Contract price guaranteeing the full payment of all persons performing labor or furnishing material or rentals, under the contract.

The Bonds shall be prepared as specified in Section D – Form of Performance Bond and Labor and Material Bond, and shall have as Surety thereon such Surety Company or companies as are acceptable to the Owner and are authorized to transact business in the State of New York.

In addition, at the time of final payment, a one year Maintenance Bond Guaranteeing against defective materials and workmanship will be required in an amount equal to one hundred percent (100%) of the contract amount.

9. **FORM OF AGREEMENT:** The form of agreement is included in these documents in Section D.
10. **AWARD:** The contract will be awarded to the lowest responsible bidder pursuant to the provisions of the General Municipal Law. The Village Board reserves the right to determine responsibility based on an evaluation of the contractor's qualifications, experience, organization, finances, past performance, and other applicable factors. The Village Board further reserves the right to reject any and all bids.
11. **OWNER:** Village of Tarrytown, Westchester County, New York.
12. **SALES TAX EXEMPTION:** Under Chapter 513 of the Laws of New York 1974, all materials and supplies sold to a Contractor and which are to become an integral, component part of a structure, building or real property owned by an exempt organization such as the Village of Tarrytown are exempt from the payment of New York State Sales or compensator use taxes. Therefore, the Contractor should not include any amount in its bid price to cover sales taxes for the above items.
13. **REQUIRED SUBMISSIONS:** Prior to award, the successful bidder will be required to meet the following requirements:
- a. The successful bidder must provide the Village with a certificate issued by the Secretary of State that the Corporation is authorized to do business within the State and is presently in good standing. If the entity to whom the bid is awarded is not a corporation, it would be required that the entity's certificate of doing business, which should be on file in the County Clerk's office, be provided. (This would also hold true in the case of joint ventures which would be required to disclose the underlying entities which make up the joint venture and the supplying of the requisite certificate of doing business of each such entity.)
 - b. A Statement by the successful bidder that no officer, director or stockholder (if less than 10 stockholders) of the successful bidder is an officer or employee of the Village or is a relative of any such Village officer or employee. If such officer,

director or stockholder does exist, their names and relationship should be disclosed to the Village.

This page intentionally left blank

SECTION C

BID PROPOSAL

**PHASE VII-B WATER MAIN REPLACEMENTS
VILLAGE OF TARRYTOWN, NEW YORK
CONTRACT # 2023-07**

TO:

Village of Tarrytown
Office of the Village Clerk
One Depot Plaza
Tarrytown, NY 10591

Bid Submitted By:

(Name)

(Address)

(Telephone #)

(Federal ID #)

1. I/We do hereby declare that I/we have carefully examined the Instructions to Bidders, the Plans, Profiles and other drawings and the Specifications relating to the above entitled matter and the work, and have also examined the site.
2. I/We do hereby offer and agree to furnish all materials, to fully and faithfully construct, perform and execute all work in the above titled matter in accordance with the Plans, Drawings, and Specifications relating thereto, and to furnish all labor, tools, implements, models, forms, transportation and materials necessary and proper for the purpose for the price/prices as given on the bid forms.
3. I/We do hereby declare that the prices so stated cover all expenses of every kind incidental to the completion of said work, and the contract therefor, including all claims that may arise through damages or any other cause whatsoever.
4. I/We do hereby agree that I/we will execute a contract therefor, containing all the terms, conditions, provisions, and covenants necessary to complete the work according to the Plans and Specifications therefor within fifteen (15) business days after the award of the contract, and if I/we fail to execute said contract within said period of time, that the Village Board shall have the power to rescind said award and also that the said Board shall retain the proceeds of the certified check, or require the payment of the sum of the bid bond. The Contract execution will serve as the official notification to commence work.
5. I/We do also declare and agree I/we will commence the work within five (5) days after the contract execution and will complete the work fully and in every respect on or before the time specified in said contract and do authorize the said Board, in case of failure to complete the work within such specified time, to employ such men, equipment and materials as may be necessary for the proper completion of said work and to deduct the cost thereof from the amount due under the contract. I/we further agree that the Owner may deduct for liquidated damages the sums set forth in the Special Conditions if I/we fail to complete the work within the time limits

specified.

6. I/We hereby affirm that by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under the penalty of perjury, that to the best of knowledge and belief;
 - (a) 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
 - (b) 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
 - (c) 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; and
 - (d) No member of the Village Board or any officer or employee of the Village of Tarrytown, New York, or person whose salary is payable in whole or in part from the said Village Treasury is, shall be or become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise, in this bid, or in the performance of the Contract, or in the supplies, materials or equipment and work or labor to which it relates, or in any portion of the profits thereof.
7. I/We hereby further agree that this proposal is a firm bid and shall remain in effect for a period of at least forty five (45) calendar days from the date of the opening bids, and that within said period of forty five (45) days, the Village will accept or reject this proposal, or this time period may be extended by mutual agreement.
8. I/We do hereby declare that, if this is a corporate bid, I have been duly authorized to act as the signator on this proposal in behalf of this corporation.
9. I/We hereby affirm that I/we will adhere to the requirements of the attached "Affirmative Action Certification."
10. I/We hereby affirm, under penalty of perjury, the truth of all statements in this proposal.
11. I/We will accept, in full payment for the completed work, the following unit prices as my/our base bid.

SECTION C (continued)
 BID PROPOSAL (continued)

Martling Avenue – Water Main

Item No.	Item Description with Unit or Lump Sum Price in Written Words	Estimated Quantity & Unit	Unit Bid Price (Figures)	Total Bid Item Price (Figures)
1.	Mobilization and Demobilization @ _____ _____ Dollars and _____ Cents LUMP SUM	1 L.S.		
2.	Furnish and Install All Water Main, Fittings, Services, Earthwork, Pavement, and Associated Labor on Martling Avenue @ _____ _____ Dollars and _____ Cents PER LINEAR FOOT	1 L.S.		
3.	Disinfection, Pressure and Bacteria Testing of Water Mains @ _____ _____ Dollars and _____ Cents LUMP SUM	1 L.S.		
4.	Maintenance and Protection of Traffic on Martling Avenue @ _____ _____ Dollars and _____ Cents LUMP SUM	1 L.S.		
5.	Test Pits @ _____ _____ Dollars and _____ Cents EACH	10 EA.		
6.	Owner's Contingency Allowance for Miscellaneous Additional Work @ Twenty-Thousand Dollars and Zero Cents NOT TO EXCEED	1 NOT TO EXCEED	N/A	\$20,000

ADD ALTERNATE: White Plains Road Route 119 – Water Main

Item No.	Item Description with Unit or Lump Sum Price in Written Words	Estimated Quantity & Unit	Unit Bid Price (Figures)	Total Bid Item Price (Figures)
A1.	Mobilization and Demobilization @ _____ _____ Dollars and _____ Cents LUMP SUM	1 L.S.		
A2.	Furnish and Install All Water Main, Fittings, Services, Earthwork, Pavement, and Associated Labor on White Plains Road @ _____ _____ Dollars and _____ Cents PER LINEAR FOOT	1 L.S.		
A3.	Disinfection, Pressure and Bacteria Testing of Water Mains @ _____ _____ Dollars and _____ Cents LUMP SUM	1 L.S.		
A4.	Maintenance and Protection of Traffic on White Plains Road (In Accordance with NYSDOT Requirements) @ _____ _____ Dollars and _____ Cents LUMP SUM	1 L.S.		
A5.	Test Pits @ _____ _____ Dollars and _____ Cents EACH	5 EA.		
A6.	Owner's Contingency Allowance for Miscellaneous Additional Work @ Twenty-Thousand Dollars and Zero Cents NOT TO EXCEED	1 NOT TO EXCEED	N/A	\$20,000

11. I/We will accept, in full payment for the completed base bid work (**Martling Avenue**), the following **total** lump sum price as my/our total bid.

Total Amount in Figures: \$ _____

Total Amount in Words

(Legal Name of Bidder) Date: _____

(Authorized Signature)

Corporate Seal
(if incorporated)

Bidder acknowledges receipt of Addenda as follows:

(Signature)

(Signature)

(Signature)

11.a. I/We will accept, in full payment for the completed add alternate work (**ADD ALTERNATE: White Plains Road Route 119**), the following **total** lump sum price as my/our total bid.

Total Amount in Figures: \$ _____

Total Amount in Words

(Legal Name of Bidder) Date: _____

(Authorized Signature)

Corporate Seal
(if incorporated)

Bidder acknowledges receipt of Addenda as follows:

(Signature)

(Signature)

(Signature)

STATEMENT OF QUALIFICATIONS

The following is a list of places where we have performed work of similar character and magnitude, together with references:

LOCATION	DESCRIPTION OF WORK	APPROXIMATE COST	NAME & PHONE OF ENGINEER/OWNER

The full name and places of residence of all persons and parties interested as principals in the foregoing proposal are as follows:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

AFFIRMATIVE ACTION CERTIFICATION

A bidder will not be eligible for award of a contract under this Invitation for Bids unless such a bidder has submitted as part of its bid the following certification, which will be deemed a part of the resulting contract:

BIDDERS' CERTIFICATION

_____ certifies that:

(Bidder)

1. They intend to use the following listed construction trades in the work under the contract _____

_____ and

2. a. As to those trades set forth in the preceding paragraph one hereof for which it is eligible under Part 1 of these Bid Conditions for participation in the Westchester County Plan, it will comply with the Westchester County area within the scope of coverage of the Plan, those trades being:

_____ and/or

b. as those trades for which it is required by these Bid Conditions to comply with Part II of these Bid Conditions, it adopts, the minimum minority manpower utilization goals and the specific affirmative actions steps contained in said Part II, for all construction work (both state and non-state) in the Westchester County area subject to these Bid conditions, those trades being:

_____ and/or

3. they will obtain from each of their subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the subcontractor certification required by these Bid Conditions.

NON-COLLUSIVE BIDDING CERTIFICATION

Date: _____

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (1) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
- (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

I hereby affirm under the penalties of perjury that the foregoing statement is true.

Company

By

Title

Address

Phone

INDIVIDUAL ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS:
COUNTY OF WESTCHESTER)

On this _____ day of _____, in the year 20 ____,
before
me personally came _____ to
be known and known to me to be the person described in and who executed the foregoing
instrument, and he acknowledged to me that he executed the same.

Notary Public

PARTNERSHIP ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS:
COUNTY OF WESTCHESTER)

On this _____ day of _____, in the year 20 ____,
before me personally came a member of the co-partnership of

_____, to me known and known to
me to be the person described in and who executed the foregoing instrument, and he
acknowledged to me that he executed the same as and for the act and deed of the said co-
partnership.

Notary Public

CORPORATION ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS:
COUNTY OF WESTCHESTER)

On this _____ day of _____, in the year 20 ____, before
me personally came _____ to me known, who, being by
me duly sworn, did depose and say that he resides in/at _____,
that he is the _____ of the _____

_____, the corporation described in and
which executed the foregoing instrument, that he knows the corporate seal of the said
corporation, that the seal affixed to the said instrument is such corporate seal; and that it
was so affixed by order of the Board of Directors of the said corporation, and that he signed
his name thereto by like order.

Notary Public

SECTION D

FORMS

**PHASE VII-B WATER MAIN REPLACEMENTS
VILLAGE OF TARRYTOWN, NEW YORK
CONTRACT # 2023-07**

FORM OF AGREEMENT

The Contract form will be as shown on Pages D-2 through D-4.

FORM OF BID BOND

The Bid Bond form will be the "Bid Bond" A.I.A. Document A310,
Dated, February 1970

FORM OF PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

The form of Performance Bond and Labor and Material Payment Bond, will be the
"Performance Bond and Labor and Material Payment Bond,"
A.I.A. Document A311, Dated February 1970
These are shown on Pages D-5 through D-8

FORM OF GENERAL RELEASE

The form of General Release is included on Page D-9

FORM OF MAINTENANCE BOND

The form of Maintenance Bond will be shown on Pages D-10 and D-11

PROJECT: Phase VII-B Water Main Replacements – Martling Avenue and White Plains Road/Rt 119

BID DATE: _____

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20____, by

and between _____

(a corporation organized and existing under the state of New York)

_____)*(a partnership consisting of

_____)*(an individual trading as

_____)*(hereinafter called the "**Contractor**"

and Village of Tarrytown hereinafter called the "**Owner.**"

WITNESSETH, that the Contractor and the Owner for the considerations stated herein mutually agree as follows:

Article 1. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and services, including utility and transportation services and perform and complete all work and required supplemental work for the completion of this Contract in strict accordance with the hereinafter referenced Contract Documents, including all Addenda thereto, numbered_____.

Article 2. The Contract Price. The Owner will pay the Contractor for the performance of the work, subject to additions and deductions by Change Orders as provided in the General Conditions, in current funds, the sum of

_____dollars.

*Strike out the two terms not applicable.

Article 3. Contract Documents. The Contract Documents shall consist of the following (including their attachments and exhibits):

- | | | | |
|----|--|----|---|
| a. | This agreement | f. | Special Conditions |
| b. | Addenda (if any) | g. | General Conditions |
| c. | Invitation for Bids | h. | Technical Specifications |
| d. | Instructions to Bidders | i. | Drawings (as listed in the
Schedule of Drawings) |
| e. | Signed Copy of Bid, with all
attachments required for the
bidding. | j. | Payment & Performance Bonds |
| | | k. | Certificates of Insurance |

This Agreement, together with other Documents enumerated in this Article 3, which said other Documents are as fully a part of the Contract as if hereto attached or herein repeated, forms the Contract between the parties hereto. In the event that any provision in any component part of this Contract conflicts with any provision of any other component, the part first enumerated in this Article 3 shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed in five (5) original copies on the day and year first above written.

ATTEST: _____
(Contractor)

By: _____
(Name)

Title: _____

VILLAGE OF TARRYTOWN
(Owner)

By: _____
(Richard Slingerland, Village Administrator)

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the ____ day of _____, 20__, before me personally came Richard Slingerland to me known, who, being by me duly sworn, did depose and say that he resides in _____, New York; that he is the Village Administrator of the Village of Tarrytown, the municipal corporation described in, and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was affixed by order of the Village Board of the said corporation and that he signed his name thereto by like order.

Notary Public

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20__, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that he resides in _____ that he is the _____ of _____

the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Notary Public

SAMPLE

BOND NO. XXXXXX

AIA Document A312

Performance Bond

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

CONTRACTOR (Name and Address:
Business):
Name
Address
Address

SURETY (Name and Principal Place of
Name
Address
Address

OWNER (Name and Address):
Name
Address
Address

CONSTRUCTION CONTRACT
Date:
Amount:
Description (Name and Location):

BOND
Date (Not earlier than Construction Contract Date):
Amount:

Modifications to this Bond:

None

See Page 3

CONTRACTOR AS PRINCIPAL
Company: Name (Corporate Seal)

SURETY
Company: Name (Corporate Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

(Any additional signatures appear on page 3)

(FOR INFORMATION ONLY – Name, Address and Telephone)

AGENT or BROKER:
Name
Address
Address
Phone Number

OWNER'S REPRESENTATIVE (Architect, Engineer or
other party):

CORPORATE ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20____, before me personally came _____, to me known, who, being by me duly sworn,

did depose and say that he resides at; _____

that he is the _____ of _____, the corporation described in and which executed the within instrument; that he knows the seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and that it was so affixed by authority of the Board of Directors of said Corporation and that he signed his/her name thereto by like order.

Notary Public

SURETY ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20____, before me personally came _____, to me known, who, being by me duly sworn,

did depose and say that he is an Attorney-in-Fact of _____, the corporation described in and which executed the within instrument; that he knows the seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and he signed the within instrument and affixed the said seal as Attorney-in-Fact by authority of the Board of Directors of said Corporation and by authority of the standing resolutions thereof.

Notary Public

ATTACHMENT:
1. POWER OF ATTORNEY

SAMPLE

BOND NO. XXXXXX

AIA Document A312

Payment Bond

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

CONTRACTOR (Name and Address:
Business):

Name
Address
Address

SURETY (Name and Principal Place of

Name
Address
Address

OWNER (Name and Address):

Name
Address
Address

CONSTRUCTION CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond:

None

See Page 3

CONTRACTOR AS PRINCIPAL

Company: Name (Corporate Seal)

SURETY

Company: Name (Corporate Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

(Any additional signatures appear on page 3)

(FOR INFORMATION ONLY – Name, Address and Telephone)

AGENT or BROKER:

Name
Address
Address
Phone Number

OWNER'S REPRESENTATIVE (Architect, Engineer or
other party):

CORPORATE ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20____, before me personally came _____, to me known, who, being by me duly sworn,

did depose and say that he resides at; _____

that he is the _____ of _____, the corporation described in and which executed the within instrument; that he knows the seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and that it was so affixed by authority of the Board of Directors of said Corporation and that he signed his/her name thereto by like order.

Notary Public

SURETY ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20____, before me personally came _____, to me known, who, being by me duly sworn,

did depose and say that he is an Attorney-in-Fact of _____, the corporation described in and which executed the within instrument; that he knows the seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and he signed the within instrument and affixed the said seal as Attorney-in-Fact by authority of the Board of Directors of said Corporation and by authority of the standing resolutions thereof.

Notary Public

ATTACHMENT:
1. POWER OF ATTORNEY

GENERAL RELEASE

(To be submitted with requisition for final payment)

KNOW ALL MEN BY THESE PRESENTS, that, _____
(Contractor)

for and in consideration of the sum of _____ lawful money of the United States of America, to it in hand paid by the Village of Tarrytown, have remised, released, quit-claimed, and forever discharged, and by these presents do for its successors and assigns remise, release, quit-claim, and forever discharge the said Village of Tarrytown, and its successors and assigns and administrators, of and from any and all manner of action and actions, cause and causes of action, suits, debts, dues, sum and sums of money, accounts, reckonings, bonds, bills, specialties, covenants, contract, controversies, agreements, promises, variances, trespasses, damages, judgments, extents, executions, claims and demands whatsoever in law and equity, which against the said Village of Tarrytown he now has, ever had, or which he or his heirs, executors, or administrators hereafter can, shall, or may have, for upon or by reason of any matter, cause or thing whatsoever, from the beginning of the world to the day of the date of these presents rising out of the construction, in accordance with contract entered into between parties hereto, dated _____, 20__, and any admittance or supplements thereto.

IN WITNESS WHEREOF, the undersigned corporation has caused this agreement to be signed by its _____ and its corporate seal to be hereto affixed and duly attested

by its _____, this ___ day of _____, 20__.

Principal:

(Corporate Seal)

CORPORATE ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that (s)he resides in _____;

that he is the _____ of _____ the corporation described in and which executed the within instrument; that he knows the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and that it was so affixed by authority of the Board of Directors of said Corporation and that he signed his/her name thereto by like order.

Notary Public

FORM OF MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ (hereinafter called the Principal) as Principal and the _____, a _____ Corporation with an office and place of business for the State of New York at _____
_____ (hereinafter called the Surety), are held and firmly bound unto the _____
(hereinafter called the Obligee) as Obligee in the sum of: _____

_____ (\$ _____) **DOLLARS**, lawful money of the money of the United States of America, for the payment whereof the Principal and Surety bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this _____ day of _____, 20__.

WHEREAS, the Principal heretofore entered into a written contract with Obligee for (enter project name here) _____

WHEREAS, the Contract provides that the Principal shall guarantee _____

NOW, THEREFORE, the condition of this obligation is such, that if the above Principal shall indemnify the Obligee against loss by reason of his materials or workmanship which may appear in the work under said contract within the period of one year (s) from the date of acceptance of the work, then this obligation shall be void; otherwise to remain in full force and effect.

CONTRACTOR AS PRINCIPAL:

SURETY:

Company: _____

Company: _____

Signature: _____

Signature: _____

Corporate
Seal
(Contractor)

Corporate
Seal
(Surety)

(Corporate and Surety Acknowledgments must be notarized, see page D-11)

CORPORATE ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that he resides in _____;

that he is the _____ of _____, the corporation described in and which executed the within instrument; that he knows the seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and that it was so affixed by authority of the Board of Directors of said Corporation and that he signed his/her name thereto by like order.

Notary Public

SURETY ACKNOWLEDGMENT

STATE OF NEW YORK)
) SS.
COUNTY OF WESTCHESTER)

On the _____ day of _____, 20__, before me personally came _____, to me known, who, being by me duly sworn,

did depose and say that he is an Attorney-in-Fact of _____, the corporation described in and which executed the within instrument; that he knows the seal of said corporation; that the seal affixed to the within instrument is such corporate seal; and he signed the within instrument and affixed the said seal as Attorney-in-Fact by authority of the Board of Directors of said Corporation and by authority of the standing resolutions thereof.

Notary Public

ATTACHMENT:
1. POWER OF ATTORNEY

This page intentionally left blank

SECTION E

INSURANCE

PHASE VIIB WATER MAIN REPLACEMENTS VILLAGE OF TARRYTOWN, NEW YORK CONTRACT # 2023-07

Prior to commencement of any work under this Contract and until completion and final acceptance of the work, the Contractor/Provider shall, at its sole expense, maintain the following insurance on its own behalf, and furnish to the Village of Tarrytown certificates of insurance evidencing same and reflecting the effective date of such coverage as follows:

The term "Contractor/Provider" as used in this indemnification agreement shall mean and include Subcontractors of every tier.

- 1) Worker's Compensation and Employers Liability Policy, covering operations in New York State. Where applicable, U.S. Longshore and Harbor Workers Compensation Act Endorsement and Maritime Coverage Endorsement shall be attached to the policy. Evidence must be provided on a C-105.2. Waiver of Subrogation to be included.
- 2) N.Y.S. Disability, covering all employees. DB 120.1 must be provided.
- 3) Commercial General Liability Policy, with limits of no less than \$1,000,000 Each Occurrence/\$2,000,000 Aggregate limits for Bodily Injury and Property Damage, and shall include coverage for:
 - A. Premises & Operations
 - B. Products/Completed Operations;
 - C. Independent Contractors;
 - D. Personal & Advertising Injury
 - E. Blanket Contractual Liability
 - F. XCU
 - G. Village of Tarrytown and their assigns, officers, employees, representatives and agents should be named as an "Additional Insured" on the policy using ISO Additional Insured Endorsement CG 20 10 11/85 or an endorsement providing equivalent or broader coverage and shall apply on a primary and non-contributory basis, including any self-insured retentions. The Certificate of Insurance should show this applies to the General Liability coverage on the certificate, and Additional Insured Endorsement shall be attached.
 - H. To the extent permitted by New York law, the Contractor/Provider waives all rights of subrogation or similar rights against Village of Tarrytown, assigns, officers, employees, representatives and agents.
 - I. General Aggregate shall apply separately to each project (must be on an occurrence form).
 - J. Cross Liability coverage (Commercial General Liability and Business Automobile Liability policies only).
 - K. General Liability policy must NOT contain any coverage exclusions or restrictions related to the scope of work being performed as well as

injuries to employees, subcontractors, or employees of subcontractors (i.e. labor law).

- 4) Comprehensive Automobile Policy, with limits no less than \$1,000,000 Bodily Injury and Property Damage liability including coverage for owned, non-owned, and hired private passenger and commercial vehicles.
 - A. Village of Tarrytown and their assigns, officers, employees, representatives and agents should be named as an "Additional Insured" on the policy. The Certificate of Insurance should show this applies to the Automobile Liability coverage on the certificate, and Additional Insured Endorsement shall be attached.
 - B. To the extent permitted by New York law, the Contractor/Provider waives all Rights of subrogation or similar rights against the Village of Tarrytown, assigns, officers, employees, representatives and agents.
- 5) Umbrella Liability, with limits of no less than \$3,000,000 Each Occurrence/ \$3,000,000 Aggregate, including coverage for General Liability, Automobile, and Workers Compensation and Professional Liability (if applicable). Waiver of Subrogation to be included in favor of the Village of Tarrytown. Coverage for the additional insured shall apply on a primary and non-contributory basis, including any self-insured retentions.
- 6) Professional Liability (if applicable), with limits no less than \$1,000,000. Per Claim /\$1,000,000 Aggregate. If a retroactive date is used, it must pre-date the inception of the contract. Village of Tarrytown to be included as an additional insured on a primary, non-contributory basis and a waiver of subrogation needs to be included in favor of the Village of Tarrytown.
- 7) Owners & Contractors Protective Liability Policy, with limits no less than \$1,000,000 Per Occurrence/\$2,000,000 Aggregate shall be taken out with the Village of Tarrytown as the Named Insured, and maintained during the life of this contract which will protect the Village of Tarrytown from claims for damages for personal injury, liability, accidental or wrongful death, as well as property damage which may arise from operations under this contract whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either party.
- 8) Asbestos/Lead Abatement and Environmental Clean-Up, if applicable. Coverage for the removal of asbestos and/or lead and related pollution events, including coverage for third-party liability claims for bodily injury, property damage and clean-up costs. \$1,000,000 per occurrence/\$2,000,000 aggregate including Products and Completed Operations. If a retroactive date is used, it must pre-date the inception of the contract. Village of Tarrytown to be included as an additional insured on a primary, non-contributory basis and a waiver of subrogation needs to be included in favor of the Village of Tarrytown.
- 9) Bid, Performance and Labor & Material Bonds, if required in the specifications, These bonds shall be provided by a New York State admitted Surety Company, in good standing.
- 10) Property Insurance, the Contractor shall cover materials being installed onsite, in transit, and/or at any other location.

