Contract and Specifications for Sewer Interceptor Rehabilitation

Bid 2018-026

Town of Salem

August 10, 2018

SALEM PURCHASING
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TABLE OF CONTENTS

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

A. BIDDING REQUIREMENTS

Invitation to Bid
Instructions to Bidders
Bid
Statement of Bidders Qualifications
Bid Bond (EJCDC C-430)

B. CONTRACT

Agreement
Notice of Award
Notice to Proceed (EJCDC 1910-23)
Construction Performance Bond (EJCDC C-615)
Construction Payment Bond (EJCDC C-620)
Warranty Bond
Certificate of Substantial Completion

C. GENERAL CONDITIONS

General Conditions (EJCDC C-700)
Supplementary Conditions
Work Change Directive (EJCDC C-940)
Change Order (EJCDC C-941)

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

Section	Title	Page
01010	Summary of Work	01010-1
01025	Measurement and Payment	01025-1
01300	Submittal Procedures	01300-1
01518	Bypass Pumping	01518-1

DIVISION 2 – SITE WORK

Section	Title	Page
02011	Sewer Data	02011-1
02761	Sewer Cleaning	02761-1
02762	TV Inspection	02762-1
02766	Sewer CIPP Lining	02766-1

APPENDICES

Appendix A	CCTV Findings Plan Sheet
Appendix B	Sewer Inspection Logs
Appendix C	NHDOT Access Permit Forms
Appendix D	Wetlands Utility Maintenance Notification

DIVISION 0
BIDDING AND CONTRACT REQUIREMENTS

INVITATION TO BID

Sewer Interceptor Rehabilitation
(Bid No. 2018-026)

Sealed Bids for the Town of Salem, NH, Sewer Interceptor Rehabilitation will be received at the office of the Purchasing Agent, Town Hall, 33 Geremonty Drive, Salem, NH until **11:00 am on August 30, 2018**, at which place and time Bids will be publicly opened and read aloud in the Knightly Meeting Room.

This work includes a base bid consisting of rehabilitation of approximately 530 LF of 15-inch Sewer Interceptor by means of UV-cured Cast In Place Pipe (CIPP) liner including securing a NHDOT Temporary Use Agreement to work in the rail corridor. An Additive Alternate is also included to line an additional 1,030 LF of 15-inch Sewer Interceptor by UV-cured CIPP.

Contract Documents may be obtained from the Town's purchasing website at http://www.townofsalemnh.org/purchasing/pages/current-bids-proposals-and-awards on or after **August 10, 2017**. Complete instructions for submitting Bids are included in the Instructions to Bidders.

An optional pre-bid conference will be held in the Knightly Meeting Room at **2:00 pm on August 22, 2018.** Representatives of the Owner will be present to discuss the Project. A field walk of the project site will be conducted at the conclusion of the pre-bid conference. Owner will post Addenda on the purchasing website 2-days (min.) prior to the bid opening, as Owner considers necessary in response to questions arising at the conference.

Each bid shall be accompanied by a bid security in the form of a certified treasurer's or cashier's check or bid bond in the sum of five (5) percent of the Bid Price. Successful bidder must furnish 100 percent Construction Performance and Payment Bonds and a $50,000 2-year Warranty Bond.

Substantial contract completion shall be as proposed by the bidder, but not later than **October 31, 2018**. Final completion shall be **30 days** after Substantial Completion.

The Owner reserves the right to reject any or all Bids, should it deem it to be in the public interest to do so.

SECTION 00100

INSTRUCTIONS TO BIDDERS

Article 1. Receipt and Opening of Bids
Article 2. Deposit on Drawings and Documents
Article 3. Ability and Experience of Bidder
Article 4. Information not Guaranteed
Article 5. Subsurface Investigation
Article 6. Easements
Article 7. Other Contracts
Article 8. Bidders to Investigate
Article 9. Questions Regarding Drawings and Documents
Article 10. Blank Form for Bid
Article 11. Subcontractors
Article 12. Alternates
Article 13. Bid Security
Article 14. Withdrawal of Bids
Article 15. Right to Reject Bids
Article 16. Comparison of Bids
Article 17. Reduction in Scope of Work
Article 18. Contract Bonds
Article 19. Execution of Agreement
Article 20. Insurance Certificates
Article 21. Sales and Use Tax
Article 22. Safety and Health Regulations
Article 23. Pre-Bid Conference
Article 24. Basis of Award

