

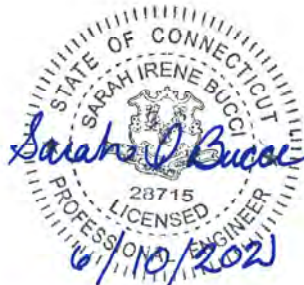
RAPALLO VIADUCT FORCE MAIN REPAIR COLCHESTER, CONNECTICUT

FRP 2021-03

Contract Documents

Prepared for: Town of Colchester

June 2021



ENVIRONMENTAL
 **PARTNERS**

DIVISION 0
BIDDING AND CONTRACT REQUIREMENTS

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SECTION 00020
INVITATION TO BID

**Request for Proposals
Town of Colchester
Rapallo Viaduct Force Main Repair**

BID # 2021-03

1. Sealed Bids for **Rapallo Viaduct Force Main Repair** project will be received at the Colchester Town Hall, 127 Norwich Avenue, Colchester, Connecticut **until 2:00 PM, on Friday, July 09, 2021**, at which time said Bids will be publicly opened and read aloud.
2. All bids shall be submitted within a sealed envelope addressed to "First Selectman's Office Suite 201, 127 Norwich Avenue, Colchester, CT 06415" and clearly marked "**2021-03 Rapallo Viaduct Force Main Repair.**"
3. Any questions concerning this bid may be answered by contacting James Paggioli, Town of Colchester Director of Public Works, at (860) 537-7288 or at jpaggioli@colchesterct.gov.
4. **No right shall accrue to any person submitting a bid until such bids have been accepted and contract awarded in writing by the duly authorized representative of the Colchester Board of Selectman. The Colchester Board of Selectman reserves the right to reject any and all bids and to accept the lowest responsible bidder, and to waive any informalities, omissions, excess verbiage, or technical defects in the Bidding, if, in the opinion of the Board of Selectman, it would be in their best interest to do so.**
5. The Work under this Contract includes, but is not necessarily limited to, furnishing all labor, services, equipment, materials, devices, facilities, and appurtenances for the installation of erosion control measures, test pits for bolt removal approximately 120 feet from the western valve, excavation of pits to access the Colchester Force Main at the valves located on either side of the Rapallo Viaduct, cleaning and inspecting the existing 16-inch cement lined ductile iron pipe, furnishing and installing the following: flexible fabric reinforced pipe (FFRP) by Primus Line or equal with all components necessary to make a secure connection as depicted on the Drawings and according to the manufacturer's requirements, and disassembly and disinfection of existing bypass piping, coordination with Colchester DPW and East Hampton Joint Facilities, and all work as shown on the Drawings and as specified herein.
6. No pre-bid meeting or site walk is anticipated at this time. Bidders may perform on-site inspections of the areas where systems are to be designed and planned work areas.
7. Contract Documents may be obtained electronically from the Town of Colchester website: <https://www.colchesterct.gov/doing-business-colchester/pages/rfp-rfq>

8. Complete instructions for submitting bids can be found in the Instructions to Bidders, Section 00100.
9. Each Bid shall be accompanied by a Bid Security in the amount of 5 percent (5%) of the Bid. The Bid Security shall be in the form of a bid bond or certified treasurer's or cashier's check.
10. Minimum Wage Rates as determined by the Connecticut General Assembly Standard Wage Rates Department of Labor as amended, apply to this project and are included in **Appendix A**. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract.
11. Successful bidder must furnish 100 percent (100%) Construction Performance Bond and 100 percent (100%) Construction Payment Bond with a surety company acceptable to the Owner.
12. The Contract duration for this Project shall be **90 calendar days** commencing on the date of Notice to Proceed.
13. Contract payment will be as indicated on the Bid Proposal. No Bidder may withdraw his/her Bid for a period of sixty-five (65) calendar days after the actual date of the opening of the Bids.
14. Bidders shall certify that they do not and will not maintain or provide for their employees any facility that is segregated on a basis of race, color, creed, sex, national origin, or sexual preference.
15. The bidding and award of the Contract shall be in full compliance with the Laws and Statutes of the State of Connecticut as last revised.
16. The contract will be awarded to the bidder deemed by the awarding authority to be the lowest responsible and eligible bidder. The Town reserves the right to waive any informality, to accept or reject, in whole or in part, any or all bids, or take whatever action may be deemed to be in the best interest of the Town of Colchester, Connecticut.
17. The Owner also reserves the right to omit part or whole of any proposed work to be performed, as shown on the Contract Drawings, as may be required to maintain the total cost of work within available funds.

**BOARD OF COMMISSIONERS
SEWER AND WATER COMMISSION
COLCHESTER, CONNECTICUT**

END OF SECTION 00020

SECTION 00100

INSTRUCTIONS TO BIDDERS

INDEX

1. Receipt and Opening of Bids
2. Preparation of Bid
3. Examination of Contract Documents and Site
4. Telegraphic Modification
5. Qualifications of Bidders
6. Method of Award
7. Bid Security
8. Liquidated Damages for Failure to Enter into Contract
9. Time of Completion and Liquidated Damages
10. Conditions of Work
11. Addenda and Interpretations
12. Security for Faithful Performance
13. Power of Attorney
14. Notice of Special Conditions
15. Laws and Regulations
16. Competitive Bidding
17. Wage Rates
18. Manufacturer's Experience
19. Equal Products Acceptable
20. Sales Tax Exemption
21. Bonding and Insurance
22. Health and Safety Regulations
23. Third Party Work

1. Receipt and Opening of Bids:

The Town of Colchester (herein called the "Owner"), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the office of the First Selectman 127 Norwich Avenue Suite 201, Colchester, Connecticut 06415 on the date and the time given in the Invitation to Bid, and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to the "First Selectman, 1277 Norwich Avenue Suite 201, Colchester, CT 06415," and designated as **"2021-03 Rapallo Viaduct Force Main Repair."** The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No Bidder may withdraw a bid within sixty-five (65) calendar days after the actual date of the opening thereof.

2. Preparation of Bid:

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures. Each bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, his/her address, the name of the project for which the bid is submitted, and an envelope containing the bid security as specified in paragraph 7 below.

Enclosed with the bid shall be the following completed items:

- **Bid Security (5%)**
- **Completed Bid Proposal (Section 00301, including references)**
- **Completed Certificate of Non-Collusion (Section 00480)**
- **Completed Certificate of Corporate Vote (Section 00481)**
- **Completed Certificate as to Payment of State Taxes (Section 00482)**
- **Completed OSHA 10 Hour Training Certification (Section 00483)**
- **Completed Indemnity Agreement (Section 00520)**

If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.

3. Examination of Contract Documents and Site:

Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress or performance of the Work, (c) familiarize himself/herself with Federal, State and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the requirements of the Contract Documents.

Before submitting his/her Bid each Bidder may, at his/her own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his/her Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

On request made to the Engineer, each Bidder shall be provided access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his/her Bid. Pre-bid meetings and site walk shall be as indicated in the Invitation to Bid (Section 00020).

The lands upon which the Work is to be performed, rights-of-way (ROW) for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Supplementary Conditions, General Requirements or on the Drawings. The submission of a Bid will constitute an incontrovertible representation by the Bidder that he/she has complied with every requirement of this Article and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

4. Modification:

No Bidder may modify his or her bid after it has been submitted for any reason other than withdraw.

5. Qualifications of Bidders:

The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

The low bidder shall be required to provide proof that his bid is based on paying workers the Connecticut Department of Labor prevailing wages. Failure to provide such proof to the Owner's satisfaction may be cause for rejection of the bid.

6. Method of Award:

If at the time this contract is to be awarded, the lowest bid submitted by a responsible Bidder does not exceed the amount of funds then estimated by the Owner as available to finance the contract, the contract may be awarded on the basis of such bid. If such bid exceeds such amount, the Owner may reject all bids or take other action deemed to be in the best interest of the Town of Colchester, Connecticut.

7. Bid Security:

Each bid must be accompanied by a bid bond or cash, or a certified check on, or a treasurer's or cashier's check issued by a responsible bank or trust company, in the amount of not less than five percent (5%) of the bid price, payable to the Town of Colchester, Connecticut. The properly executed bid security shall be placed in a sealed envelope and attached to the outside of the envelope containing the bid at the time of the submission of the bid. Bid securities will be returned to all except the three lowest Bidders within five (5) days, Saturdays, Sundays, and legal holidays excluded after the opening of bids, and the remaining checks of the Bidders will be returned promptly after the Owner and the accepted Bidder have executed the contract, or if all bids are rejected.

8. Liquidated Damages for Failure to Enter into Contract:

The successful Bidder, upon his failure or refusal to execute and deliver the contract and bonds required within ten days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid, provided that the amount of the security which becomes the property of the Owner shall not, in any event, exceed the difference between his bid price and the bid price of the next lowest responsible Bidder.

9. Time of Completion and Liquidated Damages:

Contract duration for this project shall be **90 calendar days** commencing on the date of Notice to Proceed. Bidders must agree also to pay as liquidated damages the sum of **\$1,500.00** for each consecutive calendar day thereafter that the Bidder is in default of completing the work as hereinafter provided in the General Conditions.

10. Conditions of Work:

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

11. Addenda and Interpretations:

No interpretation of the meaning of the Drawings, Specifications, or other pre-bid documents will be made to any Bidder orally.

Every request for such interpretation should be in writing, addressed to Environmental Partners Group, Inc. at 213 Court Street, Middletown, Connecticut 06457 or, as preferred, emailed to sib@envpartners.com and jpaggioli@colchesterct.gov and to be given consideration must be received by the close of business (5:00 p.m.) at least seven (7) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications which, if issued, will be sent to all prospective Bidders (at the respective addresses furnished for such purposes) no later than three (3) days prior to the date fixed for the opening of bids. Failure of any Bidder to receive any such addendum or interpretation shall not relieve any Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

12. Security for Faithful Performance:

Simultaneously with his delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner and shall be in the full amount of the accepted proposal.

13. Power of Attorney:

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

14. Notice of Special Conditions:

Attention is particularly called to those parts of the Contract Documents which deal with the following:

- a. Inspection and Testing of Materials;
- b. Insurance Requirements;
- c. Wage Rates;
- d. Coordination of the Work; and
- e. Health and Safety.

15. Laws and Regulations:

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

16. Competitive Bidding:

The bidding and award of the Contract shall be in full compliance with Connecticut General Statutes (C.G.S.) as last revised. Bids from General Contractors shall be for the complete project as specified.

17. Wage Rates:

State wage rates apply to this project. The Wage Determination is included in **Appendix A** of these Specifications. It is the responsibility of the Contractor, after award, to request, if necessary, any additional information on wage rates for those tradespeople who are not covered by the applicable Wage Decision, but who may be employed for the proposed work under this contract.

The Contractor shall submit certified payroll records to the Department of Labor and Industries and the Owner on a weekly basis. Failure to submit records will be cause for the withholding of payment due the Contractor.

18. Manufacturer's Experience:

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

19. Equal Products Acceptable:

Wherever in the Drawings and Specifications any item of equipment or material is designated by reference to a particular brand, manufacturer, or trade name, it is understood that an approved equal

product, acceptable to the Engineer, may be substituted by the Bidder or Contractor. It shall be the Contractor's responsibility to coordinate all submittals to eliminate any conflicts which might arise due to the use of the "or equal" item. Any additional costs incident to the use of "or equal" items, including re-design, will be paid by the Contractor.

20. Sales Tax Exemption:

Materials and equipment purchased for permanent installation in this project will be exempt from the Connecticut Sales and Use Tax per C.G.S. Title 12 Ch. 219. The exemption certificate number will be furnished to the Contractor. Each bidder shall take exemption into account in calculating his/her bid for the work.

21. Bonding and Insurance:

The Contractor must furnish performance and payment bonds, each of which shall be in an amount not less than one-hundred percent (100%) of the contract price. Contractors should obtain such construction insurance (e.g., fire and extended coverage, worker's compensation, public liability and property damage, and "all risk" builders risk) as is customary and appropriate.

22. Health and Safety Regulations:

This project is subject to all the Health and Safety Regulations (CFR 29 Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974. Contractors are urged to become familiar with the requirements of these regulations, as well as the Occupational Safety and Health Administration's (OSHA) 29 CFR 1910.120.

23. Third Party Work:

The Contractor is responsible for maintaining a safe and secure worksite at all times, and for expeditiously repairing any damage done to private property. If, in the opinion of the Owner, the Contractor is negligent in these duties the Owner shall have the right to employ a third party to remedy the problem.

Situations which develop and require the services of and payment to a third party will be handled in the following manner:

The Contractor will be given a reasonable period of time determined at the discretion of the Owner to remedy the situation without third party involvement. If the Contractor is unavailable the Owner will authorize work by a third party on the Contractor's behalf.

Third party work authorized on the Contractor's behalf by the Owner shall be paid for by the Contractor within a reasonable time period, generally two (2) weeks. If payment is not made within a reasonable time period the Owner will make payment and deduct the cost from the next pay requisition.

In the case of inadequately secured worksites necessitating extra or increase police details or other

public safety personnel, the following procedure will be followed. The Contractor (if available) will be notified that the worksite needs to be secured in order to prevent the need for weekend/night police coverage. If the area is not immediately secured as determined by the Owner or Engineer, a police, fire, or highway department detail will be used and the Contractor will be charged for the cost. It is understood that in many instances worksites cannot realistically be secured to a point where police or other safety personnel are not needed. In these instances, the Owner will continue to pay for the coverage.

END OF SECTION 00100

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SECTION 00301
BID FORM

To the Town of Colchester, Connecticut, acting through its Department of Public Works:

Regarding: Rapallo Viaduct Force Main Repair

The Owner reserves the right to reject any bid in the event that any bid item or items are obviously unbalanced or appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interest of the Owner.

The Owner reserves the right to reject any or all bids if it deems it to be in its best interest to do so. The Owner reserves the right to award the Contract based on sufficiency of appropriated funds to complete the work.

The undersigned states that no officer, agent or employees of the Owner directly or indirectly has a financial interest in this Bid.

The Undersigned, as Bidder, declares as follows:

- The only parties interested in this BID as Principals are named herein;
- this BID is made without collusion with any other person, firm, or corporation;
- no officer, agent, or employee of the Owner is directly or indirectly interested in this BID;
- the Bidder has carefully examined the site of the proposed Work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this BID, and has carefully read and examined the Drawings, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
- understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Drawings or in any of the other Contract Documents and agrees that the Bidder shall not use or be entitled to use any such information made available to him through the Contract Documents

or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and has made due allowance therefore in this BID;

- and the Bidder understands that the quantities of work tabulated in this BID or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer;
- and agrees that, if this BID is accepted will contract with the Owner, as provided in the copy of the Contract Documents deposited in the office of the Engineer, this BID form being part of said Contract Documents, and that the Bidder will perform all the work and furnish all the materials and equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other things required by the Contract Documents in the manner and within the time therein prescribed and according to the requirements of the Engineer as therein set forth, and that the Bidder will take in full payment therefore the lump sum or unit price applicable to each item of the Work as stated in the following schedule:

Bidders must bid on each Bid Item. All entries in the entire BID must be made clearly and in ink; prices bid must be written in both words and figures. In case of discrepancy, the amount shown in words will govern.

Bidders shall insert extended item prices obtained from quantities and unit prices. In case of discrepancy between the products obtained by multiplying the estimated quantity by the unit price, the actual product shall apply. In case of discrepancy between the sum of the total figure of the items and the total amount listed, the actual sum shall apply.

Receipt of Addenda numbered ____ to ____, inclusive, is acknowledged.

(Bidder) _____
(by) _____
(Title) _____

BASE BID

The Base Bid includes all work of the General Bidder, being all work covered by **items 1 through 4**, inclusive.

Item No.	Item Description and Unit Price in Words	Units	Est. Qnty	Unit Price (Figures)	Extended Amount (Figures)
1	Access Pits				
1a	Erosion Control _____ Dollars and _____ Cents	LF	80		
1b	Access Pit Excavation & Backfill _____ Dollars and _____ Cents	CY	50		
1c	Test Pits and Bolt Removal _____ Dollars and _____ Cents	Lump Sum	1		
1d	Trail Restoration _____ Dollars and _____ Cents	SY	40		
2	Furnish and Install Nominal 18-inch Diameter FFRP _____ Dollars and _____ Cents	LF	1,620		
3	Sewage Bypass Pipe Rental Return Coordination _____ Dollars and _____ Cents	Lump Sum	1		
4	Mobilization and Demobilization (Not to exceed 5% the Sum of Items 1 - 3) _____ Dollars and _____ Cents	Lump Sum	1		
Base Bid (Items 1 through 4)					

TOTAL FOR BASE BID

Total Amount of Base Bid (**Basis of Award**) for items **1 through 4**, inclusive:

\$ _____

(Amount in figures)

(Amount in words)

BID ALTERNATE

The Bid Alternate includes all work of the General Bidder, being all work covered by **item A**.

Item No.	Item Description and Unit Price in Words	Units	Est. Qty	Unit Price (Figures)	Extended Amount (Figures)
Bid Alternate					
A	Wastewater Hauling _____ Dollars and _____ Cents	TRUCK per 24- HR DAY	6		
Bid Alternate (Item A)					

TOTAL FOR BID ALTERNATE

Total Amount of Bid Alternate for **item A**, inclusive:

\$

(Amount in figures)

(Amount in words)

TOTAL FOR BASE BID AND BID ALTERNATE

Total Amount of the Base Bid and Bid Alternate for **items 1 through 5 plus Item A**, inclusive:

\$

(Amount in figures)

(Amount in words)

Basis of Award: The basis of award shall be at the Owner's sole discretion, contingent on the Base Bid Price. The grand total of the Base Bid, Items **1 through 4** inclusive, will be used to determine the lowest responsive bidder. Contract to be awarded to the lowest responsible and eligible bidder in compliance with the C.G.S.

Requirements: Specific items of this Contract may be eliminated or reduced in quantity to keep within limits of available funding, at the OWNER'S option. All of the above items shall include all labor,

materials, equipment, hauling, disposal, transportation, overhead, profit and insurance to cover the work as required in the Contract Documents.

The undersigned agrees that for extra work, if any, will be performed in accordance with Article 11 of the General Conditions of the Contract and will be paid for in accordance with Article 13 of the General Conditions of the Contract.

The bidder understands that the Owner reserves the right to reject any and all bids and to waive any informality in the bidding.

An unbalanced or unreasonable lump sum and/or unit price submitted herein may be considered as non-responsive to the Instructions to Bidders.

The bid security accompanying this BID shall be in the amount of five percent (5%) of the BID.

The bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided.

As provided in the INSTRUCTIONS TO BIDDERS, the Bidder hereby agrees that he/she will not withdraw this BID within sixty-five (65) consecutive calendar days after the actual date of the opening of Bids and that, if the Owner shall accept this BID, the Bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within ten (10) days, Saturdays, Sundays, and legal holidays excluded, after notification that the AGREEMENT and other Contract Documents are ready for signature.

If this BID is accepted by the Owner, the undersigned agrees to complete the entire work provided to be done under the Contract within **90 calendar days**, as stipulated in the AGREEMENT. No additional time shall be added to the contract duration if the Bid Alternate is selected. Liquidated damages for each calendar day of delay shall be **\$1,500** as stipulated in the AGREEMENT.

A performance bond in an amount equal to one-hundred percent (100%) of the total amount of the bid with a surety company qualified to do business in the State of Connecticut will be required for the faithful performance of the contract, as well as a labor and materials bond in an amount equal to one-hundred percent (100%) of the total bid amount.

Should the bidder fail to fulfill any of his agreements as hereinabove set forth, the Owner shall have the right to retain as liquidated damages the amount of the bid check or cash which shall become the Owner's property. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety.

The undersigned as Bidder, hereby certifies that he/she is aware of the applicable requirements of the Williams-Steiger Occupational Safety and Health Act of 1970. (O.S.H.A.), and all latest revisions thereto, and that this Proposal is prepared on the basis of compliance with those requirements.

The undersigned as Bidder, hereby certifies that he/she/they will maintain records in reasonable detail, which accurately and fairly reflect the financial transactions and disposition of the Bidder, in accordance with the C.G.S.

The undersigned hereby certifies that he/she/they is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he/she/they will comply fully with all laws and regulations applicable to awards made subject to C.G.S. The bidding and award of the contract will be in full compliance with the C.G.S. as last revised.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the State of Connecticut under the provisions of any chapter of the C.G.S or any rule or regulation promulgated thereunder.

The undersigned bidder certifies under penalties of perjury that he/she/they has complied with all laws relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The attached FORM OF NON-COLLUSION AFFIDAVIT must be signed and submitted as part of the Bid Proposal.

This Proposal must bear the written signature of the Bidder or that of his/her duly authorized agent. If the Bidder is a corporation or a partnership, the bid must be signed by a duly authorized officer of such corporation or by a Partner and the title of such officer must be stated. Satisfactory completion of the following data is an essential part of submission of this Proposal and is required. Bid must be embossed with corporate seal.

**RAPALLO VIADUCT FORCE MAIN REPAIR
TOWN OF COLCHESTER
BID # 2021-03**

(SEAL)

(Name of Bidder)

By _____
(Signature and title of authorized representative)

Date _____

Telephone)

(Business address)

(Fax Number)

(City and State)

The following documents are attached to and made a condition of the bid, and shall be filed with the bid:

- Bid Security (5%), and Bid Bond Affidavit if cash or check;
- List of Proposed Subcontractors;
- Completed and signed Bid Proposal and Project Reference List (Section 00301);
- Evidence of authority to do business in the state or jurisdiction of the Project; or a written covenant to obtain such license within the time frame for acceptance of Bids;
- Completed Form of Non-Collusive Affidavit (Section 00480);
- Completed Certificate of Corporate Vote (Corporation Only) (Section 00481);
- Completed Certificate as to Payment of State Taxes (Section 00482);
- Completed Certificate of 10 Hour OSHA Training (Section 00483).

REFERENCES OF BIDDER

The Contractor is requested to list three (3) or more of your firm's projects in the past 10 years in of a similar character and nature as the proposed work. References will enable the Owner to judge the Contractor's qualifications, experience, skill, and business standing.

Project Name: _____
Project Location: _____
Contract Amount: \$_____ Completion Date _____
Owner: _____
Contact Name: _____ Telephone: _____
Architect/Engineer: _____
Contact Name: _____ Telephone: _____

Project Name: _____
Project Location: _____
Contract Amount: \$_____ Completion Date _____
Owner: _____
Contact Name: _____ Telephone: _____
Architect/Engineer: _____
Contact Name: _____ Telephone: _____

Project Name: _____
Project Location: _____
Contract Amount: \$_____ Completion Date _____
Owner: _____
Contact Name: _____ Telephone: _____
Architect/Engineer: _____
Contact Name: _____ Telephone: _____

Project Name: _____
Project Location: _____
Contract Amount: \$_____ Completion Date _____
Owner: _____
Contact Name: _____ Telephone: _____
Architect/Engineer: _____
Contact Name: _____ Telephone: _____

Add supplementary pages as necessary.

END OF SECTION 00301

**SECTION 00480
NON-COLLUSIVE AFFIDAVIT
(AFFIDAVIT FOR BIDDER)**

State of _____

County of _____

being first duly sworn, deposes and says,

That it is _____, the party making the foregoing proposal or bid, that such proposal or bid is genuine and not collusive or a sham; that said bidder has not colluded, conspired, connived or agreed directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of its bid or any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the Proposed Entity, or any person interested in the proposed contract, and that all statements in said proposal or bid are true.

Signature of:

if bidder is an individual Bidder,

if bidder is a partnership Partner,

if bidder is a Corporation Officer,

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My commission expires: _____, 20__

END OF SECTION 00480
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SECTION 00481
CERTIFICATE OF CORPORATE VOTE
(CORPORATION ONLY)

At a duly authorized meeting of the Board of Directors of _____

held on _____, it was VOTED that, _____,

(Name)

_____ of this company, be and hereby is authorized to execute
(Officer)

bidding, documents, contracts, and bonds in the name and on behalf of said company, and
affix its corporate seal hereto; and such execution of any contract or obligation in this
company's name on its behalf by such officer under seal of the company, shall be valid and
binding upon this company.

I hereby certify that I am the clerk of the above named corporation and that
_____ is the duly elected officer as above of said company, and that the
above vote has not been amended or rescinded and remains in full force and effect as the
date of this contract.