- 11) Builders Risk, if applicable. To be written on a Completed Value Form written for the full insurable value on a Special Form basis.
- 12) Certificates shall provide that thirty (30) days written notice prior to cancellation or expiration be given to the Village Engineer, Village of Tarrytown, One (1) Depot Plaza, Tarrytown, New York 10591. Policies that lapse and/or expire during term of work shall be recertified and received by the Village of Tarrytown no less than thirty (30) days prior to expiration or cancellation.

The Contractor/Provider shall furnish to the Village of Tarrytown Certificates of Insurance as evidence of coverage prior to commencement of work and naming the Village of Tarrytown as an Additional Insured **by endorsement**. The Contractor/Provider acknowledges that failure to obtain such insurance on behalf of the Village of Tarrytown constitutes a material breach of contract and subjects it to liability for damages, indemnification and all other legal remedies available to the Village of Tarrytown. The failure of the Village of Tarrytown to object to the contents of the certificate or absence of same shall not be deemed a waiver of any and all rights held by the Village of Tarrytown.

The cost of furnishing the above insurance shall be borne by the Contractor/Provider, there will be no direct payment for this work. Cost will be deemed to have been included in the price bid for all scheduled items.

All carriers listed in the certificates of insurance shall be A.M. Best Rated A VII or better and be licensed in the State of New York.

**PHASE VIIB WATER MAIN REPLACEMENTS
VILLAGE OF TARRYTOWN, NEW YORK
CONTRACT # 2023-07**

Indemnification and Hold Harmless Agreement

To the fullest extent permitted by law, Contractor/Provider shall indemnify, hold harmless and defend the Village of Tarrytown, and agents and employees of any of them from and against all claims, damages, losses or expenses including but not limited to attorney's fees arising out of or resulting from the performance of the agreement, provided any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including loss of use resulting there from, and (b) is caused in whole or in part by any act or omission or violation of statutory duty or regulation of the Contractor/Provider or anyone directly or indirectly employed by it or anyone for whose acts it may be liable pursuant to the performance of the agreement. Notwithstanding the foregoing, Contractor/Provider's obligation to indemnify the Village of Tarrytown, and agents and employees of any of them for any judgment, mediation or arbitration award shall exist to the extent caused in whole or in part by (a) negligent acts or omissions, or (b) violations of regulatory or statutory provisions of the New York State Labor Law, OSHA, or other governing rule or applicable law; by the Contractor/Provider anyone directly or indirectly employed by it or anyone for whose acts it may be liable in connection to such claim, damage, loss and expense. The obligation of the Contractor/Provider to indemnify any party under this paragraph shall not be limited in any manner by any limitation of the amount of insurance coverage or benefits including worker's compensation or other employee benefit acts provided by the Contractor/Provider.

Company Title/Name: _____

Name: _____ Signature: _____

Date: _____

Nature/Scope of Work Being Performed: _____

Please sign, date and return to:

**Village of Tarrytown
One Depot Plaza
Tarrytown, NY 10591**

SECTION F

LABOR PROVISIONS

**PHASE VII-B WATER MAIN REPLACEMENTS
VILLAGE OF TARRYTOWN, NEW YORK
CONTRACT # 2023-07**

NOTE: The headings of the articles herein are intended for the convenience of reference only and shall not be considered as having any bearing on their interpretation.

GENERAL CONDITIONS

PART 1

101 DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

- a. The term "Contract" means the Contract executed by the Owner and the Contractor.
- b. The term "Owner" means the Village of Tarrytown, which is authorized to undertake this Contract.
- c. The term "Contractor" means the person, firm or corporation entering into the Contract with the Owner to perform and complete the work involved in this Contract.
- d. The term "Subcontractor" means a person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with the Contractor.
- e. The term "Project Area" means the area shown on the drawing in the immediate vicinity of the work, unless otherwise defined in the Special Conditions. No private property is included unless the Village has obtained an easement.
- f. The term "Engineer" or "Architect" means the Village Engineer of the Village of Tarrytown, or such of his subordinates or assistants as have Project Engineer status: or if a Consulting Engineer is employed to perform construction management and inspection then this term shall apply to said Consulting Engineer and those subordinates and assistants that have Project Engineer status. A list of authorized Project Engineers will be furnished to the Contractor on request.
- g. The term "Village" means the Village of Tarrytown, New York, within which the Project Area is situated.
- h. The term "Contract Documents" means and shall include the Documents listed in Article 3 of the Agreement.
- i. The term "Drawings" or "Contract Drawings" means the drawings listed in the Schedule of Drawings.
- j. The term "Technical Specifications" or "Supplemental Technical Specifications" means that part of the Contract Documents which describes, outlines and stipulates, the quality of materials to be furnished; the quality of workmanship required; measurement and payment.
- k. The term "Addendum" or "Addenda" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the Owner to prospective Bidders prior to the time of receiving Bids.

102 SUPERINTENDENCE BY CONTRACTOR

- a. Except where the Contractor is an individual and gives his personal superintendence to the work the Contractor shall provide a competent superintendent, satisfactory to the Owner, for the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work. Should, in the opinion of the Owner, any language barrier exist between the superintendent and the Owner, the Contractor shall furnish a qualified interpreter.
- b. The Contractor shall lay out his own work including all survey required and he shall be responsible for all work executed by him under the Contract. He shall verify all figures, elevations, etc. before proceeding with the work or ordering materials and will be held responsible for any error resulting from his failure to do so and will correct same to the satisfaction of the Village at no additional cost.

103 SUBCONTRACTS

- a. The Contractor shall not execute an agreement with any Subcontractor or permit any Subcontractor to perform any work included in this Contract until he has received written approval of such Subcontractor from the Owner.
- b. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. All subcontractors must have adequate superintendence on the work site when they are performing work.
- c. The Contractor shall cause appropriate provision to be inserted in all Subcontracts relative to the work to require compliance by each subcontractor with the applicable provisions of the Contract for the work embraced in this Contract.
- d. Nothing contained in the Contract shall create any contractual relation between any Subcontractor and the Owner.
- e. The Contractor shall not subcontract more than 50% of the total work of this contract.

104 OTHER CONTRACTS

The Owner reserves the right to let other Contracts in connection with this work or to perform work related to this project with his own forces. The Contractor shall offer other Contractors and the Owner reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and/or coordinate his work with theirs. The Contractor shall cooperate fully with such other Contractors, by scheduling his own work with that to be performed under other Contracts as may be directed by the Owner. The Contractor shall not permit or commit any act which will interfere with the performance of work by any other Contractor as scheduled.

Wherever work being done by the Village or Municipal forces, or other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Owner, to secure the completion of the various portions of the work in general harmony.

If any part of the Contractor's work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer in writing any defects or

deficiencies in such work that render it unsuitable for such proper execution and results.

105 RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to complete this Contract in every respect within the specified time.

106 FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, Subcontractors or Suppliers engaged upon this Contract. He shall be prepared to guarantee to each of Subcontractors, the locations and measurements which they may require for the fitting of their work to all surrounding work. The Contractor shall, at his own expense, effect all cutting, fitting, or patching of his work required to make the same conform to the Contract Drawings and specifications and except with the consent of the Owner, not to cut or otherwise alter the work of any other Contractor.

107 MUTUAL RESPONSIBILITY OF CONTRACTOR

If, through acts or neglect on the part of the Contractor, any other Contractor or Subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner will notify the Contractor, who shall defend at his own expense any suit bared upon such claim, and, in any judgment or claims against the Owner shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and will in all other respects, including, but not limited to attorney's fees and court costs, hold harmless the Owner and Engineer.

108 ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered and materials, tools and equipment supplied for the performance of the work under this Contract in favor of all persons, firms or corporations rendering such labor or services or supplying such materials, tools or equipment.

109 PROGRESS SCHEDULE

The Contractor shall submit within seven (7) calendar days after award a carefully prepared realistic Progress Schedule showing the proposed dates of starting and completing of each and every item of work on each and every section of work in accordance with these Specifications if applicable to this specific Contract. The Progress Schedule shall include as a minimum:

- a. The project name, number and geographic location.
- b. The contract time, contract beginning date and ending date.
- c. The time of beginning and completion of each significant phase of this contract.

The initial requisition will not be approved for payment until said schedule is submitted. Said schedule will be revised or updated monthly unless otherwise permitted by the Owner. No monthly payments will be approved without a revised/updated monthly Progress Schedule approved by the Owner.

The Progress Schedule shall show the plan of construction and the proposed method of carrying out this work including a full statement of the equipment to be used.

110 COMMUNICATIONS

- a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.
- b. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate) in a sealed, postage prepaid enveloped or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- c. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the Village Engineer, Village Hall, 21 Wildey Street, Tarrytown, New York, and any notice to or demand upon the Owner shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address, or to such other representatives of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.
- d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

111 PAYMENTS TO CONTRACTOR

a. Partial Payments

1. The Engineer shall prepare an estimate of the work performed for partial payment as of a mutually agreed upon date at least 30 days after the beginning of work, and approximately every 30 days thereafter. The amount of the payment due the Contractor shall be determined by adding the total value of work completed to date and deducting (1) five percent (5%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices, if any, contained in the Agreement.

There will be no payments or partial payments to the Contractor for materials purchased and stored/stockpiled on the project site.

2. Monthly or partial payments made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. All material and completed work covered by such monthly or partial payments shall remain the property of the Contractor and he shall be responsible for the care and protection of all materials and work upon which payments have

been made. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the owner in all details.

b. Final Payment

1. After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the carefully measured or computed unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed without retainage less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the Owner with a release in satisfactory form of all claims against the Owner, arising under and by virtue of his Contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided elsewhere herein.
2. The Owner, before paying the final estimate, may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems the same necessary in order to protect its interior. The Owner, however, may if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts of any payment so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.
3. The Contractor shall furnish a maintenance bond in full amount of the Contract plus change orders, if any, to guarantee his work for a period of one (1) year from the date of final payment.
4. If it was necessary for the Owner to expend money for labor, materials or equipment on this project because the Contractor failed to perform satisfactorily or promptly, and a bill for such sum remains unpaid, the Owner may deduct this sum from partial payments or the final payment. Furthermore, if the specifications provide for certain work to be done by the Owner with the fee or cost to be borne by the Contractor, and a bill for such services remains unpaid, the Owner may deduct this sum from the partial or the final payment.
5. Withholding of any amount due the Owner under the section entitled "LIQUIDATED DAMAGES" shall be deducted from the final payment due the Contractor. At the Owner's option, liquidated damages may be deducted from any partial payment.

c. Withholding Payments

Notwithstanding the above, the Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if it so elects may also withhold any amounts due from the Contractor to any Subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his Subcontractors or material dealers, or to withhold any monies for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any monies from the Contractor shall in no

way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

d. Payments Subject to Submission of Certificates

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his Subcontractors by the Section entitled CONTRACTOR'S CERTIFICATES under the GENERAL CONDITIONS.

112 CHANGES IN THE WORK

- a. The Owner may make changes in the work required to be performed by the Contractor under the Contract by making additions thereto, or by omitting work therefrom, without invalidating the Contract.
- b. Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract price will be valid unless so ordered.
- c. The Contractor agrees to perform any of the aforementioned changed work, along with all other required work found under the Contract, without delay and in accordance with good construction practices.
- d. These changes outlined above may be made without relieving or releasing the Contractor from any of his obligations under the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is provided otherwise.
- e. All adjustments to the Contract payment provisions will be made in accordance with the following paragraphs.
- f. If applicable unit prices are contained in the Agreement (established as a result of either a Unit Price Bid or a Supplemental Schedule of Unit Prices), the Owner may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract. Payment for unit price overruns, due to change orders, may be withheld until Village Board approval is obtained.
- g. If applicable unit prices are not contained in the Agreement, the Owner shall, before ordering the Contractor to proceed with desired changes, request and itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:
 1. If the change in the work involves additional work, the procedure shall be as follows:
 - (a) If the proposal is acceptable, the Owner will prepare the Change Order in accordance therewith for acceptance by the Contractor; or

(b) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the Owner may order the Contractor to proceed with the work on a Cost-Plus Basis. A Cost-Plus Basis is defined as the net cost of the work to the Contractor plus an allowance to cover overhead and profit as stipulated below: "Net cost of the work" is defined as (1) gross cost of labor plus (2) net cost of materials plus (3) gross cost of equipment.

(1) "Gross cost of labor" is defined as net cost of labor plus fringe benefits.

"Net cost of labor" is defined as the cost of required labor based on the prevailing rates established by the State Labor Department and stated in the Contract Document. No part of any salary for employees above the grade of foremen, and having general supervision of this work, will be included in this item.

"Fringe benefits" are defined as all insurances, taxes and other benefits for the employee required by law or by union contract. In lieu of an item-by-item determination of the actual value of such fringe benefits, all fringe benefits are hereby determined to total an amount of 40% of net cost of labor, and the Contractor in submitting his bid agrees that this percentage shall be used, regardless of whether actual fringe benefits are more or less than this amount.

(2) "Net cost of materials" shall be defined as the cost of all materials incorporated in the work, including delivery charges, less any allowable cash discounts, as shown by receipted bills.

(3) "Gross cost of equipment" is defined as the "net cost of equipment" plus an allowance of 10% for fuel and lubricants.

"Net cost of equipment" shall be defined as a rental rate which is reasonable and based on rental rates prevailing in the area where the work is to be done. Such rental rate shall be negotiated, and shall be agreed upon in writing before the work is begun. However, in no case shall the rental rates exceed the rates set forth in the current edition of the "Associated Equipment Distributors Compilation of Rental Rates for Construction Equipment." The cost of furnishing small tools and accessories and materials used for construction but not incorporated in the work shall be considered as part of the Contractor's overhead, and shall not be included in the "net cost of the work."

An allowance of 15% will be added for overhead and profit to "gross cost of labor" and "Net cost of Materials" and is hereby stipulated to be in lieu of an actual determination of overhead and profit. The Contractor in submitting his bid agrees that this allowance shall be used, regardless of whether actual overhead and profit is more or less than this amount.

No percentage for overhead and profit shall be added to the amounts of equipment rental prices agreed upon, but the price agreed upon shall be the total compensation allowed for use of such equipment.

2. If the change in the work requires a reduction in the work involved, the procedure

shall be a follows:

- (a) If the proposal is acceptable, the Owner will prepare the Change Order in accordance therewith for acceptance by the Contractor; or
 - (b) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the Engineer shall fix the cost value of the credit. The Owner may then order the Contractor to proceed with the work. Should the Contractor disagree with the cost value of the credit as fixed by the Engineer, he may appeal the same in accordance with the procedures outlined in the GENERAL CONDITIONS.
- i. Each Change Order shall include in its final form:
- 1. A detailed description of the change in the work.
 - 2. The Contractor's proposal (if any) or a confirmed copy thereof.
 - 3. A definite statement as to the resulting change in the Contract price and/or time.
 - 4. The statement that the Change Order is subject to the approval of the Village Board.
- j. Contractor shall not take advantage of any obvious error in the specifications or any such error in the drawings or other Contract Documents. Any obvious error or discrepancy in or between any of the Contract Documents shall be immediately reported to the Engineer who shall make such corrections and interpretations as may be deemed necessary for the completion of the work in a satisfactory and acceptable manner.
- k. Change Orders shall in general be in writing. If a Contractor claims that a change order was given to him orally, his claim shall be invalid unless such oral change order was given by an authorized Engineer as defined in Section 101f. of this Contract, and further unless such oral change order was confirmed in writing within 24 hours of the giving of the alleged oral change order.
- l. When change orders, or claims involve a Subcontractor, no surcharge will be allowed the Contractor for handling, processing, supervision, or coordination.

113 CLAIMS FOR EXTRA COST

- a. All claims between the parties, including all claims for additional compensation and/or additional time, arising out of, or in any way related to this Contract and/or the performance of the same, or its interpretation shall within ten (10) days of the event or action giving rise to the claim be presented to the Engineer. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Engineer of notice thereof. The Contractor shall in no case allow any claim or dispute to delay the work.
- b. As soon as practicable after the final submission of all information the Owner shall make a determination of any claim. Said decision of the Owner shall be a condition precedent to any further action on the claim. However, upon certification in writing by the claimant that

the claim has been submitted in its final form, the Owner shall be obliged to render a decision on said claim within sixty (60) days of the date of said certification. Should the Owner fail to render its decision within the aforementioned sixty (60) day period, its decision will not be a condition precedent to any further action on the part of the claimant.

- c. There shall be no added compensation paid for delay to the Contractor unless the Owner causes said delay by a material breach of this Contract, and compliance with the foregoing notice provisions shall be a condition precedent to the prosecution of any such claim. In any claim for delay except for "Excusable Delays and Extensions of Time" as defined in the GENERAL CONDITIONS SECTION "TERMINATION"; "DELAYS AND EXTENSIONS"; "LIQUIDATED DAMAGES" wherein it is alleged that the Contractor's equipment was caused to remain idle, only one half of the prevailing rental rates for use of said equipment will be considered as damages for idled equipment in order to allow for the absence of fair wear and tear, which is allowed for in prevailing rental rates for equipment usage.
- d. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be considered unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- e. If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall be as provided in Sections - "CHANGES IN THE WORK" or "TERMINATIONS; DELAYS AND EXTENSIONS; LIQUIDATED DAMAGES" of the GENERAL CONDITIONS.
- f. In the event of an unfavorable decision by the Owner, the Contractor shall have the right to contest said decision as provided for under the provisions of this Contract.

114 NO OPTIONS PAID

It shall be clearly understood that there will be no payment for materials incorporated into the work (other than that shown on the Contract Drawings or specified) unless ordered by the Engineer.

115 TIME AND MATERIALS WORK NOTIFICATION

Should the Contractor perform work in accordance with the General Conditions, "CHANGES IN THE WORK", he shall give a minimum of 24 hours advance written notice prior to his anticipated beginning any work on a Cost-Plus Basis, to the Owner and specifically the Village Engineer.

116 TERMINATION; DELAYS AND EXTENSIONS; LIQUIDATED DAMAGES

- a. Termination of Contract. For its own convenience the Owner may, at any time prior to the issuance of a Notice to Proceed, void the Contract by giving unequivocal and unconditional written notice of such avoidance to the Contractor and in the event of such avoidance the Owner will not be liable to the Contractor for any claims or losses including anticipated loss of profit and monies expended in anticipation of performance under the Contract.

At any time subsequent to the Notice to Proceed the Owner may, at its own convenience, terminate the Contract by giving unequivocal and unconditional written notice of such termination to the Contractor. In the event of such termination by the Owner, the Owner shall be responsible to the Contractor for the following monies only, which monies shall be

subject to legitimate charges of the Owner against the Contractor:

1. All reasonable costs incurred by the Contractor in performance of or in anticipation of performance of the Contract provided the Contractor shall take all reasonable steps to mitigate such damages including the return and/or re-sale of materials ordered; and
2. On Lump Sum projects, a mark-up of 10% for profit and 10% for overhead on the reasonable cost of the work that is completed and in place in accordance with the Contract Drawings and Specifications will be allowed. On unit price contracts, allowances for profit and overhead shall be considered to have been included in each of the Contractor's original unit price bid. The Contractor shall remain responsible for the work completed, in accordance with the Contract provisions.

Should any work under this contract be subject to, or terminated by the action of any third party, governmental unit or court due to any ecological or other reason the rights of the Contractor to recover from the Owner shall be determined as set forth above.

The Owner may give notice in writing to the Contractor and his Surety of any material breach of the Contract by the Contractor to include but not be limited to any of the following:

- (a) Failure to begin the work under the Contract within the time specified.
- (b) Failure to perform the work with sufficient workmen, equipment or materials to insure the prompt completion of said work.
- (c) Unsuitable performance of the work or failure to perform anew such work as shall be rejected as defective and unsuitable.
- (d) Neglecting or refusing to remove material rejected as defective and unsuitable.
- (e) Discontinuing the suitable prosecution of the work for a period of 72 hours, excluding Sundays and holidays without written authorization of the Engineer.
- (f) Failure to commence discontinued work within 48 hours after notice to resume (excluding Sundays and holidays).
- (g) Becoming insolvent or declared bankrupt or commits any act of bankruptcy or insolvency.
- (h) Allowing any final judgment to stand against him unsatisfied for a period of ten (10) calendar days.
- (i) Making any assignment for the benefit of creditors.
- (j) Violating any covenants contained in the Contract Documents.
- (k) Failure to eliminate unsafe conditions within 12 hours.

The Contractor or Surety within a period of ten (10) calendar days after such notice

shall take all practical action to correct said material breach. Should said action fail to meet with the approval of the Owner, the Owner may, at its discretion, order the Surety to complete the work or, without violating the Contract, take the prosecution of the work out of the hands of said Contractor and Surety.

The Owner may appropriate or use any or all materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement, either by negotiation or public letting, for the completion of said Contract according to the terms and provisions thereof, or use such other methods or combinations thereof, as in its opinion shall be required or desirable for the completion of said Contract in an acceptable manner. All costs and charges incurred by the Owner together with the cost of completing the work under Contract shall be deducted from any monies due or which may become due said Contractor. In case such expense shall exceed the sum which would have been payable under the Contract, then the Contractor and the Surety shall be liable and shall pay to the Owner the amount of said excess.

b. Excusable Delays and Extensions of Time. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

1. To any acts of the Government, including controls or requisitioning of materials, equipment, tools, or by labor by reason of war, National Defense, or any other national emergency.
2. To any acts of the Owner caused an injunction or litigation against said Owner, by a third party.
3. To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other Contract with the Owner, fires, floods, epidemics, quarantine, restrictions,

strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions; and
4. To any delay of any Subcontractor occasioned by any of the causes specified in subparagraphs 1, 2 and 3 of this paragraph "b".

Provided, however, that the Contractor promptly notify the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the Facts and the terms of this Contract, the delay is properly excusable, the owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

No claim for damages or any claim other than for an extension of time as herein provided shall be made or asserted against the Owner or Village by reason of any delay.

c. Liquidated Damages for Delay. If the work is not completed within the time stipulated in Section - TIME OF COMPLETION under SPECIAL CONDITIONS, including any

extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed, agreed, and as liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section - LIQUIDATED DAMAGES under SPECIAL CONDITIONS and the Contractor and his sureties shall be liable to the Owner for the amount thereof. Neither permission given by the Owner for the Contractor to continue the work after the time fixed for completion, nor the inspection and acceptance of such work, shall be deemed a waiver on the part of the Owner of any of his rights under this Contract.

117 ENGINEER'S AUTHORITY

The Engineer will decide all questions which may arise in relation to the work and the construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question.

118 TECHNICAL SPECIFICATIONS AND CONTRACT DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Contract Drawings or shown on the Contract Drawings and not mentioned in the Technical Specifications shall be of like effect as if shown on or mentioned in both. In case of difference between the Contract Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy within the Contract Drawings or within the Technical Specifications, the matter shall be immediately submitted to the Owner without whose decision said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

119 REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and latest date by which each will be required by the Contractor. Contractors shall contact Eli Barkovic at:

Email: ebarkovic@woodardcurran.com
Phone: 914-294-2413

Every request for information or interpretation of Bidding Documents or Drawings must be addressed in writing to the Village Clerk of the Village of Tarrytown, Krissy Gilligan at:

Email: kgilligan@tarrytowngov.com
Phone: 914-631-1652

The first list shall be submitted within two (2) weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

120 SHOP DRAWINGS

Shop drawings are required for all manufactured items. In the case of reinforced concrete, details of reinforcing bars and form construction and materials shall be submitted in the same manner as shop drawings.