1. RECEIPT AND OPENING OF BIDS

1.1 Sealed Bids for the work of this Contract will be received at the time and place indicated in the Invitation to Bid. Sealed envelopes containing the bids shall be addressed to the OWNER, and designated as: **PROPOSAL FOR SEWER INTERCEPTOR REHABILITATION (Bid No. 2018-026).**

1.2 OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof.

1.3 Bidders are cautioned that it is the responsibility of each individual Bidder to assure that his Bid is in the possession of the responsible official or his designated alternate prior to the stated time and at the place of the Bid opening. Owner is not responsible for Bids delayed by mail and/or delivery services, of any nature.

1.4 If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope and addressed to the Purchasing Agent at the address provided in the Invitation to Bid and the contents of the envelope clearly marked.

2. DEPOSIT ON DRAWINGS AND DOCUMENTS (NOT USED)

3. ABILITY AND EXPERIENCE OF BIDDER

3.1 No award will be made to any Bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time named. The Owner's decision or judgment on these matters shall be final, conclusive, and binding.

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

3.3 Bidders must submit a completed Statement of Bidders Qualifications with the Bid. Failure to submit a completed Statement of Bidders Qualifications may be deemed by the Owner as a non-responsive Bid. Refer to Section 00420.

4. INFORMATION NOT GUARANTEED

4.1 All information given in the Contract Documents relating to on-site or off-site subsurface and other conditions, natural phenomena, existing pipes, foundations and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of Bidders and is not guaranteed to be accurate or all inclusive.

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

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

5. SUBSURFACE INVESTIGATION

5.1 NOT USED

5.2 The Contractor shall become familiar with the existing physical conditions and limits of work at the project site. Site familiarity shall extend to any

adjacent condition or physical constraint which, could impact the Contractor's prosecution of work during construction activities. Before submitting a Bid, Bidders may, at their own expense and with permission of the Owner, make such additional investigations and tests as they may deem necessary to determine the Bid for performance of the work in accordance with the time, price and other terms and conditions of the Contract Documents,

5.3 The submission of a Bid will constitute an incontrovertible representation that the Bidder has complied with every requirement of this Article 5 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.

6. EASEMENTS

6.1 Where indicated in the Contract Documents, a portion of the work will be located in easements through private property obtained or which will be obtained by the Owner.

6.2 On all other lands, the Contractor has no rights unless he obtains written agreements for them from the proper parties. Copies of agreements shall be provided to the Owner prior to entry onto those lands.

6.3 The Contractor shall not work on property requiring obtaining of an easement until the Owner has obtained the necessary easements.

6.4 The Contractor shall have no claim for additional compensation or damage on account of any delay in obtaining the necessary easements.

7. OTHER CONTRACTS

7.1 It is essential that all parties interested in the project cooperate to the end that the entire project will be brought to a successful conclusion as rapidly as possible, but the Owner cannot guarantee that no interference or delay will be caused thereby. Interference and delay resulting from such cooperation shall not be the basis of claims against the Owner.

7.2 In as much as the Owner will be undertaking other construction near this project, Bidders should anticipate coordinating their efforts with the following potential near-by construction projects:

- Salem 40432 – Bicycle Pedestrian Corridor Phase 2 (Busby Construction)

8. BIDDERS TO INVESTIGATE

8.1 Bidders must satisfy themselves by personal examination of the site of the Work and by such other means as they may wish, as to the actual

conditions there existing, the character and requirements of the Work, the difficulties attendant upon its execution, and the accuracy of all estimated quantities stated in the Bid.

9. QUESTIONS REGARDING DRAWINGS AND DOCUMENTS

9.1 In general, no answer will be given to prospective Bidders in reply to an oral question if the question involves an interpretation of the intent or meaning of the Contract Documents, or the equality or use of products or methods other than those designated or described in the Contract Documents. Any information given to Bidders other than by means of the Drawings and other Contract Documents, including Addenda, as described below, is given informally, for information and the convenience of the Bidder only and is not guaranteed. The Bidder agrees that such information shall not be used as the basis of nor shall the giving of any such information entitle the Bidder to assert any claim or demand against the Owner or the Engineer on account thereof.