Clerk

Date

Affix Corporate Seal

END OF SECTION 00481

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SECTION 00482
CERTIFICATE AS TO PAYMENT OF STATE TAXES

Pursuant to the Connecticut General Statutes, I certify under penalties of perjury that I, to the best of my knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

Social Security Number or
Federal Identification Number

Signature of Individual or Corporate Name

By: _____
Corporate Officer (if applicable)

Subscribed and sworn to before me this _____ day of _____, 20_____.

Notary Public

My commission expires: _____, 20_____

* Submission of a Social Security Number or a Federal Identification Number is voluntary.

END OF SECTION 00482

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SECTION 00483

OSHA 10-HOUR TRAINING

A contractor will not be eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

_____ certifies that:

All employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

(Signature of authorized representative of Contractor)

END OF SECTION 00483

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SECTION 00500
AGREEMENT

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ARTICLE 2 ENGINEER

ARTICLE 3 CONTRACT TIMES

ARTICLE 4 CONTRACT PRICE

ARTICLE 5 PAYMENT PROCEDURES

ARTICLE 6 CONTRACTOR'S REPRESENTATIONS

ARTICLE 7 CONTRACT DOCUMENTS

ARTICLE 8 MISCELLANEOUS

SECTION 00500 AGREEMENT

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20__ by and between the Town of Colchester, Connecticut, acting by and through its First Selectman, duly authorized therefore, who acts herein solely for said Town and without personal liability to itself, (hereinafter called OWNER) and _____(hereinafter called CONTRACTOR).

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

ARTICLE 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is as described in SECTION 01010, SUMMARY OF WORK, and as shown on the plans.

The work done and materials and equipment furnished shall be strictly pursuant to and in conformity with the specifications and plans; said plans are signed and accompany this contract and these specifications, and are intended to complement each other. Any work appearing in or upon the one and not mentioned in the other shall be executed according to the true intent and meaning of said specifications and plans, the same as though the work was contained and described in all and as reasonably implied by the plans.

The Work under this Contract includes, but is not necessarily limited to, furnishing all labor, services, equipment, materials, devices, facilities, and appurtenances for the installation of erosion control measures, test pits for bolt removal approximately 120 feet from the western valve, excavation of pits to access the Colchester Force Main at the valves located on either side of the Rapallo Viaduct, cleaning and inspecting the existing 16-inch cement lined ductile iron pipe, furnishing and installing the following: flexible fabric reinforced pipe (FFRP) by Primus Line or equal with all components necessary to make a secure connection as depicted on the Drawings and according to the manufacturer's requirements, and disassembly and disinfection of existing bypass piping, coordination with Colchester DPW and East Hampton Joint Facilities, and all work as shown on the Drawings and as specified herein.

ARTICLE 2. ENGINEER

The Project has been designed by Environmental Partners Group, Inc., 213 Court Street, 6th Floor, Middletown, Connecticut 06457, who is hereinafter called ENGINEER and who is to act as OWNER'S representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIMES

- 3.1 Contract duration for this project shall be **90 calendar days** commencing on the date of Notice to Proceed.
- 3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions (Section 00700). They also recognize the delays, expense, and difficulties involved in proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER fifteen hundred dollars (\$1,500) for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete.

ARTICLE 4. CONTRACT PRICE

The OWNER shall pay CONTRACTOR for completion of the work in accordance with the Contract Documents in current funds as follows:

Section 00301 BID FORM dated _____. The total of the Bid Proposal accepted by the Town is:

_____ dollars (\$_____).

This amount includes all work described in Bid Items: ____ - ____

ARTICLE 5. PAYMENT PROCEDURES

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

- 5.1 For unit price bid items the product of the actual measured quantities suitably installed and accepted and the unit prices from the accepted bid proposal constitutes the extended total for payment. The extended total is the unit price times the quantity indicated. Equitable adjustment of the unit price bid in the proposal will only be considered if the actual quantity is greater than 25% above or below the estimated quantity. For Lump Sum items suitably installed and completed, the lump sum amount listed in the accepted bid proposal constitutes the total for payment.
- 5.2 Progress Payments; Retainage. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, and in accordance with the applicable Connecticut General Statutes during construction. All such payments will be measured by the schedule of values established in

paragraph 2.05 of the General Conditions (Section 00700) (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

- 5.3 Progress payments will be made in an amount equal to ninety-five percent (95%) of Work completed (with the balance being retainage) but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 15.01.C.5 of the General Conditions (Section 00700).
- 5.4 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 15.06 of the General Conditions (Section 00700), OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 15.06.

ARTICLE 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

- 6.1 CONTRACTOR has examined and carefully studied the Contract Documents (including any Addenda listed in paragraph 7) and the other related data identified in the Bidding Documents including "technical data."
- 6.2 CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work.
- 6.3 CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.
- 6.4 CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the General Conditions (Section 00700) as provided in paragraph 5.03. CONTRACTOR accepts the determination set forth in Section 00700, paragraph 5.03 of the General Conditions (Section 00700) of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 5.03 of the General Conditions (Section 00700). CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground utilities and facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of

construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

- 6.5 CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.
- 6.6 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports, and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- 6.7 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 7.1 Invitation to Bid.
- 7.2 Instructions to Bidders.
- 7.3 CONTRACTOR's Bid Proposal.
- 7.4 This Agreement.
- 7.5 Indemnity Agreement
- 7.6 Exhibits to this Agreement.
- 7.7 Performance, Payment, and other Bonds.
- 7.8 General Conditions EJCDC C-700, 2013 edition.
- 7.9 Supplemental Conditions.
- 7.10 Specifications and Appendices as listed in table of contents thereof.
- 7.11 Drawings dated with each sheet bearing the following general title:

**Rapallo Viaduct
Force Main Repair
RFP 2021-003
Town of Colchester, CT**

- 7.12 Addenda numbers ____ to ____, inclusive.
- 7.13 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraph 11.01 of the General Conditions (Section 00700).

ARTICLE 8. MISCELLANEOUS

- 8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions (Section 00700) will have the meanings indicated in the General Conditions.
- 8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment with release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 8.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.
- 8.4 Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- 8.5 No officer or employee of the OWNER shall participate in any decision relating to this Contract which affects his/her personal interest or the interest of any corporation, partnership, or association in which she/he is directly or indirectly interested. No officer or employee of the OWNER shall have any interest, direct or indirect, in this Contract or the proceeds thereof. The CONTRACTOR understands that any key personnel individually named to provide services under the Contract may become municipal employees subject to the provisions of Connecticut General Statutes.

- 8.6 Appropriations for expenditures by the OWNER to spend for a particular purpose are ordinarily made on a fiscal year basis. The fiscal year of the OWNER is the twelve (12) month period ending June 30 of each year. The obligations of the OWNER under the Contract for the present or any subsequent fiscal year following the fiscal year in which the Contract is executed are subject to the appropriation to the OWNER of funds sufficient to discharge the OWNER's obligations, which accrue in this or any subsequent fiscal year. In the absence of such appropriation or authorization, this Contract shall be terminated immediately without liability for damages, penalties or other charges arising from early termination. Expenditures for contracted services, which will extend beyond a single fiscal year shall not exceed in any fiscal year the amount appropriated and authorized for said fiscal year. The CONTRACTOR's yearly costs, as set out herein, may not exceed the amount appropriated for said year.
- 8.7 The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.
- 8.8 The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b) (3) AND (4) of the Internal Revenue code 1986, as amended, or engage in conduct declared to be unlawful by Connecticut General Statutes.

IN WITNESS HEREOF, the parties of this AGREEMENT have hereunto set their hands and seals as of the day and year first above written.

FOR THE TOWN OF COLCHESTER, CT

BY: _____
Mary Bylone, First Selectman

CONTRACTOR

BY: _____

TITLE: _____
Print or type name and title

TAX ID#: _____
(Social Security # or FEID #)

In accordance the C.G.S., this is to certify that an appropriation in the amount of this contract is available therefor and that the Board of Commissioners of the Department of Public Works has been authorized to execute the contract and approve all requisitions and change orders.

BY _____
Collector/Treasurer

END OF SECTION 00500

**SECTION 00520
INDEMNITY AGREEMENT**

In consideration for award of the **2021-03 Rapallo Viaduct Force Main Repair**, by the Town of Colchester, hereinafter referred to as INDEMNITEE, to the CONTRACTOR/BIDDER:

_____ hereinafter referred to as INDEMNITOR, and for other good and valuable consideration, said INDEMNITOR agrees to hold INDEMNITEE, Town of Colchester, and its various departments and employees harmless from any and all liability, loss or damage that INDEMNITOR may suffer of claims, demands, costs, including attorney's fees, or judgement or other actions against it by reason of any and all work done by on behalf of the INDEMNITOR in connection with the above-referenced Contract.

Principal:

By: _____

(Title) _____
(SEAL)

Address

END OF SECTION 00520

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SECTION 00550
NOTICES

NOTICE OF AWARD

TO:

PROJECT DESCRIPTION: **2021-003 Rapallo Viaduct Force Main Repair**

The Owner has considered the Proposal submitted by you for the above described Work on _____ in response to its Invitation to Bid and Instructions to Bidders.

You are hereby notified that your Proposal has been accepted for Items totaling the amount of \$_____.

You are required by the Instructions to Bidders to execute the Contract Agreement and furnish the required Contractor's Performance Bond, Payment Bond and certificates of insurance within ten (10) days from the date of this Notice of Award. If you fail to execute said Agreement and to furnish said Bonds and Insurance within ten (10) days from the date of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Proposal as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner. Dated this ____ day of _____, 202__

By Town of Colchester Department of Public Works Director:

James Paggioli

Date

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged, this, the _____ day of _____, 202__

By: _____

Title: _____

NOTICE TO PROCEED

To:

Date:

PROJECT: ***Town of Colchester 2021-003 Rapallo Viaduct Force Main Repair***

You are hereby notified to commence the Work in accordance with the Agreement dated _____. In accordance with the Instructions to Bidders, you are to complete all work within **90 calendar days** commencing on the date of this Notice to Proceed. The date of completion for all work is therefore, _____.

Town of Colchester Department of Public Works Director:

By: _____
James Paggioli, Director of Public Works

Date: _____

END OF SECTION 00550

SECTION 00610
PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That we, _____, organized under the laws of the State of _____, and having a usual place of business in _____, as principals, and _____, organized under the laws of the State of _____, and having a usual place of business in _____, as surety, are are holden and stand firmly bound and obligated unto the Town of Colchester, Connecticut, as obligee, in the sum of _____ (\$ _____) Dollars, lawful money of the United States of America, to and for the true payment whereof, we hereby bind ourselves, and each of us, our heirs, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said principal has, by means of a written agreement, dated _____, entered into a contract with the said obligee for the **2021-003 Rapallo Viaduct Force Main Repair**, a copy of which agreement is attached hereto and by reference, made a part hereof.

NOW, THEREFORE, the conditions of this obligation is such that if the said principal shall well and truly keep and perform all the undertakings, covenants, agreements. terms and conditions of said contract on his part to be kept and performed, during the original term of said contract and any extensions thereof that may be granted by the Town of Colchester, Connecticut with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations, changes or additions to said contract that may hereafter be made, notice to the surety of such modifications, alterations, changes or additions being hereby waived, then this obligation shall be null and void; otherwise it shall be and remain in full force, virtue and effect.

In the event that the work under said contract is abandoned by the principal, or is terminated by the Town of Colchester, Connecticut under the provisions of sections of said Contract, said surety hereby further agrees that said surety shall, if requested in writing by the Town of Colchester, Connecticut, take such action as is necessary to complete the work under said contract.

And the said surety, for value received, hereby stipulates and agrees that no change in. or extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder, or to the Specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the Specifications.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____ in the year Two-Thousand Twenty-One.

Important: Attach herewith proof of authority of officers or agents to sign Bond.

PRINCIPAL:

SURETY:

By:_____ By:_____

(Title)_____ (Title)_____

END OF SECTION 00610

**SECTION 00620
PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS,

That we, _____ organized under the laws of the State of _____ and having a usual place of business in _____, as principal, and _____ organized under the laws of the State of _____ and having a usual place of business in _____, as surety, are holden and stand firmly bound unto the Town of Colchester, Connecticut as obligee, in the sum of _____ (\$ _____) Dollars lawful money of the United States of America, to and for the true payment whereof, we hereby bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said principal has, by means of a written agreement, dated _____ entered into a contract with the said obligee for the **Rapallo Viaduct Force Main Repair**, a copy of which agreement is attached hereto and by reference made a part hereof.

NOW THEREFORE, The conditions of this obligation is such that if the principal shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the surety of such modifications, alterations, extensions of time, changes or additions being hereby waived, then this obligation shall be null and void; otherwise it shall be and remain in full force, virtue and effect.

IN WITNESS WHEREOF, the above-bounded parties have hereunto set our hands and seals
this _____ day of _____ in the year Two-Thousand Twenty-One.

Important: Attach herewith proof of authority of officers or agents to sign Bond.

PRINCIPAL:

SURETY:

By:_____

By:_____

(Title)_____

(Title)_____

END OF SECTION 00620

GENERAL CONDITIONS OF CONTRACT

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*:
 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,”

“acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day:*

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

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner's Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

- a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
2. is of such a nature as to require a change in the Drawings or Specifications; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments:*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

- b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
- 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
- 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 - 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 - 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming

aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related

thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the

Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and

documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
 - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 - 2. claims for damages insured by reasonably available personal injury liability coverage.
 - 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be

maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials

and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

- C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of

payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor

may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or-equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct

- contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
- 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
- c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

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

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

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

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss;

and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

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

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner

may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal;
 - 6. the issuance of a notice of acceptability by Engineer;
 - 7. any inspection, test, or approval by others; or
 - 8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor

or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility

owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will

not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the

requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 - 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns

from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:* Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:* Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

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

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required

by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

- F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for

Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

- c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;

- g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons

therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner

and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

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SECTION 00800 SUPPLEMENTAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC No. C-700, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not specifically amended or supplemented hereby remain in full force and effect.

ARTICLE 1. DEFINITIONS AND TERMINOLOGY

SC-1.01.A.13

Add the following language at the beginning of the definition entitled "Contract Documents" in the General Conditions:

The Invitation to Bid, Instructions to Bidders

SC-1. 01.A.28

Add the following language to the definition entitled "Owner" in the General Conditions:

The "Owner" shall mean the Town of Colchester, Connecticut acting through its Department of Public Works.

SC-1. 01.A.40

Delete the definition of Substantial Completion in the General Conditions in its entirety and add the following in its place:

The Work required by the Contract has been completed except for work having a Contract Price of less than one percent of the then adjusted total contract price, or substantially all of the Work has been completed and opened to Owner's use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work required by the Contract.

SC-1. 01.A.49

Add the following definition to the General Conditions:

"State" shall mean the State of Connecticut.

ARTICLE 2.

PRELIMINARY MATTERS

SC-2.05

Add the following paragraphs immediately after paragraph 2.05.A.3 of the General Conditions which is to read as follows:

2.05.A.4 Before any work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates of insurance (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 6.

2.05.A.5 Contractor shall include and identify on the certificate of insurance, indemnification as required by Article 7.18.

ARTICLE 3.

DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01

Add the following paragraphs immediately after paragraph 3.01.A of the General Conditions which is to read as follows:

3.01.A.1 Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. 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.

3.01.A.2 Sections of Division 1 - General Requirements govern the execution of the work of all sections of the specifications.

ARTICLE 4.

COMMENCEMENT AND PROGRESS OF THE WORK

SC 4.01

Delete paragraph 4.01 in its entirety and insert the following in its place:

4.01 The Contract Time will commence to run on the day indicated in the Notice to Proceed.

SC-4.03.A

Add a new paragraph at the end of paragraph 4.03.A of the General Conditions which is to read as follows:

"4.03.B ENGINEER may check the lines, elevations, reference marks, batter boards, etc., set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR's work and shall not relieve CONTRACTOR of the responsibility for accurate and satisfactory construction and completion of the entire Work. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades."

SC-4.04

Add the following paragraph after paragraph 4.04.A.2 of the General Conditions:

"3. The CONTRACTOR's resident superintendent shall attend monthly progress meetings at the site of the work with the ENGINEER and others as appropriate to review schedule status and such other pertinent subjects as may be listed on the agenda by the ENGINEER."

ARTICLE 5. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.01

Add a new paragraph immediately after paragraph 5.01.A of the General Conditions which is to read as follows:

"5.01.A.1 If all lands and rights-of-way are not obtained as herein contemplated before construction begins, CONTRACTOR shall begin the Work upon such land and rights-of-way as OWNER has previously acquired and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining lands and rights-of-way. Should OWNER be prevented or enjoined from proceeding with the Work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the Work, CONTRACTOR shall not be entitled to make or assert claim for damage by reason of said delay, or to withdraw from the Agreement except by consent of OWNER. Time for completion of the Work will be extended as provided in Article 11, to such time as OWNER determines will compensate for the time lost by such delay."

SC-5.04

Add a new paragraph immediately after paragraph 5.04.D of the General Conditions which is to read as follows:

"5.04.E Adjustments resulting from actual subsurface or latent physical conditions from those indicated will be in accordance with Connecticut General Statutes and the applicable provisions of the Contract Documents."

ARTICLE 6. BONDS AND INSURANCE

SC-6.02

Add a new paragraph immediately after paragraph 6.02.J of the General Conditions which is to read as follows:

"K. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with this Article 6 on the basis of its not complying with the Contract Documents, OWNER will notify CONTRACTOR in writing thereof within thirty days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.01.B CONTRACTOR will provide such additional information in respect of insurance provided by him as OWNER may reasonably request."

SC-6.03

The limits of liability for the insurance required by paragraph 6.03 of the General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

6.03.A Workers' Compensation.

(1)	Worker's Compensation	\$1,000,000
(2)	Employer's Liability	\$1,000,000

6.03.B and 6.03.C Comprehensive General Liability including Operations/Premises, Contractor's Protective, Products/Completed Operations, and Personal Injury liabilities:

(1)	Bodily injury:	\$1,000,000 \$3,000,000	Each occurrence Annual aggregate
(2)	Property damage, including explosion, collapse and underground coverage:	\$1,000,000 \$3,000,000	Each occurrence Annual aggregate
Property damage liability insurance shall provide coverage for property in the care, custody and control of the insured.			
(3)	Personal injury, with employment exclusion deleted:	\$3,000,000	Annual aggregate

The Contractual Liability required by paragraph 6.03.C of the General Conditions shall provide coverage for not less than the following amounts:

(1)	Bodily injury:	\$2,000,000 \$3,000,000	Each occurrence Annual aggregate
(2)	Property damage, including explosion, collapse and underground coverage:	\$1,000,000 \$3,000,000	Each occurrence Annual aggregate
(3)	General Aggregate	\$2,000,000	

6.03.D Comprehensive Automobile Liability including owned, hired and non-owned vehicles:

(1)	Bodily injury:	\$1,000,000 \$1,000,000	Each person Each accident
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SC-6.04

Delete paragraph 6.04 of the General Conditions in its entirety and insert the following in its place:

6.04.A CONTRACTOR shall purchase and maintain a separate Owner's Protective Liability policy, issued to OWNER at the expense of CONTRACTOR, including OWNER and ENGINEER as named insured. This insurance shall provide coverage for not less than the following amounts:

6.04.A.1	Bodily Injury:	
	Each Occurrence	\$1,000,000
6.04.A.2	Property Damage:	
	Each Occurrence	\$1,000,000
	Annual Aggregate	\$1,000,000

SC-6.05

Delete Paragraph 6.05.A of the General Conditions in its entirety and insert the following in its place:

"A. CONTRACTOR shall purchase and maintain, until final payment, property insurance upon the Work at the site in an amount equal to the total bid price for the completed construction. This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and shall include damages, losses and expenses rising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). This insurance shall be provided on the completed value form. If not covered under the "all risk" insurance or otherwise provided in these Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment."

Delete Paragraph 6.05.B of the General Conditions in its entirety and insert the following in its place:

"B. All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER by certified mail and will contain waiver provisions in accordance with paragraph 6.06.B."

SC-6.07

Delete paragraph 6.07.A of the General Conditions in its entirety.

Delete paragraph 6.07.B of the General Conditions in its entirety.

Delete paragraph 6.07.C of the General Conditions in its entirety.

ARTICLE 7. CONTRACTOR'S RESPONSIBILITIES

SC-7.06

Add the following new paragraph as follows:

"7.06.J.1 OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other person or organization, to the extent practicable, information about amounts paid to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment on account of the particular Subcontractor's, Suppliers, other person's, or other organization's Work."

SC-7.16

Add the following new paragraph immediately after paragraph 7.16.E of the General Conditions, which is to read as follows:

"7.16.F The accuracy of all such information submitted by the Contractor is the responsibility of the Contractor. In reviewing Shop Drawings, Samples, and similar submittals, the Engineer shall be entitled to rely upon the Contractor's representation that such information is correct and accurate."

ARTICLE 8. OTHER WORK AT THE SITE

SC-8.03

Delete paragraph 8.03.D of the General Conditions in its entirety, and insert the following in its place:

"8.03.D Should CONTRACTOR cause damage to the work or property of any separate contractor at the site, or should any claim arising out of CONTRACTOR'S performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, ENGINEER'S Consultants, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER, ENGINEER, and ENGINEER'S Consultants, harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys, and other professionals, and court and arbitration costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER, ENGINEER, or ENGINEER'S Consultants, to the extent based on a claim arising out of the CONTRACTOR'S performance of the Work. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of Work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, or ENGINEER'S Consultants or permit any action against any of them to be maintained and continued in

its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER, ENGINEER, or ENGINEER'S Consultants, on such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of times in accordance with Article 12.02. An extension of the Contract Times shall be CONTRACTOR'S exclusive remedy with respect to OWNER, ENGINEER, and ENGINEER'S Consultants, for any delay, disruption, interference or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER, ENGINEER, or ENGINEER'S Consultant, for activities that are their respective responsibilities."

ARTICLE 9. OWNER'S RESPONSIBILITIES

SC-9.06

Delete paragraph 9.06 of the General Conditions in its entirety.

ARTICLE 10. ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.01

Add a new paragraph 10.01.B after paragraph 10.01.A of the General Conditions, which is to read as follows:

"B. Nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the ENGINEER and CONTRACTOR, (2) between the OWNER and a Subcontractor or Subcontractors, or (3) between any person or entities other than the OWNER and CONTRACTOR. The ENGINEER shall, however, be entitled to performance and enforcement of obligations under the CONTRACT DOCUMENTS intended to facilitate performance of the ENGINEER'S duties."

SC-10.03

Add a new paragraph immediately after paragraph 10.03.A of the General Conditions as follows:

"10.03.B OWNER will furnish a Resident Project Representative and to assist OWNER in observing the performance of the Work. The duties and responsibilities of the Resident Project Representative will be as enumerated in a document entitled "Duties, Responsibilities, and Limitations of the Authority of Resident Project Representative" and will be made available to CONTRACTOR at the start of his work."

ARTICLE 11. AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.02

Add a new paragraph immediately after paragraph 11.02.A of the General Conditions which is to read as follows:

"11.02.A.1 ENGINEER'S interpretations will be made in accordance with Connecticut General Statutes."

SC-11.02

Add the following new paragraph immediately after paragraph 11.02.A of the General Conditions, which is to read as follows:

"11.02.B Upon request of the Owner or Engineer, the Contractor shall without cost to the Owner submit to the Engineer, in such form as the Engineer may require, an accurate written estimate of the cost of any such proposed extra Work or change. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of materials shall be shown if required by the Engineer. The Contractor shall promptly revise and resubmit such estimate if the Engineer determines that it is not in compliance with the requirements of this Article, or that it contains errors of facts or mathematical errors. If required by the Engineer, in order to establish the exact cost of new Work added or previously required Work omitted, the Contractor shall obtain and furnish to the Engineer bona fide proposals from recognized suppliers for furnishing any material included in such Work, and shall be furnished at Contractor's expense. The Contractor shall state in the estimate any extension of time required for the completion of the Work if the change or extra work is ordered."

ARTICLE 12. CLAIMS

SC-12.01

Add a new paragraph immediately after paragraph 12.01.D.1 of the General Conditions to read as follows:

"12.01.D.1.a CONTRACTOR shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings unless otherwise agreed in writing by OWNER and CONTRACTOR."