- a. All required shop drawings, machinery details, layout drawings, working drawings, material and equipment descriptions, etc., shall be submitted to the Engineer in three (3) copies for review sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. Two (2) weeks should be allowed for checking from the date of receipt by the Engineer. The Contractor, with the approval of the Engineer, may submit manufacturer's literature as a substitute for, or supplement to, the shop drawings, etc. The minimum size for any submission shall be 8-1/2" x 11" and the maximum size shall be 24" x 36".
- b. No construction, purchase, delivery, installation or work shall be done or made on any part or feature of this Contract which is dependent upon shop drawing review, until such review has been received from the Engineer. If the Contractor proceeds without reviewed shop drawings, it shall be at his own risk. No claim by the Contractor, for extension of the Contract time will be granted by reason of his failure in this respect.
- c. Shop drawings, etc., or printed matter shall give all dimensions, sizes, etc. to enable the Engineer to determine suitability of the construction, installation, material or layout for the purposes intended. Where needed for clarity, the drawings shall include outline, sectional views and detailed working dimensions and designations of the kind of material, machine work, finish, etc., required. The drawings to be submitted shall be coordinated by the Contractor with any other drawings previously reviewed, with the design and function of any equipment or structure and the Contract Drawings.
- d. By submitting shop drawings, etc., the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so and that he has checked and coordinated each shop drawing, etc. with the requirements of the work and of the Contract Documents.
- e. If any drawings show variations from the requirements of the Contract because of standard shop practice and/ or other reasons, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of the contract price and/ or time; otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been reviewed.
- f. After review, the submittals will be stamped "Approved," "Approved as Noted," "Resubmit," or "Disapproved." Two (2) prints of "Approved" or "Approved as Noted" drawings will be returned to the Contractor for his use and distribution to his suppliers and/or Subcontractors. In the case of those stamped "Resubmit" or "Disapproved" two (2) prints will be returned to the Contractor who shall make all indicated corrections and resubmit (3) prints.
- g. In any submission which is noted as "Approved" or "Approved as Noted," the review shall not extend to details or dimensions and shall not relieve the Contractor from his responsibility for compliance with the Contract Drawings and specifications.
- h. When the Contractor proposes a revision to a previously submitted shop drawing, etc.,

three (3) copies shall be resubmitted for review. This re-submittal shall clearly indicate, in a revision block, the date, description and location of the revision. The letter of transmittal shall state the reasons for the revision.

- i. The Contractor shall furnish as many copies of the submittals as is necessary for the proper coordination of the work, and shall maintain a complete set of the reviewed submissions at the site of the work at all times.
- j. Upon the final acceptance of the project, the Contractor shall, on request, furnish the Owner with a complete set of shop drawing tracings or reproducible cloth reproductions of the shop drawing tracings.
- k. There will be no direct payment made for any of the above submittals, or reproducible drawings if required, but the cost thereof shall be considered as included in the general cost of the work.

121 SAMPLES, CERTIFICATES AND TESTS

- a. The Contractor shall submit all samples, materials, certified test reports, materials certificates, certificates of compliance, affidavits, etc., as called for in the Contract Documents or required by the Engineer, promptly after award of the Contract and acceptance of the Contractor's bonds. No such materials and/or equipment, etc., shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples/certificates/tests/etc., have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of the above for approval shall not be considered just cause for an extension of the Contract time.
- b. Samples. Unless otherwise specified, the Contractor shall furnish the required samples without charge, and shall provide every facility for the securing of material samples. He shall provide means and assist in the verification of all scales, measures and other devices which he operates. Samples to be submitted shall be taken by the Engineer or a laboratory approved by the Owner, unless otherwise specified. All materials being used shall be subject to re-sampling and testing at any time during their preparation and/or use. All samples submitted by the Contractor shall be properly identified to include, but not be limited to, the project name, project number, item number and description of material, name of the producer, place of origin, and other detailed information which will assist the Engineer passing upon the acceptability of the sample. Certified test reports, materials certificates and/or certificates of compliance required to be submitted with the samples or if permitted in lieu of samples, shall conform to the requirements stated hereafter.
- c. Certified Test Report. A certified test report shall be a document containing a list of the dimensional, chemical, metallurgical, electrical and physical results obtained from an actual test of the materials involved, and shall certify that the materials meet the requirements of the Contract Drawings and specifications, and shall also include the following information:
 - 1. Item number and description of material;
 - 2. Date of manufacture;
 - 3. Date of testing;
 - 4. Name or organization to whom the material is consigned;
 - 5. Quantity of material represented, such as batch, lot, group, etc.
 - 6. Means of identifying the consignment, such as label, marking, lot number, etc.
 - 7. Date and method of shipment;
 - 8. Name of organization performing tests.

The certified test report shall be signed by an authorized and responsible agent for the organization manufacturing the material, and it shall be notarized.

- d. Materials Certificate. A materials certificate shall be a document certifying that the materials, components and equipment furnished; conform to all requirements of the Contract Drawings and specifications. The document shall also include the following information:

1. Project to which the material is consigned.
2. Name of Contractor to whom material is supplies
3. Item number and description of material.
4. Quantity of material represented by the certificate.
5. Means of identifying the consignment, such as label, marking, lot numbers, etc.
6. Date and method of shipment.

The materials certificate shall be signed by an authorized and responsible agent for the organization supplying the material, and it shall be notarized.

- e. Certificate of Compliance. A certificate of compliance shall be a document certifying that the materials, components and equipment covered by the previously submitted certified test report and materials certificate, have been installed in the work and that conform to all the requirements of the Contract Drawings and specifications. The following information shall also be required on the document:

1. Project number;
2. Item number and description of material;
3. Quantity represented by the certificate;
4. Name of manufacturer.

The certificate of compliance shall be signed by an authorized and responsible agent for the prime Contractor, and shall be notarized.

- f. Tests. Tests as required by the Specifications will be made in accordance with the latest revision to the standard method in effect at the time of bidding of the American Society of Testing Materials, the New York State Department of Transportation, the American Water Works Association, the American Association of State Highway and Transportation Officials or any other organization that is recognized as an authority on a particular material unless otherwise specified on the Contract Drawings or Special Conditions. Representative preliminary samples of the material proposed for use shall be submitted, without charge, by the Contractor or producer for examination and tested in accordance with specified methods. All materials being used are subject to test or rejection at any time during their preparation and use Materials will be rejected by the Engineer whenever, in his judgment, they fail to meet the requirements of the specifications.

The Owner reserves the right to retest all materials which have been tested and accepted at the source of supply, after the same have been delivered, and to reject all materials which, when retested, do not meet the requirements of the specifications.

- g. Approval/Acceptance. Approval of any materials shall be general only and shall not

constitute a waiver of the Owner's right to demand full compliance with Contract Requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

The Engineer may accept a material or combination of materials and therefore waive non-complying test results provided that all of the following conditions are met:

1. Results of prior and subsequent series of tests of the material or materials from the same source or sources are found satisfactory.
 2. The incidence and degree of nonconformance with the specification requirements are, in the Engineer's judgment within reasonable and practical limits.
 3. The Contractor has diligently exercised material controls consistent with good practices in the Engineer's judgment.
 4. No adverse effect on the value or serviceability of the completed work could result.
- The Engineer may at his discretion waive testing of extremely minor quantities of material when such material is obtained from sources that are prevalently on test.

- h. Costs. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
1. The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, including those samples taken on the project by the Engineer. The Owner shall pay all other testing costs of said samples.
 2. The Contractor shall assume all costs of retesting materials which fail to meet Contract requirements.
 3. The Contractor shall assume all costs of testing materials offered in substitution for those found deficient or for those specified.

122 MATERIALS AND WORKMANSHIP

- a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.
- b. All work performed and all materials furnished shall be, in conformity with the lines, grades, cross sections dimensions and material requirements, including tolerances shown on the Contract Drawings or indicated in the Specifications.
- c. The Contractor shall furnish to the Owner for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work. See Section - SAMPLES, CERTIFICATES AND TESTS.

- d. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- e. Materials specified by reference to the number or symbol of a specific standard, such as an ASTM Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications, shall have full force and effect as though printed therein.
- f. The Contractor shall employ only competent and skillful men to do the work and whenever the Engineer shall notify the Contractor, in writing, that any man on the work is, in his opinion, incompetent or disorderly, the Contractor shall forthwith remove such person and shall not again employ him on any part of the work without the written consent of the Engineer.
- g. The Owner may stop any worker, any part of the work under the Contract if the methods or conditions are such that unsatisfactory work might result, if improper materials or workmanship is being used, or unsafe conditions exist. Any action by the Owner under this provision shall not be deemed a cause of delay and no extensions of permitted time will be granted because of such action.
- h. In the event the materials furnished or the work performed deviates from the requirements of the Contract Drawings and Specifications, but, in the opinion of the Owner, constitutes substantial performance, the Owner may accept the same. Should the deviation in question result in a savings to the Contractor the Owner will be entitled to a credit in the full amount of said savings. Should the deviation in question result in an additional cost to the Contractor, the Owner will not be liable to the Contractor for such additional cost.

If the materials or the finished product in which the materials are used or the work performed are not in conformity with the Contract Drawings and Specifications and have resulted in an inferior or unsatisfactory product, the work and materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

123 PERMITS AND CODES

- a. The Contractor shall give all notices required by and shall observe and comply with all Federal and State laws and Local by-laws, ordinances and regulations in any manner affecting the conduct of the work, and all such orders or decrees as may exist at present and those which may be enacted later, of bodies or tribunals having any jurisdiction or authority over the work. The Contractor shall indemnify and save harmless the Owner and Engineer and all of its officers, agents and servants against any claim or liability arising from or based on the violation of any such law, bylaw, ordinance, regulation, order or decree, whether by himself or his employees. All construction, work and/or utility installations shall comply with all applicable ordinances and/or codes including any and all written waivers thereto.

Before commencing any work, the Contractor shall examine the Contract Drawings and Specifications for compliance with applicable ordinances, codes, etc. and shall immediately report any discrepancy to the Owner. Where the requirements of the Contract Drawings and Specifications fail to comply with such applicable ordinances, codes, etc. the Owner will adjust the Contract by Change Order to conform to such ordinances, codes, etc., (unless waivers in writing covering the differences have been granted by the governing

body or department) and make appropriate adjustment in the Contract Price.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction or work and/or install any utility at variance with any applicable ordinance, code, etc. , including any written waivers (notwithstanding the fact that such installation is in compliance with the Contract Drawings and Specifications), the Contractor shall remove such work without cost to the Owner, but a Change Order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

- b. Unless otherwise specified, the Contractor shall at his own expense, secure and pay to the appropriate department of the Local/State/Federal Government the fees or charges for all permits including but not limited to those required for the making of water taps and the supplying of any equipment required by the Regulations of the Consolidated Water District, Electrical Underwriters permits, and any other permits required by the regulatory body or any of its agencies.
- c. The Contractor shall comply with applicable Local/ State/Federal laws, ordinances, codes, etc. governing noise, the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the work under this Contract.

124 CARE OF WORK

- a. The Contractor shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Owner.

Materials shall be stored so as to insure the preservation of their quality and fitness for the work and shall be located so as to facilitate prompt inspection. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and when directed, shall be placed in weatherproof buildings.

Stored materials, even though approved before storage, shall be inspected prior to their use in the work and shall meet the requirements of the specifications at the time it is proposed to use them.

- b. The Contractor shall at his sole expense and without any additional cost to the owner provide watchmen and/or other security measures as may be reasonably required to properly protect and care for materials and work completed, and to otherwise prevent property damage and/or personal injury.
- c. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner. Any compensation claimed by the Contractor on account of such emergency work will be reviewed by the Village Engineer to determine its validity. If compensation is determined to be valid then it will be determined by the Owner as provided in the Section - CHANGES IN THE WORK under GENERAL CONDITIONS.
- e. The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed),

adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations. If any damage is not repaired or acceptable arrangements for repair are not made within a reasonable period of time, the Village Administrator may act to repair such damage by Village forces or using another contractor employed for that purpose, and the costs of such repair shall be deducted from any payments due the Contractor. If a damage claim has been referred by the Contractor to his insurance company, such referral shall in no way relieve the Contractor of his responsibilities.

- f. The Contractor shall shore-up, brace, underpin, secure and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operation connected with the construction of this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner, the Village and the Engineer from any damages on account of settlements or the loss of lateral support or adjoining property and from all loss or expense and all damages for which the Owner, the Village and the Engineer may become liable in consequence of such injury or damage to the work or adjoining and adjacent structures and/or their premises.

125 ACCIDENT PREVENTION

- a. The Contractor shall exercise proper precautions and safety measures at all times for the protection of persons and/or property and shall be responsible for all injuries and/or damages to all persons and/or property, either on or off the site, which occur as a result of his prosecution of the work under this Contract. The safety provisions of all applicable Local/State/Federal laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonably necessary.

Machinery equipment and trucks shall be properly guarded, and operational hazards shall be eliminated in accordance with the provisions and intent of the latest rules and regulations of OSHA, to the extent that such provisions are not in contravention of applicable law. The Contractor's attention is also called to the Section - SAFETY PROVISIONS of the GENERAL CONDITIONS.

- b. The Contractor shall maintain an accurate record of all cases of death occupational disease and injury requiring medical attention or causing loss of time from work arising out of and in the course of employment of the work under this Contract in accordance with the requirements of the applicable State/Local/ Federal regulations. The Contractor shall promptly furnish the Owner with reports concerning these matters.
- c. The Contractor shall indemnify and save harmless the Owner, Village of Tarrytown and the Engineer from any and all claims for damages resulting from personal injury death and/or property damage suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract. See also the Section INDEMNITY CLAUSE of the GENERAL CONDITIONS.

126 SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as

required by the Health/Sanitary Codes of the Local/State/Federal Government. Drinking water shall also be provided from an approved source so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health/sanitary regulations.

127 USE OF PREMISES

- a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract Limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be desired by the Owner, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.
- b. The Contractor shall comply with all instructions of the Owner, Engineer and the ordinances, codes, etc., of the Local/State/Federal Government, regarding signs, advertising, traffic, fires, explosives, danger signals, barricades, etc.

128 REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, prior to final inspection, he shall remove all temporary construction facilities, debris and unused materials provided for the work, and restore the whole site of the work and public rights of way to a condition satisfactory to the Engineer. Trash burning on the site of the work will be subject to prior approval of the Owner and existing Local/State/Federal regulations.

The cost of all required clean-up shall be included in the various prices bid under this Contract.

129 LAYOUT OF WORK

The Contractor shall perform all layout work necessary for the satisfactory execution of the construction as shown on the Contract Drawings and all costs in connection therewith shall be included in the contract price.

The Contractor shall employ competent personnel and all work shall be subject to the approval of the Engineer.

The Contractor shall be held responsible for the protecting and Safe guarding of all control points and bench marks set by the Engineer and his own forces. Any replacement or reestablishment of control points or bench marks by the Engineer, shall be at the expense of the Contractor. The required horizontal and vertical control necessary to perform this work is furnished on the Contract Drawings.

130 BLASTING

If explosives are used all requirements for transportation, use and storage of Local, State and Federal laws and regulations must be complied with and all necessary permits and licenses obtained by the Contractor at his expense. Permits and licenses must be shown to the Engineer on request.

Explosives must be carefully transported, stored, handled and used. The Contractor will keep on the job only such quantities of explosives as may be needed for the work underway and only during such time as they are being used. Explosives shall be stored in a secure manner in locked

containers and separate from all tools. Caps and detonators shall be stored separately from other explosives. When the need for explosives is ended all such material remaining on the job shall be promptly removed from the premises. Care must be taken that no explosives, caps or detonators are stolen or get into the hands of unauthorized persons or left unguarded where they may cause accidents.

An accurate blasting log must be maintained continuously for the duration of the Contract. The log shall record, for each shot the location, amount of holes, depth, spacing, amount of explosive per hole number of caps used and the exact date and time of the blast. In addition, a sketch showing displacement of direct and delay caps for each shot shall be recorded.

Explosives shall be such power and placed and used in such quantities and positions as will not make the excavation unduly large, nor shatter unnecessarily the rock upon or against which the main or structure is to be built, nor injure adjacent persons or property, those portions of the new work or structure as may already be in place or other adjacent pipes, ducts or other structures. The quantity of explosives fired at one blast must be small enough and the time for blasting selected to avoid undue annoyance to persons owning or occupying premises near the work.

The rock must be completely matted when blasts are fired to prevent damage or injury to persons or property or the scattering of broken fragments on the adjacent ground.

Adequate warning shall be given all persons in the vicinity before any blast is discharged.

When blasting is required, the operation shall be conducted with such care as not to cause damage to any of the existing underground utilities. Should such occur, the cost of repairs shall be the sole responsibility of the Contractor.

When blasting for trench excavation, each shot sequence shall begin sufficiently ahead of completed work to prevent damage to the completed work which must be properly protected prior to each shot.

The provisions herein shall apply where soil formation resembles rock, whether in trench, structure or general excavation, even if it is of such a nature that it is not classified and paid for as rock excavation, and if so ordered by the Engineer, will apply to openings cut through masonry, nested boulders or other materials not herein classed as rock.

In areas where the proposed construction is built against the face of rock excavation, all loosened or shattered portions of the rock must be completely removed by barring, wedging or other approved means so the masonry can be built firmly in contact with solid rock.

The Contractor shall notify each public utility or others having structures in proximity to the site, and others who may be affected, of his intention to use explosives. Said notice shall be given in accordance with the applicable regulations therefore and sufficiently in advance to enable the involved agencies/companies/persons and the Contractor to take such steps as may be necessary to protect life and property. Such notice shall not in any way relieve the Contractor of responsibility for any damage resulting from his blasting operations.

When in sufficiently close proximity to the existing gas, water, sanitary, storm, subway or other utilities and structures and all services connected thereto, the Contractor shall remove the rock by methods other than blasting, if necessary, and ordered by the Engineer in order to protect said utilities and their services from damage. Approved methods other than blasting are barring and wedging, jack hammer, drilling, rock jacks or other such hand or machinery methods which will not damage the adjacent utility. No explosives shall be brought into, stored or used on the site of any

job by the Contractor unless and until he shall have furnished the Engineer with a satisfactory certificate of insurance showing that the risks arising from the presence of and use of explosives and from blasting are included within the insurance provided by the Contractor to secure his obligations to the Owner. Insurance should also cover damage to any underground utilities or other underground facilities.

131 INSPECTION/ACCEPTANCE OF THE WORK

All materials and workmanship shall be subject to inspection, examination or test by the Owner and the Engineer to determine the acceptability of the work at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on and the Contractor shall provide proper facilities for such access and inspection. The Owner or Engineer shall have the right to reject defective material and workmanship or require its correction. The Owner or Engineer shall have the right to reject materials which have not been approved prior to incorporation in the work, and the right to reject work that has been performed without inspection. Rejected materials shall be removed and replaced without charge. Rejected workmanship shall be corrected if possible to the Engineer's satisfaction without additional charge. If in the opinion of the Engineer correction is not feasible, or if correction has been attempted but it not satisfactory to the Engineer, the work must be removed and replaced without additional charge. If the Contractor fails to proceed at once with the correction or replacement of rejected workmanship or defective material, the Owner may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any monies which are due or may become due the Contractor, without prejudice to any rights or remedies of the Owner.

Neither inspection, testing, approval nor acceptance of the work in whole or in part by the Owner or its agents shall relieve the Contractor or his sureties of the full responsibility for materials furnished or work performed not in strict accordance with the Contract.

The assignment of a part time Inspector to this project will in no way relieve the Contractor of the requirement to comply with all of the specifications.

Where the Contractor has been directed by the Owner or Engineer to leave certain items of work exposed for inspection, and he fails to do so, he will be required to uncover such work at his own expense.

132 FINAL INSPECTION

When the improvements embraced in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Owner having charge of inspection. If the Owner determines that the status of the improvements is as represented, he will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

The inspection party may also include the representative of the Federal Agency, other Governmental Agencies and representatives of each department of the Village having charge of improvements of like character when such improvements are later to be accepted by the Village.

133 INSURANCE

The insurance requirements for this contract are specified in Section E of these documents.

134 WARRANTY OF TITLE

No material, supplies or equipment, incorporated or to be incorporated in the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of person furnishing materials or labor to recover under any law permitting such persons was to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for the work when no formal contract is entered into for such materials.

135 GENERAL GUARANTEE

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of one (1) year from the date of final payment. The Contract shall furnish a Maintenance Bond in the full amount of the Contract plus change orders to secure such guarantee. If any work is done under the guarantee and maintenance provisions, all contract provisions shall be reactivated. The guarantee and maintenance bond shall be extended with respect to such repair or replacement work for a period of one (1) year from the date the maintenance work was completed.

136 NO ARBITRATION

All claims, counterclaims, disputes and other matters in question between the Owner and the Contractor, not otherwise resolved, arising out of or relating to this agreement or its breach shall be decided in a court of competent jurisdiction. The Owner and the Contractor hereby agree that there shall be no requirement for arbitration of any controversies or disputes hereunder, all such matters to be resolved at law.

137 RISK OF LOSS

The Owner assumes no responsibility for the condition of existing buildings and structures and other property on the Project Area nor for their continuance in the condition existing at the time of issuance of the invitation for bids or thereafter. No adjustment of Contract Price or allowance for any change in conditions which may occur after the invitation for Bids has been issued will be made except as provided for herein.

138 REQUIRED PROVISIONS DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically

amended to make such insertion or correction.

139 CORRECTIONS

The Engineer shall have the right to correct any errors or omissions in the Contract, specifications or Contract Drawings when such corrections are necessary for the proper expression of their intent.

Such corrections shall take effect from the time that the Engineer gives notice thereof, and any alterations in the work rendered necessary thereby shall be made as corrected. Any conflict between the approved Contract Drawings and specifications, or any disagreement in measurements upon the Contract Drawings must be submitted to the Engineer before construction of the work.

140 SAFETY PROVISIONS

The safety provisions of applicable laws, building and construction codes and the safety codes approved by the State Labor Commissioner shall be observed.

The provisions of the Federal Occupational Safety and Health Administration's "Occupational Safety and Health Standards" and "Safety and Health Regulations for Construction" shall be observed.

Should at any time during the work under this Contract any Local/State/Federal safety inspector visit the site for the purpose of a safety inspection, the Contractor shall immediately notify the Engineer's representative on the job site.

141 CONNECTING TO EXISTING WORK

The Contractor shall remove such existing masonry, concrete, equipment and piping as is necessary, in order to make the proper connections to the existing work at the locations shown. Also, he shall make the necessary pipe line, roadway and other connections at the several points in order that on completion of this Contract, water, sewage, or storm water as the case may be, will flow through the several pipe lines and structures. Unless otherwise specified herein, no extra payment will be made for this work, but the entire cost of the same shall be included in the unit or lump sum prices bid for the various items of the work to be done under this Contract.

142 EXISTING IMPROVEMENTS

The Contractor shall conduct his work so as to minimize damage to existing improvements, except where specifically stated otherwise in the specifications or drawings; it will be the responsibility of the Contractor to restore, as nearly as practical, to their original conditions all improvements on public or private property damaged by his operations.

The utility mains, ducts, poles and services in the construction area, where shown on the Contract Drawings are at the approximate locations furnished by various utilities concerned. Whenever existing improvement information is either indicated on the drawings or supplied to the Contractor at a later date, it is understood that such information is furnished in good faith for the Contractor's convenience. The Contractor must interpret this information according to his own judgment, and must make his own determinations regarding the location of all improvements. No claim will be allowed because of incorrect, incomplete or omitted existing improvement information.

The various utility companies have been made aware of the pending construction and are generally familiar with the locations of conflicts in the case of the proposed construction. The various utility

companies will make all adjustments to their own lines except where otherwise shown on the Contract Drawings or specified. The Contractor shall give ample notice to the various utilities so that existing lines can be marked in the field and adjustments made. The Contractor shall cooperate fully with the various utilities and shall plan his work so that least interference is caused for all parties concerned. No additional payments shall be made to the Contractor for delays caused by utility interference. The Contractor shall support all utility lines uncovered during excavation.