9.2 To receive consideration, questions shall be submitted in writing to the Owner at least seven days before the established date for receipt of Bids.

9.3 The Owner will neither approve nor disapprove particular products prior to the opening of Bids; such products will be considered when offered by the Contractor for incorporation into the Work in accordance with the requirements of Section 01300.

9.4 The Owner will set forth as Addenda, which shall become a part of the Contract Documents, such questions received as above provided as in its sole judgment are appropriate or necessary and its decision regarding each. At least two days prior to the receipt of Bids, the Owner will post these Addenda on the Town's purchasing website (http://www.townofsalemnh.org/purchasing/pages/current-bids-proposals-and-awards) and provide copies to those prospective Bidders and parties known to have taken out sets of the Contract Documents.

9.5 The Contractor agrees to use and base his/her Bid on the products and methods designated or described in the Specifications as amended by the Addenda.

10. BLANK FORM FOR BID

10.1 All Bids must be upon the blank form for Bid annexed hereto, state the proposed price of each item of the Work, both in words and in figures, and be signed by the Bidder with his business address. Bidders must bid on each item. All entries in the entire BID must be made clearly and in ink. In case of discrepancy between prices in words and in figures, the words shall govern. In case of discrepancy between the product obtained by multiplying the estimated quantity by the unit price, and the extended amount, the product obtained shall govern. In case of discrepancy

between total of extended amounts and total amount of bid stated, total of items shall govern.

11. SUBCONTRACTORS

11.1 The Bidder is advised that any person, firm, supplier, or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner. Failure to do so will result in a bid that is incomplete and may be rejected by the Owner.

11.2 The low Bidder shall supply the names and addresses of major material and equipment suppliers when requested to do so by the Owner.

11.3 All Bids shall include a listing of Subcontractors that are anticipated to be awarded a subcontract under this contract, and shall identify what work the listed subcontractor will be performing.

12. BASE BID AND ALTERNATES

12.1 This project includes one (1) base bid section and zero (0) alternates.

13. BID SECURITY

13.1 Each Bid must be accompanied by a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company and payable to the order of the Owner or by a Bid Bond prepared on the form of Bid Bond attached hereto duly executed and acknowledged by the Bidder, as Principal, and by a surety company qualified to do business in The State of New Hampshire and satisfactory to the Owner, as Surety. The check or Bid Bond shall be in the sum of 5% of the Bid amount and shall be enclosed in the sealed envelope containing the Bid.

13.2 Each such check or Bid Bond may be held by the Owner as security for the fulfillment of the Bidder's agreements as hereinabove set forth and as set forth in the Bid. Should the Bidder fail to fulfill such agreements his Bid check shall become the property of the Owner or if a Bid Bond was furnished the Bid Bond shall become payable to the Owner, as liquidated damages; otherwise, the Bid check shall be returned to the Bidder as hereinafter provided, or if the security is a Bid Bond, the Bid Bond shall become null and void.

13.3 Bid security’s will be returned to all except the three lowest Bidders within five business days after the opening of Bids, and to the three lowest Bidders within five business days after the Owner and the accepted Bidder have executed the AGREEMENT. In the event that the AGREEMENT has not been executed by both the accepted Bidder and the Owner within 90 consecutive days after the opening of Bids, the Bid security will be returned promptly upon demand of any Bidder who has not been notified of the acceptance of his Bid.

13.4 Bid security's accompanying Bids which are rejected will be returned within five business days after rejection.

13.5 None of the three lowest Bids shall be deemed rejected, notwithstanding acceptance of any Bid, until the AGREEMENT has been executed by both the Owner and the accepted Bidder.

14. WITHDRAWAL OF BIDS

14.1 Except as hereinafter in this subsection otherwise expressly provided, once his Bid is submitted and received by the Owner for consideration and comparison with other Bids similarly submitted, the Bidder agrees that he may not and will not withdraw it within 90 calendar days after the actual date of the opening of Bids.

14.2 Upon proper written request and identification, Bids may be withdrawn only as follows:

1. At any time prior to the designated time for the opening of Bids.

2. Provided the Bid has not theretofore been accepted by the Owner, at any time subsequent to the expiration of the period during which the Bidder has agreed not to withdraw his Bid.