ARTICLE 13. COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01

Add the following to the end of paragraph 13.01.B of the General Conditions to read as follows:

"Following the Notice of Award and prior to the execution of the AGREEMENT the OWNER, prospective contractor and, if any, each prospective filed subbid contractor shall agree on what percentage markup shall be used as direct labor costs in determination of extra work costs."

In the second sentence of paragraph 13.01.B.1 delete the word "superintendents".

SC-13.02

Delete paragraph 13.02 of the General Conditions in its entirety.

ARTICLE 15. PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01

Add new paragraphs immediately after paragraph 15.01.B.1 of the General Conditions to read as follows:

"15.01.B.1.a Only the following items of material and equipment will be accepted for delivery at the site or at a local bonded warehouse and included in progress estimates in advance of actual requirement, subject to all conditions stated below.

15.01.B.1.b Materials and equipment listed above will not be included in progress estimates until the requirements stated herein have been fulfilled.

15.01.B.1.c The Contractor must present an invoice to the Engineer for each item of material or equipment he is requesting payment for. The invoice must be broken down to show the costs for the actual equipment, and reasonable costs for O&M Manuals, spare parts, start-up certification, training, testing, final acceptance testing, and any other services required by Contract.

15.01.B.1.d Sufficient monies have been allocated in the payment requisition line items to cover all of the costs listed in "a" above, plus the costs of physically installing the equipment.

15.01.B.1.e The equipment has been submitted and approved for use in this Project.

15.01.B.1.f The Contractor has, at the time of delivery, given the Engineer written notice of the delivery using the form provided by the Engineer.

15.01.B.1.g The equipment is acceptably stored and protected. Storage in a bonded warehouse will require proof of bonding, and insurance coverage specifically for the item being stored.

15.01.B.1.h The manufacturer's short and/or long term storage requirements have been received by the Engineer, prior to payment.

15.01.B.1.i The Contractor has established a program to implement the manufacturer's required storage procedures. Said program to consist of at the very least a written schedule of daily, weekly, monthly, routine maintenance requirements for each piece of equipment. A copy of this schedule to be presented to the Engineer prior to each requisition submittal, signed by the Contractor, stating that the required maintenance has been performed.

15.01.B.1.j Signed, notarized Title Transfers, format to be furnished by the Engineer, must be furnished for each item of equipment.

15.01.B.1.k When the above have been complied with to the satisfaction of the Engineer, payment will be authorized for the full invoice values of the item of equipment, less normal retainage and less all costs for O&M Manuals, spare parts, start-up certification, training, testing, final acceptance testing, and installation."

Delete paragraph 15.01.B.3 and insert the following in its place:

"15.01.B.3. Retainage with respect to progress payments will be five percent or, if stipulated, the maximum allowed by law."

ARTICLE 18. MISCELLANEOUS

SC-18.08

18.08 Headings:

Delete paragraph 18.08.A and replace with the following paragraph:

"18.08.A The headings or titles of any article, paragraph, subparagraph, section, subsection, or part of the Contract Documents shall not be deemed to limit or restrict the article, paragraph, section, or part."

18.09 Legal Address of Contractor

Add the following paragraph immediately after section 18.08:

"18.09.A CONTRACTOR'S business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the CONTRACTOR'S business

address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon CONTRACTOR, and the date of such service shall be the date of receipt. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by CONTRACTOR and delivered to ENGINEER. Service of any notice, letter, or other communication upon the CONTRACTOR personally shall likewise be deemed sufficient service."

END OF SECTION 00800

**DIVISION 1
GENERAL REQUIREMENTS**

INDEX

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SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 LOCATION OF WORK

- A. The work of this Contract is located in the Town of East Hampton, Connecticut, at the Rapallo Viaduct, which is located along Airline Trail where it intersects with Flat Brook.

1.3 BACKGROUND

- A. The Colchester sanitary sewer force main was constructed in 1981 to transfer between 600,000 and 800,000 gallons of wastewater from Colchester, Hebron, and Marlborough to the East Hampton Joint Facilities collection system. The pump station is located on Prospect Hill Road in Colchester, and it connects to a 16-inch diameter cement-lined ductile iron pipe (CLDIP) sanitary sewer force main that runs along the Connecticut Airline Trail and discharges to a gravity system on Smith Street in East Hampton.
- B. The Rapallo Viaduct is approximately 6.1 miles from the Colchester Pump Station, and about 1.6 miles from the discharge point. The Rapallo Viaduct is a buried structure along the Airline Trail which traverses Flat Brook. The 16-in CLDIP force main passes through the Rapallo Viaduct structure.
- C. The line experienced three (3) consecutive breaks directly west of the Rapallo Viaduct in May 2020, which motivated the Town of Colchester to install gate valves on either side of the viaduct, and establish approximately 1,600 linear feet of bypass piping.
 - a. Bolt-like spacers were used during one of the repairs, and currently intrude into the force main, as observed on CCTV approximately 120 feet and 127 feet from the start of the footage which began at the pipe to be repaired near the western valve on the viaduct side.
- D. The work in this project is to make repairs to the 16-inch CLDIP force main between the 2020-installed gate valves along the Rapallo Viaduct.

1.4 SUMMARY

- A. In general and without limitation, the work to be done under this contract includes, but is not necessarily limited to, furnishing all labor, services, equipment, materials, devices, facilities, and appurtenances for the installation of erosion control measures, excavation of **launchingsending** and receiving pits, cleaning and preparing the existing pipe to be repaired, lining the force main, connecting to the existing force main at either end of the work area, and backfilling the **launchingsending** and receiving pits within the limits of the easement as shown on the Drawings and as specified herein.
- B. The work to be performed shall include the work shown on the Drawings, as specified herein, and as indicated below.
- C. All construction activities must also be completed while meeting the requirements of Appendix A (State Wage Rates).
- D. The force main with the existing bypass piping will be in operation during test pits, access pit excavation, cleaning and inspection of the pipe to be repaired. Contractor shall coordinate with the Colchester DPW and North Hampton Joint Facilities in anticipation of temporary force main shut down and wastewater hauling. Contractor shall make every effort to minimize force main shut down time.
- E. After the force main repair is back in **service**, return of existing bypass pipe must **be** coordinated with United Rentals of Worcester, MA, (508) 756-3306.

Commented [ZFK1]: Specify what needs to take place here

1.5 SCOPE OF WORK

- A. A general description of the work to be performed under this contract shall include, but will not be limited to, the following construction operations:
 - 1. Coordination of all activities with the Colchester DPW, East Hampton Join Facilities, and all appropriate governing authorities and utility companies.
 - 2. Attending the Pre-construction conference and the required job progress meetings.
 - 3. Submission of a construction schedule, list of subcontractors, and subcontractor certifications.
 - 4. Submission of all required shop drawings, in a timely manner, to the Engineer, for review.
 - 5. Mobilization/Demobilization to/from the site.
 - 6. Installation and maintenance of erosion controls; consisting of filter sock and providing dust control as required.

7. Bracing and supporting of the existing bypass pipe.
8. Locating and removing of intruding bolts on western side of Rapallo Viaduct.
9. Cleaning, inspecting, FFRP lining, and reconnecting force main from existing gate valve west to existing gate valve east on either side of the Rapallo Viaduct.
10. Draining and coordination of existing bypass pipe.
 - a. Equipment and labor to transport 50-foot segments of bypass pipe to Smith Street entrance for pick up by United Rentals of Worcester, MA.
 - b. United Rentals to provide labor and equipment to cut existing bypass pipe into 50-foot segments, and to provide transportation of the used pipe off-site from the Smith Street access point.

11. Site cleanup and restoration.

- B. The work shall also conform to such additional Drawings and addenda to these Specifications and Drawings as may be published or exhibited prior to the opening of bid proposals and to such drawings in explanation of details, or as may be furnished by the Engineer from time to time during the construction.
- C. Work and materials which are necessary in the construction but which are not specifically referred to in the Specification, or shown on the Drawings, but implied by the Contract shall be furnished by the Contractor at his own cost and expense and shall be such as will correspond with the general character of the work as may be determined by the Engineer, whose decisions as to the necessity for and character of such work and materials shall be final and conclusive. It is the intent of these Specifications to produce a complete, finished job whether shown in every detail or not.

1.6 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit the use of the premises for his/her Work and for storage to allow for:
 1. Owner occupancy.
 2. Site safety.
- B. Coordinate use of premises with Engineer, the Town of Colchester, and East Hampton Joint Facilities.
- C. Contractor shall assume full responsibility for security of all his/her and his/her subcontractors' materials and equipment stored on the site.

- D. If directed by the Owner, the Contractor shall move any stored items which interfere with operations of the Town or other contractors.
- F. Access to the existing sewer force main this project shall be via the entrance to the Airline Trail at Smith Street in East Hampton, which is approximately 1.25 miles from the project site.
- G. Contractor may use the site to store any and all salvaged items provided that the location for storage is approved by the Engineer, the salvaged items do not interfere with existing operations, and the salvaged items and method of storage do not pose a threat to site safety, security, or present a hazard to the environment or water supply.

1.7 WORK SEQUENCE

- A. The Recommended ~~construction Contractor~~ Sequence ~~shown on is in~~ the Drawings.
- B. The Contractor shall submit a sequence of work for the overall project for the Engineer's review and approval.

1.8 UTILITIES

- A. The utilities shown on the plans have been located primarily from information furnished by others and are considered approximate both as to size and location. It shall be the Contractor's responsibility to locate all existing utilities and to protect same from damage or harm. All utilities interfered with or damaged shall be properly restored, at the expense of the Contractor, to the satisfaction of its Owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01010

SECTION 01024 MEASUREMENT AND PAYMENT

PART I - GENERAL

1.1 SUMMARY

- A. Under the price specified to be paid for each item, the Contractor shall furnish all materials and equipment, furnish all labor and plant, and do all operations necessary to complete all work specified or shown. All supervision, overhead items, protection, and precautions, permit fees, bonds, insurance fees, and all other costs incidental to the construction work including training, start-up, testing, and calibration services, complete, and as specified, are included.
- B. A complete, finished, working job, as intended by the general nature of these Specifications, shall be produced whether or not any particular wording or direction is omitted or inadvertently not clearly stated.
- C. Measurement for payment shall be by the Engineer, except where noted elsewhere in this Specification. Measurement for payment for lump sum items shall be on the basis of percentage of work complete and in place.
- D. Each unit or lump sum price stated in the bid shall constitute full compensation as herein specified for each item of work completed in accordance with the Drawings and Specifications.
- E. The prices for those items which involve excavation shall include compensation for disposal of surplus excavated material, handling of water, and any required shoring or bracing for compliance with OSHA regulations.
- F. Unit prices submitted for various items of work will be utilized for determining prices of any additional work necessary during construction.
- G. Unit prices submitted for various items of work will be utilized for determining prices of any additional work necessary during construction.

1.2 ITEM DESCRIPTIONS- BASE BID

Furnishing all equipment, labor, materials, and components, and performing all work shown on the Drawings and described in the Specifications.

Item 1 – Access Pits

A. Item 1a: Erosion Control Devices

1. Bid Item 1a shall be measured for payment on a linear foot basis of material furnished and installed as measured and approved by the Engineer.
2. Payment will include all costs for labor, materials, and equipment required to furnish, install, maintain, and replace of barriers.
3. Under the unit bid price for Item 1a, the Contractor shall furnish and place filter sock sedimentation barriers for sedimentation/erosion control to prevent erosion of excavated materials at trenches and near piles of excavated material.

B. Item 1b: Access Pit Excavation & Backfill

1. Bid Item 1b shall be measured for payment on a cubic yard basis as measured and approved by the Engineer.
2. Under the unit bid price for Item 1b, the Contractor shall furnish all labor and materials required to excavate, stabilize pit, secure and cover as necessary, support existing bypass piping, and backfill the access pits as depicted on the Drawings.
3. Payment will be made at the unit price bid as actually furnished and installed. Payment will include all costs for labor, materials, and equipment and incidentals required to complete the work.

C. Item 1c: Test Pits and Bolt Removal

1. Bid Item 1c shall be measured for payment on a lump sum basis.
2. Under this item, Contractor shall furnish all labor and materials required to support bypass piping, excavate test pits required to locate and remove intruding bolts where shown on the Drawings, and backfill and restoring the trench as shown on the Drawings.
3. Payment will be made for this item when it is complete in full to the satisfaction of the Owner and Engineer.

D. Item 1d: Trail Restoration

1. Bid Item 1d shall be measured for payment on a square yard basis as measured and approved by the Engineer.
2. Under this item, the Contractor shall furnish and place all labor, materials, equipment, and incidentals required to complete trench restoration, including

MEASUREMENT AND PAYMENT

grading, compacting, fine grading, and restoring of disturbed earth as shown on the Drawings and to the satisfaction of the Owner and Engineer.

3. Payment will be made at the unit price bid furnished and installed, as measured and accepted by the Engineer.

E. Item 2: Furnish and Install Nominal 18-inch Diameter Flexible Fabric Reinforced Pipe (FFRP)

1. Measurement: This item shall be measured per the length for force main from inside face of the entry to the pipe to inside face of the exit to the pipe as measured and recorded on the CCTV footage and accepted to the satisfaction of the Engineer.
2. Under this item, the Contractor shall provide all shipping, transportation, labor, materials, tools, equipment, and incidentals to clean using mechanical and hydraulic techniques, removal all roots, and remove tuberculation until the interior of the pipe has been restored to its original internal diameter, and completely furnish, install, and test nominal 18-inch diameter flexible fabric reinforced pipe (FFRP) complete with matching flanged connection system, and all matched flanged reducers (16-inch to 18-inch), 16-inch diameter flanged mechanical joints, 16-inch diameter Protecto 401 Ceramic Epoxy Coated ductile iron "spool" pipe, fitting for connection to existing pipe near gate valves, and all other aspects required to securely connect the FFRP lined segment to the existing force main and all other incidentals required to complete the Work as shown on the Drawings.
3. Payment: Under the Unit Price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to perform the CCTV cleaning and CCTV inspection, inspection report including digital copies, and all other incidentals required to complete the work.
4. No traffic management will be required for this job.
5. Existing bypass piping is to remain in place during the completion of the work under this item.

F. Item 3: Sewage Bypass Pipe Rental Coordination

1. Bid Item 3 shall be measured for payment on a lump sum basis.
2. Under the unit bid price for this item, the Contractor shall coordinate with United Rentals to return the existing bypass piping to them.
3. All wastewater shall be fully drained from bypass pipe prior to coordination.

MEASUREMENT AND PAYMENT

4. Contractor shall not provide cutting the existing pipe, or transportation of the existing pipe to the United Rentals facility, those services are to be provided by United Rentals.
5. Contractor provide trucks, attachments, labor, equipment, and materials to move the bypass pipe, once cut by United Rentals personell, to the Smith Street access point.

G. Item 4: Mobilization and Demobilization

1. The lump sum price for this item shall constitute full compensation to the Contractor for the general mobilization and construction equipment delivery to make the contract operational, exclusive of the cost of materials, and furnishing and maintaining the Temporary Facilities as described in Section 01500. The item shall also include the general demobilization upon closeout of the contract. Fifty percent will be payable upon complete mobilization and the final fifty percent upon complete demobilization.
2. The total for mobilization/demobilization shall not exceed 5 percent of the total of all bid items excluding this item.

H. Item A: Wastewater Hauling (Bid Alternate)

1. Bid Item A shall be measured for payment based on truck days, where days are measured in 24-hour periods.
2. Under the unit bid price for this item, the Contractor shall provide trucks, attachments, labor, and all materials pertinent to vaccum suction and haulwastewater from the bypass pipe, and from Colchester Pumping Station to the designated wastewater receiving facility.
3. Contractor shall schedule work to minimize duration of wastewater hauling required during temporary force main shut down.

END OF SECTION 01024

MEASUREMENT AND PAYMENT

SECTION 01040 PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
 - 1. Coordination.
 - 2. Administrative and supervisory personnel.
 - 3. General installation provisions.
 - 4. Cleaning and protection.
- B. Requirements for the Contractor's Construction Schedule are included in Section 01300 - Submittal Procedures.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Inspect the conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner, and at no additional cost to the Owner.
- B. Manufacturer's Written Instructions: Comply with manufacturer's written installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.

- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items, and at no additional cost to the Owner.
- D. Provide attachment and connection devices and methods for securing work. Secure work true to line and level. Allow for expansion and utility movement.
- E. Install each component during weather conditions and Project status that will ensure the best possible results.

3.2 CLEANING AND PROTECTION

- A. Contractor shall be required to provide free and clear access along the Airline Trail to pedestrians and bike riders when construction is not taking place during open trail hours.

3.3 COMMUNICATION

- A. Contractor shall coordinate all work and temporary shut downs with the Colchester DPW.
- B. Contractor shall coordinate all wastewater hauling with East Hampton Joint Facilities.
- C. Contractor shall coordinate return of existing bypass piping with United Rentals of Worcester, MA.

END OF SECTION 01040

SECTION 01050 FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Examination of site and conditions of construction.
 - 2. Establishment of lines, grades, and easements.
 - 3. Restoration and protection of public and private property.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - Submittal Procedures:

1.4 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
 - 1. Unfavorable Construction Conditions:
 - a. During unfavorable weather, wet grounds, or other unsuitable construction conditions, confine operations to work which will not be affected adversely by such conditions.
 - b. No portion of Work shall be constructed under conditions which adversely affect quality or efficiency thereof, unless special means or precautions are taken to perform Work in manner acceptable to the Engineer.
- B. Field Measurements:
 - 1. Lines and Grades:
 - a. All Work shall be done to lines, grades, and elevations indicated on drawings or specified herein.
 - b. Elevations on the construction plans are in datum as depicted in the Drawings. Contractor shall be responsible for matching existing elevations as actually found on site to the satisfaction of the Engineer and Owner.

2. Easements and Rights-of-Way:
 - a. Confine storage of equipment and materials to within limits agreed upon with the Owner.
 - b. Place construction tools, equipment, excavated materials, and supplies, so as to cause least possible damage to property and surrounding environment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination of Site and Verification of Conditions:
 1. Before starting operations, examine site to become acquainted with existing conditions.
 2. Verify exact locations of above ground utilities which may interfere with work.

3.2 APPLICATION

- A. Restoration and Protection of Public and Private Property:
 1. Restore all public and private property including pavement, surfacing, curbs, walks, utility poles, guy wires, fences, and other surface structures affected by construction operations, whether within or outside easements.

3.3 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700 - Contract Closeout.

END OF SECTION 01050

SECTION 01110 ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. The work covered by this section consists of furnishing all labor, materials and equipment and performing all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environmental for aesthetic and/or recreational purposes.
- B. The control of environmental pollution requires consideration of air, water, and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Schedule and conduct all work in a manner that will minimize the generation of windblown dust and erosion of soils in the area of the work. Provide erosion control measures such as filter sock as required by Section 02020 – Erosion and Sediment Control to prevent silting and muddying of the existing drainage systems, wetlands, streams, rivers, impoundments, lakes, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area.
- D. These Specifications are intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. These are general guidelines. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.
- E. Schedule and conduct all work in a manner that will minimize the level of noise escaping the site.
- F. No portion of the proposed disturbed work is within, abutting, or within a 100-foot buffer zone of wetlands. The lining work which traverses the wetland area at Flat Brook is entirely trenchless and anticipated to have no impact or interaction with the wetland. The work proposed in the access pits are at least 200-feet away from mapped wetland areas. No wetland permits are required for this work.
- G. Contractor shall be responsible for maintenance of the existing erosion control structures and devices, and replacing as needed to maintain the required protection and performance.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.
- B. Related sections include the following:
 - 1. Section 02020 – Erosion and Sediment Control

1.3 APPLICABLE REGULATIONS

- A. Comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1.4 NOTIFICATIONS

- A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or local requirements. The Contractor shall, after receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.5 IMPLEMENTATION

- A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with this provision and administration of the environmental pollution control program.
- B. Remove temporary environmental control features, when approved by the Engineer.

PART 2 – PRODUCTS

2.1 EROSION CONTROLS

- A. Filter sock as shown on the Contract Drawings and as specified in Section 02020 – Erosion and Sediment Control.

PART 3 - EXECUTION

3.1 EROSION CONTROL

- A. Provide erosion control measures such as filter sock to be used as shown on the Drawings and Section 02020 – Erosion and Sedimentation Control.

3.2 PROTECTION OF STREAMS AND WETLANDS

- A. Care shall be taken to prevent or reduce to a minimum any damage to any stream, drainage ditch, wetland, surface water body, storm drain or sewer from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the water in the receiving body shall not be directly returned to the surface water body. Such water will be diverted through a settling basin or filter before being directed into the surface water body.
- B. All preventative measures shall be taken to avoid spillage of petroleum products and other pollutants. In the event of any spillage, prompt remedial action shall be taken in accordance with a contingency action drawing or plan approved by the Connecticut Department of Energy and Environmental Protection. **Contractor shall submit approved contingency drawings or plans to the Engineer.**
- C. Equipment refueling operations must take place in a supervised contained area, at least 500 feet from any surface water body. Spill response materials must be accessible on-site for the duration of construction.

3.3 PROTECTION OF LAND RESOURCES

- A. Land resources within the project boundaries and outside the limits of permanent work shall be restored to a condition, after completion of construction that will appear to be natural and not detract from the appearance of the project. Confine all construction activities to areas shown on the Drawings.
- B. Outside of areas requiring clearing according to the Drawings, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall in any event be responsible for any damage resulting from such use.
- C. Where trees not within proposed clearing areas may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment, dumping or other operations, protect such trees by placing boards, planks, or poles around them. Monuments and markers shall be protected similarly before beginning operations near them.

- D. Any trees or other landscape feature scarred or damaged by the Contractor's equipment or operations which are not within the proposed clearing areas shall be restored as nearly as possible to its original condition. The Engineer will decide what method of restoration shall be used and whether damaged trees shall be treated and healed or removed and disposed of.

All scars made on trees by equipment, construction operations, or by the removal of limbs larger than 1-in. in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted.

Trees that are to remain, outside the established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Engineer shall be immediately removed and replaced.

Tree stumps within the limits of clearing are to remain in place.

- E. The locations of the Contractor's storage, staging and other construction building, required temporarily in the performance of the work, shall require written approval of the Engineer and shall not be within wetlands or floodplains. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of the work. Drawings showing storage facilities and staging shall be submitted for approval by the Engineer.
- F. All debris and excess material shall be disposed of outside wetland or floodplain areas in an environmentally sound manner.

3.4 PROTECTION OF AIR QUALITY

- A. Burning: The use of burning at the project site for the disposal of refuse and debris will not be permitted.
- B. Dust Control: The Contractor will be required to maintain all embankments, stockpiles, access roads, waste areas, and all other work areas within or outside the project boundaries free from dust which could cause the standards for air pollution to be exceeded, and which would cause a hazard or nuisance to others.
- C. An approved method of stabilization consisting of sprinkling or other similar methods will be permitted to control dust.
- D. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Engineer.

3.5 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

- A. During the life of this Contract, maintain all facilities constructed for pollution control as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

3.6 NOISE CONTROL

- A. The Contractor shall make every effort to minimize noises caused by his operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with State and Federal (OSHA) regulations.

END OF SECTION 01110

Colchester, CT
Rapallo Viaduct FM Repair
486-2001

ENVIRONMENTAL PROTECTION
01110-6

SECTION 01300 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 0 and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies the general methods and requirements of submissions applicable to the following work-related submittals.
 - 1. Shop Drawings.
 - 2. Product Data.
 - 3. Construction or Submittal Schedules.
 - 4. Or Equal submittals.
- B. Additional general submission requirements are contained Paragraphs 7.16 of the General Conditions.
- C. Detailed submittal requirements will be specified in the technical specifications section.

1.3 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

- A. Shop Drawings:
 - 1. Shop drawings, as defined in the General Conditions, and as specified in individual work sections include, but are not necessarily limited to: custom-prepared data such as fabrication and erection/installation (working) drawings of concrete reinforcement, structural details and piping layout, scheduled information, setting diagrams, actual shopwork manufacturing instructions, custom templates, special

wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications as applicable to the work.

2. All shop and working drawings shall be prepared on standard size, 22-in. by 34-in. sheets, except those which are made by changing existing standard shop or working drawings.
3. All shop drawings shall be submitted using a transmittal form approved by the Engineer. Submittal form shall include identification of transmittal number and specification section number.
4. The Contractor shall check all subcontractor's shop drawings regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.
5. All details on shop drawings submitted for approval shall show clearly the relation of the various parts of the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.