143 ACCESS TO SITE

The Contractor shall make every effort to minimize damage to all access routes, and he shall be required to restore them to their original condition. The Contractor shall acquire all necessary permits for working in, on or from public streets or rights-of-way and for securing additional access rights thereto with respect to County and State Agencies. No Street Opening Permits will be required by the Village but the ordinances and rules and regulations pertaining thereto are in full force and effect as if repeated herein.

All costs of the removal and restoration to original condition of walls, fences, structures, utility lines, poles, guy wires and anchors, and other improvements required for passage of the Contractor's equipment shall be borne by the Contractor. The Contractor shall notify the proper authorities of the Village and all utilities of any intended modification or disruption to their property prior to the start of construction and shall cooperate with them in the scheduling and performance of his operation.

If the Contractor, by direct negotiation and bargain with any land owner, leasee or tenant, has secured for himself any right to use more space or greater privileges than the space provided by the Owner for purposes incidental to the performance of the Contract, he shall, upon request of the Engineer, furnish to the Engineer proper evidence that such additional rights have been properly secured and assurance that no damage to or claim upon the Owner and/or Village will arise therefrom. The Owner and/or Village shall not be liable in any way for any expense incurred by the Contractor in securing any such right to use additional property.

The Contractor shall be responsible for and reimburse the Owner and/or Village and others for any and all losses, damage or expense which the Owner and/or Local Government or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights-of-way provided by the Owner to the Contractor or any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights.

The Owner may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Owner and/or Village against loss or expense by reason of the failure of the Contractor to observe the limits and conditions of the rights-of-way rights-of-access etc. provided by the Owner.

144 ACCESS TO ADJACENT PROPERTIES

The Contractor shall at all times maintain vehicular and pedestrian access to all properties abutting or adjacent to construction under this Contract, all at the Contractor's sole expense. In the event that normal access is cut off to a particular property due to operations or proposed work called for under this Contract, the Contractor shall, at his sole expense, make other arrangements for access to said property satisfactory to the property owner, tenant and the Engineer.

145 USE OF ROADWAYS

During the progress of the work, the Contractor shall make ample provision for both vehicular and

foot traffic on any public road, and shall indemnify and save harmless the Owner from any expense whatsoever due to his operations on/over said roadways. The Contractor shall also provide free access to all fire hydrants, water and gas valves located along the line or in the vicinity of his work. Gutters and waterways must be kept open or other provisions made for the removal of the storm water. Roadway intersections may be blocked but one-half at a time and the Contractor shall lay and maintain temporary driveways, bridges and crossing such as in the opinion of the Engineer, are necessary to reasonably accommodate the public and to provide access to private driveways. In the event of the Contractor's failure to comply with these provisions, the owner may cause the same to be done, and will deduct the cost of such work from any monies due or to become due the Contractor under this Contract, but the performance of such work by the Owner or at its insistence shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.

146 INDEMNITY CLAUSE

The Contractor agrees to protect, defend, indemnify and hold the Village of Tarrytown and its officers, employees, agents; the Engineer and his consultants; and New York State free and harmless from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities of every kind and character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings or causes of action of every kind and character in connection with or arising directly or indirectly out of this agreement and/or the performance hereof: without limiting the generality of the foregoing, any and all such claims, etc., relating to personal injury, death, damage to property, defects in materials or workmanship, actual or alleged infringement of any patent, trademark, copyright (or application for any thereof) or of any other tangible or intangible personal or property right, or any actual or alleged violation of any applicable statute, ordinance, administrative order, rule or regulation, or decree or any court shall be included in the indemnity hereunder. The Contractor further agrees to investigate, handle, respond to, provide defense for and defend any such claims etc. at his sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims etc.) is groundless, false or fraudulent. In any case in which such indemnification would violate Section 5322.1 of the New York General Obligations Law, or any other applicable legal prohibition, the foregoing provisions concerning indemnification shall not be construed to indemnify the Village of Tarrytown for damage arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence of the Village of Tarrytown, or its employees.

147 DISPUTES

- a. All disputes arising between the parties arising out of, or in any way related to this Contract and/or the performance of the same, or its interpretation, shall within ten (10) days of the event or action giving rise to the dispute be presented to the Engineer. All papers pertaining to the dispute shall be filed in quadruplicate. Such notice shall state the facts surrounding the dispute in sufficient detail to identify the dispute together with its character and scope. In the meantime, the Contractor shall proceed with the work under this Contract as directed. Any dispute not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the dispute is of a continuing character and notice of the dispute is not given within ten (10) days of its commencement, the dispute will be considered only for a period commencing ten (10) days prior to the receipt by the Engineer of notice thereof. The Contractor shall in no case allow any dispute to delay the work under this Contract.
- b. As soon as practicable after the final submission of all information the Owner shall make a determination of the dispute. Said decision of the Owner shall be a condition precedent to any further action on the dispute however, upon certification in writing by the claimant that

the dispute has been submitted in its final form the Owner shall be obliged to render a decision on said dispute within sixty (60) days of the date of said certification. Should the Owner fail to render its decision within the aforementioned sixty (60) day period its decision will not be a condition precedent to any further action on the part of the claimant.

- c. Each decision by the Owner will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to this last known address.
- d. In the event of an unfavorable decision by the Owner the Contractor shall have the right to contest said decision as provided for under the provisions of this Contract. The Contractor shall in no case allow the dispute or decision to delay any work but shall notify the Owner promptly that he is proceeding with the work under protest and he say then except the matter in question from the final release.

148 GENERAL MUNICIPAL LAWS OF NEW YORK STATE

The attention of the Contractor is directed to the fact that all pertinent General Municipal Laws of the State of New York shall be adhered to. In addition, this contract is subject to all New York State statutes, including but not limited to the Village Law Highway Law, Real Property Law and Finance Law.

149 "OR EQUAL" CLAUSE - UNLESS OTHERWISE SPECIFIED:

Whenever a material, article or piece of equipment is identified on the Contract Drawings or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., the intent is to establish a standard. Any material, article or equipment of other manufacturers and vendors of equally high quality (particularly with regard to points specified in the specifications) which will perform equivalently within the design ranges specified will be equally acceptable provided that the material, article or equipment so proposed is, in the opinion of the Engineer, of equal substance and function. Further the manufacturer must agree to comply fully with the warranty requirements of the specifications. The Contractor may not assume that substitute equipment will be approved by the Engineer and non-approval of said equipment will form no basis for a claim for additional compensation by the Contractor. No substitute equipment shall be purchased or installed by the Contractor without the Engineer's written approval. If the Engineer's approval is obtained for alternate equipment, the Contractor shall, at his own expense make any changes in the structures, building, piping or electrical necessary to accommodate the equipment and if engineering is required due to substitution of other material the Contractor shall reimburse the owner for the engineering service. The Contractor must pay for any laboratory testing required to establish the equality of his proposal.

150 CONSTRUCTION, EXCAVATION AND DEMOLITION OPERATIONS AT OR NEAR UNDERGROUND FACILITIES

The Contractor's attention is directed to the State of New York, Department of Labor, Board of Standards and Appeals Industrial Code Rule 53 - "Construction, Excavation and Demolition Operations at or near Underground Facilities" effective April 1, 1975. The Contractor will be required to comply with all applicable requirements of Industrial Code Rule 53.

Requests for copies by mail should be directed to State of New York, Department of Labor, Office of Public Information, State Office Building Campus, Albany, New York 12201; or, single copies may be obtained by applying in person at the Department's office in Albany or in New York City at the Department of Labor, Two World Trade Center, New York, New York 10047.

151 REVIEW BY OWNER

The Owner, its authorized representatives and agents shall, at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representatives or agents.

152 DEDUCTIONS FOR UNCORRECTED WORK

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement, in case of dispute, as herein provided.

153 PATENTS

The Contractor shall hold and save the Owner and Engineer, their officers, and employees, harmless from liability of any nature or kind, including but not limited to court costs and attorney's fees, for or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the Contract, which has been recommended by the Contractor, including its use by the owner, unless otherwise specifically stipulated in the Technical Specifications.

154 INFORMATION FROM OWNER

In addition to showing the construction under this Contract, the drawings may show certain information obtained by the Owner regarding conditions and features which exist at the site of the work, both at and below the surface of the ground. The Owner and the Engineer expressly disclaim any responsibility for the accuracy or completeness of the information given on the drawings with regard to the existing conditions and features and the Contractor will not be entitled to any extra compensation on account of inaccuracy or incompleteness of such information. The information which is shown is only for the convenience of the Contractor, who must verify this information to his own satisfaction.

155 EXISTING UTILITIES, STRUCTURES AND FIXTURES

The Contractor will be required, at no additional expense to the Village of Tarrytown, to do everything necessary to support, protect and sustain all sewer, water, gas mains or service pipes; electric light, power poles, telephone or telegraph poles, manholes, valve boxes, conduits and any and all utilities, structures or fixtures laid across or along the site of the work. In case any of the said utilities, structures or fixtures are damaged by the Contractor, they shall be repaired by the Contractor at his own expense, or by the authorities having control of the same and the expense of said repairs shall be deducted from the monies due or to become due the Contractor under this Contract.

Should it become necessary to remove or relocate any utilities, structures or other fixtures, due to a grade and alignment conflict which would require the proposed utility, structure or fixture (not trench excavation, sheeting or other construction features) to occupy the same space as the existing pipe, pole, conduit and/or other fixture, the Contractor shall notify the owner of the obstruction and the Engineer of the location and the circumstances and shall cease work (which might prove detrimental to the utility, structure or fixture encountered) if necessary until satisfactory arrangements have been made with the owners of the same to properly care for and relocate them.

Should it be necessary to cease work and a delay is caused thereby, the Contractor shall have no claim for damage or any claim other than for an extension of time. See GENERAL CONDITIONS, CLAIMS FOR EXTRA COST The removal or relocation of such interferences may be done by the owner of the interfering utility or structure with his own forces, or by a contractor whom he may engage for such purpose, or by private contract between the utility company and this contractor; or alternately he may request the Owner to cause this work to be performed under this contract (at the utility company's expense). In the last instance, the contractor shall perform such work under the terms of this contract and shall be compensated as described in GENERAL CONDITIONS - CHANGES IN THE WORK except where SPECIAL CONDITIONS or TECHNICAL SPECIFICATIONS provide otherwise.

If the Contractor desires temporary changes of location for his convenience for any reason whatsoever, of water lines, gas lines, sewer lines, wire lines, service connections, water and gas meter boxes, valve boxes, light standards, cableways, signals and any other utilities, structures or fixtures, he shall satisfy the Engineer and Owner that the proposed relocation does not interfere with his or other Contractor's operations, or the requirements of the Contract Drawings and does not cause an obstruction or a hazard to traffic. The Contractor shall make his own request to the utility companies pipe owners or other parties affected for such relocation work. Such relocation work for the convenience of the Contractor shall be made solely at the Contractor's expense.

The Contractor shall not remove or relocate any utility structure or fixture without the written approval of the owner of that utility, structure or fixture unless otherwise shown on the Contract Drawings, specifications or ordered by the Engineer.

156 CONTROL OF EXISTING FLOWS

During the construction of all proposed work, the Contractor shall take every precaution and do the necessary work to maintain the flow of storm drainage, sanitary sewage and natural flows through the working areas. The Contractor is solely responsible for providing his flow control system and there shall be no separate payment for the required work. The Contractor shall be responsible for any flooding or Sanitary backup on his work and to the property owners affected by such flooding or backup. The Contractor shall make such provisions as may be required by the local, state or federal health officers or any other public bodies with jurisdiction over the flow of storm drainage, sanitary seepage and natural flows.

In the event the Contractor uses water from natural water sources for his operations, intake method shall be such as to create no harmful effects; and where water is taken from a stream, reasonable flow downstream from the intake shall be maintained.

157 SEWAGE SURFACE GROUND WATER AND FLOOD FLOWS

The Contractor shall furnish all the necessary equipment, shall take all necessary precautions, and shall assume the entire cost of handling any sewage, seepage, storm, groundwater, surface and flood flows which may be encountered at any time during the construction of the work. The manner of providing for these flows shall meet the approval of the Engineer and the entire cost of said work shall be included in the unit or lump sum prices bid for the various items of the work to be done under the Contract.

The Contractor shall employ such feasible and practical methods in his operations as will prevent pollution sedimentation or the introduction of impurities or other objectionable materials that may become suspended or dissolved in waters reaching streams, ponds, lakes, water supplies or other water bodies.

Water shall not be disposed of by discharging it into any street gutter, drainage channel, existing drainage system, natural stream, waterway, lake, pond or bog, etc. without the prior approval of the Authority having jurisdiction thereof. Should such approval be obtained the Contractor shall ensure that no solids, debris, suspended soil particles, impurities or pollutants are allowed to enter the drainage system. The Contractor shall be fully responsible for any damages to these systems resulting from his disposal methods and any necessary measures (such as but not limited to cleanup) required to return the system to preconstruction conditions. In addition to the above disposal, on private property shall be only with the prior written permission of the property owner.

Any water used for any purpose by the Contractor shall not be discharged in such a way as to create pollution, sedimentation or other adverse effects upon the aforementioned streams or waters.

In addition, the Contractor shall provide all necessary pumps, dams, drains, ditches, flumes, well points and other means of excluding and removing groundwater or water from any other source, from trenches, tunnels and other parts of the work and for preventing the trench slopes from sliding or caving. He shall sufficiently dewater all trenches, tunnels or other excavations to completely dry out and solidify the bottom of the trench to whatever depth is necessary below said bottom of the trench to provide a firm solid, completely dry bottom on which to place foundation material, lay pipe or build a structure.

It is expressly understood that the Engineer or Owner is not responsible for any flooding, high water tables, underground water or any other water problems which may be encountered on any portion of the work called for under this Contract and that the Contractor must include all anticipated costs for dewatering all excavations in the price bid under this Contract.

158 WEATHER CONDITIONS/WORK IN FREEZING WEATHER

In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct the Contractor will, and will cause his Subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his Subcontractors so to protect his and their work, such materials shall be removed and replaced at the expense of the Contractor.

Unless written permission be given, work liable to be affected by frost or freezing shall be suspended during freezing weather. When work proceeds under such a condition the Contractor shall provide approved facilities for heating the materials and for protecting the finished work.

159 MAINTENANCE AND PROTECTION OF TRAFFIC

The provisions contained herein shall be deemed in effect unless more stringent provisions are called for within the Technical Specification. The Contractor will be required to protect and maintain pedestrian and vehicular traffic.

The Contractor shall maintain and protect traffic by so conducting his construction operations that the traveling public is subjected to a minimum of delay and hazard.

Residents along the existing roads and those having business along them shall have safe means of ingress and egress at all times. Traffic shall be maintained at the intersections of all roads or streets crossing the road construction. Where directed by the Chief of Police or the Contractor shall provide such adequate and proper bridges over excavations as may be necessary or directed for the purpose of accommodating pedestrians or vehicles.

In the event any portion of a public road must be closed to traffic, permission shall be secured by the Contractor from the Village Superintendent of Highways or County or State Highway Department if in their jurisdiction and notice must be given by the Contractor to the Police and Fire Departments, and adequate detour sign posted.

Approved signs shall be provided along all highways while work is in progress, and where traffic direction is required, flagmen shall be designated by the Contractor to direct traffic past the equipment, machinery or construction operations. Construction equipment shall be removed entirely from the traveled roadway when work is shut down for the day and two lanes of traffic shall be maintained at night. Barricades shall be placed wherever the safety of the traveling public requires, where a road is officially closed, where an excavation is being made, or where heavy construction equipment is operating. In addition barricades shall be placed where they are deemed necessary in the opinion of the he Chief of Police, to direct traffic or to prevent entrance to streets or areas where construction is in progress.

Barricades shall be in accordance with the Village of Tarrytown Public Works Specifications and shall be lighted as provided therein. On traveled roads, a lighted warning sign is to be placed two-hundred (200) feet before the approach of barricades, or as is necessary for safety along the approach lines.

Where trenches have been cut, barricades, red flags, and warning signs, all properly lighted, shall be placed at frequent intervals and maintained until the trenches have been properly backfilled and compacted. All barricades, lights, flags, and bombs shall be maintained intact at all times overnight, over the weekends, holidays or if the project is shut down for any period of time.

160 HOURS OF WORK

No work shall be done on the job before 7:00 a.m. nor after 5:00 p.m. unless the Village is notified, nor shall any work be done on Saturdays, Sundays, or legal holidays unless Contractor shall have given Owner written request at least forty-eight (48) hours in advance. No additional payment will be made by Owner for overtime work under any circumstances unless a prior written order has been given by the Engineer. The Contractor shall comply with the Village Noise Ordinance which prohibits all work except emergency repair work, before 7:00 a.m. and after 8:00 p.m.

161 WATCHMAN

Contractor may, at his option and expense, employ a watchman to protect property at all times during which work is not under active supervision of his Construction Superintendent. Owner will not assume responsibility for losses or damage to property through theft or vandalism.

162 FIELD COPIES

The Contractor shall keep one copy of the specifications, plans and all shop drawings in good order, available to the Engineer and his representative at the job location.

163 EMERGENCY WORK

If in the opinion of the Village Administrator the work is carried on in such fashion that the public safety, private property, streets, or utilities are endangered, or that the work is carried on in such a manner as to create unnecessary inconvenience to the public, the Administrator shall, immediately upon giving notice, be authorized to undertake such corrective measures as he may deem to be necessary. The cost of such work shall be deducted from payments due the Contractor under this

contract.

164 PROTECTION

The Contractor shall protect and maintain all property, structures and utilities, public or private and shall provide whatever means are required to do so, as part of this contract. The Contractor shall take steps to protect the site and neighborhood from dust, mud, paint, and inconvenience He shall take such steps as are necessary to prevent mud and silt from washing off the project area, prevent dust from blowing about the neighborhood, and prevent loaded trucks from spilling material upon traveled roadways. If the work is stopped for any purpose all rigging, scaffolds, and equipment shall be made secure to prevent any danger from wind, storm or accidents.

The Contractor must put up and maintain such barriers, signs and red lights as will effectively protect his work, materials, and prevent accidents in consequence of the work. Steps shall be taken to prevent trespass wherever the public may be endangered. He shall assume all liability occasioned in any way by his acts or neglect, or those of his agents, employees or workmen.

The Contractor shall so control his operation as to prevent damage to trees and shrubs which are to be preserved. Protection may include coverings, fences and boards lashed to trees to prevent damage from blasting or machine operations or hand tunneling through root areas. The Contractor shall carefully cut off all branches of trees which may have been broken or injured during construction. All tree repairs and painting of tree wounds shall be as specified in the New York State Department of Transportation Specifications.

Should work necessitate the moving of a survey monument the property owner, Village, County or other agency which can reasonably be assumed to have established the monument, shall be informed far enough in advance to arrange for adequate referencing. In no case, however, shall a monument be disturbed without prior approval of the Village Engineer.

All barricades, lights, flags, bombs and any other means set up to protect the public or the work from injury or damage shall be maintained overnight, over week-ends and holidays, or for any duration during which the job is not complete but the work may be shut down. Additional precaution such as filling of trenches or installation of steel plates may be required in areas of heavy traffic, on week-ends extended by legal holidays or when there is expectation of inclement weather.

165 PAYMENT FOR GENERAL CONDITIONS

The cost of the performance of any work required by these General Conditions shall be considered to be a part of the Contractor's Base Bid if the contract is a Lump Sum Contract, and spread out among all the unit prices if the contract is a Unit Price Contract There will be no additional payment for work required by these General Conditions.

166 DAMAGE TO PRIVATE PROPERTY

If the Contractor damages private property or facilities outside the designated work area (which work area is to be restored under the restoration provisions of the contract) he shall restore the private property or facilities promptly and completely in the same manner as specified under the restoration provisions of these specifications. If he does not do so within a reasonable period of time, as determined by the Village Administrator, the Owner may retain or deduct from any sum or sums due to the Contractor such amount or amounts as are necessary to correct the condition and employ Village forces or another contractor to do the corrective work. The fact that the Contractor has referred a damage claim to his insurance carrier shall not relieve him of liability for prompt and full restoration of damage. For purposes of this section of the contract, the Owner will treat what

are essentially private facilities within a public right-of-way (including but not limited to mail boxes, shrubs, flowers and other plantings, walls, light poles, etc.) in the same manner as described above for private property.

167 RESTORATION

All man-made and natural features in the construction site disturbed or removed for the proper completion of the work shall be reset or replaced. All man-made or natural features damaged or destroyed shall be repaired or restored to a condition equal to or better than that existing at the start of the work, with materials equal to or better than the original ones.

In cases where it is impossible to replace an item with an equivalent item (large trees, exotic plants) the Contractor may, subject to the approval of the Engineer, substitute other similar items whose total value shall equal that of the destroyed one.

Where the work area extends onto private property, the Contractor shall make all reasonable attempts to satisfy the owners. In case of dispute, the Village Administrator shall be the judge as to the reasonableness of equivalency of repaired and restored features.

If the contract documents contain more detailed or more stringent specifications for restoration than in this section, the more detailed or stringent specifications shall take precedence over this section. If the contract documents do not contain detailed specifications for restoration, then this section expresses the intent of the Owner; all published specifications of the Owner containing details of construction applicable to items of restoration (e.g. grass, pavement, etc.) shall be deemed included in these contract documents as if set forth in full, if not actually printed herein.

All restoration work shall be maintained for a period of one year after the completion of the project by this contract and secured by the maintenance bond.

If the contract documents contain a specific payment clause for restoration, then that clause shall apply; otherwise payment for restoration shall be as described in Section 165.

168. SITE VISITATION

Each bidder, before submitting any proposal for the work, shall visit the premises in order to familiarize himself with the conditions under which this work is to be done and with the obstacles to be overcome. The submission of any proposal shall be held as an acknowledgment that this requirement has been complied with. Contractor shall satisfy himself as to the nature and location of his work and the general and local conditions. He shall have full knowledge as to transportation, handling, and storage of the materials, availability of electric power and all other facilities in the area which will have a bearing on the performance of his work and the contract for which he submit his proposal.

Lack of familiarity with the local conditions, due to failure to visit the site prior to the submission of proposal, will not be considered a valid excuse for any extras to the contract. Any failure by the Contractor to acquaint himself with all the available information shall not relieve him from any responsibility for performing his work properly.

No additional compensation will be allowed for conditions increasing the cost which were not known to or appreciated by him when submitting his proposal if the conditions were obvious and could have been discovered by him if he had visited the site and had thoroughly informed himself of all existing conditions which would affect his work.

This page intentionally left blank

SECTION H

SPECIAL CONDITIONS

PHASE VII-B WATER MAIN REPLACEMENTS VILLAGE OF TARRYTOWN, NEW YORK CONTRACT # 2023-07

201 **SCOPE OF WORK**

The contractor shall furnish all labor, materials, and equipment to complete the Phase VII-B Water Main Replacements in accordance with the plans and as directed by the Engineer.

202 **TIME OF COMPLETION**

The contractor shall provide the required bonds, insurances and other documents as required to complete this agreement within fifteen (15) business days (in the State of New York) of notice of award.

Work shall proceed in the field within five (5) business days of contract signing. Once work has started, it shall proceed continuously and diligently. All items of work shall be completed and approved within 180 days of contract signing.

203 **DELETION OF WORK**

The owner reserves the right to eliminate or reduce the scope of the work in any manner or way. There shall be no changes in the unit prices and the owner will not entertain any claims on account of reduction or deletion of work.

204 **COST BREAKDOWN FOR PAYMENT ESTIMATES**

Immediately after the award of the contract, the Contractor shall submit a proposed cost breakdown of the work for the purpose of making monthly payments. This will be reviewed by the Village, who will either accept it or recommend changes. If a mutually satisfactory breakdown is not arrived at, the Village Engineer will determine the breakdown.

205 **OR EQUAL CLAUSE**

Whenever a manufacturer or trade name is listed, not followed by "or equal," the words "or equal" shall be deemed to be inserted in the specifications. See also Section 149 of the **GENERAL CONDITIONS**.

206 **SITE VISIT**

Each bidder shall visit the work site in order to familiarize himself with the conditions and quantities of work required under this contract. See also Section 168 of the **GENERAL CONDITIONS**.

207 **COORDINATION OF WORK**

The Contractor shall schedule his work with the Tarrytown Water Department as to minimize the inconvenience of daily operations.

208 **LIQUIDATED DAMAGES**

The amount of liquidated damages shall be \$1,000 per day. The conditions governing liquidated damages shall be as set forth in subsection 116.c of Section G – General Conditions.