14.3 Unless a Bid is withdrawn as provided above, the Bidder agrees that it shall be deemed open for acceptance until the AGREEMENT has been executed by both parties thereto or until the Owner notifies a Bidder in writing that his Bid is rejected or that the Owner does not intend to accept it, or returns his Bid deposit. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

15. RIGHT TO REJECT BIDS

15.1 Not Used

15.2 The Owner reserves the right to reject any or all Bids, should the Owner deem it to be in the public interest to do so

15.3 The Owner may reject Bids which in its sole judgment are incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, or the Owner may waive such omissions, conditions or irregularities.

15.4 The Owner may reject Bids which in its sole judgment are unbalanced to the potential detriment of the Owner. An unbalanced bid is defined as a bid that generates reasonable doubt that award to the Bidder will result in the lowest ultimate cost to the Town of Salem or a bid that contains lump sum or unit items that do not reflect reasonable costs plus a reasonable

proportionate share of the bidder's anticipated profit, overhead costs and other interests.

15.5 If, at the time this contract is to be awarded, all Bids submitted by responsible Bidders exceed the amount of the funds available to finance the contract, the Owner may reject all bids or take any other action deemed to be in the best interest of the Owner.

16. COMPARISON OF BIDS

16.1 The Owner agrees to examine and consider each Bid submitted in consideration of the Bidder's agreements, as hereinabove set forth and as set forth in the Bid.

17. REDUCTION IN SCOPE OF WORK (NOT USED)

18. CONTRACT BONDS

18.1 The Bidder whose Bid is accepted agrees to furnish the Contract Bonds in the forms which follow in Section No. 00615 Performance Bond and Section 00620 Payment Bond, each in the sum of the full amount of the Contract and Section 00621 Warranty Bond in the sum of Fifty Thousand Dollars ($50,000.00) all duly executed by the said Bidder as Principal and by a surety company qualified to do business under the laws of the State of New Hampshire and satisfactory to the Owner, as Surety, for the faithful performance of the Contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.

19. EXECUTION OF AGREEMENT

19.1 The Bidder whose Bid is accepted will be required and agrees to duly execute the AGREEMENT and furnish the required Contract Bonds within the time limit stated in the Bid after notification that the AGREEMENT is ready for signature.

20. INSURANCE CERTIFICATES

20.1 The Contractor will not be permitted to start any construction work or layout or deliver materials and equipment to the site until he has submitted certificates covering all insurances called for under Supplementary Conditions.

21. SALES AND USE TAX (NOT USED)

22. SAFETY AND HEALTH REGULATIONS

22.1 This project is subject to all of the Safety and Health 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.

23. PRE-BID CONFERENCE

23.1 A pre-Bid conference may be held by the Owner at a time and location indicated in the Invitation to Bid. Representatives of the Owner will be present to discuss the Project. Owner will transmit to all prospective Bidders of record such Addenda, as Owner considers necessary in response to questions arising at the conference. Oral statements made at the pre-Bid conference may not be relied upon and will not be binding or legally effective.

24. BASIS OF AWARD

24.1 The Owner reserves the right to award the contract to a Bidder that is not the lowest responsible and responsive Bidder. Although the Bid price will be a substantial factor in the Owner's award, the final award will be based on the Owner's determination, in its sole discretion, of which Bid will be in the best interest of the Owner.

24.2 The Owner will evaluate the Bid price submitted by Bidders based on unit prices and any combination of the total base bid and add or deduct alternative amounts in such a manner as is deemed to be in the best interests of the Owner.

END OF SECTION 00100

SECTION 00301A

BID

To the Town of Salem, New Hampshire, herein called the Owner, acting by and through its Engineering Division, for the Sewer interceptor Rehabilitation.