1.4 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall review shop drawings, product data and samples prior to submission to determine and verify the following:
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
 4. Conformance with the Specifications.
- B. Each shop drawing, sample, and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor: "Certification Statement: by this submittal, I

hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements." Shop drawings and product data sheets shall digital, searchable, and labeled in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide to the Engineer a copy of each submittal transmittal form for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the Engineer.

1. Submittals received "WITHOUT" Certification Statement shall not be reviewed.

- C. If a shop drawing shows any deviation from the requirements of the Contract Documents, the Contractor shall make specific mention of the deviations in the Transmittal Form furnished by the Engineer and provide a description of the deviations in a letter attached to the submittal.
- D. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will not have responsibility therefore.
- E. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- F. Project work, materials, fabrication, and installation shall conform to approved shop drawings, applicable samples, and product data.

1. Manufacturer's printed installation instructions; a part of product data submitted to the Engineer will not be reviewed and are for informational purposes only.

1.5 "OR EQUAL"

- A. Should the Contractor seek approval of a product other than the brand or brands named in these specifications, it shall furnish written evidence that such product

conforms in all respects to the specified requirements, and that it has been used successfully elsewhere under similar conditions. Where the specified requirements involve conformance to recognized codes or standards the Contractor shall furnish evidence of such conformance in the form of test or inspection reports, prepared by a recognized agency, and bearing an authorized signature.

- B. Manufacturers' standard data and catalog cut sheets will not be considered sufficient in themselves, and the Engineer will not be responsible for seeking further data from the manufacturer, or for otherwise researching the product. Failure to provide complete data will be cause for rejection of the product.
- C. The Contractor shall be responsible for all additional costs including license fees, foundation, and piping and electrical work necessary to accommodate the proposed "or equal" equipment. Items which result in a cost reduction shall be presented and a change order reflecting 65% of the cost savings will be prepared and the contract price modified.

1.6 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B. All complete submittals shall be submitted sufficiently in advance of construction requirements to provide no less than fifteen (15) days, excluding Saturdays, Sundays and legal holidays for review from the time received at the Engineer's reviewing office. For submittals of major equipment, that require more than fifteen (15) days to review, due to its sheer complexity and amount of detail and also requiring review by more than one engineering discipline, a letter will be sent by the Project Manager or his/her designee to the Contractor informing him/her of the circumstances and the date it is expected the submittal will be returned to the Contractor.
- C. Number of submittals required:
 - 1. Shop Drawings: Unless otherwise stated in the respective Specifications Sections, submit six (6) copies.
 - 2. Product Data: Unless otherwise stated in the respective Specifications submit six (6) copies.
 - 3. Samples: Submit the number stated in the respective Specification Sections.

D. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The Project title and number.
3. Contractor identification.
4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
5. Identification of the product, with the specification section number, page and paragraph(s).
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the Work or materials.
8. Applicable standards, such as ASTM, CT DOT, or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on resubmittals.
11. An 8-in. X 3-in. blank space for Contractor and Engineer stamps.

E. Each submittal of drawings shall be accompanied by a transmittal form furnished by the Engineer giving a list of the drawing numbers and the names mentioned above.

1.6 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

- A. The Engineer's review is for general conformance with the design concept and contract drawings. Markings or comments shall not be construed as relieving the Contractor from compliance with the contract plans and specifications or from departures there from. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting

fabrication processes, for techniques of assembly, and for performing work in a safe manner.

- B. The review of shop drawings, data, and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:
 - 1. as permitting any departure from the Contract requirements;
 - 2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
 - 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- D. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
- E. Digital copies of shop drawings or product data will be returned to the Contractor. Samples will not be returned.
- F. Submittals will be returned to the Contractor under one of the following codes.

Code 1 "NO EXCEPTION TAKEN" is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.

Code 2 "MAKE CORRECTIONS AS NOTED" is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.

Code 3 "SUBMIT SPECIFIED ITEM" is assigned when a confirmation of the notations and comments IS required by the Contractor. This confirmation shall specifically

address each omission and nonconforming item that was noted. Confirmation is to be received by the Engineer within 10 calendar days of the date of the Engineer's transmittal requiring the confirmation.

Code 4 "REVISE AND RESUBMIT" is assigned when notations and comments are extensive enough to require a resubmittal of the package. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the Engineer within 10 calendar days of the date of the Engineer's transmittal requiring the resubmittal.

Code 5 "REJECTED" is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.

- G. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.
- H. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
- I. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.
- J. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.7 GENERAL PROCEDURES FOR SUBMITTALS

- A. Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval resubmittal (if required), coordination with other submittals, inspection, testing (off-site and on-site), purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

1.8 SCHEDULES

- A. Provide all schedules required by Articles 2 and 14, and elsewhere in the General Conditions.
- B. The Contractor shall submit a progress schedule before starting any work, in accordance with Article 2 of the General Conditions. The Contractor shall review the progress schedule with the Engineer periodically. Such review shall be made on a monthly basis or more frequently as required by the Engineer. The progress schedule shall be updated as required by the Engineer.

1.9 PROFESSIONAL ENGINEER (P.E.) CERTIFICATION FORM

- A. If specifically required in other Sections of these Specifications, the Contractor shall submit a P.E. Certification for each item required, in the form attached to this Section, completely filled in and stamped.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

P.E. CERTIFICATION FORM

The undersigned hereby certifies that he/she is a Professional Engineer registered in the state of _____ and that he/she has been employed by (Name of Contractor) _____ to design _____ in accordance with Specification Section _____ for the Town of Colchester Rapallo Viaduct Force Main Repair. The undersigned further certifies that he/she has performed similar designs previously and has performed the design of the _____, that said design is in conformance with all applicable local, state and federal codes, rules, and regulations, and that his/her signature and Professional Engineer (P.E.) stamp have been affixed to all calculations and drawings used in, and resulting from, the design; and that the use of that stamp signifies the responsibility of the undersigned for that design.

The undersigned hereby certifies that he/she has Professional Liability Insurance with limits of \$1,000,000.00 and a Certificate of Insurance is attached.

The undersigned hereby agrees to make all original design drawings and calculations available to the Town of Colchester or the Owner's representative within seven (7) days following written request by the Owner.

P.E. Name

Contractor's Name

Signature

Signature

Title

Title

Address

Address

Colchester, CT
Rapallo Viaduct FM Repair
486-2001

SUBMITTAL PROCEDURES
01300-9

CERTIFICATE OF UNIT RESPONSIBILITY

For Specification Section ____

(Section title)

In accordance with Section 01300, paragraph 1.9 of the contract documents, the undersigned manufacturer accepts unit responsibility for all components of equipment furnished under specification Section ____ and the requirements specified in Section _____. We hereby certify that these components are compatible and comprise a functional unit suitable for the specified and indicated performance and design requirements.

Notary Public

Name of Corporation

Commission Expiration Date

Address

Seal: By: _____
Duly Authorized Official

Legal Title of Official

Date:

END OF SECTION 01300

SECTION 01350 HEALTH AND SAFETY PLAN

PART 1 - GENERAL

1.1 SUMMARY

- A. The Contractor shall, prior to the start of work on the site, prepare and submit for review, a site-specific health and safety plan. Work may not proceed at the project site until the Owner and/or Engineer have reviewed and approved the Contractor's health and safety plan. Any delays incurred by the Contractor relating to reviews of the health and safety plan shall be the responsibility of the Contractor and constitute no additional costs or claims to the Owner.
- B. The Contractor shall be cognizant of the minimum standards set forth in OSHA 29 CFR 1910.120. The health and safety plan shall include, but not be limited to the following:
 - 1. Identification of Contractor's Site Safety Officer.
 - 2. Identification of Contractor's Designated Field Personnel.
 - 3. Type of Medical Surveillance Program.
 - 4. Identification of Hazard and Risks Associated with Project.
 - 5. Contractor's Standard Operating Procedures including Personnel Training and Field Orientation; Personal Hygiene Requirements & Guidelines; Field Monitoring Requirements of Site Contaminants; Respiratory Protection Training & Requirements; Levels of Protection & Selection of Equipment Procedures; Zone Delineation of the Project Site; Site Security & Entry Control Procedures; Contingency & Emergency Procedures; and Listing of Emergency Contacts.
 - 6. Contractor's air monitoring plan immediately adjacent to the work area.
 - 7. Contractor's dust suppression plan. If air monitoring indicates a higher level of protection than modified Level D, work will stop at no cost to Owner until proper engineering controls/dust suppression sufficiently address the elevated air

monitoring results. Modified Level D protection for all onsite personnel is the minimum project requirement.

8. The Contractor must be aware of site specific requirements such as site security during non-working hours and limited work space.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01350

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 OCCUPYING PRIVATE LAND

- A. The Contractor shall not (except after written consent from the proper parties) enter or occupy with personnel, tools, materials, or equipment any land outside the rights of way, legal easement, or property of the Owner. A copy of the written consent shall be given to the Engineer, prior to entering or occupying private property.

1.3 INTERFERENCE WITH AND PROTECTION OF STREETS

- A. Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefore from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.
- B. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.
- C. The Contractor shall, at least 24 hours in advance, notify the DPW, Police, Fire and School Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

1.4 CARE AND PROTECTION OF PROPERTY

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

condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Engineer.

1.5 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.
- B. Assistance will be given to the Contractor in determining the location of existing services. The Contractor, however, shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. Protection and temporary removal and replacement of existing utilities and structures as described in this section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the Total Price Bid in the Bid Form.

1.6 COOPERATION WITHIN THIS CONTRACT

- A. All firms or persons authorized to perform any work under this Contract shall cooperate with General Contractor and his Subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.

1.7 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and as neat a condition as is possible. He shall dispose of all residues resulting from the clearing work and, at the conclusion of the work; he shall remove and haul away any surplus lumber, equipment, temporary structures, and any other refuse remaining from the clearing operations, and shall leave the entire site of the work in a neat and orderly condition.
- B. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable Federal, State, and local laws, and regulations concerning waste material disposal, as well as the specific requirements stated in this section and elsewhere in the Specifications.

- C. The Contractor is advised that the disposal of excess excavated material in wetlands, stream corridors, and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him, will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. Therefore, the Contractor will be required to remove the fill at his own expense and restore the area impacted.

1.8 CONTRACTOR'S EMERGENCY CONTACT AND RESPONSE REQUIREMENT

- A. The Contractor will be required to designate a contact person as well as an emergency response crew who can be notified by the Town of Colchester during Contract related emergencies, 7 days a week, 24 hours a day throughout the length of this Contract.

The name of the designated contact person, a daytime telephone number and an evening telephone number must be furnished to the Town at the pre-construction meeting. The Contractor must also provide a mobile telephone that will remain at the construction site during the hours of construction. The phone will be in a location that will allow the Contractor, as well as the Town Inspector or Engineer, to respond to calls.

The contact person shall be required to respond to any Town notification in this regard within one hour of such notice by calling the Contact established in the Pre-Construction Meeting during normal working hours. Upon being advised by the Town of the location and nature of the emergency, the Contractor will be required to mobilize the necessary response crew(s) and have them at the site of the emergency within three hours of the initial notification.

The Contractor's failure to comply with the above notification and response requirements shall result in a one thousand dollar (\$1,000.00) fine. In addition the Contractor shall be liable for any and all damages, liabilities and costs which result from his/her failure to respond to any emergency within the designated time periods. The Town assumes no responsibility or costs for the Contractor's negligence in complying with these requirements. If the subject fine or other liabilities are not paid by the Contractor upon request, it shall be deducted from any payment(s) which may be due the Contractor by the Town, solely at the discretion of the Town.

The Contractor shall not use any Town personnel to fulfill these requirements.

This requirement shall be considered an incidental part of the Contract, no matter how many times the Contractor is alerted during this Contract, and no payment will be made for any costs incurred or associated with the emergency contact and response requirements.

1.9 TEMPORARY UTILITIES

- A. Temporary Light and Power: The Contractor shall at his own expense, provide his own temporary light and power as required for the prosecution and completion of work.
- B. Temporary Telephone: The Contractor shall use his own phone. The Contractor shall pay all his own phone charges.
- C. Temporary Water: Water for drinking purposes and other usage will be provided by the Contractor at his own expense.
- D. Sanitary Provisions: The Contractor shall provide and maintain sanitary accommodations for the use of his employees and the Engineer, as may be necessary to comply with the requirements and regulations of the local and state departments of health.
- E. Maintaining Operation of the Existing Facilities:
 - 1. The Contractor shall be responsible for careful consideration of the construction scheduling and anticipation of potential interference with existing utilities.
 - 2. Temporary facilities which may be required include, but are not limited to, electrical power; lighting; telephone; potable water; fire protection; drainage; sanitary facilities; protection of existing utilities; structures; streams; trees and shrubs; access roads.

1.10 WATER FOR CONSTRUCTION PURPOSES

- A. The approval of the Owner shall be obtained before town water is used. Waste of water by the Contractor shall be sufficient cause for withdrawing the privilege of unrestricted use.
- B. Hydrants shall only be operated by, or under the supervision of, the Owner's personnel.
- C. No separate measurement and payment shall be made for temporary water and all costs shall be incidental to and included with each applicable item.

1.11 ACCESS TO THE WORK

- A. The Contractor shall provide sufficient and proper facilities at all times for inspection of all work under this project in preparation or in progress, by the Owner, the agents and employees of the Owner, by authorized representatives of the State of Connecticut and the Federal Government and by the Engineers.

- B. The Contractor shall furnish the Engineer or his authorized representative and other personnel mentioned above with such facilities and assistance as are necessary to ascertain performance of the work in accordance with the plans and specifications.

1.12 DUST CONTROL

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of water as necessary, so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use calcium chloride, and it is allowed by local authorities, for more effective dust control, the Contractor shall furnish and apply the material as directed.
- B. Calcium chloride shall be commercial grade, furnished in 100 lb, 5-ply bags, stored under weatherproof cover and stacked alternately for ventilation. Application for dust control shall be at the rate of about 1/2 pound per square yard, unless otherwise directed by the Engineer.

1.13 POLLUTION CONTROL

- A. The Contractor shall conduct clean-up and disposal operations, as necessary, to comply with state and local ordinances and anti-pollution laws.
- B. Outdoor burning of rubbish and waste material on the site will not be permitted.
- C. Disposal of volatile fluid wastes (such as mineral spirits, oil, gasoline, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.
- D. No particulate matter from the cleaning of the existing pipe, the cutting of the bypass pipe, or any other construction activity, may be discharged or dispersed on site. All particulates must be gathered and removed from the site completely.

1.14 PRECAUTIONS DURING ADVERSE WEATHER

- A. During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other suitable means.
- B. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by suitable means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will be warm throughout when used.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01500

SECTION 01700 CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:
 - 1. Closeout procedures.
 - 2. Final cleaning.
 - 3. Adjusting.
 - 4. Record Documents.

1.3 RELATED WORK

- A. Cleaning up requirements are included in Section 01710.

1.4 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide submittals to Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payment, and sum remaining due.
- D. Submit all warranties.
- E. Submit written notice that all subcontractors and suppliers have been paid in full.
- F. Submit written notice showing the disposition of all insurance filings and claims.
- G. Copy of "Statement of Compliance" filed with the Division of Labor and Workforce Development, as required under the State Wage Rate Provisions.

1.5 RECORD DOCUMENTS

- A. Maintain on site, one set of the following documents; actual revisions to the Work shall be recorded in these documents:

1. Contract Drawings
 2. Specifications
 3. Addenda
 4. Change orders and other Modifications to the Contract
 5. Reviewed shop drawings, product data, and samples.
 6. Written interpretations and clarifications.
 7. Field orders.
 8. Field test reports properly verified.
- B. Record information concurrent with construction progress.
- C. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
1. Manufacturer's name, address and telephone number and product model and serial number.
 2. Product substitutions or alternates utilized.
 3. Changes made by Addenda and Modifications.
- D. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Field changes of dimension of detail.
 2. Details not on original Contract Drawings.
- 1.6 FINAL CLEANING
- A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
1. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01700

SECTION 01710 CLEANING UP

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. During its progress, the work and the adjacent areas affected thereby shall be cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels and work, etc., shall, upon completion of the work, be left in a clean and neat condition.
- C. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the trail and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.
- D. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01710

**DIVISION 2
SITE WORK**

INDEX

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SECTION 02020

EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section specifies equipment and materials for an erosion and sediment control program. The erosion and sediment control provisions detailed on the Drawings and specified herein are the minimum requirements for an erosion control program. The Contractor shall provide additional erosion and sediment control materials and methods as required to implement the erosion and siltation control principles specified herein.

1.2 RELATED SECTIONS

- A. Examine Contract Documents and Drawing Details for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. Section 01110 – Environmental Protection Procedures
 - 3. Section 02140 – Dewatering and Drainage
 - 4. Section 02200 – Earthwork

1.3 SUBMITTALS

- A. Proposed methods, materials to be employed, and schedule for installing erosion and siltation controls shall be submitted for approval. Submittals shall include:
 - 1. List of proposed materials including manufacturer's product data.
 - 2. Erosion Controls shall be installed prior to construction. Erosion Controls damaged during construction shall be replaced immediately and installed per the Details. Schedule of any additional erosion control program indicating specific dates for implementing programs in each major area of work, including Erosion Control installation, and dewatering bag(s) shall be submitted prior to installation.

1.4 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
1. Connecticut Guidelines for Soil Erosion and Sediment Control.
 2. Connecticut Department of Energy & Environmental Protection (DEEP).
 3. Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction (Form 817).

1.5 EROSION CONTROL PRINCIPLES

- A. The following erosion control principles shall apply to the land grading and construction phases:
1. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner that will minimize soil erosion.
 2. Whenever feasible, natural vegetation shall be retained and protected.
 3. Extent of area that is exposed and free of vegetation and duration of its exposure shall be kept within practical limits.
 4. Temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during prolonged construction or other land disturbance. Prolonged exposure of un-stabilized soil shall not exceed 60 days.
 5. Drainage provisions shall accommodate increased runoff resulting from modifications of soil and surface conditions during and after development or disturbance. Such provisions shall be in addition to existing requirements.
 6. Sediment shall be retained on-site.
 7. Erosion control devices shall be installed prior to start of clearing and grubbing operations and excavation work.
- B. Erosion Protection
1. Cut and fill slopes and stockpiled materials shall be protected to prevent erosion. Slopes shall be protected with permanent erosion protection when erosion exposure period is expected to be greater than or equal to two

months, and temporary erosion protection when erosion exposure period is expected to be less than two months.

2. Permanent erosion protection shall be accomplished by seeding with grass and covering with an erosion protection material, as appropriate for prevailing conditions.
3. Temporary erosion protection shall be accomplished by covering with an erosion protection materials, as appropriate for prevailing conditions.
4. Except where specified slope is indicated on Drawings, fill slopes shall be limited to a grade of 4:1 (horizontal: vertical) cut slopes shall be limited to a grade of 4:1.

PART 2 – PRODUCTS

2.1 FILTER SOCK

- A. Filter sock for construction of erosion control devices shall be blown or placed media (mulch or compost) in twelve-inch diameter biodegradable filter sock. The use of hay/straw bales or hay/straw-filled wattles is not permitted. If wattles are used, they must be filled with compost, bark, or similar materials, along with silt fence.
- B. Wooden stakes (2-in. by 2-in. by 36-in.) shall be placed 10 foot on center, driven a minimum of 12 inches into the ground.

2.2 SILT SACKS

- A. Silt sacks or approved equal shall be placed in all catch basins or drop inlets as indicated on the Drawings. The silt sacks shall be in accordance with the construction details on the Drawings.

2.3 SILT BAGS

- A. Silt bags shall be utilized for trench dewatering activities. The silt bags shall be in accordance with the construction details on the Drawings.

2.4 FILTER FABRIC

- A. The filter fabric shall be Mirafi 140N as manufactured by Mirafi Inc., Pendergrass, GA; Foss-65, as manufactured by Foss Manufacturing Co., Hampton, NH; US 120NW, as manufactured by US Fabrics, Cincinnati, OH; or approved equal.

2.5 TEMPORARY SEED COVER

- A. If required, seed mixture for temporary cover by hydroseeding application shall conform to the following:

<u>Quantity per 1000 sq. ft. Coverage</u>	<u>Material</u>
27-1/2 lb.	Wood Fiber Mulch
4 lb.	Seed
1/2 lb.	Annual Ryegrass
22 lb.	10-6-4 Fertilizer
69 gal.	Water

- B. Hydroseeding Equipment

1. Hydroseeding equipment may be either portable or truck mounted, with dual agitation, a minimum working volume of 1000 gallons and a minimum spray range of 80 ft.
2. Hydroseeding equipment must be capable of uniformly applying the slurry mix including wood fiber mulch if required, at the specified rate, and at the required locations.
3. Hydromulching equipment, either trailer or truck mounted, must be capable of uniformly applying straw or hay mulch at a minimum mulching rate of 8 tons per hour, at a distance of not less than 80 ft.

PART 3 – EXECUTION

3.1 HYDROSEEDING

- A. If required for long-term disturbance greater than 60 days, seed for temporary cover shall be spread by the hydroseeding method, utilizing power equipment commonly used for that purpose. Seed, fertilizer, mulch and water shall be mixed and applied to achieve application quantities specified. Material shall be applied in 2 equal applications, with the equipment during the second pass moving perpendicular to direction employed during the first pass. Hydroseeding shall not be done when it is raining or snowing, or when wind velocity exceeds 5 mph.
- B. If the results of hydroseeding application are unsatisfactory, the mixture and/or application rate and methods shall be modified to achieve the required results.
- C. After the grass has appeared, all areas and parts of areas which fail to show a uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts

of areas seeded repeatedly until all areas are covered with a satisfactory growth of grass.

3.2 FILTER FABRIC INSTALLATION

- A. The filter fabric shall be installed in the final graded trench bottom prior to placement of the crushed stone bedding. The filter fabric in place shall cover the entire trench bottom and trench sides where on the drawings. Each width of filter fabric shall be overlapped by the subsequent width in accordance with manufacturer's recommendations, but not less than two feet, to ensure no intrusion of soil fines into the bedding.

3.3 MAINTENANCE AND REMOVAL OF EROSION CONTROL DEVICES

- A. Wetland area, watercourses, and drainage swales adjacent to construction activities shall be monitored continuously for evidence of silt intrusion and other adverse environmental impacts, which shall be corrected immediately upon discovery.
- B. Culverts and drainage ditches shall be kept clean and clear of obstructions during construction period.
- C. Erosion Control Devices
 - 1. Prior to a predicted storm of greater than ½-in. rainfall in a 12-hour period, the Contractor shall remove sediment from silt sacks.
 - 2. Sediment behind the erosion control device shall be checked weekly and after heavy rain, ½-in. in a 12-hour period. Silt shall be removed if greater than 6 in. deep.
 - 3. Condition of erosion control device shall be checked weekly or more frequently as required. Damaged and/or deteriorated items shall be replaced. Erosion control devices shall be maintained in place and in effective condition.
 - 4. Sediment deposits shall be properly disposed of, in a location and manner that will not cause sediment nuisance elsewhere.
- D. Removal of Erosion Control Devices
 - 1. Erosion control devices shall be maintained until all disturbed earth has been paved or vegetated, at which time they shall be removed in their entirety. After removal, areas disturbed by these devices shall be regraded and seeded.
 - 2. Erosion protection material shall be kept securely anchored until acceptance of the entire Project.

END OF SECTION 02020

SECTION 02050 TREE PROTECTION AND TRIMMING

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes the protection and trimming of trees, outside of the existing easement, that interfere with, or are affected by, execution of the Work, whether temporary or new construction. It also covers tree pruning incidental to the Work in the vicinity of the site as indicated on the Construction Drawings.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract. Other specification sections that directly relate to work of this section include, but are not limited to:

- 1. Section 02060 – Site Preparation

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.
- C. Certification: From a qualified arborist that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

1.4 QUALITY ASSURANCE

- A. Tree Service Qualifications: An experienced tree service firm to be consulted as necessary.
- B. Arborist Qualifications: An arborist certified by the International Society of Arboricultural or licensed in the jurisdiction where Project is located, to be consulted as necessary.
- C. Tree Pruning Standards: Comply with ANSI A300, "Trees, Shrubs, and Other Woody Plant Maintenance--Standard Practices," unless more stringent requirements are indicated.