209 **NYSDOT REQUIREMENTS**

No work shall be performed in NYSDOT rights-of-way between November 1st and March 31st.

The Contractor shall be responsible for obtaining all required NYSDOT permits as needed for the Work. The Contractor shall be responsible for complying with NYSDOT guidelines for traffic control in NYSDOT rights-of-way. An NYSDOT-reviewed traffic control plan is attached to this section, but may be subject to change during construction at NYSDOT's discretion. Contractor shall not be entitled to additional payment for any modifications to traffic controls that may be requested by NYSDOT.

The Contractor shall be required to post any bonds required by NYSDOT in order to begin the Work.

NOTE:

1. CONTRACTOR SHALL MINIMIZE TRAFFIC INTERRUPTIONS AT INTERSECTIONS.
2. CONTRACTOR SHALL PLATE ALL EXCAVATIONS OUTSIDE OF WORK HOURS.

PLATE EXCAVATION AND REPOSITION CONES OUTSIDE OF WORK HOURS TO ALLOW TWO-LANE TRAFFIC AT INTERSECTION

PLATE EXCAVATIONS AND REPOSITION CONES TO PROVIDE DRIVEWAY ACCESS WHEN WORK IS NOT OCCURRING IN FRONT OF DRIVEWAYS

POSITION FLAGGER HERE

END ROAD WORK

NO EXIT

NO EXIT

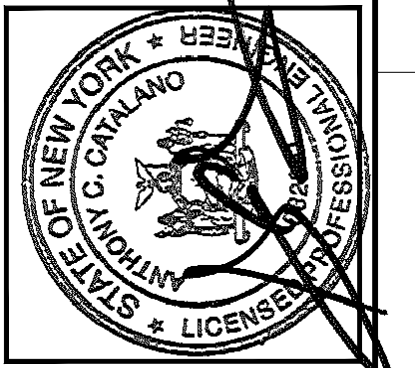
PLAN MATCH LINE THIS SHEET

Woodard & Curran Engineering PA PC
 709 Westchester Avenue, Suite L2
 White Plains, New York 10604
 800.807.4080 | www.woodardcurran.com

WOODARD & CURRAN

COMMITMENT & INTEGRITY DRIVE RESULTS

THIS DOCUMENT IS THE PROPERTY OF WOODARD & CURRAN, INC. AND ITS CLIENT. REPRODUCTION OR DISTRIBUTION WITHOUT WRITTEN PERMISSION IS PROHIBITED.



REV	DESCRIPTION	DATE	DESIGNED BY	CHECKED BY

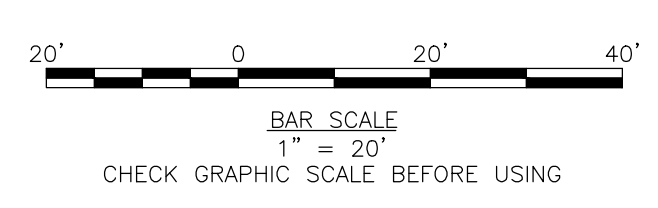
**WHITE PLAINS ROAD
 NYS DOT RT-119
 TRAFFIC CONTROL PLAN**

VILLAGE OF TARRYTOWN
 4 DIVISION STREET
 TARRYTOWN, NY 10591

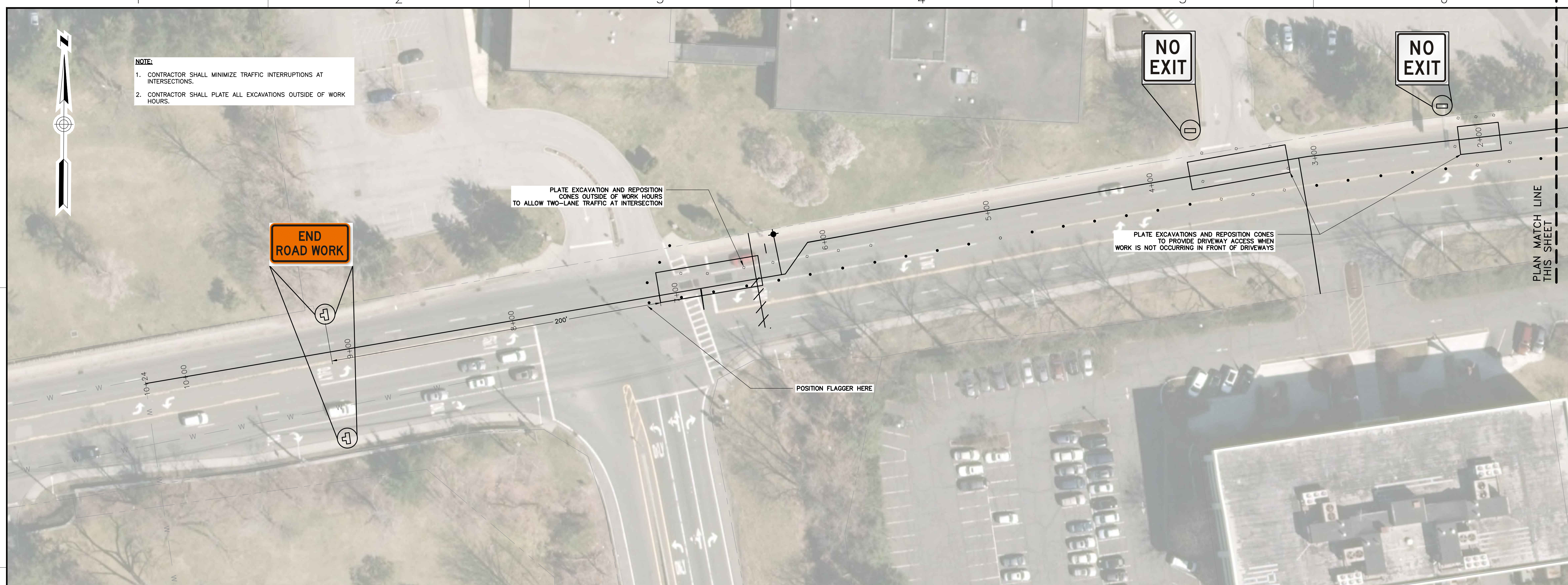
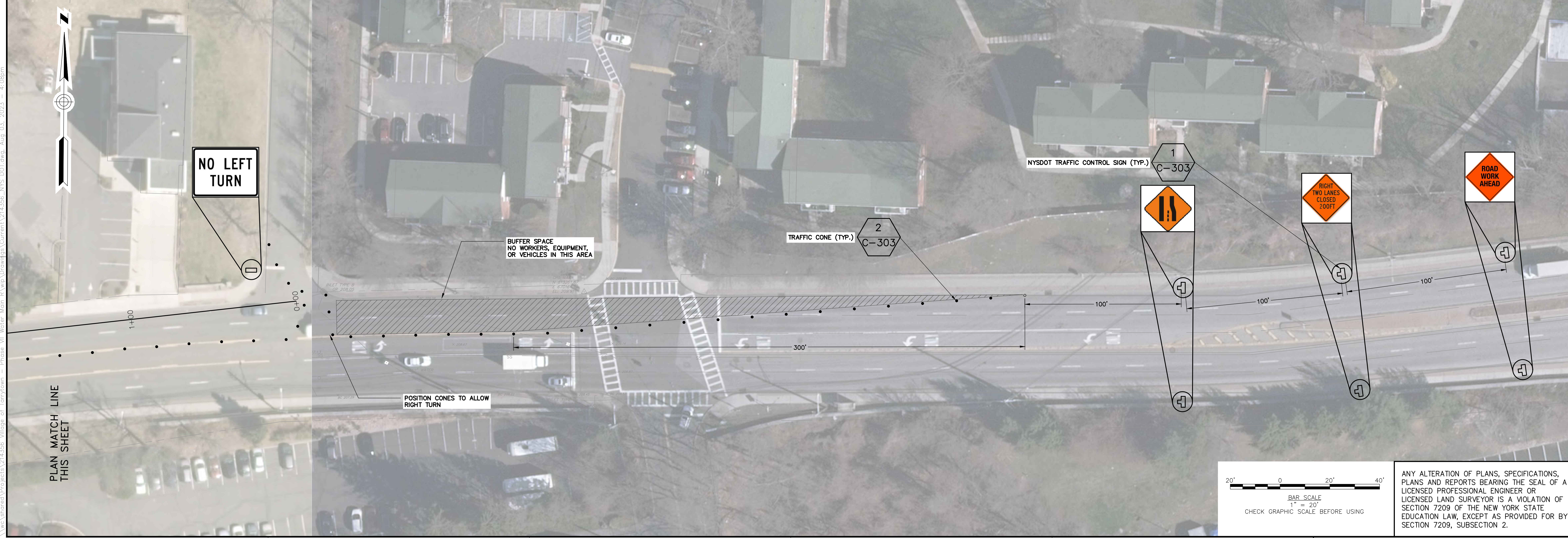
PHASE VII WATER MAIN REPLACEMENTS

JOB NO.: JAN 2020
 DATE: JANUARY 2020
 SCALE: 1"=20'
 SHEET:

MPT-1



ANY ALTERATION OF PLANS, SPECIFICATIONS, PLANS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.



1 2 3 4 5 6

A

B

C

D

\\w\aharney\Projects\214356_Village of Tarrytown - Phase VII Water Main R\Map\Drawings\Current\214356_NYS DOT.dwg, Aug. 03, 2023 - 4:08pm

SECTION I
INDEX TO TECHNICAL SPECIFICATIONS
PHASE VII-B WATER MAIN REPLACEMENTS
VILLAGE OF TARRYTOWN, NEW YORK
CONTRACT # 2023-07

SECTION

03 34 00	Controlled Low-Strength Material
31 00 00	Earthwork
31 01 01	Site Preparation and Restoration
31 25 13	Erosion and Sediment Control
32 12 16	Asphalt Concrete Paving
33 11 01	Water Distribution Piping
33 12 16	Water Valves and Fittings
33 12 19	Water Utility Distribution Fire Hydrants
33 13 00	Water System Disinfection

This page intentionally left blank

SECTION 01 20 25

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section describes the measurement and payment for the Work to be completed under each item in Section C – Bid Proposal, which may also be referred to as “pay item”.
- B. Payment procedures are in accordance with the Agreement, Article 111 of the General Conditions, the Supplementary Conditions (if any), and the General Requirements.
- C. Measurement: Contractor shall be responsible for measurement, subject to review and approval by the Engineer or Owner in accordance with the General Conditions, the Supplementary Conditions (if any), and the General Requirements, except as otherwise specified.
- D. The Work described in each pay item shall be as described in the Specifications and shown on the Drawings and not included in other pay items.
 - 1. Pay item descriptions are general and may not specifically describe all associated Work or elements thereof, do not constitute Specifications, and do not supersede the content of the Specifications and Drawings.
 - 2. Review the Specifications and Drawings for Work associated with each pay item. Claims for being unfamiliar with the content of the Specifications and Drawings will not be considered.
- E. The following Work is not specifically described or designated as a pay item, is considered incidental to all pay items, and shall not be measured separately for payment.
 - 1. Division 01 General Requirements EXCEPT those items included in Mobilization/Demobilization and included as a separate pay item.
 - 2. Materials, equipment, and services necessary to verify existing field conditions and the location, size, type, material, and orientation of existing pipes and utilities shown on the Drawings excluding test pits.
 - 3. Field and laboratory testing and reporting by independent laboratory, including but not limited to compaction of backfill materials; aggregate gradation; and concrete testing

- F. Payment will not be made for restoration of areas disturbed by the Contractor outside the limits of Work.
- G. Payment will only be made for those utility services, including water and fire services, specifically identified for replacement on the Drawings. Relocation or replacement for the Contractor’s convenience or due to breakage by the Contractor of any other utility services shown on the Drawings, or at locations which could reasonably be assumed, shall be at no cost to Owner.
- H. Design, installation and removal of excavation support systems, temporary and permanent utility/structure support systems associated with a pay item shall be considered incidental to that pay item.
- I. Additional dewatering and erosion control (including installation, operation, maintenance, removal and offsite disposal of erosion control devices) associated with a pay item shall be considered incidental to that pay item.

1.02 MEASUREMENT AND PAYMENT BASIS – BASE BID (MARTLING AVENUE)

ITEM 1: Mobilization/Demobilization	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	50% at Project commencement - 25% at Substantial Completion; 25% at Final Completion
Includes;	
<ul style="list-style-type: none"> • Delivery to and removal of equipment from the Project Site, • Temporary utilities, • Facilities and controls, • Obtaining necessary permits including associated fees, • Insurance and bond costs, • Signage, • Development of pre-construction schedules and plans required by the General Conditions, 	
Supplementary Conditions and General Requirements;	
<ul style="list-style-type: none"> • Necessary pre-construction investigations, • Verifying existing field conditions, • Coordination, • Site clean-up, restoration and closeout. 	

ITEM 2: Furnish and Install All Water Main, Fittings, Services, Earthwork, Pavement, and Associated Labor on Martling Avenue	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	50% at Project commencement - 25% at Substantial Completion; 25% at Final Completion
<p>All labor, equipment, tools, and materials to furnish and install all water main, fittings, services, earthwork, pavement, and associated labor, including</p> <ul style="list-style-type: none"> • Water Main <ul style="list-style-type: none"> ○ Removing and disposing of existing pipe where required ○ Capping and abandoning existing water mains where required ○ Installing restraining thrust rods ○ Pipe insulation where required ○ Connecting to existing water mains • Fittings <ul style="list-style-type: none"> ○ Mega-lug fittings ○ All fittings (tees, bends, crosses, couplings, reducers, offsets, and solid sleeves) as specified herein or on the drawings or as needed in response to unanticipated field conditions, complete in place. All fittings shall be considered incidental to water main installation and no separate payment shall be made for water main fittings. ○ Provision of valve and valve box materials ○ Cutting valves into existing mains where required ○ Provision of fittings, pipe, valves and hydrants needed for hydrant assemblies, including the new tee on the water main, pipe to connect the water main to the hydrant assembly, hydrant valves as specified on the drawings, the hydrant body, and bends as part of the hydrant assembly. • Services <ul style="list-style-type: none"> ○ Service piping ○ Curb stops and boxes ○ Tapping pipe ○ Coordination with property owners • Earthwork <ul style="list-style-type: none"> ○ Excavation ○ Removing and disposing of excess earthwork material ○ Excavation and replacement of materials unsuitable for pipe or structure subgrade or trench backfill and compaction. Unsuitable material shall be as defined in Section 31 00 00. Unsuitable materials shall be removed and replaced with suitable materials as defined in Section 31 00 00. ○ Contractor shall be responsible for measurement of unsuitable material quantities removed, subject to review and approval by the engineer. ○ Shoring and bracing ○ Dewatering 	

- Pipe bedding
- Blanket, backfill, and compaction
- Excavating around existing utilities
- Support of existing utilities during excavation
- Rock removal
- Pavement
 - Saw cutting
 - Disposal of removed pavement
 - Grading, fine grading, and compacting gravel sub-base
 - Emulsion,
 - Bituminous tack coat
 - Adjusting of roadway castings,
 - Placement and compaction of 4-inches of pavement courses in required lift depths,
 - Restoring pavement markings
 - Temporary trench pavement
 - Excludes any roadway restoration required in response to incidental damage to roadways during construction that are unrelated to anticipated excavations within the sawcut limits specified on the drawings. Includes only roadway restoration as required in accordance with the contract drawings in areas where excavation for new utilities is required.
- Associated Labor
 - Loam and seed for restoration of trenches in grass areas
 - Tree trimming or other clearing, grubbing, or landscaping work done as part of construction
 - Removing and replacing signs, fences, and mailboxes
 - Removing and resetting granite curbs
 - Replacement of bituminous and concrete curbing
 - Removing and resetting guard rails
 - Painting hydrant in accordance with local requirements,
 - Provision of temporary inlet protection
 - Routine maintenance and removal of sediment accumulation in inlet protection
 - Regular replacement of sedimentation sacks as required or directed for inlet protection
 - Cleaning catch basin sumps of any sediment allowed to enter the drainage system due to negligence of maintenance
 - All other incidentals necessary to furnish and install hydrant assemblies, complete in place, as specified, shown on the Drawings or required by field conditions.

ITEM 3: Disinfection, Pressure and Bacteria Testing of Water Mains	
Measurement	Percent of total installed water main length tested and passed
Payment	Lump Sum
Schedule of Payment	Monthly based on progress
<p>All labor, equipment, tools and materials necessary to satisfactorily disinfect, pressure test and bacteria test water mains, including</p> <ul style="list-style-type: none"> • Furnishing and installing temporary blow-off/sample lines, • Flushing, • Introducing chlorine, • Hydrostatic testing, • Neutralizing flushed chlorinated water, • Sampling, • Delivery of samples for water quality analysis in accordance with the Contract Documents, AWWA standards, and Westchester County Department of Health requirements, • Analysis by qualified laboratory, • Providing results to Engineer and Owner and removing blow off/sample line to corporation. • Pressure testing of new hydrants shall be considered incidental to pressure testing of water mains and shall not warrant additional payment. <p>Also includes</p> <ul style="list-style-type: none"> • Pumps, • Injectors, • Gauges, • Neutralizing chlorine residual, • All other incidentals necessary to flush, chlorinate, perform hydrostatic testing, neutralize chlorine residual, sample and obtain satisfactory water quality test results. Chlorinating, sampling and water quality testing shall be performed in accordance with the latest revision of AWWA C651- Disinfecting Water Mains. <p>Excludes work associated with</p> <ul style="list-style-type: none"> • Disinfection, hydrostatic tests and water quality tests that fail to produce satisfactory results and hydrostatic tests performed by Contractor for his/her convenience. • Contractor shall be responsible for costs associated with flushing, chlorinating, hydrostatic testing, neutralizing chlorine, sampling and water quality testing that produce unsatisfactory results. 	

ITEM 4. Maintenance and Protection of Traffic on Martling Avenue	
Measurement	Percent of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	Monthly based on progress
<p>All labor, tools, equipment and materials required to provide maintenance and protection of traffic on throughout the duration of work. Includes only maintenance and protection of traffic on Village of Tarrytown-owned roadways.</p> <p>Item 12b includes only maintenance and protection of traffic in accordance with NYSDOT standards on NYSDOT-listed routes, including Route 119. In the event that NYSDOT requests changes to the NYSDOT-approved maintenance and protection of traffic methods specified herein and on the contract drawings, the contractor shall be required to adjust their maintenance and protection of traffic methods to match NYSDOT requests at no additional cost to the Village.</p>	

ITEM 5: Test Pits	
Measurement	Number of Test Pits Completed
Payment	Unit price per each
Schedule of Payment	Monthly based on quantity completed
<p>All labor, equipment, tools and materials to determine location, depth, diameter and material type for uncharted utilities or to shut off existing utilities in locations shown on Contract Drawings including,</p> <ul style="list-style-type: none"> • Excavation, • Backfilling and compacting in accordance with the Contract Documents, • Loam and seed, • Removing and resetting granite and bituminous curb, • All other incidentals necessary to excavate uncharted utilities or locations noted in Contract Drawings to determine information required. • Includes test pits as identified on the Drawings and any additional test pits deemed necessary by the Engineer. 	

Item 6: Owner's Contingency Allowance for Miscellaneous Additional Work	
Measurement	Portion of Owner's contingency allowance amount authorized
Payment	Percent of not to exceed contingency amount authorized by Change Order
Schedule of Payment	Monthly based on progress
Owner's allowance for Miscellaneous Work as requested by Owner. Contractor shall not receive payment for any unused portion of the contingency allowance.	

1.03 MEASUREMENT AND PAYMENT BASIS – ADD ALTERNATE (WHITE PLAINS ROAD)

ITEM A1: Mobilization/Demobilization	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	50% at Project commencement - 25% at Substantial Completion; 25% at Final Completion
<p>Includes;</p> <ul style="list-style-type: none"> • Delivery to and removal of equipment from the Project Site, • Temporary utilities, • Facilities and controls, • Obtaining necessary permits including associated fees, • Insurance and bond costs, • Signage, • Development of pre-construction schedules and plans required by the General Conditions, <p>Supplementary Conditions and General Requirements;</p> <ul style="list-style-type: none"> • Necessary pre-construction investigations, • Verifying existing field conditions, • Coordination, • Site clean-up, restoration and closeout. 	

ITEM A2: Furnish and Install All Water Main, Fittings, Services, Earthwork, Pavement, and Associated Labor on White Plains Road	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	50% at Project commencement - 25% at Substantial Completion; 25% at Final Completion
<p>All labor, equipment, tools, and materials to furnish and install all water main, fittings, services, earthwork, pavement, and associated labor, including</p> <ul style="list-style-type: none"> • Water Main <ul style="list-style-type: none"> ○ Removing and disposing of existing pipe where required ○ Capping and abandoning existing water mains where required ○ Installing restraining thrust rods ○ Pipe insulation where required ○ Connecting to existing water mains • Fittings <ul style="list-style-type: none"> ○ Mega-lug fittings ○ All fittings (tees, bends, crosses, couplings, reducers, offsets, and solid sleeves) as specified herein or on the drawings or as needed in response to unanticipated field conditions, complete in place. All fittings shall be considered incidental to water main installation and no separate payment shall be made for water main fittings. ○ Provision of valve and valve box materials ○ Cutting valves into existing mains where required ○ Provision of fittings, pipe, valves and hydrants needed for hydrant assemblies, including the new tee on the water main, pipe to connect the water main to the hydrant assembly, hydrant valves as specified on the drawings, the hydrant body, and bends as part of the hydrant assembly. • Services <ul style="list-style-type: none"> ○ Service piping ○ Curb stops and boxes ○ Tapping pipe ○ Coordination with property owners • Earthwork <ul style="list-style-type: none"> ○ Excavation ○ Removing and disposing of excess earthwork material ○ Excavation and replacement of materials unsuitable for pipe or structure subgrade or trench backfill and compaction. Unsuitable material shall be as defined in Section 31 00 00. Unsuitable materials shall be removed and replaced with suitable materials as defined in Section 31 00 00. ○ Contractor shall be responsible for measurement of unsuitable material quantities removed, subject to review and approval by the engineer. ○ Shoring and bracing ○ Dewatering 	

- Pipe bedding
- Blanket, backfill, and compaction
- Excavating around existing utilities
- Support of existing utilities during excavation
- Rock removal
- Pavement
 - Saw cutting
 - Disposal of removed pavement
 - Grading, fine grading, and compacting gravel sub-base
 - Emulsion,
 - Bituminous tack coat
 - Adjusting of roadway castings,
 - Placement and compaction of 4-inches of pavement courses in required lift depths,
 - Restoring pavement markings
 - Temporary trench pavement
 - Excludes any roadway restoration required in response to incidental damage to roadways during construction that are unrelated to anticipated excavations within the sawcut limits specified on the drawings. Includes only roadway restoration as required in accordance with the contract drawings in areas where excavation for new utilities is required. In the event that NYSDOT requests changes to the NYSDOT-approved roadway restoration methods specified herein and on the contract drawings, the contractor shall be required to adjust their pavement methods to match NYSDOT requests at no additional cost to the Village.
- Associated Labor
 - Loam and seed for restoration of trenches in grass areas
 - Tree trimming or other clearing, grubbing, or landscaping work done as part of construction
 - Removing and replacing signs, fences, and mailboxes
 - Removing and resetting granite curbs
 - Replacement of bituminous and concrete curbing
 - Removing and resetting guard rails
 - Painting hydrant in accordance with local requirements,
 - Provision of temporary inlet protection
 - Routine maintenance and removal of sediment accumulation in inlet protection
 - Regular replacement of sedimentation sacks as required or directed for inlet protection
 - Cleaning catch basin sumps of any sediment allowed to enter the drainage system due to negligence of maintenance
 - All other incidentals necessary to furnish and install hydrant assemblies, complete in place, as specified, shown on the Drawings or required by field conditions.