The Undersigned, as bidder, herein referred to as singular and masculine, declares as follows:

(1) The only parties interested in this BID as Principals are named herein;

(2) This BID is made without collusion with any other person, firm, or corporation;

(3) No officer, agent, or employee of the Owner is directly or indirectly interested in this BID;

(4) He has carefully examined the site and adjacent areas of the proposed Work and fully informed and satisfied himself as to the conditions and restraints existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution given said conditions and restraints, and the accuracy of all estimated quantities stated in this BID, and he has carefully read and examined the Contract Documents therein referred to and knows and understands the terms and provisions thereof;

(5) He understands that information relative to subsurface and other conditions, natural phenomena, existing pipes, foundations, 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, foundations, and other structures (surface and/or subsurface) actually encountered will be the same as those shown in the Contract Documents and he agrees that he 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, foundations, and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this BID;

(6) He understands that protection of public or private property is the Contractor's responsibility and any damage, whether in or out of the work limit, to any public or private property, facility, structure or utility resulting from any action of his in the prosecution of work shall be his sole burden to correct to the fullest satisfaction of the owner of such public or private property, facility, structure or utility. He understands that no additional compensation of any kind is warranted or will be granted for any damage to any public or private property, facility, structure or utility damaged as a result of his prosecution of any work;

(7) he understands that the quantities of work tabulated in this BID or indicated in the Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer;

(8) he agrees that, if this BID is accepted he 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 he 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 he will take in full payment therefore the lump sum or unit price applicable to each item of the Work as stated in the schedule below.

Note: Bidders must submit a completed Statement of Bidders Qualifications with the Bid. Failure to submit a completed Statement of Bidders Qualifications may be deemed by the Owner as a non-responsive Bid. Refer to Section 00420.

Note: Bidders must bid on each item. All entries in the entire BID must be made clearly and in ink. In case of discrepancy between prices in writing and in figures, the writing shall govern. In case of discrepancy between the product obtained by multiplying the estimated quantity by the unit price, and the extended amount, the product obtained shall govern. In case of discrepancy between total of extended amounts and total amount of bid stated, total of items shall govern. Use the pages in this document when submitting proposal and submit contract documents intact.

This BID includes Addenda number(s) _____ (To be filled in by Bidder if Addenda are issued.)

The undersigned agrees that extra work, if any, performed in accordance with the Article 10 of the General Conditions of the Contract will be paid for in accordance with Article 11 of the General Conditions of the Contract.

If this BID is accepted by the Owner, the undersigned agrees to complete the entire work provided to be done under the Contract within the time stipulated in the AGREEMENT.

As provided in the INSTRUCTIONS TO BIDDERS, the bidder hereby agrees that he will not withdraw this BID for a period of 90 days after the actual date of the opening of the Bid 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 after notification that the AGREEMENT and other Contract Documents are ready for signature.

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 security 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 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.

The undersigned further certifies under 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 paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The attached CERTIFICATE OF NON-COLLUSION must be signed and submitted as part of the Bid Proposal.

(SEAL)_____
(Name of Bidder)

By _____
(Signature and title of authorized representative)

_____
(Telephone)

_____
(Business address)

_____
(Fax Number)

_____
(City and State)

Date _____

The bidder is a corporation incorporated in the State (or Commonwealth) of _____ - a partnership - an individual. (Bidder must add and delete as necessary to make this sentence read correctly.)

Note: If the bidder is a corporation, affix corporate seal and give below the names of its president, treasurer, and general manager if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address if different from business address.

_____

_____

_____

CERTIFICATE OF NON-COLLUSION

By submission of this Proposal, the bidder and each person signing on behalf of the bidder, certifies as to its own organization, under penalty of perjury, that to the best of their knowledge and belief:

1. The prices in this Bid Proposal have been arrived at independently without collusion, consultation, communication, or agreement with any other bidder or with any competitor for the purpose of restricting competition.

2. Unless required by law, the prices that have been quoted in this Bid Proposal have not been knowingly disclosed and will not knowingly be disclosed by the bidder, directly or indirectly, to any other bidder or competitor prior to opening of Proposals.

3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.

4. The signers of the Proposal hereby tender to the Owner this sworn statement that the named Contractor(s) has not, whether directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action to restrain free competitive bidding in connection with this Proposal.

A Bid Proposal will not be considered for award nor will any award be made where there has not been compliance with the statements in the certification above.