- D. Pre-installation Conference: Conduct conference at Project site prior to start of work.
 - 1. Before starting tree pruning protection and trimming, meet with representatives of authorities having jurisdiction, Owner, Engineer, consultants, and other concerned entities. Review tree pruning protection and trimming procedures and responsibilities. Notify participants at least three working days before convening conference. Record discussions and agreements and furnish a copy to each participant.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Filter Fabric: Refer to Section 02273 – Geotextile Fabric. Manufacturer's standard, nonwoven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers, as manufactured by US Fabrics, model # US 120NW or approved equal.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Do not allow fires under or adjacent to remaining trees or other plants.

3.2 TREE PRUNING

- A. Prune remaining trees affected by temporary and new construction.
- B. Prune remaining trees, if any, to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by qualified arborist.
- C. Pruning Standards: Prune trees according to ANSI A300.
- D. Cut branches with sharp pruning instruments; do not break or chop.

3.3 TREE REPAIR AND REPLACEMENT

- A. Promptly repair trees outside of existing easement damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to written instructions of the qualified arborist.

B. Remove and replace dead and damaged trees that the qualified arborist determines to be incapable of restoring to a normal growth pattern.

1. Provide new trees of the same size and species as those being replaced; plant and maintain as recommended.

2. Provide new trees of 6-inch caliper size and of a species selected by Engineer when trees more than 6 inches in caliper size, measured 12 inches above grade, are required to be replaced.

3.4 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted.

B. Disposal: Remove and legally dispose of excess excavated material, displaced trees, and excess chips from Owner's property. Tree stumps will remain in place.

END OF SECTION 02050

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TREE PROTECTION AND TRIMMING
02050-4

SECTION 02060 SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Limits of subgrade preparation are as indicated on the Drawings. Miscellaneous trash and debris shall be removed and disposed of legally off site. This Section also includes the following:
 - 1. Removing damaged trees and limbs.
 - 2. Protecting existing trees, vegetation, stumps, and roots to remain.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. Related Sections include the following:
 - 1. Section 02020 – Erosion and Sediment Control
 - 2. Section 02050 – Tree Protection and Trimming

1.3 SUBMITTALS

- A. No submittals required under this section

1.4 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled, managed and reused, or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.5 QUALITY ASSURANCE

- A. Comply with governing CT DEEP, East Hampton Land Use Department Requirements, Town of Colchester Public Works Requirements, East Hampton Joint Facilities Requirements, and EPA notification regulations before starting earthwork operations. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, parking lots, streets, walks, and other adjacent occupied or used water treatment facilities during earthwork operations.
 - 1. Do not close or obstruct streets, walks, parking lots, or other adjacent occupied or used water treatment facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated in accordance with Erosion Control and Demolition plan, or if not indicated then where acceptable to the Owner.
- C. Notify utility locator service for area where Project is located before site clearing operations begin.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain survey benchmarks, control points and geotechnical monitoring points from disturbance during construction.
- B. Prior to construction provide additional erosion-control measures and dewatering sedimentation basins as necessary to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Locate and clearly flag trees and vegetation to remain or to be relocated as approved by the Engineer.
- D. Location of existing utilities and improvements on Existing Conditions plan are approximate only.

3.2 EARTHWORK OPERATIONS

A. Remove obstructions, trees, shrubs, grass, and other vegetation within the limits of the existing easement as noted in the Drawings and marked by stakes.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. No grubbing shall occur.
3. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
4. All debris to be removed from site and properly disposed.
5. Relocate and stockpile surface boulders on site as directed by the Engineer.

3.3 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable soil, obstructions, demolished vegetation materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02060

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486-2001

SITE PREPARATION
02060-4

SECTION 02140 DEWATERING AND DISCHARGE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 DESCRIPTION

- A. Dewatering consists of the removal of surface water and/or groundwater as necessary to perform the construction required by the Contract in accordance with the drawings and specifications. Furnish all labor, materials, equipment, and incidentals required to:
 - 1. Design, furnish, operate, maintain, and remove temporary dewatering systems of sufficient scope, size and capacity to control hydrostatic pressures and to lower, control, remove and dispose of groundwater and surface water to maintain stable, undisturbed subgrades, and allow work to be performed under dry and stable conditions, and comply with all applicable permit and other regulatory requirements.
 - 2. Work to be done as part of dewatering includes, but is not limited to:
 - a. Lower the groundwater level.
 - b. Control hydrostatic pressure.
 - c. Prevent surface water from entering the excavation during construction.
 - d. Implement erosion and sedimentation control measures for disposing of discharge water. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
 - e. Prevent surface water from entering excavations by grading, dikes, or other means.
 - f. Provide system to treat/settle all water removed from excavations, except water that is infiltrated into the ground on-site in a manner that does not result in negative on- or off-site impacts.
 - g. Provide an Environmental Site Professional/Dewatering Specialist/Field Representative (hereinafter referred to as the Dewatering Professional) who will be responsible for dewatering, infiltration, treatment and discharge of

dewatering flows as specified and in compliance with all applicable permits and regulations.

- h. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - i. Remove dewatering system when no longer required for work activities.
3. Groundwater within the excavation area shall be lowered to at least 2 feet below the lowest excavation levels as specified and as indicated. Direct discharge into the wetland resource area or surface water bodies will not be allowed.
 4. Common dewatering methods include, but are not limited to, sump pumping, deep wells, well points, vacuum well points or any combinations thereof.
 5. Uncontaminated groundwater or accumulated surface runoff removed from excavations shall be infiltrated to the ground if feasible, by means of a temporary infiltration trench or basin. The temporary infiltration trench or basin must be: 1) open to the surface or "open-air"; and 2) wider than it is deep. Otherwise, the Contractor must obtain an Underground Injection Control (UIC) permit from the Connecticut Department of Energy and Environmental Protection (CT DEEP).

Surface flow that could lead to off-site discharge is not permitted. If ground infiltration is not feasible, treated water shall be directly or indirectly discharged to a surface water in accordance with a National Pollutant Discharge Elimination System (NPDES) permit issued by the U.S. Environmental Protection Agency (EPA). If neither ground infiltration nor surface water discharge is feasible, treated water shall be discharged to the local sewer system in accordance with the appropriate permits and regulations or transported off-site to an approved facility. In no case shall dewatering flows be directly or indirectly released to surface waters or storm drains prior to settling and, if appropriate, any additional treatment. The Contractor is responsible for acquiring all proper permitting required for the chosen method of discharge.

6. If work is expected to be conducted within soil or groundwater affected by oil or hazardous materials, or if the groundwater appears to be impacted, prior to any discharge, the groundwater or accumulated surface runoff shall be sampled and tested to meet the requirements of the NPDES Remediation General Permit, or other permit requirements if an alternative discharge/disposal method (e.g., discharge to sanitary sewer, off-site disposal) is selected by the Contractor. The Contractor is responsible for coordinating the selected method of permitting and discharge or disposal with the Owner's Licensed Site Professional (LSP) to meet the applicable requirements of the Connecticut Contingency Plan.

Upon sampling, testing and characterization of groundwater or accumulated surface runoff, proper treatment or disposal of ground water or accumulated surface runoff shall be determined. Treatment, discharge or disposal of groundwater shall be in accordance with all applicable regulations and shall be approved by the Engineer and Owner prior to final discharge or disposal.

B. Related Sections:

1. Section 01110 – Environmental Protection Procedures
2. Section 02160 - Temporary Excavation Support Systems
3. Section 02200 - Earthwork

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer registered in the State of Connecticut, using performance requirements and design criteria indicated. All costs for delegated design shall be included in the bid price for the Work of this Section.
- B. Any damage resulting from the failure of the dewatering operations of the Contractor, and any damage resulting from the failure of the Contractor to maintain all the areas of work in a suitable dry condition, shall be repaired by the Contractor, as directed by the Designer, at no additional cost to the Owner. The Contractor's pumping and dewatering operations shall be carried out in such a manner as to prevent damage to the Contract work and so that no loss of ground will result from operations. Precautions shall be taken to protect new work from flooding during storms or from other causes. Pumping shall be continuous to protect the work and/or to maintain satisfactory progress.
- C. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected. Water from the trenches, excavations, and storm water management operations shall be disposed of in such a manner as to avoid public nuisance, injury to public health or the environment, damage to public or private property, or damage to the work completed or in progress.
- D. The presence of groundwater in soil will not constitute a condition for which an increase in the Contract price may be made. Under no circumstances place concrete, fill lay piping or install appurtenances in excavations containing free water.
- E. The Contractor shall furnish and operate pumps and related equipment, including standby equipment, and all necessary piping to keep all excavations clear of surface, rain or groundwater during the operations, the water at all times and shall be responsible for any damage to the subgrade, completed work or adjacent properties from such water. All piping exposed above surface for this use shall be properly covered to allow traffic to pass without obstruction. Prevent erosion and siltation of surrounding area.
- F. The Contractor is responsible for correcting any disturbance of natural bearing soils, compacted fills or structures caused by an inadequate dewatering system or by interruption of the continuous operation of the dewatering system as specified.

1.4 SUBMITTALS

Submit the following in accordance with Section 01300 – Submittals:

- A. Shop Drawing: For dewatering system. Show arrangement, locations, and details of filters, pumps, power units and discharge lines; means of discharge; control of sediment and disposal of water.
- B. Qualifications of the both the Contractor's dewatering specialist or firm (design) and the Dewatering Professional (all other responsibilities) shall be submitted for approval prior to execution of any dewatering. The submittal shall include, but is not limited to:
 - 1. Qualifications of firm's Registered Professional Engineer as specified in Section 1.5, B.
 - 2. Qualifications of the Dewatering Professional who shall oversee the installation, operation and maintenance of the dewatering system.
- C. Submit a Dewatering and Discharge Plan at least two weeks prior to start of any dewatering operation. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy, regulatory compliance, and safety of the means, methods and sequencing of construction activities related to dewatering. The plan shall include the following items as a minimum:
 - 1. Dewatering Plan and details stamped and signed by a Connecticut Registered Professional Engineer that conforms to the requirements of the dewatering permit(s), the Wetlands Protection Act Order of Conditions, and all other applicable regulations and permits including, but not limited to, requirements for equipment, monitoring, sampling and reporting.
 - 2. Certificate of Design: Refer to Section 01300 for form.
 - 3. A list of equipment including, but not limited to, pumps, prime movers, and standby equipment.
 - 4. A description of the proposed method of dewatering, water infiltration, containment, treatment discharge and disposal; and installation, maintenance, and system removal procedures.
 - 5. A description of erosion/sedimentation control measures and best management practices to eliminate or minimize impacts from potential pollutants.
 - 6. List of all applicable laws, regulations, rules, and codes to which dewatering design conforms.
 - 7. If emergency dewatering requirements should arise the Contractor shall submit a contingency plan for Engineer review and approval.

8. Contractor shall submit a modified Dewatering Plan **within 24 hours**, if open pumping from sumps and ditches results in boils, loss of fines, softening of the ground or other adverse impacts on or off-site.
- D. Field quality control reports. Data for the required discharge reports, as applicable, shall be collected and maintained by the Contractor's Dewatering Professional. It shall consist of periodic sampling and analysis of system influents, midfluents and/or effluents and discharge quantities and other requirements of the relevant permits. The Contractor's Dewatering Professional shall also coordinate analysis of samples at an appropriately certified analytical laboratory and shall comply with all permit reporting requirements.
- E. Other Informational Submittals: Photographs: Show existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by dewatering operations.

1.5 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. Employ the services of a Dewatering Professional and a Connecticut Registered Professional Engineer having the following qualifications:
 1. The Connecticut Registered Professional Civil Engineer shall have completed the design of at least five (5) successful dewatering projects of equal size and complexity and with equal systems within the last five (5) years consisting of deep wells, well points, vacuum well points, and sump pumping for heavy Civil projects of similar size, type, and complexity in developed areas with trench box or steel/timber sheeting support of excavation systems.
 2. The dewatering system installer's Supervisor shall have a minimum of five (5) years of experience in installation of well points, deep wells, recharge systems, or equal systems.
 3. The Dewatering Professional responsible for day to day operation of the system shall have the following minimum qualifications:
 - a. Completion of at least five (5) successful dewatering projects of equal size and complexity with equal systems within the last five (5) years consisting of: system operation and troubleshooting, collection of readings, maintenance of logs and other required documents, collection of samples, coordination of analysis of samples, and compliance with reporting requirements during pumping for heavy Civil projects of similar size, type, and complexity in developed areas.
 - b. Current certification from CT DEEP to operate the proposed treatment system, as applicable.
- C. If subgrade soils are disturbed or become unstable due to dewatering operation or an inadequate dewatering system, notify the Engineer, stabilize the subgrade, and modify system to perform as specified at no additional cost to the Owner.

- D. If oil and/or other hazardous materials are encountered after dewatering begins, immediately notify the Engineer.
- E. Notify the Engineer immediately if any settlement or movement is detected on structures. If the settlement or movement is deemed by the Engineer to be related to the dewatering, take actions to protect the adjacent structures and submit a modified dewatering plan to the Engineer within 24 hours. Implement the modified plan and repair any damage incurred to the adjacent structures at no additional cost to the Owner.
- F. Direct discharges from construction dewatering to surface water bodies or wetland resource areas are prohibited.

1.6 PROJECT/SITE CONDITIONS

- A. Refer to Drawings.

2.1 MATERIALS

- A. Provide settlement markers, piezometers and/or any other geotechnical instruments in accordance with the submitted dewatering plan or as specified.
- B. Provide casings, well screens, piping, fittings, pumps, power and other items required for dewatering system.
- C. Provide sand and gravel filter around the well screen. Wrapping geotextile fabric directly around the well screen shall not be allowed.
- D. When deep wells, well points, or vacuum well points are used, provide pumping units capable of maintaining high vacuum and handling large volumes of air and water at the same time.
- E. Provide and store auxiliary dewatering equipment, consisting of pumps and hoses on the site in the event of breakdown, at least one (1) pump for every five (5) used.
- F. Provide dewatering equipment, including an appropriately sized settling tank, and maintain erosion/sedimentation control devices as indicated or specified and in accordance with the Dewatering Plan.
- G. Provide temporary pipes, hoses, flumes, channels, crushed stone, geotextile fabric, sedimentation barriers, or any combination of equipment for the transport of discharge water over-ground to the discharge location.
- H. Provide sampling and analysis equipment to test for turbidity.

3.1 GENERAL

- A. Execution of any earth excavation, installation of earth retention systems, and dewatering shall not commence until the related submittals have been submitted, approved by the Owner and Engineer, and the Dewatering Professional is on site and has begun the duties specified herein.
- B. Furnish, install, operate, and maintain dewatering, ground infiltration, treatment and discharge systems as indicated or specified and in accordance with the Dewatering Plan. Delays due to insufficient storage capacity, inadequate Contractor Dewatering Plan, or permitting delays will be at no additional cost to the Owner. The Contractor is responsible to evaluate available data and determine the necessary dewatering system so as not to impede construction activities.
- C. Carry out dewatering program in such a manner as to prevent undermining or disturbing foundations of existing structures or of previously completed or ongoing work.
- D. Do not excavate below the seasonal high groundwater elevation until the dewatering system is operational.
- E. Unless otherwise specified, continue dewatering uninterrupted until all structures, pipes, and appurtenances below the seasonal high groundwater level have been completed and sufficiently backfilled and/or anchored such that they will not be floated or otherwise damaged by an increase in groundwater elevation.
- F. Discontinue open pumping from sumps and ditches, if such pumping is resulting in boils, loss of fines, softening of the ground, instability of the slopes or other adverse impacts on or off-site. Modify the Dewatering Plan and submit to the Engineer at no additional cost to the Owner.
- G. Where subgrade materials are disturbed or become unstable due to dewatering operations, remove and replace the materials in accordance with Section 02200 at no additional cost to the Owner.

3.2 DEWATERING DISCHARGE

- A. Install and monitor recharge systems when specified and/or indicated and in accordance with the submitted dewatering plan.
- B. Install sand and gravel filters in conjunction with well points and deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
- C. Groundwater or accumulated surface runoff to be infiltrated does need not be treated, unless known to be contaminated or noticeably impacted with oil or hazardous waste. Contractor shall provide infiltration as described in Section 1.2.A.3 that complies with relevant local, state and federal regulations.

- D. The effluent (discharge) shall be tested for turbidity on a daily basis and shall not exceed 280 NTU, averaged over 5 consecutive days. Sufficient measures shall be employed to provide effective ways to remove turbidity, color and potential coliform organisms (from sewer work) prior to discharge.
- E. Transport pumped or drained water to discharge location in compliance with applicable permits and without interference to other work; damage to or contamination of pavement, other surfaces, or property; erosion; or siltation.
- F. Provide separately controlled pumping lines.
- G. The Engineer reserves the right to sample discharge water at any time. If discharge water quality is poor, the Engineer may request additional measures to improve water quality.
- H. The Contractor shall not discharge silty water in the wetland resource area or surface water body.
- I. Immediately notify the Engineer and Owner if groundwater is encountered that is suspected to be contaminated with substances other than those for which the treatment system has been designed. Do not pump water found to be contaminated with oil or other hazardous material to the discharge locations. Sampling, testing and characterization of the groundwater shall include (but not be limited to) criteria within part 1.2 of this specification section to determine the final disposal of the groundwater. Groundwater disposal shall follow all local, state and federal permits and regulations.

3.3 COMPLIANCE WITH DEWATERING AND RELATED PERMITS AND REGULATIONS

- A. Discharging groundwater and allowing for natural infiltration may not be a viable option for controlling groundwater in the project area. Should dewatering activities be required where the Contractor needs to discharge groundwater to a location other than the point of origin, then the Contractor shall store, treat and discharge the water in accordance with applicable permits and regulations. Periodic sampling, as may be required to demonstrate treatment effectiveness and compliance with pretreatment standards specified in any local, state, or federal discharge permit required shall be the responsibility of the Contractor and its Dewatering Professional. If on-site infiltration, discharge to the local sanitary sewer system or off-site disposal are not feasible options, the Contractor shall be responsible for seeking coverage under one of the following EPA NPDES permits: Construction General Permit (CGP) for projects disturbing >1 acre; Dewatering General Permit (DGP) for projects disturbing <1 acre; or Remediation General Permit (RGP) for any project with known groundwater contamination. The Contractor shall be prepared to comply with standard local permit conditions including periodic testing of the effluent and with standard NPDES permit conditions including periodic testing of the treatment system influent, midfluent and effluent. The Dewatering Plan shall include a description of procedures and information related to the collection of readings, maintenance of logs and other required documents. At a minimum, the Dewatering Plan shall describe compliance with relevant provisions of

the applicable NPDES Permit or other discharge permit and the local Conservation Commission Order of Conditions. Copies of the applicable NPDES or other permit authorization to discharge shall be provided to the Owner prior to the start of dewatering activities.

B. The Contractor, through its Dewatering Professional:

1. Shall furnish all labor, equipment and materials necessary to obtain accurate representative samples of the groundwater and for analysis for the set of analytical parameters specified above and as required by local, state and federal permits and regulations.
2. Shall coordinate sampling activities with the Engineer. The Engineer reserves the right to sample treated and untreated dewatering flows at any time.
3. Shall take readings from the treatment system in accordance with the Dewatering Plan.
4. Shall collect an initial sample of untreated and treated groundwater at the beginning of dewatering activities within the construction area. Sampling and start-up shall be conducted in accordance with applicable permits.
5. Shall prepare and keep in proper order all records required by regulatory authorities and permits.
6. Shall maintain logs and other records in accordance with the Specifications, regulatory agency and permit requirements, and the Dewatering Plan.
7. Shall coordinate analysis of samples by an appropriately certified analytical laboratory in accordance with the Specifications, regulatory agency and permit requirements, and the Dewatering Plan, and ensure that laboratory detection limits meet permit requirements.
8. Shall comply with reporting requirements in a timely manner and in the format required by the relevant permit. Reporting in compliance with permit requirements includes, but is not limited to: notification to the appropriate regulatory agencies, Owner and Engineer prior to discharge; submittal of laboratory analytical reports for each sampling event; submittal of reports for each reporting period during which no discharge occurs; notification of non-compliant discharges; notification of termination of discharge; and response to permit-related questions posed by regulatory agencies or the Owner and Engineer.
 - a. If water will be discharged under a National Pollutant Discharge Elimination System (NPDES) permit, submit notifications and reports to both the Environmental Protection Agency (EPA) and the appropriate regional office of the CT DEEP and the Engineer. Comply with pre-discharge notification, discharge reporting, notification of no discharge, and termination of discharge notification requirements; and respond to inquiries or correspondence from EPA or CT DEEP regarding permit issues.

- b. If water will be discharged under a local permit, submit notifications and reports as required in the permit.
 - c. Observe and record daily the elevation of the groundwater during the length of the dewatering operation and provide data to Engineer on daily basis. For monthly or less frequent reporting deadlines, provide the Engineer with copies of all reports fourteen (14) days prior to the reporting deadline, and submit reports to the appropriate agency(ies). Provide copies of other dewatering documents to the Engineer immediately.
- 9. Install and maintain erosion/sedimentation control devices at the point of discharge as indicated or specified and in accordance with the Dewatering Plan.
 - 10. The Contractor shall obtain all federal, state, county, and local permits and variances to allow transport of materials on public roadways, should such transport be necessary.
 - 11. The Contractor shall dispose of all wastes resulting from construction dewatering activities in accordance with local, federal and state regulations.
 - 12. The Contractor is solely responsible for the implementation of the permit requirements, and is solely responsible for any punitive action resulting from any violation of the permit. The actual permit issued shall become part of this Contract by either addendum or by change order. If the actual permit is included by change order, no additional costs for implementing the permit will be considered by the Owner, when the actual permit is issued.

3.4 REMOVAL

- A. Do not remove dewatering system without written approval from the Engineer.
- B. Backfill and compact sumps or ditches with screened gravel or crushed stone wrapped with geotextile fabric in accordance with Section 02273 – Geotextile Fabric.
- C. All dewatering wells shall be abandoned upon completion of the work, and completely backfilled with cement grout.

3.5 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700 – Contract Closeout.

END OF SECTION 02140

SECTION 02160

TEMPORARY EXCAVATION SUPPORT SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

- A. This section includes the following:
1. Design, furnish and install temporary excavation support systems as required to maintain lateral support, prevent loss of ground, limit soil movements to acceptable limits and protect from damage existing and proposed improvements including, but not limited to, pipelines, utilities, structures, roadways, and other facilities.
 2. Common types of excavation support system include, but are not limited to: singular or multiple stages comprised of cantilevered or internally braced soldier piles and lagging, steel sheetpile wall, timber sheetpile wall, trench box, or combinations thereof. Trench box temporary excavation support system is only acceptable for pipe or utility trench excavations. Temporary unsupported open cut excavation with stable sloping sides is allowed where applicable.
 3. Wherever the word "sheeting" is used in this section or on the contract drawings, it shall be in reference to any type of excavation support system specified except trench box.
 4. Construction of the temporary excavation support systems shall not disturb the existing structures or the completed proposed structures. Damage to such structures shall be repaired by the Contractor at no additional cost to the Owner.
 5. The Contractor shall bear the entire cost and responsibility of correcting any failure, damages, subsidence, upheaval or cave-ins as a result of improper installation, maintenance or design of the temporary excavation support systems. The Contractor shall pay for all claims, costs and damages that arise as a result of the work performed at no additional cost to the Owner.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section, and:

1. Section 02140 – Dewatering and Drainage
2. Section 02200 – Earthwork

1.3 SUBMITTALS

- A. Shop Drawing: Submit the following in accordance with Section 01300 – Submittals:

1. Submit the following qualifications four (4) weeks prior to the construction:
 - a. Qualifications of Contractor's temporary excavation support system designer as specified in Paragraph 1.4 D.
 - b. Qualifications of Contractor's temporary excavation support system installer as specified in Paragraph 1.4 E.
 - c. Qualifications of Contractor's independent tieback testing laboratory as specified in Paragraph 1.4 F, if a tieback system is utilized.
 - d. Qualifications of Contractor's temporary excavation support system installation supervisor as specified in Paragraph 1.4 G.
2. Submit a temporary excavation support plan stamped and signed by a Connecticut Registered Professional Engineer at least two weeks prior to start of the construction. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum:
 - a. Proposed temporary excavation support system(s), details, location, layout, depths, extent of different types of support relative to existing features and the permanent structures to be constructed, and methods and sequence of installation and removal.
 - b. If utilizing a tieback system, include tieback installation procedures and criteria for acceptance of tiebacks for performance and proof tests. Submit the tieback testing results to the Engineer for information only.
 - c. Requirements of dewatering during the construction, per Section 02140.