ITEM A3: Disinfection, Pressure and Bacteria Testing of Water Mains	
Measurement	Percent of total installed water main length tested and passed
Payment	Lump Sum
Schedule of Payment	Monthly based on progress
<p>All labor, equipment, tools and materials necessary to satisfactorily disinfect, pressure test and bacteria test water mains, including</p> <ul style="list-style-type: none"> • Furnishing and installing temporary blow-off/sample lines, • Flushing, • Introducing chlorine, • Hydrostatic testing, • Neutralizing flushed chlorinated water, • Sampling, • Delivery of samples for water quality analysis in accordance with the Contract Documents, AWWA standards, and Westchester County Department of Health requirements, • Analysis by qualified laboratory, • Providing results to Engineer and Owner and removing blow off/sample line to corporation. • Pressure testing of new hydrants shall be considered incidental to pressure testing of water mains and shall not warrant additional payment. <p>Also includes</p> <ul style="list-style-type: none"> • Pumps, • Injectors, • Gauges, • Neutralizing chlorine residual, • All other incidentals necessary to flush, chlorinate, perform hydrostatic testing, neutralize chlorine residual, sample and obtain satisfactory water quality test results. Chlorinating, sampling and water quality testing shall be performed in accordance with the latest revision of AWWA C651- Disinfecting Water Mains. <p>Excludes work associated with</p> <ul style="list-style-type: none"> • Disinfection, hydrostatic tests and water quality tests that fail to produce satisfactory results and hydrostatic tests performed by Contractor for his/her convenience. • Contractor shall be responsible for costs associated with flushing, chlorinating, hydrostatic testing, neutralizing chlorine, sampling and water quality testing that produce unsatisfactory results. 	

ITEM A4: Maintenance and Protection of Traffic on White Plains Road	
Measurement	Percent of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	Monthly based on progress
Includes only maintenance and protection of traffic in accordance with NYSDOT standards on NYSDOT-listed routes, including Route 119. In the event that NYSDOT requests changes to the NYSDOT-approved maintenance and protection of traffic methods specified herein and on the contract drawings, the contractor shall be required to adjust their maintenance and protection of traffic methods to match NYSDOT requests at no additional cost to the Village.	

ITEM A5: Test Pits	
Measurement	Number of Test Pits Completed
Payment	Unit price per each
Schedule of Payment	Monthly based on quantity completed
All labor, equipment, tools and materials to determine location, depth, diameter and material type for uncharted utilities or to shut off existing utilities in locations shown on Contract Drawings including, <ul style="list-style-type: none"> • Excavation, • Backfilling and compacting in accordance with the Contract Documents, • Loam and seed, • Removing and resetting granite and bituminous curb, • All other incidentals necessary to excavate uncharted utilities or locations noted in Contract Drawings to determine information required. • Includes test pits as identified on the Drawings and any additional test pits deemed necessary by the Engineer. 	

Item A6: Owner's Contingency Allowance for Miscellaneous Additional Work	
Measurement	Portion of Owner's contingency allowance amount authorized
Payment	Percent of not to exceed contingency amount authorized by Change Order
Schedule of Payment	Monthly based on progress
Owner's allowance for Miscellaneous Work as requested by Owner. Contractor shall not receive payment for any unused portion of the contingency allowance.	

214356
Issue Date: August 2023

Phase VII-B Water Main Replacements
Tarrytown, NY 10591

PART 2 - PRODUCTS (not used)

PART 3 – EXECUTION (not used)

END OF SECTION

SECTION 03 34 00

CONTROLLED LOW-STRENGTH MATERIAL

PART 1 – GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 31 00 00 – Earthwork
- B. Section 32 12 16 – Asphalt Concrete Paving

1.2 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of Specifications for Structural Concrete for Buildings ACI 301-89 of the American Concrete Institute.

1.3 DEFINITIONS (AMENDMENTS TO ACI 301, CHAPTER 1)

- A. Controlled Low Strength Material (CLSM) Fill can also be called by different names including but not limited to: Flowable Fill, Controlled Density Fill, Flowable Fly Ash, and Fly Ash Slurry.

1.4 SUBMITTALS

- A. Submittals Package: Submit product data for design mix and materials for CLSM specified below at the same time as a package.
- B. Product Data:
 - 1. CLSM design mix with name and location of batching plant.
 - 2. Portland Cement: Brand and manufacturer's name.
 - 3. Fly Ash: Name and location of source, and DOT test numbers.
 - 4. Air-entraining Admixture: Brand and manufacturer's name.
 - 5. Water-reducing Admixture: Brand and manufacturer's name.
- C. Quality Control Submittals:
 - 1. Certificates: Affidavit required under Quality Assurance Article.

1.5 QUALITY ASSURANCE

- A. Furnish and place Controlled Low Strength Material (CLSM) as shown on plans or as directed by the Engineer, in writing. Provide CLSM containing cement and water. At the Contractor's option, it may contain fly ash, aggregate, or chemical admixtures in any proportions such that the final product will meet the strength and flow consistency requirements included in this specification.
- B. CLSM batching plant shall be currently approved as a concrete supplier by the New York State Department of Transportation and shall have a minimum of 1 year experience in the production of similar products.
- C. Fly ash supplier shall be currently approved as a fly ash supplier by the New York State Department of Transportation.
- C. Source Quality Control: The Owner reserves the right to inspect and approve the following items, at his own discretion, either with his own forces or with a designated inspection agency:
 - 2. Batching and mixing facilities and equipment.
 - 3. Sources of materials.

1.6 STORAGE

- A. Store materials so as to insure the preservation of their quality and fitness for the Work. Materials, even though accepted prior to storage, are subject to inspection and shall meet the requirements of the Contract before their use in the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cement: ASTM C 150, Type I or II Portland cement.
- B. Water: Potable.
- D. ACI 301, Article 2.4 - Aggregates:
 - 4. Add the following paragraph:
 - 2.4.1.1 The aggregate for CLSM shall meet the requirement of ASTM C 33, except 100% passing the ¾" sieve and a maximum of 20% passing the No. 200 sieve.
- D. Fly Ash: ASTM C 618, including Table 1A (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.

- E. Chemical Admixtures:
 - 1. Darafill by W. R. Grace and Co., 62 Whittemore Avenue, Cambridge, MA 02140, (617) 876-1400, www.graceconstruction.com.
 - 2. Eucon Easy Fill by the Euclid Chemical Company, 19218 Redwood Road, Cleveland, OH 44110, (800) 321-7628, www.euclidchemical.com.
 - 3. Rheocell Rheofill by Master Builders Technologies, 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5554, (800) 628-9990, www.masterbuilders.com.
 - 4. Sika Lightcrete Powder, Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, (201) 933-8800, www.sikaconstruction.com.
- F. Water-reducing Admixture: ASTM C 494, Type A and on New York State Department of Transportation's current "approved List".
- G. Air Entrainment Admixture: ASTM C 260 and on New York State Department of Transportation's current "Approved List".

2.2 CLSM MIXTURES

- A. CLSM, Hand Tool Excavatable: Provide mix with compressive strength of 100 psi or less when measured 28 days from placement. Minimum air content at time of placement shall be 20%.
- B. In the absence of one year strength data, the cementitious content shall be a minimum of 150 lbs./cy, the minimum air content shall be 20%, and fresh unit weight shall be a maximum of 115 lbs./ft³.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine conditions of substrates and other conditions under which work is to be performed and notify Engineer, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- B. Keep excavations free of water. Do not deposit CLSM in water.
- C. Hardened CLSM, forms, and earth which will be in contact with fresh CLSM shall be free from frost at the time of CLSM placement.
- D. Prior to placement of CLSM, remove all foreign materials from the space to be occupied by the CLSM.

3.2 PROTECTION

- A. Protect CLSM from traffic until sufficient strength has been achieved for further construction operations.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. Work Included:

1. Furnish all labor, equipment and materials and perform all operations in connection with excavating, filling, backfilling, bedding, compacting, grading, and other work necessary to complete the work in accordance with the Drawings and Specifications.
2. Excavation of pavements, unsuitable and surplus materials, and disposal in approved locations.
3. Protection of existing pipelines, utilities, structures, pavements, and new work.
4. Installation of sheeting, shoring and bracing as required.
5. Stockpiling of suitable excavated materials for subsequent use in the work, including protection to maintain materials in workable condition.

B. Subsurface Data:

1. The results of available subsurface investigations are appended to these Specifications. The data is shown for general information only. No warranty, either expressed or implied, is made as to the accuracy of the subsurface information presented.
2. Borings and/or Test Pits by Bidder: Permission may be granted upon request to make additional borings or dig additional test pits for the purpose of verifying conditions at the site. The locations and size of such exploratory holes will be subject to approval by the Owner. The cost of such additional explorations, when not specified on the Drawings, shall be borne by the Bidder. The permits for such work shall be obtained by the Bidder. Borings completed by the Owner are attached as an appendix to these specifications and can be used as supplemental information by the Contractor however they shall not be used as basis for additional payment or other claims against the Owner or its representatives.
3. Examination of Site and Interpretation of Data: Bidders shall examine the site as well as all available information and then decide for themselves the character of materials to be encountered.
4. Groundwater Information: Attention is also directed to the fact that groundwater may rise during wet weather or fall during dry weather. The Bidder is hereby

advised that varying groundwater levels are to be expected and that this may affect construction operations including earthwork.

5. Bidder to Accept Actual Site Conditions: Submission of a Proposal binds the party thereto to accept the actual site conditions and to provide a completed condition at no additional cost to the Owner except as specifically provided herein.

C. Related Work:

1. Section 31 25 13 – Erosion and Sediment Control
2. Section 31 01 01 – Site Preparation and Restoration
3. Section 03 34 00 – Controlled Low-Strength Material

D. Definitions:

1. Excavation shall mean the excavation, removal, stockpiling, and/or satisfactory disposal of all materials encountered within the limits indicated or specified other than rock or ledge. Excavated materials shall include, but not be limited to earth materials such as peat, organic or inorganic silts, clay, sand, gravel, pavements, cobble and boulders less than 1.0 cubic yard in volume, soft or disintegrated rock which, in the opinion of the Engineer, can be removed without blasting or drilling; pavement, brick and concrete masonry, and all obstructions not specifically included in another Section.
2. On-site Unsuitable Fill Material: Unsuitable materials are materials that cannot be used to complete the work due to poor physical quality (i.e. geotechnical or environmental), as determined by the Engineer. Unsuitable materials include but are not limited to topsoil, organic matter, peat, organic and inorganic silts, frozen materials, debris, or any combination thereof having unsuitable in-situ bearing properties; and all materials that are too loose or saturated to provide satisfactory bearing when used for backfill. Existing on-site unsuitable fill material shall also consist of fill containing debris, waste, vegetation, or other deleterious matter requiring disposal at a permitted off-site disposal facility.

E. All references apply to the latest revisions of the publications.

1. ASTM D422: Particle Size Analysis of Soils
2. ASTM D1556: Density and Unit Weight of Soil in Place by the Sand-Cone Method
3. ASTM D1557: Laboratory Compaction Characteristics of Soil Using Modified Effort
4. ASTM D2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)

5. ASTM D2974: Moisture, Ash and Organic Matter of Peat and other Organic Soils
6. ASTM D3017: Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)ASTM D4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

1.2 SUBMITTALS

- A. Submit a 25-pound sample of each type of off-site fill material that is to be used at the site in an air-tight container for the testing laboratory, a minimum of one week prior to delivery to the site. Submit samples to the Engineer. Use of these proposed materials by the Contractor prior to testing and approval or rejection shall be at the Contractor's own risk.
 1. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated at no additional cost to the Owner, if requested by Owner or Engineer:
 - i. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
 2. The Engineer will be responsible for the approval or rejection of the suitability of all materials.
 3. Submit the name of each supplier and specific type and source of each material. Any change in source throughout the job requires approval of the Engineer.
 4. Submit soil test reports for organic content of loam from off-site sources. Loam shall closely match the approved samples and not be delivered to the site prior to receiving approval of the soil test report.
- B. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.3 PROTECTION

- A. The Contractor shall contact Call Before You Dig a minimum of 48 hours prior to performing any excavation and shall maintain current Call Before You Dig authorization numbers during all excavation activities. Protect structures, utilities, monitoring wells, property monuments, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. The Contractor shall be responsible for actual cost of repair or replacement of any items damaged as a result of construction activities, including any professional services required for inspection of repairs and replacement.

B. Trees and Shrubbery:

1. Existing trees and shrubbery to remain shall be protected from injury during construction.
2. Except as otherwise directed, cutting and trimming of existing trees will not be permitted.
3. All existing trees to remain and which may be damaged by construction operations shall be boxed and placed and protected and all such protection shall be maintained until completion of the work.

C. Existing Utilities:

1. Excavation and backfill operations shall be done in such a manner as to prevent cave-ins of excavations or the undermining, damage, or disturbing of existing utilities and structures or of new work.
2. Backfill shall be placed and compacted so as to prevent future settlement or damage to existing utilities, structures, new work, and in accordance with the requirements of the particular utility company.
3. Any excavation improperly backfilled or where settlement occurs shall be reopened to the depth required, then refilled with new materials and compacted, and the surface restored to the required grade and condition, at no additional cost to the Owner.

D. Paved surfaces:

Do not operate equipment that will cause damage on paved surfaces. Any damage to existing roads or other paved surfaces caused by construction equipment shall be repaired at no additional cost to Owner.

E. Property:

Any damage due to excavation, backfilling or settlement of the backfill or injury to persons or damage to property occurring as a result of such damage, shall be the responsibility of the Contractor. All costs to repair such damage, in a manner satisfactory to the Owner, shall be borne by the Contractor, at no additional cost to the Owner.

1.4 QUALITY ASSURANCE

- A. Testing and Inspection: Contractor shall be responsible for all testing, unless otherwise noted. The cost for retesting due to failed tests shall be the responsibility of the Contractor.

- B. The Contractor shall be responsible for coordinating with Engineer to allow for testing to be performed at the frequencies specified. A minimum of 48 hours notice for in-place testing shall be given to allow proper scheduling by Engineer.

1.5 JOB CONDITIONS

- A. The Contractor may make his own borings, hand probes, explorations, and observations to determine soil, water levels, and other subsurface conditions at no additional cost to Owner. Coordinate with Owner prior to start of any investigative work.
- B. Existing Utilities: Contractor shall field verify location of existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations. Coordinate with utility companies for actual locations and shut-off services. If utilities are encountered that are not shown or that are shown incorrectly on the Drawings, notify Engineer immediately. Repair damaged utilities to satisfaction of Engineer and utility company having jurisdiction.

1.6 OWNER'S RESPONSIBILITY

- A. The Owner will provide an existing conditions survey of the property which is incorporated into the Contract Drawings.
- B. The Owner reserves the right to change final grades.

1.7 CONTRACTOR'S RESPONSIBILITY

- A. The Contractor shall provide adequate personnel and equipment to complete the Work as specified herein and within the agreed upon Project Construction Schedule. The Contractor shall employ qualified English-speaking supervisor who shall provide adequate and efficient coordination of the Work. The supervisor shall be present on the site on a continuous full-time basis and shall have the authority to act on behalf of the Contractor.
- B. The Contractor shall provide adequate survey control to locate building lines, parking areas, driveways, top of slopes, toe of slopes, etc. within the horizontal dimensions shown on the Contract Drawings. He shall also provide adequate vertical control to establish site grades as shown on the Contract Drawings, within the tolerances as specified hereinafter.
- C. Prior to the beginning of any site grading, the Contractor shall make sufficient checks on the topographic conditions to satisfy him/herself that the existing elevations are as shown by the topographic survey and on the Contract Drawings. Should any discrepancies be found they shall be reported to the Owner's Field Representative and Engineer in writing prior to commencement of any work.
- D. The Contractor shall review all Drawings, Specifications and all other information included in Contract Documents and shall determine the quantities of the work to be

completed and be responsible for the assumptions made in determining the cost of the Work.

- E. The Contractor shall coordinate and complete his work in such a manner as to interfere as little as possible with all other contractors and/or subcontractors working on the site.

PART 1 – PRODUCTS

2.1 MATERIALS

- A. General: All materials utilized for this Project shall be obtained from a source that has been licensed or permitted for such use by local and state authorities. The Contractor shall be required to submit evidence of such if so requested.

- 1. Inspection: The Engineer may inspect off-site sources of materials and order tests of these materials to verify compliance with these Specifications.
- 2. All materials for use as backfill and fill material shall be tested by the laboratory and approved by the Engineer.
- 3. If existing on-site fill material is unsuitable as determined by the Engineer, select backfill or approved imported off-site fill shall be used.

- B. General (Clean) Backfill Materials

- 3. Suitable backfill material for outside building and pavement areas below topsoil except in slope areas shall be a well-graded granular material, or which at least 25 percent by weight shall be retained on the No. 40 sieve.
 - 1. Suitable backfill material for outside building and pavement areas below topsoil except in slope areas shall be a well-graded granular material, of which at least 25 percent by weight shall be retained on the No. 40 sieve and at least 80 percent by weight shall be retained on the No. 200 sieve. It shall be free from peat, organic matter and debris, and shall not contain any stones or clay lumps in excess of 6 inches in their greatest dimensions. On-site soils containing a higher silt content may be used at the discretion of the Engineer. Any materials of whatever description which are too uniformly graded or saturated to be readily compactable shall not be utilized for earth borrow.

- C. Crushed Stone

Crushed stone bedding material shall consist of clean, hard, durable angular fragments of crushed rock, reasonably free from thin, flat, elongated stone pieces, clay, organic matter, or other objectionable materials. Crushed stone shall conform to the following gradation requirements:

U.S. STANDARD <u>SIEVE SIZE</u>	<u>% PASSING BY WEIGHT</u>
1"	<u>¾-Inch Stone</u> 100
¾"	40-50
½"	10-30
3/8"	0-15
#4	0-5
#8	trace

D. Approved Backfill and Fill (Subbase)

All backfill for trenches and excavations shall be approved imported granular backfill or Type 4 material, unless otherwise noted. Backfill shall be placed in 6-inch thick loose lifts and compacted to 95% of the optimum dry density as per ASTM D-1557.

E. Approved Type 4 Backfill (Subbase)

Aggregate for the Subbase Type 4 material shall be composed in such proportions that the resulting composite blend meets the following as per NYSDOT Standard Specifications Section 304-2.02 A

U.S. STANDARD <u>SIEVE SIZE</u>	<u>% PASSING BY WEIGHT</u>
2"	100
¼"	30-65
No. 40	5-40
No. 200	0-10

The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.

Elongated particles shall not consist of more than 30% by weight of the particles retained on the one-half (1/2) inch sieve. An elongated particle is defined herein as one which has its greatest dimension more than three (3) times its least dimension.

1.2 RESTRICTIONS

No rock or frozen earth shall be put in the trench until the refilling has reached at least one (1) foot, above the top of the pipe lines. All spaces between suitable pieces of rock shall be thoroughly filled with earth by backfilling in alternate layers of rock and earth. Pieces of rock over two (2) cubic feet in volume shall not be used in backfilling.

PART 3 – EXECUTION

3.1 EXCAVATION

A. General Requirements:

1. Excavation shall be made to the lines and grades shown on the Drawings, or as modified by the Owner. Remove all materials encountered to the limits designated in the Specifications.
2. Earth excavation: Remove and dispose of obstructions visible on ground surface, underground structures, utilities, and items indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation.
3. Unauthorized excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer including refilling, shall be at Contractor's expense.
4. Refilling Unauthorized Excavation: For trenches, use 3/4" crushed stone. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.
5. The Contractor shall provide temporary sheeting, shoring, and bracing in all locations where required to protect all excavated areas, as required for safety or compliance with OSHA at no additional cost to the Owner. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, he/she may order additional supports placed at the expense of the Contractor. Compliance with such order shall not relieve the Contractor from his/her responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.
6. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, State and Federal safety regulations. Specifically, the current OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926 should be followed. These regulations are strictly enforced by OSHA.

The Contractor's "responsible person", as defined in 29 CFR Part 1926, will evaluate the soil exposed in the excavations as part of the Contractor's safety procedures. If an excavation, including a trench, is extended to a depth of more than twenty feet (20'), the Contractor will engage a Professional Engineer registered in the state where construction is occurring to design the slopes and/or shoring required for the excavation.

The Contractor's "responsible person" will establish a minimum lateral distance from the crest of the slope for all vehicles and spoil piles. Likewise, the Contractor's "responsible person" will establish protective measures for exposed slope faces.

7. The Contractor shall exercise care to preserve the material below and beyond the lines of excavation. Where excavation is carried out, through error, below indicated grade or beyond the lines of excavation, the Contractor shall backfill to the indicated grade and compact with approved fill at no additional cost to the Owner, and at the direction of the Engineer. The Contractor shall not over-excavate below the proposed design grades for the purpose of obtaining borrow for use off-site.
8. Boulders encountered during footing excavations shall be removed and the resulting voids shall be filled with compacted granular fill.
9. Excavated materials unsuitable for reuse and surplus excavated soil not used to fulfill requirements of the Contract shall become the property of the Contractor and shall be removed from the site at no additional cost to the Owner in accordance with regulations and requirements of all municipalities or agencies having jurisdiction over the disposal sites and the route between the site and the disposal sites.
10. If unsuitable material is encountered at the depths indicated on the Drawings for bottom limit of excavation, the Contractor shall remove unsuitable material beneath utility trench as directed by Engineer.
11. If visual, olfactory, or other evidence suggests that soils are contaminated with oil or hazardous materials, the Contractor shall immediately halt soil movement activities and notify the Owner or Engineer.
12. Upon excavation to subgrade, the Contractor shall compact the natural ground above groundwater levels by making a minimum of two passes with approved compaction equipment. Contractor shall place backfill and fill materials in layers not more than 6 inches in loose depth. Contractor shall immediately place a layer of Crushed Stone over footing subgrade if wet weather is expected or water is flowing into the excavation.
13. The Contractor shall excavate in such a manner as to minimize disturbance of the underlying natural ground. If judged necessary, the Contractor will be required to alter his construction procedures to reduce subgrade disturbance. Areas which have been excessively disturbed shall be excavated to firm ground and backfilled with properly compacted Crushed Stone at the Contractor's expense.
14. Material Storage: Stockpile and maintain suitable surplus excavated materials for re-use as backfill, as directed by Engineer. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations.
15. The Owner, for reason of safety and expeditious construction, will limit the length of the trench to be opened, or the area of the surface to be disturbed or restored at any one time. Generally, trenches should not be opened for more than 100 feet in advance of pipe laying nor left unfilled more than 50 feet in the rear of pipe laying. New trenches will not be permitted when earlier trenches need backfilling or labor is needed to restore the surface of the streets to a safe and proper

condition. The Engineer will refuse additional lines and grades for new trenches should the Contractor fail to meet the Contract requirements as to backfilling and resurfacing.

16. The trench in which the water main is to be laid shall utilize a trench box or tight sheeting where required by OSHA and to a normal maximum width as shown on the Drawings. In case rock is encountered in the trench, it shall be excavated to a depth of six inches below the pipe elevation and the space so excavated shall be filled to the pipe elevation with acceptable material thoroughly compacted. Payment for rock excavation will be made under the unit price for rock excavation.

B. Surface Preparation – Paved Areas:

1. Cut and remove existing pavements and base courses to obtain sound, vertical edges.
2. The Contractor shall protect existing pavements and base courses to remain, and repair damage caused by excavations, at no expense to the Owner.
3. Protect existing pipelines, utilities and structures so that no damage occurs during excavation operations.
4. Keep all materials a safe distance away from the edge of the excavation to avoid overloading the sides of the excavation and prevent slides or cave-ins.
5. The Contractor shall remove and dispose of the existing pavements in the course of his work. Care shall be taken so that existing pavement material is not mixed with excavation material to be used for backfill.

C. Dewatering and Control of Water:

1. All excavations shall be kept dry at all times, and all construction work shall be performed in the dry, unless otherwise authorized or directed by the Owner.
2. Grading shall be accomplished to prevent surface water from flowing into excavations, damaging other structures, or adjacent properties.
3. Accumulated water shall be removed by pumping or other approved methods.
4. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
5. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey water removed from excavations and rain water to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

6. Any material which becomes unsuitable as a result of the Contractor's lack of dewatering or improper dewatering shall be removed by the Contractor and replaced with suitable material, as directed and approved by the Engineer, at no additional expense to the Owner.
7. The Contractor shall follow a construction procedure which permits visual identification of firm ground. In the event groundwater is encountered, the Engineer may require that the size of the open excavation 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.
8. All requirements of local environmental or conservation authority shall be satisfied.