_____
(Name of person signing bid or proposal)

_____
(Name of business)

END OF SECTION 00301A

CONTRACTOR'S BID SCHEDULE

Base Bid:

Item No.	Est. Quantity	Units	Item Description (and Unit Price in written words)		Unit Price		Amount
1	1	LS	Mobilization, Permits, and Bonds (Not to exceed 20% of base bid): _____ Dollars and _____ Cents per	LS		LS	
2	530	LF	UV-Cure CIPP Line 15" Sewer Interceptor Pipe including bypass pumping, CCTV inspection, and all appurtinences: _____ Dollars and _____ Cents per	LF		LF	

Total Base Bid $

Additive Alternate No. 1:

Item No.	Est. Quantity	Units	Item Description (and Unit Price in written words)		Unit Price		Amount
A1	1030	LF	UV-Cure CIPP Line 15" Sewer Interceptor Pipe including bypass pumping, CCTV inspection, and all appurtinences: _____ Dollars and _____ Cents per	LF		LF	

Total Add. Alt. No. 1 $

Project Start Date: _____

Substantial Completion Date: _____

Final Completion Date: _____

Name of Contractor: _____ **Date:** _____

Notes to Bidders:

1. The owner reserves the right to waive any informalities or minor defects or reject any and all bids and to take any other action that is in the best interest of the Town.

SECTION 00420

STATEMENT OF BIDDERS QUALIFICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes information related to the Contractor's qualifications to complete the work in accordance with the Specifications.

B. List all Subcontractor's that you propose to use, with a brief description of their qualifications in Section 1.6.

C. Refer to Document 00100 - Instructions to Bidders for additional requirements in completing this form.

1.2 GENERAL INFORMATION

A. Name: _____

Principal Office Address: _____

_____

Telephone: _____

B. If a Corporation, answer this:

When incorporated: _____

In what State? _____

Director's names (s) _____

_____

_____

President's Name: _____

Vice President's Name: _____

Secretary's Name: _____

Treasurer's Name: _____

C. If a partnership, answer this:

Date of Organization: _____

State whether partnership is general or limited: _____

Name and Address of Partners: _____

_____

_____

1.3 QUALIFICATIONS

To demonstrate Contractor's qualifications to perform the Work, within five days of OWNER's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

A. Each Bid must contain evidence of the Contractor's qualification to do business in the State of New Hampshire or covenant to obtain such qualifications prior to award of the contract. The following shall be provided upon request:

1. Latest Financial Statement
2. Additional Bank References
3. Contact information for Client References

B. If the Contractor is pre-qualified for work by the New Hampshire Department of Transportation and/or the New Hampshire Department of Environmental Services, then please state so in the Bid.

C. No award will be made to any Contractor who cannot meet all of the following requirements:

1. Contractor shall have not defaulted nor turned work over to the bonding company on any contract within three (3) years prior to bid date.
2. Contractor shall maintain a permanent place of business.
3. Contractor shall have adequate personnel and equipment to perform the work expeditiously and within the required time limits established by the contract.
4. Contractor shall have suitable financial status to meet obligations incidental to the work.
5. Contractor shall have the appropriate technical expertise satisfactory to the OWNER and the ENGINEER in the class of work involved.
6. Contractor shall be registered with the Secretary of State to do business in New Hampshire.

7. Contractor shall have performed to the satisfaction of the ENGINEER on previous contracts of a similar nature.
8. Contractor shall not have failed to complete previous contracts on time except for approved extensions of a contract.

1.4 EXPERIENCE

A. How many years has your organization been in business as contractor under your present business name? _____

B. What are the prior names of organization? _____

_____

_____

C. How many years experience in this type of construction work has your organization had as a contractor? _____ As a Sub-Contractor? _____

D. List below the recent projects your organization has completed.

	Contract Amount	Project Title	Owner	When Completed
1.				
2.				
3.				
4.				
5.				

Name, Address and Phone Number of References for respective projects listed above:

1. _____
2. _____
3. _____
4. _____
5. _____

Any other references: _____

_____

_____

E. Have you ever failed to complete any work awarded to you? _____

If yes, give name of OWNER, name of Bonding Company and circumstances: __

_____

_____

1.6 SUBCONTRACTOR INFORMATION

List all Subcontractors you propose to use on this project. Provide a brief description of the qualifications of each proposed subcontractor, and the type of work that they will be performing.

A. Name and address of Subcontractor:

_____

_____

Qualifications of Subcontractor and type of work to be performed:

_____

_____

_____

B. Name and address of Subcontractor:

_____

_____

Qualifications of Subcontractor and type of work to be performed:

_____

_____

_____

(use additional sheets as needed; the number of attached sheets herewith is__)

1.7 CERTIFICATION

I hereby certify that the information submitted herewith, including any attachment, is true to the best of my knowledge and belief.