- d. Minimum lateral distance from the edge of the excavation support system for use for vehicles, construction equipment, and stockpiled construction and excavated materials.
 - e. List of equipment used for installing the excavation support systems.
- 3. Submit a Construction Contingency Plan specifying the methods and procedures to maintain temporary excavation support system stability if the allowable movement of the adjacent ground and adjacent structures is exceeded.
- 4. For excavation support systems left in place, submit the following as-built information prior to backfilling and covering the excavation support systems:
 - a. Survey locations of the temporary excavation support systems, including coordinates of the ends and points of change in direction.
 - b. Type of the temporary excavation support system.
 - c. Elevations of top and bottom of the excavation support systems left in place.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. Conform to the requirements of the OSHA Standards and Interpretations: "Part 1926 Subpart P – Excavation, Trenching, and Shoring", and all other applicable laws, regulations, rules, and codes.
- C. All welding shall be performed in accordance with AWS D1.1.
- D. Prepare design, including calculations and drawings, under the direction of a Professional Engineer registered in Connecticut and having the following qualifications:
 - 1. Not less than ten (10) years experience in the design of specific temporary excavation support systems to be used.
 - 2. Completed not less than five (5) successful temporary excavation support system projects of equal type, size, and complexity within the last five (5) years.
- E. Temporary Excavation Support System Installer's Qualifications:
 - 1. Not less than three (3) years experience in the installation of similar types and equal complexity as the proposed system.
 - 2. Completed not less than three (3) successful excavation support systems of similar type and equal complexity as the proposed system.

- F. If utilizing a tieback system, employ an independent testing laboratory to test the tieback system with the following qualifications:
 - 1. Be accredited by the American Association of State Highway and Transportation Officials (AASHTO) Accreditation Program.
 - 2. Employ personnel conducting testing who are trained in the methods and procedures to test and monitor tieback systems of similar type and equal complexity, as the proposed system.
 - 3. Have not less than five (5) years experience in testing of tieback systems of similar type and equal complexity as the proposed system.
 - 4. Have successfully tested at least three (3) tieback systems of similar type and equal complexity as the proposed system.
- G. Install all temporary excavation support systems under the supervision of a supervisor having the following qualifications:
 - 1. Not less than five (5) years experience in installation of systems of similar type and equal complexity as the proposed system.
 - 2. Completed at least five (5) successful temporary excavation support systems of similar type and equal complexity as the proposed system.

1.5 DESIGN CRITERIA

- A. Design of temporary excavation support systems shall meet the following minimum requirements:
 - 1. Support systems shall be designed for earth pressures, hydrostatic pressure, equipment, temporary stockpiles, construction loads, and other surcharge loads.
 - 2. Design a bracing system to provide sufficient reaction to maintain stability.
 - 3. Limit movement of ground adjacent to the excavation support system to be within the allowable ground deformation as specified.
 - 4. Design the embedment depth below bottom of excavation to minimize lateral and vertical earth movements and provide bottom stability. Toe of braced temporary excavation support systems shall not be less than 5 feet below the bottom of the excavation.

5. Design temporary excavation support systems to withstand an additional 2 feet of excavation below proposed bottom of excavation without redesign except for the addition of lagging and/or bracing.
6. Maximum width of pipe trench excavation shall be as indicated on the drawings.
7. Do not cast permanent structure walls directly against excavation support walls.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store sheeting and bracing materials to prevent sagging which would produce permanent deformation. Keep concentrated loads which occur during stacking or lifting below the level which would produce permanent deformation of the material.

1.7 PROJECT/SITE CONDITIONS

- A. Subsurface Conditions: Refer to the Contract Document for available information.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Structural Steel: All soldier piles, wales, rakers, struts, wedges, plates, waterstop and accessory steel shapes shall conform to ASTM A36.
- B. Steel Sheet Piling: ASTM A328, continuous interlocking Z-type. Steel sheet shall be ASTM A572 Grade 60.
- C. Timber Lagging Left in Place: Pressured treated per appropriate AWWA standards.
- D. Tieback Tendons: Tieback tendons shall be high strength steel wire strand cables conforming to ASTM A416, or bars conforming to ASTM A722. Splicing of individual cables shall not be permitted.
- E. Raker Ties: ASTM A615 Grade 60.
- F. Cement Grout Materials and Admixtures for Tieback Anchorages: Grout cube strength shall be a minimum 3500 psi at 7 days and 5000 psi at 28 days.
- G. Concrete: Refer to Section 03300.
- H. Tamping tools adapted for backfilling voids after removal of the excavation support system.

- I. Provide specific trench box sizes for each pipe and utility excavation with structural capacity of retaining soil types as described in OSHA's 29 CFR Part 1926 Subpart P.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Installation of the temporary excavation support systems shall not commence until the related earth excavation and dewatering submittals have been reviewed by the Engineer with all Engineer's comments satisfactorily addressed.
- B. Install excavation support systems in accordance with the temporary excavation support plan.
- C. If utilizing a tieback system, all performance and proof tests shall be conducted in the presence of the Engineer. Testing performed without the Engineer present will not be accepted. Repeat testing in the Engineer's presence at no additional cost to the Owner.
- D. Do not drive sheeting within 100 feet of concrete less than seven (7) days old.
- E. Carry out program of temporary excavation support in such a manner as to prevent undermining or disturbing foundations of existing structures of work ongoing or previously completed.
- F. Bottom of the trench box excavation support system shall be above the pipe invert prior to installing the pipe.
- G. Install and survey geotechnical instrumentation in accordance with the temporary excavation support plan. Notify the Engineer immediately if any geotechnical instrumentation is damaged. Repair or replace damaged geotechnical instrumentation at the sole option of the Engineer and at no additional cost to the Owner.
- H. Continuously monitor movements of the ground adjacent to excavation support systems and adjacent structures. In event of the measured movements approaching or exceeding the allowable movements, take immediate steps to arrest further movement by revising procedures such as providing supplementary bracing, filling voids behind the trench box, supporting utilities or other measures (Construction Contingency Plan) as required.
- I. Notify utility owners if existing utilities interfere with the temporary excavation support system. Modify the existing utility with the utility owner's permission or have the utility owner make the modifications at no additional cost to Owner.

3.2 GROUND DEFORMATION ADJACENT TO EXCAVATION SUPPORT SYSTEMS

- A. Criteria for “threshold” and “limiting” movements of wall elements of excavation support system have been established as follows:
1. “Threshold” Horizontal Movement:

Dx = No greater than 1.25 inch where no buildings are present within 25 ft. of support system

Dx = No greater than 0.5 inch where buildings are present within 25 ft. of support system.

Where
Dx = measured horizontal wall movement at any level.
 2. “Limiting” Horizontal Movement:

Dx = No greater than 2.0 inches where no buildings are present within 25 ft. of support system

Dx = No greater than 0.75 inch where buildings are present within 25 ft. of support system.
- B. The Contractor shall notify the Engineer and shall take immediate steps to control further movement by revising his procedures, providing supplemental bracing or other measures (working 24 hours per day or temporarily terminating work in the area of movement if necessary) as required if any of the following occur:
1. Field measurements indicate that any of the “threshold” movement criteria are reached or exceeded.
 2. Field measurements or observations indicate that significant or sustained wall movements are occurring (total movement may be less than the “Limiting” movement criteria).
 3. Movements of adjacent structures, utilities or other facilities are detected.
- C. If “Limiting” movements are being approached or reached, the Engineer, based on his judgment and review of the movement monitoring data, may require the Contractor to temporarily terminate the work in the area where such movement is occurring and implement all necessary mitigation measures which are satisfactory to the Engineer, to arrest the movements, at no cost to the Owner.
- D. Horizontal or vertical movement of any point on adjacent structures shall not exceed 0.5 inches. The Contractor shall establish and monitor survey points on the adjacent structures. The Contractor shall take all necessary measures to prevent greater settlements, at no additional cost to the Owner.

- E. These criteria are intended to establish a minimum basis for the Contractor's design and procedures and in no way relieve the Contractor of his sole responsibility for preventing detrimental movements and damage to adjacent structures, utilities or other work.
- F. Monitoring personnel shall use a procedure for reading and recording geotechnical instrumentation data which compares the current reading to the last reading during data collection to eliminate spurious readings.
- G. Plot the observed ground deformation readings versus time. Annotate the plots with construction loading and excavation events having an impact on the readings. Evaluate plots by means of secondary rate-of-change plots to provide early warning of accelerating ground movements.
- H. Implement Construction Contingency Plan under direction of the temporary excavation support system designer, installation supervisor and the Engineer.

3.3 REMOVAL OF EARTH RETENTION SYSTEM

- A. Sheet piling shall not be left in place unless otherwise indicated or approved in writing by the Engineer.
- B. When indicated or approved by the Engineer, remove the temporary excavation support system without endangering the constructed or adjacent structures, utilities, or property. Immediately backfill all voids left or caused by withdrawal of temporary excavation support systems with bank-run gravel, screened gravel or select borrow by tamping with tools specifically adapted for that purpose.
- C. When tiebacks are used, release tension in tiebacks as the excavation is backfilled. Do not leave tensioned tieback in place at the completion of the work.
- D. The excavation support system left-in-place shall be cut-off a minimum of 2 feet below the bottom of the next higher foundation level or a minimum of 5 feet below finished grade.
- E. Conduct survey of the locations and final cut-off elevations of the excavation support systems left in place.
- F. Submit as-built information, prior to backfilling.

3.4 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02160

SECTION 02440 SEWER CLEANING AND INSPECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK:

- A. Clean and inspect the pipelines indicated on the Drawings or as directed by the Engineer in a manner that is compliant with the guidelines set forth within this section. This Work includes furnishing all equipment and labor required to perform the services described herein.
- B. All personnel performing inspection shall be NASSCO certified and shall have performed TV inspection within previous five (5) years.

1.02 QUALITY ASSURANCE:

- A. Refer to Section 01400 – Quality Assurance, for qualification requirements.

1.03 REFERENCES:

- A. The following standard is referenced as part of this specification:

The National Association of Sewer Service Companies (NASSCO) Recommended Specifications for Sewer Collection System Rehabilitation (Current Edition).

1.04 SUBMITTALS:

- A. Submit detailed television inspection reports as specified herein. Submit inspection reports and digital video record for review and approval by Engineer weekly, minimum.
- B. Digital files shall provide a visual and audio record of conditions encountered in the sewer and shall have an associated database that can be searched, sorted, stored, and transferred with all associated software at no additional cost. Database shall be compatible with Microsoft Excel or Access software.
- C. Upon substantial completion of the Work submit one complete digital set of CCTV inspection Work.
- D. Refer to Section 01300 – Submittals, for required documentation to be submitted.

PART 2 – PRODUCTS

2.01 CLEANING EQUIPMENT

- A. Pipe cleaning equipment shall consist of high velocity jet equipment as defined in the section SEWER LINE CLEANING of NASSCO (current version).
 - 1. High velocity jet equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size and length lines indicated on the Drawings. Equipment shall also include a high velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.

2.02 TELEVISION EQUIPMENT:

- A. CCTV inspection equipment shall meet the standard set under TELEVISION INSPECTION, MAIN SEWERS of NASSCO (current version).
- B. Television equipment shall include television camera, television monitor, cables, power source, lights, and other equipment. The television camera shall be specifically designed and constructed for operation in connection with sewer inspection.
- C. Lighting for the camera shall be suitable to allow a clear picture, with minimal reflective glare, for the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera, television monitor and other component of the video system shall be capable of producing a minimum 400 line resolution color video picture. Picture quality and definition shall be to the satisfaction of the ENGINEER.
- D. The camera shall have a remote controlled, pan and tilt type lens and lighting system capable of turning perpendicular to the direction of flow and rotating 360 degrees while inside the pipe. The camera shall be able to view a minimum service connection length of 4 feet in order to determine whether the connection is active or inactive.
- E. The remote reading footage counter shall be accurate to one (1) foot over the length of the particular section being inspected.

PART 3 – EXECUTION

3.01 ACCESS TO WORK:

- A. Certain conditions may prevent the Contractor from completing portions of the Work contained herein. Upon discovery of such conditions, the Contractor shall immediately notify the Engineer who will in turn notify the Owner and attempt to arrive at a resolution. The Engineer will then direct the Contractor to either return to the location once the condition is remedied or will remove the subject pipe from the project. These decisions will be made at the Engineer's sole discretion and no additional cost will be incurred for eliminating, re-scheduling or returning to areas of the Work as long as the Contractor is working on other areas of the project. These conditions include but are not limited to the following:
1. Paved over or otherwise buried manholes.
 2. Obstructions in the pipe
 3. High flow conditions
 4. Need for police detail or traffic control measures

3.02 PIPE CLEANING:

- A. The Contractor shall use high velocity jet as described in the most recent version of NASSCO Standard Specifications.
- B. All sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be disposed of in accordance with all applicable regulations and in a method acceptable to the Owner. Pipe cleaning shall be performed in advance of pipe television inspection.
- C. The Contractor shall be responsible for the legal removal and transportation disposal of all debris removed from the sewers during the cleaning operation including any costs incurred. The Owner shall allow disposal of flowable sewer matter in the Owner's sewer system.
- D. Light cleaning shall be conducted at a minimum to permit the passage of the closed circuit television camera. Acceptance by the Engineer of the cleaning results will be based on the results of television inspection. If the results are unsatisfactory, the Contractor shall repeat the cleaning until accepted by the Engineer at no additional cost to the Owner.
- E. The Contractor shall coordinate water use with the Owner. Contractor shall be responsible for providing, installing and using all equipment needed to obtain water from hydrants in accordance with the Owner's requirements.

3.03 PIPE INSPECTION:

- A. Pipe shall be visually inspected by means of closed-circuit television. The television camera used for the inspection shall be one specifically designed and constructed for such inspection.
- B. Digital Recordings: Electronic video equipment shall display and record during the entire inspection at a minimum the following data for each sewer reach video recorded.
 - 1. Date recorded
 - 2. Footage counter
 - 3. Voice over narration noting any significant observations made during the inspection Work, including the following:
 - a. Length, size and type of pipe.
 - b. Location of offsets and misalignments of any part.
 - c. Location and type of defect in pipe such as cracks, holes, etc.
 - d. Protruding service connections.
 - e. Root intrusion.
 - f. Visible infiltration/inflow sources estimated in gallons per minute (GPM).
 - g. Type and depth of debris in pipe.
 - h. Sluggish flow or wastewater backing up into manhole.
 - i. Overall condition of pipe section (from manhole to manhole).
 - 4. Sewer reach identification (for example: street location, MH to MH)
- C. CCTV Logs: The Contractor shall prepare log sheets of each line section inspected, recording, at a minimum, the following information in tabular and graphic format, and submit electronic versions to Engineer at regular intervals not exceeding weekly intervals:
 - 1. Project identification
 - 2. List of Subcontractors at the site.
 - 3. Count of personnel at the site, by job classification.
 - 4. List of major equipment utilized on site.
 - 5. Numbered pages including an index sheet listing the pipeline segments, street name and corresponding page of the report they are located.
 - 6. Tabular and graphic display observation made during the inspection Work as listed herein.
 - 7. Sewer reach identification (street location, MH to MH)
- D. The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to ensure proper identification of the sewer's condition. In no case will the television camera be pulled at a speed greater than 20 feet per

minute. Manual winches, power winches, TV cable and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions may be used to move the camera through the sewer line.

- E. If, during the inspection operation the television camera will not pass through the entire sewer section, the Contractor shall reset his equipment in a manner so that the inspection can be performed from the opposite manhole.
- F. Standing water within a sagging pipe shall be removed so that the pipe can be adequately television inspected. A minimum of 80% of the pipe shall be visible before television inspection. A minimum of one attempt using standard cleaning equipment shall be made to clear lines surcharged due to line sages. The Contractor shall maintain a list of line segments that are significantly surcharged and provide this list to the Engineer daily.
- G. Television inspection shall be performed in advance of all testing and rehabilitation activities.
- H. Accuracy of the measurement meters shall be checked daily by use of a walking meter, roll-a-tape, or other device approved by the Engineer. The measurements recorded in the log shall be zeroed at the point the camera lens begins the sewer line penetration of the upstream manhole, unless specific permission is given by the Engineer to do otherwise. Footage shall be shown on the video data view at all times and will be zeroed at the beginning of each run.

END OF SECTION 02440

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SECTION 02570 SEWERS AND MANHOLES

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. This Section specifies requirements for proposed sewer gravity lines, manhole structures, and associated items.
- B. The work includes furnishing and installing sewer pipes, fittings, manholes, and other structures and appurtenances required and in accordance with the Drawings and Specifications.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, and:
 - 1. Section 02200 – Earthwork
 - 2. Section 02160 – Temporary Excavation Support
 - 3. Section 02140 – Dewatering and Discharge
 - 4. Section 02616 – Ductile Iron Pipe and Fittings
 - 5. Section 02620 – High Density Polyethylene Pipe
 - 6. Section 02622 – Polyvinyl Chloride Pressure Pipe

1.3 SUBMITTALS

- A. List of materials proposed and manufacturers' specifications and installation instructions.
- B. Shop drawings for all material and structures prior to ordering materials, including pipe materials, connections, fittings and valves, and component construction, features, configuration, and dimensions.

1.4 INSPECTION

- A. The supplier is responsible for the provisions and all test requirements specified in ASTM D2241 for PVC pressure rated sewer pipe. In addition, all PVC pipe may be inspected at the plant for compliance with these specifications by an independent testing laboratory selected and paid for by the Owner. The Contractor shall require the manufacturer's cooperation in these inspections.
- B. Inspection of the pipe may also be made after delivery. The Contractor shall furnish all labor to assist the Engineer in inspecting the pipe. The pipe shall be subject to rejection at any time on account of failure to meet any of the specification

requirements, even though pipe samples may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the site at once.

- C. Imperfections in materials may be repaired, subject to approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval.

1.5 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. ASTM D695 – Test Method for Compressive Properties of Rigid Plastics
 - 2. ASTM D790 – Test Method for Flexural Properties of Non-Reinforced and Reinforced Plastics and Electrical Insulating Materials
 - 3. ASTM D2412 - Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
 - 4. ASTM D3753 – Standard Specification for Glass-Reinforced Polyester Manholes and Wetwells

1.6 DELIVERY, STORAGE & HANDLING

- A. All materials shall be adequately protected from damage during transit. Pipes shall not be dropped.
- B. All pipe and other appurtenances shall be inspected before placement in the work and any found to be defective from any cause, including damage caused by handling, and determined by the Engineer to be unrepairable, shall be replaced at no cost to the Owner.
- C. Storage and handling of pipes, manholes and other sewer system appurtenances shall be in accordance with the manufacturer's recommendations, subject to the approval of the Engineer.
- D. Only nylon-protected slings shall be used for handling the pipe. No hooks or bare cables will be permitted.
- E. Pipe shall be stored above ground at a height no greater than 5 feet, and with even support for the pipe barrel.

PART 2 - PRODUCTS

2.1 POLYVINYLCHLORIDE (PVC) PIPE

- A. Vent Pipe and Fittings: PVC Vent Pipe shall be Schedule 80 PVC with rubber rings and shall meet the requirements of ASTM D3034.
- B. Joints: Rubber rings shall conform to ASTM F477 and joints shall be design tested to the requirements of ASTM D3139. Rubber rings capable of withstanding a pH of 9.5, and shall be petroleum resistant. Rubber rings shall provide a tight seal that protects the line from shock and vibration, and compensates for expansion and contraction of pipe lengths.
- C. Gasketed joints shall meet the requirements of ASTM D3212.

2.2 MANHOLES

A. Precast Units:

- 1. Structure: Eight foot (8') and six foot (6') minimum inside diameter precast units (4,000 psi minimum compressive strength) with flat top section including a thirty-six inch (36") diameter (minimum) opening, and one pour monolithic base section conforming to ASTM C478. All units shall be designed for HS-20 loading. Manhole wall thickness shall be 5 inches, minimum.
- 2. Precast Unit Joint Seals: Preformed bitumastic sealant conforming to ASTM C990. Joint seal shall fill 75% of the joint cavity.
- 3. The date of manufacture, trademark and name of the manufacturer shall be clearly marked on the inside of each precast section.

A. Masonry:

- 1. Brick for minor grade adjustments shall be Grade SS conforming to ASTM C32. Grade MS shall be used for manhole structures and applications other than inverts and shelves.
- 2. Mortar shall be composed of one part Type II Portland cement (ASTM C150), two parts sand (ASTM C144), well-graded with no grain larger than will pass a Number 8 sieve, and 20 percent hydrated lime conforming to ASTM C207 Type S.
- 3. Cement shall be Type I or II Portland cement conforming to ASTM C150, Standard Specification for Portland cement. Where masonry is exposed to salt water, Type II shall be used.
- 4. Hydrated lime shall be Type S conforming to ASTM D207.
- 5. Sand for masonry mortar shall conform to the gradation requirements of ASTM C144.

- B. Manhole Frame and Cover: Provide watertight, heavy duty cast iron frame and cover. Frame and cover shall be USF 769 Ring and OY Cover as manufactured by US Foundry or approved equal.
- C. Pipe Connections: Flexible sleeve or rubber gaskets shall be fastened with stainless steel clamps and shall be Lock-Joint, Kor-N-Seal, or approved equal.
- D. Dampproofing Bitumastic Coating: The entire exterior surface of all manholes shall be coated with two coats of an approved bitumastic material using cutback asphalt, AASHTO M81 or M82, Asphalt emulsion AASHTO M140 or approved equal, at 5 gallons per 100 square feet minimum per coat to produce a dry film thickness of 0.07 inches (7 mils) per coat. Touch up in the field prior to backfilling as required by ENGINEER.

2.3 VALVES AND APPURTENANCES FOR PRESSURE SEWER

A. Gate Valve:

1. Gate valves for force main drains and cleanouts shall be ductile iron solid wedge gate valves made in accordance with AWWA Specification C-500 or Resilient-seated gate valves made in accordance with AWWA Specification C-509. Valves to be rated for 125 psi working pressure. Valve body and bonnet to be coated inside and out with fusion bonded epoxy. All interior coatings shall be suitable for wastewater.
2. All valves shall be provided with a 2-in. square operating nut and shall open by turning to the left (counterclockwise).
3. Valve boxes shall be cast iron, three piece screw type with drop cover marked "SEWER". They shall be set vertically and properly adjusted so that the cover shall be in the same plane as the finished surface of the ground or street. All sewer gate valves shall open left.
4. All gate valves furnished and installed shall include a stem extension that is terminated one (1) foot below existing grade. Valve extension to be manufactured by gate valve manufacturer.

B. Air Release Valve:

1. Valves shall be manufactured and tested in accordance with AWWA C512.
2. Dual body valves shall provide an extended body with a through flow area equal to the nominal size. Floats shall be unconditionally guaranteed against a failure including pressure surges. A resilient bumper shall be provided on 4-in. and larger sizes to cushion the float during sudden opening conditions. The seat shall provide drop tight shut off to the full valve pressure rating.
3. Dual body valves shall consist of a Wastewater Air Release Valve piped to a Wastewater Air/Vacuum Valve with a full-ported brass ball valve.

4. The Wastewater Air Release Valve shall have an extended leverage mechanism with sufficient mechanical advantage so that the valve will open under full operating pressure. An adjustable threaded resilient orifice button shall be used to seal the precision discharge orifice in the cover.
5. The Wastewater Air Release Valve shall have backwash accessories which shall consist of an inlet shut-off valve, a blow-off valve, a clean water inlet valve, rubber supply hose, and quick disconnect couplings. Accessory valves shall be quarter-turn, full ported bronze ball valves.
6. The Wastewater Air/Vacuum Valves sizes 4-in. and larger shall have a cover fitted to the valve body by means of a machined register to maintain concentricity between the top and bottom guide bushings at all times. The tandem float assembly shall have a hexagonal guide shaft supported in the body by circular bushings to prevent binding from debris. The upper float shall be protected against direct water impact by an internal baffle. The seat shall be a minimum of .5-in. thick on 2-in. and larger valves and secured in such a manner as to prevent distortion.
7. The valve body and cover shall be constructed of ASTM A126 Class B cast iron. The float, plug, guide shafts, and bushings shall be constructed of Type 316 stainless steel. Non-metallic guides and bushings are not acceptable. Resilient seats shall be Buna-N.
8. Valve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550.
9. The manufacturer shall demonstrate a minimum of five (5) years experience in the manufacture of wastewater air valves. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals. Wastewater Combination Air Valves shall be Series 48A/300 as manufactured by Val-Matic Valve and Manufacturing Corporation, Elmhurst, IL, USA or approved equal.