3.2 EXCAVATION

- A. Provide shoring, sheeting, and/or bracing of excavations as required to assure complete safety against collapse of earth at side of excavations. Alternatively, cut back excavations to a stable slope.
- B. Comply with local safety regulations and/or, in the absence thereof, within the provisions of the Occupational Safety and Health Act (OSHA).
- C. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the screened gravel backfill.
- D. Permission will be given to use steel sheeting in lieu of wood sheeting for the entire job wherever the use of sheeting is necessary. The cost for use of sheeting shall include full compensation for driving, bracing and later removal of sheeting.
- E. Remove sheeting and shoring, etc., as backfilling operations progress, taking all necessary precautions to prevent collapse of excavation sides. All voids left after withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, by watering or otherwise as directed.
- F. Sheeting driven below mid-diameter of any pipe shall remain in place from the driven elevation to at least 1 foot above the top of the pipe.
- G. Temporary bracing of all below-grade walls to eliminate movement during backfilling will be required except in cases where the walls have been integrated into the permanent superstructure and derive support from it. The design and proposed construction procedure for bracing systems shall be submitted to the Engineer for approval at least one (1) week prior to commencing with the work.

- H. All shoring, sheeting, and bracing shall be designed as required by a professional engineer, shall be implemented per the design, and overseen by a professional engineer as required.
- I. If, in the opinion of the Engineer, sufficient or proper supports have not been provided, he may order additional supports to be placed at the expense of the Contractor. Failure of the Engineer to issue such orders shall not relieve the Contractor from responsibility for the sufficiency of such supports. The formation of voids outside the sheathing shall be avoided, if possible, but if formed they shall be immediately filled and satisfactorily rammed

3.3 BACKFILLING

- A. General: Unless directed otherwise by the Owner, excavations and trenches shall not be backfilled until new utilities have been inspected, and if required, tested satisfactorily; and work conforms to all requirements of the Drawings and Specifications. Place suitable soil material in layers to required elevations as shown on the Drawings. Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers of beginning at lowest area to be filled. Do not impair drainage. Do not use on-site topsoil as fill material.
 - 1. The Contractor shall begin backfilling as soon as practical with suitable material. To the extent that is practical, each layer of fill shall be compacted to the specified density the same day it is placed. On-site soil intended for use as compacted fill shall be placed and compacted as soon as it is excavated to increase its reuse potential and limit exposure to rain, snow and frost.
 - a. Fill shall not be left unprotected from the weather in stockpiles. Dry fill which is excavated shall be placed and compacted immediately. Fill which becomes frozen or saturated in stockpiles shall be replaced with suitable off-site fill at the Contractor's expense.
 - b. Allow the Engineer sufficient time to make necessary observations and tests.
 - c. In no case shall fill be placed over material that is frozen. Soil that is frozen shall be removed prior to placement of compacted fill.
 - d. When work is interrupted by heavy rains, fill operations shall not resume until the moisture content and the density of the previously placed fill are as specified. Protect fill area by grading to drain and providing a smooth surface which will readily shed water. Grade the surface of the areas in such a manner as to prevent ponding of surface runoff water in areas to receive compacted fill.
 - e. Fill shall be placed in horizontal layers. Where the horizontal layer meets a rising slope, the layer shall be keyed into the slope by cutting a bench during spreading of preceding lift.

2. All backfilling shall conform with the following:

- a. **BACKFILL MATERIAL** – All backfill material shall be free from cinders, ashes, refuse, vegetable or organic matter, boulders, rocks, stones, removed surface material, or other material that is considered unsuitable by the The Village of Tarrytown. From one foot above the top of the pipe to the pavement subgrade, however, material containing stones up to 6 inches in their greatest dimension may be used, unless otherwise specified. If excavated material is rejected as backfill, or there is a deficiency due to a rejection or part thereof, the required amount of sand, gravel, or other material shall be provide as directed by the Engineer.

3.4 COMPACTION

- A. Fills, refills, and backfills shall be compacted to not less than the percentage of the ASTM maximum dry density specified below. In addition to the minimum degree of compaction, each lift shall be firm and stable under the weight of the vibratory compaction equipment during compaction.

<u>Area</u>	<u>Minimum Degree of Compaction</u>
Below footings	95%
Below slabs	95%
Pavement base course	95%
Pavement subbase	95%
General fill below pavement subbase	92%
Trench backfill (outside building)	90%
Trench backfill (inside building)	95%
Landscape areas (top 2' except in slope/detention embankment areas)	90%
Landscape areas (below 2' from grade except in slope/detention embankment areas)	85%
Slope and detention embankment areas	95%
Behind retaining walls	92% minimum to 95% maximum

- B. All percentages of compaction specified herein shall be related to the maximum dry density as established by ASTM D1557 and verified in the field by ASTM D1556 (sand cone) or ASTM D2922 (nuclear methods).
- C. Fill that is too wet for proper compaction shall be disced, harrowed, or otherwise dried to a proper moisture content for compaction to the required density. Layering on-site soils with alternating lifts of suitable backfill may be attempted to stabilize the on-site soils. No more than one lift of on-site soil and one lift of sand and gravel may be placed unless the combined “sandwich” lifts have been adequately compacted to a firm and stable condition. If the fill material cannot be dried within forty-eight (48) hours of placement, it shall be removed and replaced with drier fill.

- D. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.
- E. Initial field density test to determine the actual in-place densities being attained will be made at the Contractor's expense and in sufficient quantity to determine that the required compaction is being attained. All retesting necessitated by failure of the backfill to comply with the minimum percent of compaction shall be performed by a testing laboratory selected by the Owner and the cost of the retesting will be paid for by the Contractor.

The Owner's waiver of the specified tests does not relieve the Contractor from the requirement to obtain the specified densities.

3.5 OBSERVATION AND TESTING

- A. The Owner shall retain an Engineer to perform on-site observation during the Work. The Engineer shall be selected by the Owner and shall be coordinated with the Contractor. The services of the Engineer shall include, but not be limited to the following:
 - 1. Observation during excavation and dewatering of building and controlled fill areas.
 - 2. Observation during filling, backfilling and compacting operations within that area defined as building area or controlled fill area and other areas as appropriate.
 - 3. Observation during footing excavations and backfilling operations.
 - 4. Reviewing laboratory testing and analysis of fill materials specified, as required.
 - 5. Observation of construction and performance of water content, gradation, and compaction tests at a frequency and at locations that the Engineer shall select. The results of these tests will be submitted to the Owner, on a timely basis so that action can be taken to remedy indicated deficiencies. During the course of construction, the Engineer will advise the Owner in writing if at any time in the Engineer's opinion, the work does not conform to the plans and specifications.
 - 6. The Engineer's presence does not include supervision or direction of the actual work by the Contractor, the Contractor's employees, or agents. Neither the presence of the Engineer nor any observations and testing performed by the Engineer nor any notice or failure to give notice, shall excuse the Contractor from defects discovered in his work.

3.6 GRADING

- A. Grading: Uniformly grade areas under this section, including adjacent transition areas. Smooth finish surface within specified tolerances and compact with uniform levels or

slopes between points where elevations are shown, or between such points and existing grades.

- B. Grading Outside Structure Lines: Grade areas adjacent to structure to drain away from structures and to prevent ponding.
- C. Finish surfaces free from irregular surface changes and as follows:
 - 1. Lawn, Unpaved Areas: Finish areas to receive topsoil to within not more than 1” above or below required subgrade elevations.
 - 2. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.
 - 3. Fill Under Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2 inch when tested with a 10 foot straightedge.

3.7 EROSION CONTROL

- A. Provide erosion control measures as specified in Section 31 25 13 – Erosion and Sediment Control and as shown on the Drawings.

3.8 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.
- C. Settling: Where settling is measurable or observable at excavated areas during warranty period; remove surface, add backfill material, compact, and replace surface. Restore appearance, quality, and condition of surface to match adjacent work, and eliminate evidence of restoration work to greatest extent possible.

3.9 COMPLETION

- A. After backfilling excavation, the Contractor shall maintain the filling surfaces in good condition, with a smooth surface level, leaving adjacent surfaces undisturbed. Any subsequent settling shall be immediately repaired by the Contractor and such maintenance shall be provided by the Contractor for the remainder of the Contract, at no additional expense to the Owner.

- B. The finished surfaces of filled excavations shall be compacted, and reasonably smooth and free from surface irregularities. Subgrade upon which pavements are to be constructed shall be maintained in a satisfactory condition until the finish courses are placed. The storage or stockpiling of materials on finished subgrade will not be permitted.
- C. Prior to paving upon the subgrade, all soft or unsuitable material shall be removed and replaced with suitable backfill material. All low sections, holes, or depressions shall be brought to the required grade with approved material. The entire subgrade shall be shaped to line, grade, and cross section and thoroughly compacted.
- D. All unsuitable material or backfill material in excess of the amount required for the satisfactory completion of backfilling operations or other filling operations shall be legally disposed of at the Contractor's own expense. All other excess materials shall be disposed of properly in accordance with all Local, State, and Federal regulations.

END OF SECTION

SECTION 31 01 01

SITE PREPARATION AND RESTORATION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. The Contractor shall provide all labor, plant, material and equipment to prepare the site for construction in accordance with the Contract Documents. Work shall include, but not be limited to:
1. Construction Layout.
 2. Temporary Services.
 3. Protection of existing structures and utilities to remain.
 4. Protection of existing trees, landscaping and natural features to remain.
 5. Maintenance and protection of traffic.
 6. Construction and maintenance of access road and staging area.
 7. Clean-up
- B. Related Sections
1. Section 310000 – Earthwork
 2. Section 321513 – Erosion and Sediment Control

1.2 CONSTRUCTION DETAILS

- A. Locations shown on Drawings not Guaranteed: The structures, utilities, trees, shrubs and other features shown on the Drawings are those known to exist, but their locations are not guaranteed to be exact, nor is it guaranteed that all structures, utilities, trees, shrubs and features are shown. The Contractor shall, however, be responsible for the protection of all items and features which are to remain whether shown on the Drawings or not.
- B. Safeguards and Protection
1. The Contractor shall provide all necessary safeguards including the installation of shoring, structural supports, protective and security fencing and barriers, etc., as may be required to prevent damage to adjacent property or injury to persons. All work shall be done in accordance with the requirements of the local building codes and the rules, regulations and ordinances of all other governing bodies having jurisdiction. The Contractor shall be held responsible for any claim arising from his failure to provide proper safeguards or for his failure to conduct his operation in a manner consistent with the rules, regulations and ordinances of those governing bodies having jurisdiction.

2. At the end of each work day, the Contractor shall secure the site to ensure that all Safety measures, including fences, barricades, etc. are in place and there are no unprotected hazards on the site. Open excavations shall be covered at the end of each work day.
 3. Construction fencing shall be maintained at all times during the construction operations in accordance with the requirements of OSHA and all Authorities having jurisdiction.
- C. Replacement of Disturbed Ground Surfaces: The Contractor shall, at his own expense, repair or replace all ground surfaces, pavements, sidewalks, curbs, etc., which are to remain and which may become disturbed or damaged due to his operations. Said repair or replacement shall be satisfactory to the Owner's Field Representative and in accordance with the requirements of the governing body having jurisdiction.
- D. Damage: The Contractor, at his own expense, shall make good, repair and/or replace all damage occurring as a direct or indirect result of his operations.
- E. Notification of Utility Owner's: Prior to the start of his work, the Contractor shall be required to notify the One-Call Notification System serving the area of the proposed Work and to contact and notify separately the Owner's of utilities that do not belong to the One-Call Notification System on file with the Village of Tarrytown, so that all the various underground utility operators will be able to locate and mark the locations of their own utilities. Notification of operators of utilities must be made at least two (2) days and not more than ten (10) days prior to the start of any construction and as required by State and Local laws. No work by the Contractor shall commence until the operators have notified the Contractor that their utilities have been located. The Contractor shall be held responsible for any claims arising from his failure to make such notification, or for his failure to do the work in accordance with the rules and regulations of the governing Authorities and Owner's of the utilities involved.
- F. Test Pits: Wherever the proposed utilities cross or connect to existing utilities, the Contractor will be required to hand excavate test pits to determine location and elevation of the existing utilities. This work is to be done prior to any trench excavation. In the event of conflict between the existing utility and the proposed utility, the Contractor shall notify the Owner's Field Representative and Engineer immediately for resolution of the conflict.

1.3 CONSTRUCTION LAYOUT

- A. General Requirements: The Contractor shall provide all work required in connection with the layout for construction of the Work. The Contractor shall be responsible for establishing property lines, easement lines, base lines, control points and benchmarks which shall be maintained and protected throughout the life of the Contract. The Contractor shall employ a licensed land surveyor, registered in the State(s) in which the Work is performed, to do the layout work, who shall establish locations,

- alignments, elevations, reference marks, off-set lines, batter boards, etc., needed by the Contractor during the progress of the Work, and from time to time to verify such marks by instrument or other appropriate means.
- B. Check of Layout Work by Owner's Field Representative and Engineer: The Owner's Field Representative and Engineer shall be permitted, at all times, to check the locations, alignments, elevations, reference marks, batter boards, etc., set by the Contractor, who shall correct any errors in lines, elevations, reference marks, batter boards, etc., that may be disclosed by such check. Such a check shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire Work.
 - C. Contractor to Protect and Maintain Control Points: The Contractor shall be responsible for protecting and maintaining the points that he has established and also any control points that may be furnished by the Owner.
 - D. Contractor's Responsibility: The Contractor shall make, check, and be responsible for all measurements and dimensions necessary for the proper construction and installation of all items of work under this Contract. The Contractor shall be responsible for the finished Work in conformance with the lines, grades and locations called for on the Drawings, and he shall correct all errors caused by improper layout of the Work or due to errors by his personnel at no additional cost to the Owner.
 - E. Payment: No additional payment will be made for construction layout; compensation shall be considered as included in the Contract Sum.

1.4 JOB CONDITIONS

- A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required. When conditions detrimental to plant growth are encountered, notify Engineer before planting.
- B. Utilities: Perform work in a manner which will avoid damage to underground utilities.
- C. Beginning work means acceptance of existing conditions.
- D. Time For Seeding: Sow grass seed between April 1 and May 15th or between August 15th and October 15th, except as otherwise approved in writing by the Owner.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Protective Devices and Barricades: Shall be the Contractor’s option, subject to approval of the Engineer.

B. TOPSOIL

1. Use topsoil stockpiled for re-use in landscape work. If quantity of stockpiled topsoil is insufficient, provide additional topsoil as required to complete landscape work.
2. Provide new topsoil which is fertile, friable, natural loam surface soil found at a depth of not less than 4-inches from the original ground surface, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 2-inches in any dimension, and debris.
3. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4-inches; do not obtain from bogs or marshes.

C. FERTILIZER

1. Fertilizer shall not be applied.

D. SEED

1. Furnish fresh, clean, new-crop seed mixed in the proportions specified for species and variety, and conforming to Federal and State Standards.
2. Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.
3. All seed will be rejected if the label indicates any noxious weed seeds.
4. Provide seed mixture equal to Scotts Pure Premium Sun and Shade North Grass Seed Mixture, comprised of the following:

SEED MIXTURE			
AMOUNT BY WEIGHT IN MIXTURE	SPECIES OR VARIETY *	PERCENTAGE	
		PURITY	GERMINATION
30 PERCENT	FENWAY RED FESCUE	97 PERCENT	80 PERCENT
30 PERCENT	ABBEY KENTUCKY BLUEGRASS BLEND	95 PERCENT	80 PERCENT
20 PERCENT	DEVINE PERENNIAL RYE	98 PERCENT	85 PERCENT
20 PERCENT	ENCHANTED PERENNIAL RYE	98 PERCENT	85 PERCENT
100 PERCENT			

*Variety may be altered depending on availability of seed from manufacturer.

E. MULCH

1. Dry Application, Straw: Stalks of oats, wheat, rye or other approved crops that are free of noxious weed seeds. Weight shall be based on a 15 percent moisture content.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify the utility Owner's or entities having jurisdiction over utilities running to, through or across areas to be disturbed by demolition operations. The Contractor is responsible for the disconnection or removal of utilities in accordance with the requirements governing the utility involved.
- B. Review project record documents of existing construction. The Owner does not guarantee that existing conditions are the same as those indicated in the project record documents.
- C. Inventory and record the condition of items to be removed and salvaged.
- D. Verify that all hazardous materials and petroleum products have been removed before proceeding with demolition operations.

3.2 GENERAL

- A. Refer to the references section above for more information and reference to appropriate specification sections regarding demolition and disposal procedures and operations.

3.3 SITE CLEAN UP AND RESTORATION

- A. Rough grade below-grade areas in preparation for further excavation or new construction to provide a smooth transition between adjacent existing grades and new grades. Fill below-grade areas and voids resulting from site preparation with satisfactory soil materials as necessary according to backfill requirements in accordance with Section 310000 Earthwork.
- B. The Contractor shall clean up and remove all refuse, rubbish, scrap materials, unsuitable materials and debris caused by his operations so that, at all times, the site of the Work shall present a neat, orderly and workmanlike appearance. Materials from the Contractor's operations shall not be allowed to accumulate and cause hazardous or unsightly conditions.
- C. Where and as directed by the Owner's Field Representative, the Contractor shall replace all surfaces disturbed and shall restore paving, curbing, sidewalks, driveways, gutters, shrubbery, fences, grassed areas, sod and other surfaces disturbed to a condition equal to or better than that which existed before the Work began, furnishing all labor, material, and equipment necessary thereto.

The Contractor shall, at said Contractor's own expense and to the satisfaction of the Owner's Field Representative, clean up and correct unsightliness, inconvenience, hazard or damage caused by water, mud, stones, dust, rubbish, construction debris, traffic, workmen or the general operations. Wheel tracks, paths, puddles, damaged growth, ragged edges, undesirable spoil from excavation and rough slopes are to be removed, obliterated, corrected, graded, leveled, patched or smoothed. All adjacent areas that have been damaged or that require re-grading shall be smoothed and worked to make the Project area blend into existing conditions.

Unsightliness extending onto adjacent private or public property shall be corrected to the satisfaction of both the Owner of the adjacent property and the Owner's Field Representative, and no private agreements allowing a waiver of clean up will be recognized.

- D. The Contractor shall leave the site in a safe, clean, and relatively orderly condition upon completion of the Work under this section.

END OF SECTION

SECTION 31 25 13

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

- A. Provide and maintain devices to control erosion, siltation, sedimentation and dust that occurs during construction operations. Undertake every reasonable precaution and do whatever is necessary to avoid erosion of soil and to prevent silting of adjacent wetland areas, drainage ditches, storm sewers and streams.
- B. Provide measures to control dust caused whether on or off the Project site.
- C. Deficiencies in erosion control measures indicated by failures or erosion shall be immediately corrected by providing additional measures or different techniques to correct the situation and prevent subsequent erosion.
- D. Exposure of soils on embankments, excavations, and graded areas shall be kept as short as possible. Initiate seeding and other erosion control practices as soon as reasonably possible.
- E. Install erosion control measures in any ditch, swale or channel before water is allowed to flow in the waterway.
- F. Mechanized equipment shall not be permitted in watercourses and construction disturbance shall be minimized. In no event shall disturbance extend further than indicated, unless acceptable to Engineer.
- G. Related Work Specified Elsewhere:
 - 1. Section 310000 – Earthwork
 - 2. Section 310101 – Site Preparation and Restoration

1.2 QUALITY ASSURANCE:

- A. Conform to all requirements of applicable federal, state and local permits, and Contract Documents.
- B. Meet with the Engineer to discuss erosion control requirements prior to the start of construction.

PART 2 - PRODUCTS

- 2.1 MATERIALS: Use the following materials to implement and construct erosion control

measures. Other materials require approval of the Engineer.

- A. Siltation Fence: Mirafi Environfence, Propex Fabrics 100X, or approved equal.
- B. Mulch: Type and use as specified by the Erosion Control Handbook.
 - 1. Long fibered hay or straw in dry condition and which are relatively free of weeds and foreign matter detrimental to plant life.
 - 2. Mulch binder: An asphalt emulsion mulch binder of type acceptable to the Engineer.
 - 3. Mulch netting: Plastic or nylon mesh netting with approximate openings of 1/4" to 1"; or other netting approved by the Engineer.
- C. Temporary Seed: Where lawn areas are excavated, seed variety and applied rate are selected based upon the date of application, and as determined by the following table. Equivalent seed mixture based on its suitability for use in controlling erosion of the various soil types and slopes may be used as approved by the Engineer.

<u>Dates</u>	<u>Seed</u>	<u>Applied Rate</u>
4-1 to 7-1 8-15 to 9-15	Oats	1.8 lb/1000 ft ²
4-1 to 7-1	Annual Ryegrass	0.9 lb/1000 ft ²
5-15 to 8-15	Sudangrass	0.9 lb/1000 ft ²
9-15 to 10-15	Winter Rye	2.6 lb/1000 ft ²

- D. Erosion Control Mix: Composted blend of bark, sand and gravel with a maximum particle size of 6 inches, as produced by Resource Conservation Services, Inc.
- E. Silt Sack: Hi-Flow Siltsack as manufactured by ACF Environmental or approved equal.

PART 3 - EXECUTION

3.1 CONSTRUCTION:

- A. Silt Fence:
 - 1. Construct as shown on Drawings. Install parallel to contours where possible, prior to site clearing and grading activities.
 - 2. Bury lower edge of fabric at least 8 inches below ground surface to prevent underflow.

3. Curve ends of fence uphill to prevent flow around ends.
 4. Inspect frequently; repair or replace any damaged sections.
 5. Remove fence only when adequate grass catch has been established.
- B. Mulch:
1. Undertake immediately after each area has been properly prepared.
 2. When seed for erosion control is sown prior to placing the mulch, place mulch on the seeded areas within 48 hours after seeding.
 3. Apply mulch at 1.5 to 2.0 tons per acre. Mulch applied between the dates of December 1 through March 31 for winter stabilization shall be applied at 3.0 to 4.0 tons per acre.
 4. Blowing chopped mulch will be permitted.
 5. Hay mulch should cover the ground enough to shade it, but the mulch should not be so thick that a person standing cannot see ground through the mulch.
 6. Remove matted mulch or bunches.
- C. Temporary Seeding:
1. Seed with appropriate seeds and application rates from the table in paragraph 2.1D of this Section. Seed shall be sown at the rate indicated, on the pure live seed basis.
 2. Mulch areas where temporary seeding has been applied. Do not mulch seeded areas where blankets will be immediately installed.
 3. If temporary seeding does not achieve adequate growth by November 1, an additional layer of mulch shall be applied at that time.
- D. Topsoil Storage:
1. Topsoil which is stockpiled on the site for use in loam applications shall be placed out of natural drainages, in piles not more than 8 feet in height, which have side slopes of 50% to 70%.
 2. Silt fence shall be installed around stockpile area.
 3. A shallow trench shall be bulldozed around the base of the pile to prevent eroding soil from washing into drainages.
 4. Any topsoil piles which are to remain for a period of 1 month or more shall be covered with temporary seed and mulch immediately following stockpiling.
- E. Dust Control: Utilize the application of sprinkled water to reduce the emission of air-borne soil particulates from the Project site. Calcium chloride shall not be permitted for use, unless acceptable to Engineer.
- F. Silt Sack: Install silt sacks on catch basins as shown on the Drawings. Install additional silt sacks as directed by the Engineer.
- G. Other Temporary Measures:
1. Utilize other temporary erosion control measures as directed by the Engineer.

2. Type and use shall be as specified in the Erosion Control Handbook.

3.2 MAINTENANCE:

- A. Inspect erosion control practices immediately after each rainfall and at least daily during prolonged rainfall or snowmelt for damage. Make appropriate repairs or replacement at no additional cost to the Owner, until Project acceptance.
- B. Remove silt from siltation fence when it has reached one-half the fence height, or prior to expected heavy runoff or siltation.
- C. Repair matting if any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, make satisfactory repairs immediately.
- D. Maintain areas mulched or matted, at no additional cost to the Owner, until Project acceptance.

3.3 REMOVAL OF TEMPORARY EROSION CONTROL:

- A. Remove temporary materials and devices when permanent soil stabilization has been achieved. Re-use materials in good condition, if approved by the Engineer.
- B. Level and grade to the extent required to present a sightly appearance and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.
- C. Remove unsuitable materials from site and dispose of in a lawful manner.

END OF SECTION

SECTION 32 12 16

ASPHALT CONCRETE PAVING

PART 1 – GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 31 00 00 – Earthwork

1.2 SUBMITTALS

- A. Product Data: Manufacturer's name, specifications, and installation instructions, for each product specified.
- B. Quality Control Submittals:
 - 1. Plant name and location of asphalt concrete supplier.

1.3 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Discontinue paving when surface temperatures fall below requirements listed in DOT Table 402-2.
 - 2. Do not place asphalt concrete on wet surfaces, or when weather conditions otherwise prevent the proper handling or finishing of bituminous mixtures as determined by the Engineer.