_____
Firm Name

By:_____
Signature

Title:_____

Date:_____

END OF SECTION 00420

BID BOND

BIDDER (Name and Address):

_____
_____
_____

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

_____
_____
_____

OWNER (Name and Address):

_____
_____
_____

BID

BID DUE DATE: _____

PROJECT (Brief Description Including Location):

_____
_____
_____

BOND

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____ _____

(Words) (Figures)

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

BIDDER	SURETY
_____(Seal)	_____(Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest: _____	Attest: _____
Signature and Title	Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, Agent, OWNER or other party shall be considered plural where applicable.

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

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

3. This obligation shall be null and void if:

3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or

3.2. All Bids are rejected by OWNER, or

3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

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

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

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

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

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

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

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

Town of Salem, New Hampshire
33 Geremonty Drive, Salem, New Hampshire 03079
tel: (603) 890-2033 fax: (603) 898-1223

Sewer Interceptor Rehabilitation Project

AGREEMENT

SECTION 00500B

INDEX

ARTICLE 1 WORK

ARTICLE 2 ENGINEER

ARTICLE 3 CONTRACT TIMES

ARTICLE 4 CONTRACT PRICE

ARTICLE 5 PAYMENT PROCEDURES

ARTICLE 6 INTEREST

ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

ARTICLE 8 CONTRACT DOCUMENTS

ARTICLE 9 MISCELLANEOUS

SECTION 00500B

TOWN OF SALEM, NEW HAMPSHIRE
Sewer Interceptor Rehabilitation Project

THIS AGREEMENT is dated as of the ____ day of _____ in the year 2018 by and between the Town of Salem, New Hampshire acting by and through its Board of Selectmen 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, agrees 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.

The project for which the Work under the Contract Documents may be the whole or only a part is generally as described as follows: Sewer Interceptor Rehabilitation Project includes one (1) base bid section and one (1) additive alternate section; following the requirements of the Standard General Conditions of the Construction Contract by EJCDC and this AGREEMENT.

ARTICLE 2. ENGINEER

Underwood Engineers, Inc. is the ENGINEER, and shall act as OWNER'S representative, 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 The work, will be substantially completed by **the date specified by the CONTRACTOR in his bid,** and all work under the project will be completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions by **30 days from substantial completion.**

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. 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 One Thousand Dollars ($1,000.00) for each calendar day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the time specified in paragraph 3.1 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER Four Hundred Dollars ($400.00) for each calendar day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.

ARTICLE 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completed and accepted Work in accordance with the Contract Documents; an amount in current funds equal to sum of the product of units completed and unit prices stipulated in the CONTRACTOR's BID.

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 OWNER as provided in the General Conditions.

5.1 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, each month during construction as provided in paragraphs 5.1.1, 5.1.2 and 5.2 below. All such payments will be measured by the schedule of values established in paragraph 2.07 of the General Conditions (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.

5.1.1 Prior to Substantial Completion, progress payments will be made in an amount equal to 85 percent of Work which has been completed in a satisfactory manner (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 14.02.B.5 of the General Conditions.

5.1.2 Upon Substantial Completion, progress payments will be in an amount sufficient to increase total payments to CONTRACTOR to 95% of the Contract Price, less such amounts as ENGINEER shall determine, or OWNER may withhold in accordance with paragraph 14.02.B.5 of the GENERAL CONDITIONS.

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

ARTICLE 6. INTEREST (NOT USED)

ARTICLE 7. CONTRACTOR'S REPRESENTATIONS

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

7.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in Article 8) and the other related data identified in the Bidding Documents including "technical data."

7.2 CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local, and site conditions, including conditions and features adjacent to the work limit, that may affect cost, progress, performance, or furnishing of the Work.

7.3 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.

7.4 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.

7.5 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.

7.6 CONTRACTOR has given OWNER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by OWNER 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 8. CONTRACT DOCUMENTS

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

8.1 Invitation to Bid.

8.2 Instructions to Bidders.

8.3 CONTRACTOR's Bid.

8.4 Statement of Bidders Qualifications

8.5 This Agreement.

8.6 Exhibits to this Agreement

8.7 Performance, Payment, Warranty, and other Bonds.

8.8 General Conditions EJCDC Document, 2002 edition.

8.9 Supplementary Conditions.

8.10 Division 1 General Requirements.

8.11 Technical Specifications, Special Attentions, Supplemental Specifications, Special Provisions as listed in the Table of Contents thereof.