PART 3 - EXECUTION

3.1 EXCAVATION AND BACKFILLING

- A. The type of materials to be used in bedding and backfilling and the method of placement shall conform to the requirements of Section 02200- Earthwork, and the details shown on the Drawings.

3.2 PIPE INSTALLATION

- A. All sewer piping shall be laid accurately to the lines and grades shown in the Drawings and in conformance with pipe manufacturer's recommended procedures.

- B. Laying Pipe: Each length of pipe shall be laid with firm, full and even bearing throughout its entire length, in a prepared trench. Pipe shall be laid with bells upgrade unless otherwise approved by the Engineer.

Every length of pipe shall be inspected and cleaned of all dirt and debris before being laid. The interior of the pipe and the jointing seal shall be free from sand, dirt and trash. Extreme care shall be taken to keep the bells of the pipe free from dirt and rocks so that joints may be properly lubricated and assembled.

No length of pipe shall be laid until the proceeding lengths of pipe have been thoroughly embedded in place, to prevent movement or disturbance of the pipe alignment.

Lay accurately to lines and grades indicated or required. Provide accurate alignment, both horizontally and vertically.

- C. Pipe Extension: Where an existing pipe is to be extended, the same type of pipe shall be used, unless otherwise approved by the Engineer.
- D. Full Lengths of Pipe: Only full lengths of pipe shall be used in the installation except that partial lengths of pipe may be used at the entrance to structures, and to accommodate the required locations of service connection fittings.
- E. Pipe Entrances to Structures: All pipes entering structures shall be cut flush with the inside face of the structure, and the cut ends of the pipe surface within the structure shall be properly rounded and finished so that there will be no protrusion, ragged edges or imperfections that will impede or affect the hydraulic characteristics or the sewage flow. The method of cutting and finishing shall be subject to the approval of the Engineer.
- F. Protection During Construction: The Contractor shall protect the installation at all times during construction, and movement of construction equipment. Vehicles and loads over and adjacent to any pipe shall be performed at the Contractor's risk and in accordance with all applicable federal, state and local safety regulations.

At all times when pipe laying is not in progress, all open ends of pipes shall be closed by approved temporary water-tight plugs. If water is in the trench when work is resumed, the plug shall not be removed until the trench has been properly dewatered and all danger of water entering the pipe eliminated. The Contractor is responsible for proper dewatering to ensure a stable pipe foundation. Proper dewatering to two feet (minimum) below the pipe invert to ensure joining of the pipe in a dry condition.

- G. Water Pipe – Sewer Pipe Separation: When a sewer pipe crosses above or below a water pipe, the following procedures shall be utilized. The Contractor shall comply with these following procedures.

1. Relation to Water Mains

- a. Horizontal Separation: Whenever possible sewers shall be laid at a minimum at least ten feet (10'), horizontally from any existing or proposed water main. Should local conditions prevent a lateral separation of 10 feet to a water main, if:
 - i. It is laid in a separate trench, or if
 - ii. It is laid in the same trench with the water mains located at one side on a bench of undistributed earth, and if
 - iii. In either case the elevation of the top (crown) of the sewer is at least 18 inches below the bottom (invert) of the water main.
- b. Vertical Separation: Whenever sewers must cross under water, sewer is at least eighteen inches (18") below the bottom of the water main. When the elevation of the sewer cannot be varied to meet the above requirements, the water main shall be relocated to provide this separation or reconstructed with mechanical-joint pipe for a distance of ten feet (10') on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.
- c. When it is impossible to obtain horizontal and/or vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical-joint cement lined ductile iron pipe or other equivalent based on water tightness and structural soundness. Both pipes shall be pressure tested by an approved method to assure water tightness or both pipes shall be encased in concrete.

3.3 PVC PIPE JOINTS

- A. All joints shall be made watertight.
- B. Pipe shall be jointed in strict accordance with the pipe manufacturer's instruction. Jointing of all pipes shall be done entirely in the trench.
- C. PVC Pipe
 1. Lubricant for jointing of PVC pipe shall be applied as specified by the pipe manufacturer. Use only lubricant supplied by the supplied by the pipe manufacturer.

2. PVC pipe shall be pushed home by hand or with use of a bar and block. The use of power equipment, such as a backhoe bucket, shall only be used at the direction of the manufacturer.
3. The position of the gasket shall be checked to insure the joint has been properly made and is watertight. Care shall be taken not to exceed the manufacturer's recommended maximum deflection allowed for each joint.
4. Field-cut pipe ends shall be cut square and the pipe surface beveled to the size and shape of a factory-finished beveled end. All sharp edges shall be rounded off.

3.4 MANHOLES

- A. **General Requirements:** All manholes shall be built in accordance with the Details and in the locations shown on the Drawings. Structures shall be constructed of precast concrete or brick masonry as depicted in the drawings. Personnel experienced and skilled in this work shall install all masonry, and any person not deemed to be such by the Engineer shall be removed and replaced by a person so qualified. Manholes shall be constructed as soon as the pipe laying reaches the location of the manhole. Should the Contractor continue laying pipe without making provisions for completion of the manhole, the Engineer shall have the authority to stop the pipe laying operations until the manhole is completed. The Contractor shall accurately locate each manhole and set accurate templates to conform to the required line and grade. Any manhole that is incorrectly located or oriented improperly shall be removed and rebuilt in its proper location, alignment and orientation at no additional cost to the Owner.
- B. **Foundations:** The excavation shall be dewatered to provide a dry condition while placing bedding material and setting the base.
- C. **Precast Manholes:** Precast manholes shall be installed only after Shop Drawings have been approved. The top grade of the precast concrete flat top section shall be set sufficiently below finished grade to permit a maximum of five and a minimum of two courses of eight inch brick to be used as risers to adjust the grade of the manhole frame. Manhole frames shall be set on a grout pad to make a watertight fit.

3.5 CONNECTIONS TO EXISTING FACILITIES

- A. **General Requirements:** The Contractor shall make all required connections of the proposed sewer into existing sewer system, where and as shown on the Drawings and as required by the Engineer.
- B. **Compliance with Requirements of Owner of Facility:** Connections into existing sewer facilities shall be performed in accordance with the requirements of the Owner of the facility. The Contractor shall comply with all such requirements, including securing of all required permits, paying the costs thereof, and providing twenty-four (24) hour notice prior to beginning the work.

3.6 PIPE CONNECTIONS TO NEW STRUCTURES

- A. Pipe connections for precast structures may be accomplished by the method described below. The Contractor shall make sure that the outside diameter of the pipe is compatible with the particular pipe connection used.
 - 1. KOR-N-SEAL (or approved equal) neoprene boot cast into the manhole wall. The stainless steel clamp shall be protected from corrosion with a bitumastic coating.
 - 2. LOCK-JOINT (or approved equal) rubber-like flexible sleeve cast into the manhole wall. The stainless steel clamp shall be protected from corrosion with a bitumastic coating.

3.7 PRESSURE TESTING OF SEWER FORCE MAIN

- A. Hydrostatic and leakage test shall be conducted in accordance with AWWA Standard C600, and as directed by the Engineer.
- B. Conduct pipe tests after concrete thrust blocks have cured to the required 3000 psi strength. Fill pipe 24 hours prior to testing, and apply test pressure to stabilize system. Use only potable water.
- C. Prior to pressure testing, the entire pipe section shall be flushed to remove any rocks or debris, which may have inadvertently entered the pipe during construction.
- D. Testing shall be conducted upon completion of each pipe segment. Under no circumstances the Contractor will be allowed to test the entire pipeline in one test. All pipe segments including fittings, valves, and other miscellaneous pipe components shall be tested at 150 psi.
- E. The Contractor shall test the standby wastewater force main in sections. The testing shall be ongoing throughout the construction of the standby wastewater force main. The length of the testing shall be determined by the Engineer.
- F. Once the pipe section has been filled at normal pressure and all entrapped air removed, the Contractor shall raise the pressure to 150 psi by a special pressure pump, taking water from a small tank of proper dimensions for satisfactorily measuring the rate of pumpage into the pipe. This pressure shall be maintained for a minimum of 2 hours, during which time the line shall be checked for leaks. Measured rate of water leakage shall not exceed the allowable leakage listed below.

Interior piping in vaults, building, etc., shall have zero leakage.

The Contractor shall immediately locate any leaks and repair them. Pipe will be accepted only when leakage is zero. Approval does not absolve the Contractor from responsibility if leaks develop later within the warranty period.

3.8 CLEANING AND REPAIR

- A. The Contractor shall clean the entire sewer system of all debris and obstructions. This shall include, removal of all formwork from structures, concrete and mortar droppings, construction debris and dirt. The system shall be thoroughly flushed clean and the Contractor shall furnish all necessary hose, pumps, pipe and other equipment that may be required for this purpose. No debris shall be flushed into existing sewers, storm drains or streams. All work of cleaning and repair shall be performed at no additional cost to the Owner.

3.9 FINAL INSPECTION

- A. Upon Completion of the work, and before final acceptance by the Engineer, the entire sewer system shall be subjected to a final inspection in the presence of the Engineer. The work shall not be considered as complete until all requirements for line, grade, cleanliness, leakage tests and other requirements have been met.

END OF SECTION 02570

SECTION 02616 DUCTILE IRON PIPE AND FITTINGS

PART 1 – GENERAL

1.1 SUMMARY

- A. Furnish all materials, equipment, labor and incidentals; provide for the installation and testing of all ductile iron pipe and fittings, as indicated and specified.
- B. All pipe material intended to be in contact with wastewater shall be coated with Protecto 401™ Ceramic Epoxy as specified by Induron Protective Coatings.
- C. The materials covered by this specification are intended to be standard materials of proven ability as manufactured by reputable concerns. Materials shall be designed and constructed in accordance with the best practice of the industry and shall be installed in accordance with the manufacturer's recommendations. The specifications call attention to certain features but do not purport to cover all details entering into the construction of the materials.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, and:
 - 1. Section 02140 – Dewatering
 - 2. Section 02160 – Temporary Excavation Support
 - 3. Section 02200 – Earthwork
 - 4. Section 02570 – Sewers and Manholes

1.3 SUBMITTALS

- A. List of materials proposed and manufacturers' specifications and installation instructions.
- B. Shop drawings for all material and structures prior to ordering materials, including pipe materials, connections, fittings and valves, and component construction, features, configuration, and dimensions.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.

- B. Inspect and test at foundry according to applicable standard specifications.
- C. Owner reserves right to inspect and test by independent service at manufacturer's plant or elsewhere at his own expense.
- D. Visually inspect and hammer test before installation.

1.5 DELIVERY, STORAGE & HANDLING

- A. Products shall be shipped, stored and handled in a manner consistent with the written recommendations of the manufacturer and as to not to degrade quality, serviceability or appearance. All products delivered to the project site shall be accompanied by test reports certifying that the pipe conforms to the ASTM specifications listed herein. Any unit found to be defective either before or after installation shall be removed from the project site and replaced with a sound unit.
- B. If stored for more than two weeks, the materials shall receive all maintenance considerations required by the manufacturer for proper storage of the materials.

1.6 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs 60,000 PSI Tensile Strength.
- B. American Water Works Association (AWWA)
 - 1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
 - 2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems
 - 3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3-in through 48-in for Water
 - 4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
 - 5. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
 - 6. AWWA C150 - Thickness Design of Ductile-Iron Pipe
 - 7. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water
 - 8. AWWA C153 - Ductile-Iron Compact Fittings for Water and Services

9. AWWA C600 - Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.
 10. AWWA C651 - Disinfecting Water Mains
- C. American National Standards Institute (ANSI)
1. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Ductile iron pipe shall be that of a manufacturer who can demonstrate at least 5 years of successful experience in manufacturing ductile iron pipe. The pipe shall be equipped with push-on type, restrained joint, or mechanical joint, as required, and shall be made in the United States.
- B. Ductile iron pipe shall conform to the latest edition of AWWA C150 and C151, Class 52. **Ductile iron pipe intended for use on the sewer main shall be coated with Protecto 401TM Ceramic Epoxy as specified by Induron Protective Coatings.** Ductile iron pipe intended for use on water mains shall be double cement-lined, asphalt seal coated, ductile iron.
- C. Ductile iron pipe typically furnished in 18 (eighteen) foot lengths are NOT required for the spool portion of the Rapallo Viaduct FM Repair. Segments of Protecto 401TM Ceramic Epoxy Ductile Iron Pipe shall be provided in lengths required to connect the host pipe to the repaired portion of the force main.
- D. All pipe and fittings shall have a bituminous outside coating in accordance with AWWA C151 and C110, respectively, latest edition.
- E. Gaskets shall meet the material requirements of ANSI/AWWA C111 for mechanical joint gaskets.
- F. Fittings shall be compact ductile iron Class 350 Mechanical Joint, conforming to ANSI Specification A21.53 (AWWA C153), latest edition. Fittings shall be suitable for use with restraints as specified hereinafter. Fittings shall be manufactured in the United States. Fittings shall be made of the same material and have the same lining and coating as the pipe specified above. All fittings shall be marked with the weight and shall have distinctly cast upon them the pressure rating, the manufacturer's identification, nominal diameter

of openings and the number of degrees or fraction of the circle on all bends. Fittings shall be Tyler Union AWWA C153 Compact Fittings, or approved equal.

1. Hydrant tees shall have a rotatable mechanical joint gland on the 6-inch plain end branch to provide positive valve restraint, unless otherwise allowed by the Engineer.
 2. Caps and plugs installed in all new work as indicated on the drawings shall be provided with a threaded corporation or bleeder valve so that air and water pressure can be relieved prior to future connection.
- G. Joints for pipe and fittings shall be push-on or mechanical joints conforming to AWWA C111, latest edition.
- H. Restraint joints shall be furnished for thrust restraint for installation on all fittings and valves, where indicated on the drawings, or where required by the Engineer. **Restraints for mechanical joints intended for use on the sewer force main shall be Series 2100 Megalug as manufactured by EBAA Iron, or approved equal.** Restraints for mechanical joints intended for use on water mains shall be Series 1100 Megalug as manufactured by EBAA Iron, ONE-LOK Series D-Slide Restraints as manufactured by SIGMA Corp., or approved equal.
- I. Restraints for push-on joints shall be Field Lok gaskets by U.S. Pipe or Sure Stop 350 by McWane Ductile. Push-on joint restraints shall not affect the warranty by the pipe manufacturer.
- J. Sleeve type couplings shall be of steel and shall be Style 38 by Dresser Mfg. Div.; Smith-Blair Style 441 or approved equal. Couplings shall be furnished with black steel bolts and nuts and with pipe stop removed. Gaskets shall be of a material suitable for exposure to liquid within the pipe.
- K. Polyethylene pipe encasement shall conform to requirements of AWWA C105, latest edition. Virgin polyethylene shall conform to ANSI/ASTM D1248. Minimum nominal thickness shall be 8 mils. Polyethylene pipe encasement shall be V-BIO Poly as manufactured by U.S. Pipe and Foundry Company, or equal.
- L. Insulation shall be 2-inch thick polyisocyanurate foam with a density of 2.0 lbs/cf³. A 30-mils thick bitumen adhesive shall be used as a vapor and moisture barrier for direct burial applications.
- M. Concrete utilized for thrust blocks shall have a minimum compressive strength of 3,000 psi and conform to the specifications in SECTION 03310, CAST-IN-PLACE CONCRETE.

2.2 BURIED UTILITY WARNING AND IDENTIFICATION TAPE FOR WATER MAINS

- A. Provide detectable aluminum foil plastic backed tape or detectable magnetic plastic tape manufactured specifically for warning and identification of buried piping. Tape shall be detectable by an electronic detection instrument. Provide tape in rolls, 3 inches minimum width, color coded for the utility involved with warning and identification imprinted in bold black letters continuously and repeatedly over entire tape length. Warning and identification shall be CAUTION BURIED WATER PIPING BELOW or similar. Use permanent code and letter coloring unaffected by moisture and other substances contained in trench backfill material. Bury tape with the printed side up at a depth of 12 inches below the top surface of earth or the top surface of the subgrade under pavements.

PART 3 – EXECUTION

3.1 HANDLING PIPE

- A. The Contractor shall take care not to damage pipe by impact, bending, compression, or abrasion during handling, and installation. Joint ends of pipe shall be kept especially clean.
- B. Pipe shall be stored above ground at a height no greater than 5 feet, and with even support for the pipe barrel.
- C. Only nylon-protected slings shall be used for handling the pipe. No hooks, chains or bare cables will be permitted.
- D. Gaskets shall be shipped in cartons and stored in a clean area, away from grease, oil, heat, direct sunlight and ozone producing electric motors.

3.2 LAYING DUCTILE IRON PIPE AND FITTINGS

- A. The Contractor will be responsible for transporting materials to the job site as needed. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe, lining or coatings. Pipe or fittings shall not be dropped. The engineer shall examine all pipes and fittings prior to installation. Any pipe or fittings found defective shall not be installed and immediately removed from the site. Any damage to pipe linings or coatings may be repaired as directed by the Engineer, or removed from the site. Handling and installation of pipe and fittings shall be in accordance with the manufacturer's instruction and as specified herein. Any materials damaged during loading, transporting or unloading shall be replaced at the Contractor's expense.
- B. Jointing of ductile iron pipe and fittings shall be done in accordance with the printed recommendations of the manufacturer and as specified. All pipe and fittings shall be thoroughly cleaned before laying; shall be kept clean until they are used in the work; and when installed, shall conform to the lines and grades required. Special care is required in cleaning the ends of the pipe; wipe the outside of the spigot end with a clean rag prior to applying lubricant; brush clean the inside of the bell end, paying

special attention to the rubber joint area, prior to installing the gasket and lubricant; and check inside the pipe for overall cleanliness.

- C. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA C600, latest edition, except as otherwise provided herein. The joint surfaces and the gasket shall be painted with a lubricant just prior to making up the joint. The spigot end shall then be gently pushed home into the bell. The position of the gasket shall be checked to insure that the joint has been properly made and is watertight. Care shall be taken not to exceed the manufacturer's recommended maximum deflection allowed for each joint. A firm, even bearing throughout the length of the pipe shall be constructed by tamping selected common fill along the sides of the pipe forming a cradle under the pipe. Tamping shall continue until the fill is 1-foot over the top of the pipe. Pipe installation in rock shall be constructed as shown on the drawings. (See Detail Sheet/Drawings). A 4.5-foot minimum cover shall be maintained over the top of the pipe. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner by the Contractor, at his/her own expense.
- D. All pipe shall be sound and clean before laying. During pipe installation, care should be taken to protect the open end of the pipe. When installation is not in progress, including lunch time, the open ends of the pipe shall be closed with watertight plugs or other approved means. Good alignment shall be preserved during installation. Fittings, in addition to those shown on the Drawings, shall be provided, when required, for crossing utilities which are encountered during trench excavation. Solid sleeves shall be used only where approved by the Engineer.
- E. When pipe cutting is required, cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be jointed with a bell shall be beveled to conform to the manufactured spigot end. Ceramic epoxy lining shall remain undamaged.
- F. Existing Utilities: To the extent possible, the Contractor shall maintain a minimum 10 ft. lateral separation between the new water mains and existing sanitary sewers, unless otherwise directed by the Engineer.
- G. When crossing an existing sanitary sewer, the water main is preferred to cross above the sewer. The Contractor shall maintain an 18-inch clearance between the bottom of the water main and crown of the sanitary sewer. At crossing, the center of a full length of water pipe shall be located above the sewer so that both joints will be located as far from the sewer as possible. The engineer may direct this full length of main to be concrete encased when the 18-inch clearance is not possible, or when the water main is placed below the sanitary sewer.
- H. For water main installation, the Contractor shall maintain a minimum clearance between the new water main and all other existing utilities of at least 12 inches.

- I. New water mains shall pass under all existing utilities except sewers unless otherwise noted on the Drawings or directed by the Engineer.
- J. Ductile iron pipe installed within 3 feet of gas lines shall be fully encased with polyethylene material. Polyethylene shall be 8-millimeters thick and comply with AWWA C105, latest edition.
- K. Ductile iron pipe shall be wrapped in polyethylene encasement where pipe depth is at or below normal groundwater level.
- L. Water pipe, to be installed with less than 5-foot cover or where shown on the drawings, shall be wrapped with an insulating foam jacket suitable for direct burial applications.

3.3 PUSH-ON JOINTS

- A. Push-on joints shall be made in accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. Apply thin film of nontoxic gasket lubricant over inner surface of gasket in contact with spigot end. The plain end of the pipe being installed shall be aligned and inserted into the bell end of the pipe previously installed. It can then be pushed home with a jack or by other means. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.

3.4 MECHANICAL JOINTS

- A. Mechanical joints shall be made in accordance with Appendix A of AWWA C111 and the manufacturer's instructions. Wire brush surfaces to be in contact with the gasket and thoroughly clean and lubricate the joint surfaces and rubber gasket with soapy water before assembly. Check that the gasket has been seated in fitting before placing flange against gasket. With bolts inserted and nuts finger-tight, tighten diametrically opposite nuts progressively and uniformly around joint with a torque wrench. Bolts shall all be tightened to the specified torque. When using pneumatic or electric impact wrenches to make up fittings, complete tightening using a torque wrench to the specified torque. Under no conditions shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage.

3.5 RESTRAINED JOINTS

- A. Mechanical joint restraints shall be installed in full accordance with the manufacturer's instructions. All bolt heads on Megalug restraints shall be tightened sufficiently so that they shear off to indicate the proper tightening torque was achieved.
- B. Push-on joint restraints shall be installed in full accordance with the manufacturer's instructions where directed by the Engineer

3.6 SLEEVE TYPE COUPLINGS

- A. Couplings shall be installed where shown or as directed. Couplings shall not be assembled until adjoining push-on joints have been assembled. Clean pipe ends for a distance of 8 inches. Mark each end six inches from the end. Use soapy water as gasket lubricant. Slip follower and gasket over each pipe to the 6-inch marks. Place the middle ring on the pipe end until centered over joint. Insert other pipe end into middle ring and bring to the proper position in relationship to the pipe installation. Press gaskets and followers into middle ring flares. Check gaskets have been seated into middle ring flares correctly. With bolts inserted and nuts made finger-tight, tighten diametrically opposite nuts sequentially with a torque wrench to the specified torque as per manufacturer's recommendation. After installation, apply a heavy bitumastic coating to bolts and nuts.

3.7 CONNECTIONS TO WATER MAIN

- A. The Contractor shall make all necessary connections to the existing mains as indicated in the Contract Documents or directed in the field.
- B. The Contractor shall develop a program for the construction and putting into service of the new work subject to the approval of the Engineer. All work involving cutting into and connecting to the existing water mains shall be planned so as to interfere with operation of the existing facilities for the shortest possible time.
- C. The Contractor shall have all preparatory work done prior to making the connection and shall provide all labor, tools, material, and equipment required to do the work in one continuous operation.
- D. The Contractor shall have no claim for additional compensation, by reason of delay or inconvenience, for adapting his operations to the requirements of the Owner.
- E. Under no circumstances shall any customer be without water for a period of more than 4 hours without prior written approval of the Owner. Should it appear that any customer will be without water for more than 4 hours, the Contractor shall install temporary water service to the customer at no additional cost to the Owner.
- F. The Owner does not guarantee a tight shut-off for existing local community water valves. The Contractor shall not submit a claim for damages due to delays in dewatering pipelines caused by water leaking through an existing closed valve, or having to dewater the excavation while making the connection. It is the Contractor's responsibility to provide the means to dewater the excavation while making the connection

3.8 TESTING FOR SEWER FORCE MAIN

- A. Prior to pressure and leakage tests, the piping shall be thoroughly flushed clean of all dirt, dust, oil, grease and other foreign materials. This work shall be done with care to avoid damage to lining and coatings.
- B. The Contractor shall submit a plan on the method of testing the sewer force main for review to the Engineer. The plan shall include all equipment proposed for use during the work, or the name of the qualified testing company, which will perform the work. Testing of the sewer force main shall not begin until the Engineer has approved the Contractor's plan. All testing shall be done in the presence of the Engineer.
- C. Testing of Sewer Force Main: Refer to Section 02570 for testing requirements.