1.4 REFERENCES

- A. New York City Department of Transportation Standard Highway Specifications Volume I, last revised February 1, 2009.

PART 2 – PRODUCTS

2.1 MATERIALS FOR LOCAL ROADS

- A. Approved Backfill, as defined in Section 31 00 00 – Earthwork.
- B. Bituminous Dense Top Course Type 6F: Bituminous dense top course type 6F shall meet the high friction requirements of NYSDOT Standard Specification Section 401-2.03 (NYSDOT Item No. 403.1701). Aggregate for Bituminous Dense Top Course Type 6F shall be comprised

in such proportions that the resulting composite blend meets the following as per the NYSDOT Table 401-1:

U.S. STANDARD <u>SIEVE SIZE</u>	<u>% PASSING BY WEIGHT</u>
1"	100
½"	95-100
¼"	65-85
1/8"	35-65
No. 20	15-40
No. 40	5-30
No. 80	0-20
No. 200	0-10

- C. Bituminous Dense Binder Course Type 3: Aggregate for Bituminous Dense Binder Course Type 3 shall be comprised in such proportions that the resulting composite blend meets the following as per the NYSDOT Table 401-1:

U.S. STANDARD <u>SIEVE SIZE</u>	<u>% PASSING BY WEIGHT</u>
1-½ "	100
1"	95-100
½"	70-90
¼"	50-75
1/8"	30-60
No. 20	15-40
No. 40	10-30
No. 80	0-20
No. 200	0-10

- D. Tack Coat: In accordance with NYSDOT Standard Specifications Section 407.

2.2 MATERIALS FOR STATE ROADS

- A. Controlled Low-Strength Material (a.k.a. "CLSM" or "K-crete"): As specified in Section 03 34 00 – Controlled Low-Strength Material
- B. Subbase Course: As specified in Section 31 00 00 – Earthwork
- C. Base Course: NYSDOT Item 404.376901, 37.5 mm F9. Base course shall meet the requirements of NYSDOT Standard Specifications Section 404.

- D. Binder Course: NYSDOT Item 404.196901, 19 mm F9. Binder course shall meet the requirements of NYSDOT Standard Specifications Section 404.
- E. Surface Course: NYSDOT Item 404.126101, 12.5 mm F1. Surface course shall meet the requirements of NYSDOT Standard Specification Section 404.
- F. Tack Coat: In accordance with NYSDOT Standard Specifications Section 407.

PART 3 – EXECUTION

3.1 INSPECTION

- A. The Contractor shall examine the areas and conditions under which work of this Section will be installed and shall correct conditions detrimental to proper and timely completion of the work. The Contractor shall not proceed until unsatisfactory conditions have been corrected to the satisfaction of the Owner.

3.2 THICKNESS AND SURFACE REQUIREMENTS

- A. Thickness and surfaces requirements for pavements shall be as shown on the Drawings and in accordance with the NYSDOT Standard Specifications for Construction Materials.

3.3 CONSTRUCTION REQUIREMENTS

- A. All work related to the construction of the pavement shall be done in accordance with the requirements of the NYSDOT Standard Specifications for Construction Materials.
- B. All existing pavement edges shall be saw cut full depth and coated with tack coat asphalt prior to paving.
- C. All milling work shall be done as per NYSDOT Section 490.

3.4 PRODUCT-SPECIFIC REQUIREMENTS

- A. Bituminous Dense Top Course Type 6F: Prior to placement of the compacted layer of bituminous dense top course Type 6F, the area inside the milling and pavement limits shown on the plans shall be removed by saw cutting and milling. The surface course shall be installed in a single lift. All vertical faces of the milled area and exposed castings, when left exposed to traffic, shall be feathered with asphalt material Binder Course

Type 3 or cold patch for smooth and safe vehicular movement, prior to the final placement of the Type 6F top course.

The top course shall be installed at the locations and to the extent shown for paving of roads, driveways, parking areas and all other areas designated for paving as shown on the plans. Installation of the surface course shall not be undertaken without approval of the Owner.

- B. Bituminous Dense Binder Course Type 3: Subsequent to the final shaping and compacting of the subbase, there shall be placed the bituminous dense binder course at the locations and to the extent shown for paving of roads, trenches, driveways, parking areas, and all other areas designated for paving within the project streets. Bituminous dense binder course shall be hot plant mix placed in one compacted layer of not more than four (4) inches and as shown in the plans, utilizing paving machinery approved by the Owner.
- C. Tack Coat: Tack coat shall be applied to all asphalt layers prior to the placement of additional asphalt lifts if the in-place asphalt lift is older than 5 hours or if traffic has been permitted to travel on the in-place asphalt lift. No traffic shall be permitted to travel on tacked asphalt surfaces.

All surfaces of previously placed asphalt receiving additional asphalt shall be tack-coated prior to the placement of the asphalt. All vertical edges receiving asphalt shall be tack-coated prior to asphalt placement. The Contractor shall provide a distributor for applying the tack coat as per NYSDOT Section 407-3.01. The tack coat shall not be applied on a wet pavement surface or when the surface temperature is less than 45 F per NYSDOT Section 407-3.02.

Tack coats shall be prepared and applied as specified within Section 407 of the "Standard Specifications Construction and Materials," NYSDOT 1900 (702-90) or latest edition. The application rate for tack coats is 0.03 to 0.07 gallons per square yard.

END OF SECTION

SECTION 33 11 01

WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. The work in this section consists of providing and installing cement-lined ductile iron pipe.
- B. Related Sections
 - 1. Section 310000 – Earthwork
 - 2. Section 331216 – Water Valves and Fittings
 - 3. Section 331219 – Water Utility Distribution Fire Hydrants
 - 4. Section 331300 – Water System Disinfection

1.2 SUBMITTALS

- A. Product Data: Manufacturer's specifications including dimensions and coatings.
- B. Quality Control Submittals: Statement of compliance with ANSI/AWWA Specifications.

1.3 QUALITY ASSURANCE (in other sections)

- A. References, American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), Federal Specifications (FS), International Standards Organization (ISO), and manufacturer's printed recommendations.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. U.S. Pipe
1101 East Pearl Street
Burlington, New Jersey 08016
(609)387-6122
- B. American Pipe
1614-0 Union Valley Road, Suite 304
West Milford, New Jersey 07480
(973)853-4288

- C. EBAA Iron Sales, Inc.
P.O. Box 857
Eastland, TX 76448
(800) 433-1716
www.ebaa.com
- D. Or Approved Equal

2.2 CLASS 54 DUCTILE IRON PIPE

- A. Centrifugally cast, in accordance with ANSI/AWWA C151/A21.51.
 - 1. Working Pressure: 100 psi.
 - 2. Thickness Class: Under 6 inch - 51; 6 inch and larger - 50.
 - 3. Restrained joints: Boltless integral restraining system rated for a working pressure of 350 psi in accordance with the performance requirements of ANSI/AWWA C111/A21.1.
 - a. Field LOK 350 by U.S. Pipe
 - b. Flex-Ring by American Pipe
 - 4. Flanged Joints for Exposed Piping: AWWA/ANSI C115/A21.15
 - 5. Laying Lengths: 18 or 20 feet.
- B. Coating and Lining:
 - 1. Outside Coating: Bituminous enamel, minimum thickness 1 mil for buried applications.
 - 2. Inside Lining: Cement mortar; ANSI/AWWA C104/A21.4. Moisture-cured urethane primer for interior exposed applications.

2.3 FITTINGS

- A. Ductile Iron: ANSI/AWWA C110/A21.10.
- B. Compact Ductile Iron Fittings (3 Inch – 64 Inches): ANSI/AWWA C153/A21.53.
- C. Joints: Match pipe furnished.
- D. Coating and Lining:
 - 1. Outside Coating: Bituminous enamel, minimum thickness 1 mil for buried applications.
 - 2. Inside Lining: Cement mortar; ANSI/AWWA C104/A21.4. Moisture-cured urethane primer for interior exposed applications.

2.4 CONCRETE

- A. Provide concrete for thrust blocks in accordance with the Detail 1 of Sheet C-301 of the Drawings.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect pipe and fittings prior to installation to preclude installation of defective materials.

3.2 INSTALLATION

- A. General: Unless otherwise shown, or specified, install the Work of this Section in accordance with ANSI/AWWA Standard C600-10 and the manufacturer's printed instructions.
- B. Hauling, Unloading and Distributing Pipe: During loading, transportation and unloading, every precaution shall be taken to prevent injury to the pipe. No pipe shall be dropped from cars or trucks, or allowed to roll down slides without proper retaining ropes. During transportation each pipe shall rest on suitable pads, strips, skids or blocks securely wedged or tied in place. Any pipe damaged shall be replaced.
- C. Laying Pipe:
 - 1. Lay pipe to line and grade with joints close and even. Excavate adequate bell holes to facilitate joint assembly and to permit a uniform bearing on undisturbed earth for the pipe barrel. Unless otherwise noted minimum depth of pipe shall be 4'-0" measured from the top of the pipe to the finished or existing grade, whichever is lower.
 - 2. Keep the trench free from water. Do not lay or test pipe in a wet trench.
 - 3. Lay water pipe on a continuously rising grade from low points to high points at service lines, hydrants or air valves.
 - 4. Construct concrete thrust blocks behind bends, tees, caps, plugs, and hydrants. Cast concrete against undisturbed earth to bearing areas specified and place support so it will not interfere with making joints.
 - 5. Use clamps, tie-rods, lugged pipe, etc., for anchorage when required and as approved.
- C. Push-on Joints: Make joints with a rubber ring and sterile lubricant. The materials used shall be free of water, oil, tar, grease or other foreign substances.
- D. Mechanical Joints: Conform strictly to the manufacturer's instructions with particular reference to gland alignment and the tightening of the bolts.
- E. Cutting: Cut pipe at right angles to the axis with sharp tools. Prepare ends for proper connections. Do not lay cut pipe within three lengths of a bend or the end of a line without written approval.

- F. Protecting Pipe:
 - 1. Keep pipe clean from all sediment, debris, packing material and other foreign material.
 - 2. Close all open ends of pipes and fittings securely with removable plugs at end of each work day, during storms, and when the Work is left at any time.

3.4 PRESSURE AND LEAKAGE TESTS

- A. Before installation, fill pipe with water to expel all air. Conduct as directed concurrent pressure and leakage tests for two hours at 1-1/2 times the specified working pressure. Maximum variation in test pressures shall not exceed plus or minus 5 psi.
 - 1. Test Procedures: ANSI/AWWA C600, Section 5.
- B. Pipe installations will be rejected when the additional water required to maintain pressure during the test period, exceeds the allowable leakage in the following formula.

$$L = \frac{SD \times \text{the square root of } P}{148,000}$$

in which:

L = allowable leakage in gallons per hour

S = length of pipe line tested, in feet

D = nominal diameter of pipe, in inches

P = average test pressure during the leakage test, psi (gage)

- C. All pressure and leakage tests shall be conducted in the presence of the Engineer and WCDOH representative. 48 hours advanced notice is required.
- D. Locate and repair or replace all pipe and fittings showing visible leaks. Repeat Pressure and Leakage Tests as specified.

3.5 DISINFECTION

- A. Disinfect pipe and fittings in accordance with Section 331300 after installation.

3.6 CONNECTIONS

- A. When other connecting pipe or other connecting structures have not yet been installed, lay pipe to a point where directed and plug or cap the end. Identify the

terminal point with a stake extending above ground, marked to indicate size and service. Provide temporary thrust restraint as required.

END OF SECTION

SECTION 33 12 16

WATER VALVES AND FITTINGS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Valve Schedule: Submit the valve schedule listing type of valve, manufacturer's model number and size, for each valve type required.
- B. Product Data: Catalog sheets and specifications for each valve type and size and all other items required by this Section.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Valve/Valve Box Manufacturers
 - 1. Mueller Co., 1-800-423-1323.
- B. Coupling Manufacturers
 - 1. Dresser Inc., 41 Fisher Avenue, Bradford, PA 16701, (814) 362-9200.
 - 2. JCM Industries, P.O. Box 1220, Nash, TX, 75569, (903) 832-2581.
 - 3. Smith Blair, 30 Globe Avenue, Texarkana, AR 71854, (870) 773-5127.
 - 4. Total Piping Solutions, P.O. Box 525, Olean, NY 14760, (716) 372-0160.
 - 5. Or Approved Equal.

2.2 VALVES - BASIC CONSTRUCTION

- A. Provide valves of first quality, free from all imperfections and defects, with body markings indicating manufacturer and rating. Valve parts of the same manufacturer, size, and type shall be interchangeable. Manually operated valves shall open in a clockwise direction. All valves that use packing (except butterfly, cone, and ball valves) shall be capable of being packed when wide open and under full working pressure.
- B. Provide Mueller A-2360 Series, or approved equal.

- C. Unless otherwise indicated, provide valves having a minimum operating pressure of 250 psig OWG, factory tested at double the working pressure.
- D. Valves 3 inches and larger in size shall have iron bodies and bronze trim unless otherwise indicated.
- E. Valve ends, unless otherwise indicated, shall be:
 - 1. Mechanical joint, rubber ring joint, or flanged joint in ductile iron piping to match joints of pipe furnished.
- F. Valve flanges shall be of a class to mate with pipe flanges.
- G. All bolts on all valves shall be made of stainless steel.

2.3 MATERIALS

- A. Body:
 - 1. Cast Iron: ASTM A-126 Class B, higher strength cast iron.
 - 2. Ductile Iron: ASTM A-536 Grade 65-45-12.
 - 3. Bronze: For use up to 150 WSP, ASTM B-62; over 150 to 300 psig WSP, ASTM B-61.
- B. Stem:
 - 1. Cast Manganese Bronze: ASTM B-584.
 - 2. Cast Silicon Brass: ASTM B-584.
 - 3. Rolled Silicon Brass: ASTM B-98 Alloy D.
 - 4. Rolled Aluminum Bronze: ASTM B-150 Alloy 1.
 - 5. Rolled Manganese Bronze: ASTM B-138 Alloy A (half hard).
 - 6. Naval Brass: ASTM B-21 Alloy A or Alloy C (hard).
 - 7. Silicon Bronze: ASTM B-371 Alloy C69400.
 - 8. Stainless steel, Type 304.

2.4 GATE VALVES

- A. Gate Valves 3 Inches and Larger in Size:
 - 1. Mueller A-2360 Series or approved equal.
 - 2. Design Standard: ANSI/AWWA C509 or ANSI/AWWA C515.
 - a. Comply fully with either Standard and the following additional requirements.
 - b. Resilient wedge type with ductile iron body, epoxy coated in conformance with ANSI/AWWA C550, bronze spindle and nut in which the screw operates.
 - c. Handwheel operators or 2-inch square operating nuts as required.
 - d. Valves installed inside buildings and pits shall be outside screw and yoke type, unless otherwise noted.
 - e. Valves buried in the ground shall be non-rising stem.
 - f. Provide extension stems and guides as required by the location.
 - g. Valves shall be OPEN-LEFT (counter clockwise)

2.5 VALVE BOXES

- A. Cast iron adjustable type box and cover extending from the valve to final grade. Cover of box shall be complete with an indicating arrow cast on it denoting direction of valve opening.
- B. All gate boxes shall be a minimum five feet; two piece slide top-flanged top complete, 6-inch shaft diameter, bell bottom only. The valve box shall have a smooth cast seat to accept the valve box cover and insure a non-rocking installation.
- C. Covers shall be close fitting and substantially dirt-tight. The cover shall be heavy, non-tilting 2-inch drop style recessed in the box top with pick holes for easy removal. The word "WATER" shall be cast into the box cover.

2.6 COUPLINGS

- A. Pipe couplings shall be Dresser, Style 38 or approved equal.
- B. The coupling bolts shall be of the elliptic-nick, track-head design with rolled threads. The manufacturer shall supply information as to the recommended torque to which the bolts shall be tightened. All bolt holes in the followers shall be oval for greater strength.
- C. The gaskets of the coupling shall be composed of a crude synthetic rubber base compounded with other products to produce a material which will not deteriorate from age, from heat, or exposure to air under normal storage conditions. It shall also possess the quality of resilience and ability to resist cold flow for the material so that the joint will be sealed and tight indefinitely when subjected to shock, vibration, pulsation and temperature or other adjustments of the pipe line.
- D. The couplings shall be assembled on the job in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement, unavoidable variations in trench gradient, etc. The coupling shall be Dresser Style 38

2.7 CORPORATION STOPS

- A. Corporation shall conform to the latest revision of AWWA Standard C800 and shall be individually inspected and tested for leaks by air pressure under water. Corporation stops shall be H-15000N, AWWA taper thread one (1") female inlet and one (1") flared connection outlet, designed to prevent blow-out and shall be bubble-tight at 300 psig working pressure. Corporation stops shall be capable of being installed using a standard tapping machine. The corporation stops shall be manufactured by Mueller Co., or approved equal.

2.8 CURB STOPS

- A. All curb stops shall conform to the latest revision of AWWA Standard C-800, and shall be individually inspected and tested for leaks by air pressures under water. All curb stops shall be lead free.
 - a. 1" and ¾" inlet copper service shall be Mueller Mark II Oriseal Curb Valve, Mueller 110 H-15204N, or approved equal, and shall include copper conductive flared fittings for 1" inlet and copper compression fitting 1" outlet.
 - b. 1" and ¾" existing galvanized steel service shall be Mueller Mark II Oriseal H-15174N for flared connection, or approved equal.
 - c. 1" and ¾" existing lead service shall be Mueller Mark II Oriseal H-15174N for flared connection, or approved equal with 1" flare nut outlet F.I.P. thread.
- B. Curb Stop keys shall be Pollard Heavy Duty, Model No. P537.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install valves of type and kind as indicated on the drawings, each complete with operator and accessory items as required by the actual location. Size valves the same size as the piping in which they are installed, unless otherwise indicated.

3.2 VALVE BOXES

- A. Install a valve box and cover, extending from the valve to final grade, for each gate valve buried in the ground.

END OF SECTION

SECTION 33 12 19

WATER UTILITY DISTRIBUTION FIRE HYDRANTS

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 310000.
- B. Water Distribution Piping: Section 331101.
- C. Water Valves and Fittings: Section 331216.
- D. Water System Disinfection: Section 331300

PART 2 PRODUCTS

2.1 FIRE HYDRANTS

- A. Fire hydrant shall be Mueller.
- B. Fire hydrants shall conform to AWWA Specification C502 and shall be UL Listed and FM approved.
- C. Fire hydrants shall be rated for a working pressure of 250 psi.

2.2 MISCELLANEOUS MATERIALS

- A. Paint: Hydrant manufacturer's standard primer and 2 finish coats of rust inhibitive, high gloss alkyd enamel. Hydrant body to be painted red.
- B. Crushed Stone: $\frac{3}{4}$ -inch crushed stone in accordance with Section 310000.

PART 3 EXECUTION

3.1 SETTING

- A. Set fire hydrants plumb with steamer and nozzle centerline elevations 19 inches above finished grade, or match gradeline indicated on barrel of hydrants with finished grade. Provide thrust blocks as indicated. Backfill with 4 cubic feet of crushed stone around the waste or drip outlet with 1/2 of the stone below the outlet. Arrange remaining balance of stone around

hydrant to prevent damage to the connections from mechanical shock and to insure hydrant stability.

- C. Clean and paint all parts of the hydrants showing above the ground with two finish coats of paint.
 - 1. The top of all hydrants shall be painted green.

END OF SECTION

SECTION 33 13 00

WATER SYSTEM DISINFECTION

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Conform to provisions of AWWA C-651 for water line disinfection. Do not use Tablet Method therein.
- B. Comply with all Westchester County Department of Health requirements for disinfection of potable water lines, valves, hydrants, storage tanks, and appurtenances.

PART 2 - PRODUCTS

2.1 DISINFECTANT

- A. Hypochlorites meeting AWWA B300.

2.2 TEST KITS

- A. High range test kit for chlorine residual (0-200 mg/l) Hach Chemical Co. Model CN-21P.
- B. DPD chlorine residual test kit (0-3.5 mg/l) Hach Chemical Co. Model CN-66.
- C. Test kits to remain property of the Contractor.

PART 3 - EXECUTION

3.1 DISINFECTION - WATER MAINS

- A. Flush mains with clear water at a minimum rate of 2.5 fps prior to disinfection. See Table 1.

TABLE 1 - WATER MAIN FLUSHING DATA		
PIPE DIAMETER (INCHES)	FLUSHING RATE GPM @ 2.5 fps	HYDRANT OPENINGS @ 40 psi
2	25	one - 2-1/2
4	100	one - 2-1/2
6	220	one - 2-1/2
8	390	one - 2-1/2
10	610	one - 2-1/2
12	880	one - 2-1/2
14	1200	two - 2-1/2
16	1570	two - 2-1/2
18	1985	two - 2-1/2
24	3525	one - 4-1/2 and one - 2-1/2

- B. Hypochlorites: Apply solutions to water mains with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions.
- C. Application (Continuous Feed Method).
1. Connect chlorinator or force pump to water main upstream from point of repair or replacement, or new lines.
 2. Proportion application rate of chlorine solution to obtain a minimum concentration of 50 mg/l of available chlorine. Use high range test kit to determine concentration. See Table 2.

TABLE 2 - QUANTITY OF DISINFECTANT REQUIRED FOR 50 mg/l OF AVAILABLE CHLORINE PER 100 FT. OF PIPE							
PIPE DIAMETER (INCHES)	POUNDS		OUNCES			QUARTS	
	CL GAS	SOLUTION 70%	HYPOCHLORITE				
			70%	14.7%	5.25%	14.7%	5.25%
2	0.1	0.1	0.2	0.8	2.1	0.1	0.1
4	0.1	0.1	0.6	3.0	8.3	0.1	0.3
6	0.1	0.1	1.4	6.7	18.7	0.2	0.6
8	0.1	0.2	2.5	11.9	33.2	0.4	1.1
10	0.2	0.3	3.9	18.5	51.9	0.6	1.6
12	0.3	0.4	5.6	26.7	74.7	0.9	2.4
14	0.4	0.5	7.6	36.3	102.0	1.2	3.2
16	0.5	0.7	10.1	47.5	133.0	1.5	4.2
18	0.6	0.8	12.6	60.0	168.0	1.9	5.3
24	1.0	1.4	22.4	107.0	298.0	3.4	9.4

3. In the absence of a meter, determine rate either by placing a pitot gage at discharge or by measuring the time to fill a container of known volume. See Table 3.

TABLE 3 - TIME FOR DISINFECTANT TO FLOW THROUGH 100 FT. OF PIPE - MINUTES			
PIPE DIAMETER (INCHES)	@ 25 GPM	@ 100 GPM	@ 500 GPM
2	0.7	0.2	0.04
4	2.6	0.7	0.13
6	5.9	1.5	0.3
8	10.5	2.6	0.5
10	16.3	4.1	0.8
12	23.5	5.9	1.2
14	32.0	8.0	1.6
16	41.8	10.5	2.1
18	52.9	13.2	2.7
24	94.0	23.5	4.7

4. Continue to apply chlorine solution until it reaches discharge. Check for the presence of chlorine at discharge by adding an orthotolidine reagent. In the presence of chlorine the reagent will turn red.
 5. Maintain chlorinated water in the main for a minimum of 24 hours. At the end of this period chlorine concentration shall be at least 25 mg/l. Use high range test kit to determine concentration.
 7. Prevent back flow of super chlorinated water into existing distribution system.
- D. Final Flushing:
1. After a 24-hour retention period, flush main until maximum chlorine concentration is 1.0 mg/l. Use DPD chlorine residual test kit.
 2. Discharge super chlorinated water in a manner that will not adversely affect plants and animals. Comply with applicable State regulations for waste discharge.
- E. Bacteriological Tests:
1. Test water main for Coliform Bacteria and Heterotrophic Plate Count Bacteria before putting pipe into service. A minimum of two successive sets of samples shall be taken at 24-hour intervals. Both sets of samples shall indicate bacteriological safe water and approved by Westchester County Health Department before putting the water main in operation. Pay all expenses incurred for testing.

2. Tests shall be conducted by a laboratory approved by an ELAP-certified laboratory.
- F. Give all test results to Engineer and Owner.
1. Should test results prove any part of the system bacteriologically unsafe, repeat disinfection procedures until satisfactory results are obtained.

END OF SECTION