3.9 TESTING AND DISINFECTION FOR WATER MAIN

- A. Prior to pressure and leakage tests, the piping shall be thoroughly flushed clean of all dirt, dust, oil, grease, and other foreign materials. This work shall be done with care to avoid damage to lining and coatings.
- B. The Contractor shall submit to the Engineer a plan on the method of testing and chlorinating the mains for review. The plan shall include all equipment proposed for use during the work, or the name of the qualified testing company which will perform the work. Testing of the water main shall not begin until the Contractor's plan has been approved by the Engineer. All testing shall be done in the presence of the Engineer.
- C. Testing of Water Main:
 - 1. The Contractor, in accordance with ANSI/AWWA C600 specifications or latest revision thereof, will make all pressure and leakage tests to determine that the ductile iron pipe is structurally safe and free of excess leakage. The Contractor shall furnish all the equipment, materials and labor required for testing. The Contractor shall furnish, at his own expense, all the water needed for all water main testing.
 - 2. Testing shall be done in sections of the main not to exceed a 3,000-foot maximum length. Valves shall be placed in the off position at the ends of the sections to be tested. The Contractor shall provide means to prevent water from entering other parts of the pipeline not subject to testing at all times. Contractor will ensure that air release valves and other venting devices are properly installed and placed in open position when filling pipe with water. Taps shall be installed at high points to release air in the water system.
 - 3. After all entrapped air has been removed from the section; fill the main to the normal static pressure. The Contractor is allowed to let the main rest for up to 48 hours with static pressure. Using a special pressure pump, the Contractor shall raise the pressure to 150 pounds per square inch. The

pump will then be shut off and separated from the test section by a globe valve. A fluid filled pressure gage, with a maximum reading of 250 psi, shall have been placed beyond the globe valve. The test section will then be monitored for a 2-hour period.

4. This pressure shall be maintained, within 5 psi, for a minimum of 2 hours during which time the line checked for leaks by the Engineer. Based on an average test pressure of 150 psi, the measured rate of water leakage shall not exceed the following rates in the section under test:

$$L = \frac{12.25SD}{133,200}$$

Where: L = Allowable leakage, gallons per hour

S = Length of pipe section tested, feet

D = Nominal pipe diameter, inches

5. Should leakage exceed this rate, the Contractor shall immediately locate the leak or leaks and repair same at his expense. Pipe shall be flushed and chlorinated when leakage does not exceed above standard. Approval does not absolve the Contractor from his responsibility if leaks develop within the new main or water services (to curb box) later within the warranty period.

D. Chlorinating and Flushing:

1. The Contractor, in accordance with the latest edition of ANSI/AWWA 651 Standard for Disinfecting Water Mains, shall chlorinate and flush the new water main. Chlorinated water to be flushed from the pipeline shall be de-chlorinated as shown on detail drawings or as approved by the Engineer. It shall then be discharged to the nearest storm drain. Chlorinated water shall not be discharged to any natural water body.
2. Prior to chlorination, the Contractor shall properly flush the water mains. In general, flushing shall be performed at a flow rate required to achieve a minimum velocity of 3 feet per second, which is approximately 400 GPM in an 8-inch diameter main, 600 GPM in a 10-inch main, 900 GPM in a 12-inch main and 1,600 GPM in a 16-inch main. Flushing of the water main, at the above rates, for approximately 20-minutes per 1,000-foot section, will allow for three volume changes. This is a sufficient period of time for successfully cleaning the water main.
3. The Contractor shall chlorinate the water main until the main contains a solution containing 25 mg/L available chlorine. The valves shall then be closed and the chlorinated water allowed to sit in the mains for 24 hours. The main

will then be checked to assure the chlorine residual shall be at least 10 mg/L. If less than 10 mg/L is measured, the Contractor shall flush and re-chlorinate the mains at no cost to the Owner. All valves and hydrants shall be operated to insure their proper disinfection. Valves shall be operated to prevent super chlorinated water from entering the existing distribution system. The Contractor shall then flush the mains until clear, clean water is being discharged.

4. Sixteen hours after the main has been flushed of chlorinated water, bacteriological samples (total coliforms and heterotrophic plate count) shall be taken. Two sample events shall occur. The first sample event from the designated locations shall be taken and the second sample event shall be taken from the same designated locations a minimum of 15 minutes apart. Both sets of samples shall pass. Water samples shall be taken from corporation stops along the length of the water main as designated by the Engineer. A minimum of two (2) samples shall be taken on each street, or two per 3,000 feet of pipe, whichever is greater. Each sample shall be taken in duplicate, in sterile bottles and sent to a State approved private laboratory for analysis. The Contractor shall perform all necessary work including delivery of samples to a certified laboratory, and shall include the cost for sampling and analysis in his bid price. The results of the tests on these samples will determine the acceptance of the work and allow these new mains to be connected to the Town's system. The failure of any sample to pass the laboratory tests shall require the Contractor to reflush and re-chlorinate the mains and resample and test the water until acceptable results are obtained, all at no additional cost to the Owner.
5. If, during construction, trench water has entered the main, or if in the opinion of the Owner's Engineer, excessive quantities of dirt or debris have entered the main, bacteriological samples shall be taken at 200-foot intervals and shall be identified as to location. Additional sample taps shall be installed and removed at the Contractor's expense.
6. Contractor shall note that work under this Contract shall not be considered complete until the satisfactory installation and testing of the water mains have been completed

END OF SECTION 02616

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SECTION 02699 FLEXIBLE FABRIC REINFORCED PIPE (FFRP) SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. This work consists of TV inspection, cleaning and lining the existing 16" diameter concrete lined ductile iron sanitary sewer force main with Flexible Fabric Reinforced Pipe (FFRP); all in accordance with these specifications, the contract drawings, manufacturer's instructions and any other regulatory requirements. This work requires coordination of work between the Owner, the Engineer, and the Contractor.
- B. The FFRP System includes both the FFRP Liner Material, and the FFRP Connectors.
- C. The work shall be done as described in the Drawings.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. Related Sections include the following:
 - 1. Section 02020 – Erosion and Sediment Control
 - 2. Section 02616 – Ductile Iron Pipe

1.3 SUBMITTALS

- A. Submit specifications and shop drawings for materials and equipment furnished under this Section.
- B. Prior to first shipment of FFRP, submit certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM Standards specified herein.
- C. Submit FFRP Installation Certifications from the product manufacturer along with the Bid Form.
- D. Submit CCTV of entire length of host pipe prior to cleaning.
- E. Submit CCTV of the pipeline after cleaning, prior to authorization to line.

1.4 QUALITY ASSURANCE

- A. Each type of FFRP shall be from a single manufacturer.
- B. Inspection of the FFRP will also be made by the Owner after delivery. The FFRP shall be subject to rejection at any time on account of failure to meet any of the Specification requirements. FFRP rejected after delivery shall be marked for identification and shall be immediately removed from the job site.

PART 2 - PRODUCTS

2.1 FFRP Liner Material

- A. The FFRP shall be manufactured by Primus Line, produced in Cham, Germany, or approved equal.
- B. FFRP shall meet the appropriate American National Standards Institute (ANSI) specifications.
- C. Contractor/bidder shall be certified by manufacturer, and shall submit their certifications along with the bid form.
- D. Contractor shall provide references for five similar installations or provide manufacturer's representative tech on site for at least one installation section.
- E. The FFRP system shall consist of three layers:
 - 1. The outer layer shall be made of an abrasion-resistant polyethylene (PE). The outer PE layer shall be UV resistant.
 - 2. The middle (core) layer shall be made of seamless woven Kevlar®, either one or two layers depending on the required pressure. The Kevlar fabric shall be produced from aramid fibres with a seamless, continuous twill.
 - 3. The inner layer shall be made of low density polyethylene (LDPE).
- F. FFRP shall use only virgin material suitable to providing predictable manufactured result.
- G. Technical Information for FFRP Liner

Nominal FFRP Diameter	16-inches	18-inches
Min. Inner Diameter of Host Pipe at Bends	14.57 inches	16.69 inches
Min. Circumferential Clearance around Liner	0.08 inches	0.08 inches
Outer Diameter	13.94 inches	16.06 inches
Inner Diameter	13.46 inches	15.59 inches
Total Wall Thickness	0.24 inches	0.24 inches
Mass	4.1 lbs/ft	4.7 lbs/ft
Maximum Operating Pressure	261 psi	232 psi
Burst Pressure	667 psi	580 psi
Maximum Test Pressure	0°C 32°F 261 psi 15°C 59°F 220 psi 30°C 86°F 174 psi 45°C 113°F 141 psi	0°C 32°F 232 psi 15°C 59°F 196 psi 30°C 86°F 154 psi 45°C 113°F 126 psi
Maximum Flow Velocity	11.680 ft ³ /h	15,659 ft ³ /h
Maximum Flow Rate	9.8 ft/s	9.8 ft/s
Max. Continuous Operation Temperature	122°F	122°F
Maximum Pulling Force	46,556 lb-f	54,277 lb-f

- H. The FFRP shall be clearly marked with the following information:
 - 1. Nominal composite liner diameter
 - 2. Fluid and MOP (Maximum Operating Pressure) for the transported fluid
 - 3. Trade name/trademark
 - 4. Year, Month, and Day of manufacture in the format YYYY.MM.DD
 - 5. FFRP batch number
 - 6. Continuous production run length in feet with the units labelled
- I. For shipment, all FFRPs are spooled onto transport reels. All FFRPs must be handled in accordance to the FFRP Installation Manual.

2.2 FFRP Connectors

- A. FFRP Connectors shall be specially developed termination fittings designated for medium/high pressure systems only.
- B. No low pressure FFRP Connectors will be accepted as part of this work.
- C. FFRP connectors are manufactured from either cast iron, carbon steel or stainless steel. Connectors are both available with flanges or welding ends. While models with welding ends are not coated, models with flanges have a full-surface, high quality powder coating, which provides corrosion protection on all sides. The internal core of the high-pressure connector is made of stainless steel. Flanges used by FFRP comply with either EN 1092, ANSI B16.5 or AS 4087. All connectors preserve the overall integrity and function of the liner.
- D. The FFRP system is designed for high pull-out resistance and in such a way that in the event of a failure damage occurs in the liner wall and not within the fitting/liner assembly.
- E. FFRP system shall be installed in accordance to its comprehensive installation manual.
- F. The medium and high-pressure FFRP Connector shall be made of a dimensionally stable profiled internal core and an external sleeve with a deformable metal jacket form.
- G. Installation shall be made using a two-component resin injected through a valve on the external sleeve, forces the metal jacket and consequently the liner into the contours of the internal core.
- H. Curing time shall be a minimum of 12 hours at 20 °C (68 °F).
- I. Each end of the FFRP Connectors shall be coordinated with the existing host pipe and the connection "spool" pipe segment. Either standard flange or a welded end shall be accepted in coordination with the respective field conditions and connection spool.

PART 3 - EXECUTION

3.1 Suitability of FFRP

- A. FFRP shall be suitable to rehabilitate damaged pressure pipes between 6 inches - 20 inches diameter up to 8,200 feet long.
- B. FFRP shall be of a stable material, suitable for use in a sensitive environments.

3.2 Bend-Traversing Capability

- A. FFRP shall be capable of passing through up to three (3) 45° bends without creasing or folding.
- B. FFRP shall be capable of passing a single 90° bend with approval of the manufacturer.

3.3 Connector Performance

- A. FFRP connectors shall be designed for ease of installation, and shall be without leaks.
- B. FFRP connectors shall provide a pull-proof connection and create a secure assembly onto the host pipe.

3.4 Hydraulic Capacities

- A. The C-factor for the FFRP shall be no greater than 150 at the time of installation.
- B. All layers of the FFRP shall be between 0.24 inches to 0.32 inches thick.
- C. FFRP shall provide a design service life of minimum 50 years.

3.5 Protecting Sensitive and Living Environments

- A. Access pits are required at the beginning and the end of each rehabilitation section.
 - 1. Dimensions of the access pits shall be as shown in the Drawings.
 - 2. Pits to access the host pipe must be freely accessible, free of water and in accordance with the requirements of the FFRP system as well as OSHA requirements.

4. PRODUCT TESTING

4.1 Quality Control

- A. FFRP is subject to a quality control with opto-electronic measurement tools during the entire manufacturing process. An external test lab strictly monitors the adherence to the guidelines of VP 643 required for obtaining the DVGW type approval certificate in half-yearly inspections.

- B. FFRP shall be tested for Short-term Burst Pressure Tests to calculate the associated maximum allowable operating pressure.
- C. FFRP shall be tested for long-term hydrostatic pressures.

5. THE HOST PIPE

5.1 CCTV of Host Pipe Prior to Cleaning

- A. The entire pipe length to be rehabilitated shall be inspected by closed-circuit television (CCTV) prior to cleaning the host pipe and inserting the liner. The camera inspection shall be recorded and the recording submitted to the customer at the end of the project.
- B. Measure and document both the inner and outer diameter of the host pipe as well as the pipe material and general condition as part of the CCTV recording.
- C. CCTV inspection shall include:
 - 1. Inner and outer diameter of host pipe
 - 2. Host pipe material
 - 3. Reductions in cross sections caused by incrustations and obstacles protruding into the cross section (sagging weld seam, roots, tuberculation, protruding flanges, screws, pins, plugs, fittings or sacrificial anodes).
 - 4. Sudden changes in cross section (steps)
 - 5. Direction changes (bends)
- D. CCTV inspection results will be taken as the basis of planning how to clean the pipe. Ideally, the project setup includes a camera inspection of the pipe section to be handled already. Apart from inspecting the pipe, the camera will be used to establish a rope connection between the pits.

5.2 Cleaning the Host Pipe

- A. Host pipe shall be rough cleaned to provide a free inner diameter of the pipe using high water pressure cleaning techniques, or spring steel scrapers and rubber discs.
- B. Pigs shall not be permitted as a cleaning method.
- C. Stationary obstacles (casting defects, sagging weld seam roots, tuberculation, protruding flanges, screws, pins, plugs, fittings or sacrificial anodes, etc.) protruding from the host pipe wall must be removed by removing the pipe section containing the obstacle or by using a milling robot equipped with diamond tools. Weld seams have to be machined until they are perfectly uniform and flat all the way around.

5.3 Inserting of the Liner

- A. The liner shall be folded by the manufacturer. The U-shaped and folded liner shall be spooled onto transport reels (max. outside diameter: 2.5 m (approx. 8.2 feet), drum shaft diameter: 1 m (approx. 3.3 feet) and placed at the starting pit of the section. Depending on the reel weight and length, either unwinding rails or unwinding stations shall be used to unwind the liner from the reels.
- B. A winch shall be placed at the destination pit of the pipe section. From there, the rope of the winch shall be pulled through the host pipe to the pit at the starting point.
 - 1. To navigate bends, either a rope or a pulling head shall be attached to insert the liner. The rope or pulling head shall be connected to the rope of the winch.
- C. An anti-twist device shall be installed between the rope (or pulling head) and the rope of the winch to prevent the liner from twisting while being inserted.
- D. On straight sections, the liner insertion speed shall at no time exceed 32.8 feet per minute.
- E. Through bends, the insertion speed shall at no time exceed 16.4 feet per minute.
- F. Inserting the liner shall be considered complete when at least 9.8 feet of liner protrudes from the destination access pit without tension.

5.4 Inflating the Liner by Means of Compressed Air

- A. Balloons shall be attached to either end of the liner to create a seal. One of the sealing balloons shall include a bypass.
- B. Oil-free compressed air shall be to be blown into the bypass and from there into the liner, creating internal pressure.
- C. The adhesive tape (maintaining the U-shape) shall begin to break at an internal pressure of 0.5 bar (approx. 7.3 psi).
- D. All of the tape shall have been released when the internal liner pressure is 1 bar (approx. 14.5 psi).
- E. After inflating the liner, the liner can be cut to a length of 1 m (approx. 3.3 feet) projecting the host pipe in both the starting and destination pits. The 1 m (approx. 3.3 feet) of projecting end of liner is required to install the connectors.

5.5 Installing the Connectors

- A. A two-piece design of connector shall be used.
- B. The liner shall be mechanically sandwiched between an outer sleeve and a connector core.

- C. The outer sleeve shall have either a flange end to be connected to the flange of the host pipe, or shall be welded to the host pipe.
- D. After attaching the outer sleeve, the liner shall be cut directly at the edge of the sleeve.
- E. Either a flange or a welding end shall be attached to the connector core which shall be inserted in the liner or the outer sleeve. The adapter shall be either screwed or welded to the connector core.
- F. The FFRP Connectors shall provide a permanently sealed connection between the rehabilitated pipe section and the adjoining pipe section.

5.6 Pressure or Leak Test

- A. To perform the pressure or leak test, a blind flange shall be used to close the flange at the connector core. Another option is to use a dished boiler end to close the welding end of the connector core. The connectors need to be safeguarded with reference to the horizontal forces resulting from the test pressure that the sample was exposed to. Any known method of leak-testing metal and non-metal pipes may be used to test the liner.
- B. Liners intended to transport liquids (water, wastewater, or oil) shall be tested by using potable water. Gas liners shall be tested by using compressed air.
- C. Hydrostatic and leakage test shall be conducted in accordance with AWWA Standard C600, and as directed by the Engineer.

END OF SECTION 02060

Colchester, CT
Rapallo Viaduct FM Repair
486-2001

FFRP SYSTEM
02699-8

SECTION 02901 MISCELLANEOUS WORK AND CLEANUP

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required to do the miscellaneous work not specified in other sections but obviously necessary for the proper completion of the work as shown on the Drawings.
- B. When applicable the Contractor shall perform the work in accordance with other sections of this Specification. When no applicable specification exists the Contractor shall perform the work in accordance with the best modern practice and/or as directed by the Engineer.
- C. The work of this Section includes, but is not limited to, the following:
 - 1. Cleaning up.
 - 2. Incidental work.
 - 3. Job photographs, if required.
 - 4. Protection and/or removal and reinstallation of existing manmade features.
 - 5. Protection and bracing of existing bypass piping.
 - 6. Raking and re-seeding of grassed areas disturbed during construction and/or dewatering activities, including silt basin/dewatering activity areas.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials required for this Section shall be the same quality of materials that are to be restored. Where possible, the Contractor may re-use existing materials that are removed.

PART 3 – EXECUTION

3.1 CLEANING UP

- A. The Contractor shall remove all construction material, excess excavation, buildings, equipment and other debris remaining on the job as a result of construction operations and shall restore the site of the work to a neat and orderly condition. Any materials, and sand or concrete materials shall be cleaned from the site. Haybales

and siltfence as well as any silt and debris retained by same shall be removed upon approval from the Engineer.

3.5 INCIDENTAL WORK

- A. Do all incidental work not otherwise specified, but obviously necessary to the proper completion of the Contract as specified and as shown on the Drawings.

3.6 RESTORATION AND REPLACEMENT OF MANMADE FEATURES

- A. Any existing signs, lamp posts, fence posts, fencing, and mailboxes which are found to be on site and may be damaged by the Contractor or removed by the Contractor during the course of construction shall be reinstalled in a proper position at the same location from which they were removed. Damaged items shall be replaced with an item equal to or better than the damaged items. A concrete anchor shall be provided as necessary, at no additional cost, to ensure a rigid alignment if required. Care shall be exercised in the reinstallation of all items to prevent damage to the new construction.

3.7 PROTECTION AND BRACING OF EXISTING BYPASS PIPING

- A. The Contractor shall be responsible for making all arrangements for the bracing and protection of the existing bypass piping that requires support during excavation and construction whether shown on the Drawings or not.

3.8 RAKING AND RE-SEEDING

- A. Grass and landscaped areas disturbed by the Contractor shall be raked and replenished with loam if required. Place topsoil to a minimum depth of 4 inches for areas disturbed by Contractor's construction operations. Spread evenly and grade to elevations and slopes shown. Hand rake areas inaccessible to machine grading. Use all available on-site stockpiled topsoil and supplement with off-site topsoil as required.
- B. Areas shall be re-seeded as directed by the Engineer. Seed mixture shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop and in no case shall the weed seed content exceed 0.25% by weight. The seed shall be furnished and delivered in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer's Certificate of Compliance. Seed that has become wet, moldy or otherwise damaged shall not be accepted.

END OF SECTION 02901

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State Wage Rates

APPENDIX A

Connecticut State Prevailing Wage Rates

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**Minimum Rates and Classifications for
Heavy/Highway Construction**

ID# 21-23211

**Connecticut Department of Labor
Wage and Workplace Standards**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay

Project Number: #2021-03

Project Town: East Hampton

State#: #2021-03

FAP#: East Hampton

Project: Rapallo Viaduct Force Main Repair (East Hampton)

CLASSIFICATION	Hourly	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	36.45	34.44
2) Carpenters, Piledrivermen	35.57	25.65
2a) Diver Tenders	35.57	25.65
3) Divers	44.03	25.65
03a) Millwrights	35.64	26.49
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	52.25	22.55
4a) Painters: Brush and Roller	35.62	22.55
4b) Painters: Spray Only	38.62	22.55
4c) Painters: Steel Only	37.62	22.55
4d) Painters: Blast and Spray	38.62	22.55
4e) Painters: Tanks, Tower and Swing	37.62	22.55

Project: Rapallo Viaduct Force Main Repair (East Hampton)

5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	39.0	29.91+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	37.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	44.63	32.95
----LABORERS----		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.5	23.25
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.75	23.25
10) Group 3: Pipelayers	32.0	23.25
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	32.0	23.25
12) Group 5: Toxic waste removal (non-mechanical systems)	33.5	23.25
13) Group 6: Blasters	33.25	23.25
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.5	23.25
Group 8: Traffic control signalmen	18.0	23.25
Group 9: Hydraulic Drills	32.25	23.25
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	33.73	23.25 + a
13b) Brakemen, Trackmen	32.76	23.25 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		

As of: June 3, 2021

14) Concrete Workers, Form Movers, and Strippers	32.76	23.25 + a
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15) Form Erectors	33.09	23.25 + a
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----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN
FREE AIR:----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.76	23.25 + a
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17) Laborers Topside, Cage Tenders, Bellman	32.65	23.25 + a
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18) Miners	33.73	23.25 + a
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----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----

18a) Blaster	40.22	23.25 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	40.02	23.25 + a
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20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	38.04	23.25 + a
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21) Mucking Machine Operator	40.81	23.25 + a
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----TRUCK DRIVERS----(*see note below)

Two axle trucks	30.16	27.16 + a
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Three axle trucks; two axle ready mix	30.27	27.16 + a
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Three axle ready mix	30.33	27.16 + a
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Four axle trucks, heavy duty trailer (up to 40 tons)	30.39	27.16 + a
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Four axle ready-mix	30.44	27.16 + a
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Heavy duty trailer (40 tons and over)	30.66	27.16 + a
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Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.44	27.16 + a
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----POWER EQUIPMENT OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	43.88	25.80 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	43.53	25.80 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	42.72	25.80 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	42.3	25.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24	41.65	25.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	41.65	25.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	41.31	25.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	40.94	25.80 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	40.51	25.80 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	40.04	25.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	37.81	25.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	37.81	25.80 + a

Project: Rapallo Viaduct Force Main Repair (East Hampton)

Group 12: Wellpoint Operator.	37.74	25.80 + a
Group 13: Compressor Battery Operator.	37.11	25.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	35.87	25.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	35.43	25.80 + a
Group 16: Maintenance Engineer/Oiler	34.72	25.80 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	39.42	25.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	36.77	25.80 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)---

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20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76

----LINE CONSTRUCTION----

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.1	6.5% + 10.70

As of: June 3, 2021

Project: Rapallo Viaduct Force Main Repair (East Hampton)

27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
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28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45
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As of: June 3, 2021

Project: Rapallo Viaduct Force Main Repair (East Hampton)

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)*
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson*

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

As of: June 3, 2021

Project: Rapallo Viaduct Force Main Repair (East Hampton)

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

Important Information:

For use with Building, Heavy/Highway, and Residential

Welders: Rate for craft to which welding is incidental.

*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

**Note: Hazardous waste premium \$3.00 per hour over classified rate.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
- 3) Cranes (under 100 ton rated capacity)

Crane with boom including jib, 150 feet - \$1.50 extra.

Crane with boom including jib, 200 feet - \$2.50 extra.

Crane with boom including jib, 250 feet - \$5.00 extra.

Crane with boom including jib, 300 feet - \$7.00 extra.

Crane with boom including jib, 400 feet - \$10.00 extra.

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

- Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of one apprentice in a specific trade.

Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work

- The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
- Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
- The annual adjustments will be posted on the Department of Labor's Web page: www.ctdol.state.ct.us.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
- All subsequent annual adjustments will be posted on our Web Site for contractor access.

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- Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.



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