8.12 Figures and Details in Appendices of Specifications, as follows:

Appendix A CCTV Findings Plan Sheet

Appendix B Sewer Inspection Logs

Appendix C NHDOT Access Permit Forms

Appendix D Wetlands Utility Maintenance Notification

8.13 Addenda numbers ___ to ___, inclusive.

8.14 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 3.04 of the General Conditions.

8.15 NOT USED

ARTICLE 9. MISCELLANEOUS

9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

9.2 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.

9.3 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.

9.4 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.

9.5 The OWNER reserves the right to reject any SUBCONTRACTOR or SUPPLIER employed or used by the CONTRACTOR if the Owner deems the person, firm, supplier, or other party unacceptable.

9.6 The Contractor shall provide a Warranty Bond in accordance with Section 00621 in the penal sum of Fifty Thousand Dollars ($50,000.00). The project warranty term shall be for two (2) years from the date which final payment is made.

IN WITNESS WHEREOF, OWNER AND CONTRACTOR have signed this Agreement in triplicate. Counterparts have been delivered to OWNER(2) and CONTRACTOR(1). All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 2018 _ (which is the Effective Date of the Agreement).

OWNER: Town of Salem, New Hampshire

Name: Christopher A. Dillon
By: _____
Town Manager

Attest: _____

Address: 33 Geremonty Drive
Salem, NH 03079

_____

CONTRACTOR: _____

Name: _____
By: _____
[CORPORATE SEAL]

Attest: _____

Address: _____

_____

License No. _____

Agent for service of process: _____

(If CONTRACTOR is a corporation, attach Evidence of authority to sign.)

Notice of Award

Date: _____

Project: Sewer Interceptor Rehabilitation Project	
Owner: Town of Salem	Owner's Contract No.: 2018-026
Contract: Sewer Interceptor Rehabilitation Project	Engineer's Project No.: 2308
Bidder:	
Bidder's Address:	

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for the work identified below:

The work shall be as indicated in the specifications and plans entitled Sewer Interceptor Rehabilitation dated August 2018 .

The Contract Price of your Contract is _____ which price includes the _____.

Three (3) copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

Two (2) sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [10] days of the date you receive this Notice of Award.

1. Deliver to the Owner Three (3) copies of fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:

   _____

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Town of Salem, New Hampshire
Owner

By:_____
Authorized Signature

Christopher A. Dillon, Town Manager
Title

Copy to Engineer

NOTICE TO PROCEED

Dated _____

To: _____

_____

_____

Project: Sewer Interceptor Rehabilitation

Contract: _____

OWNER'S CONTRACT NO. _____

You are noticed that the Contract Times under the above contract will commence to run on _____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____.

Before you may start Work at the Site you must, paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to the Engineer and other identified additional insured's) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents

Also, before you may start any activity at the Site you must

1. Provide a schedule for review within seven (7) days of the commencement date above.

By: _____
(OWNER)

_____
(AUTHORIZED SIGNATURE)

_____
(TITLE)

copy to ENGINEER

Town of Salem Engineering Division

1. (Use Certified Mail, Return Receipt Requested)

Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Associated General Contractors of America and the Construction Specifications Institute

Construction Performance Bond

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

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

BOND
Bond Number:
Date (Not earlier than Contract Date):
Amount:
Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

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

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

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. C-615
Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:

3.1. The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below, that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER'S right, if any, subsequently to declare a CONTRACTOR Default; and

3.2. The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR'S right to complete the Contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3.1; and

3.3. The OWNER has agreed to pay the Balance of the Contract Price to:

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

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

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

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

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

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

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

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

4.4.2 Deny liability in whole or in part and notify the OWNER citing reasons therefore.

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

6. After the OWNER has terminated the CONTRACTOR'S right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:

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

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

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

7. The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

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

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

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

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

12. Definitions.

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

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

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

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

Construction Payment Bond

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

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

BOND
Date (Not earlier than Contract Date):
Amount:
Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

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

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

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature: _____
Name and Title:

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to the OWNER, this obligation shall be null and void if the CONTRACTOR:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies and holds harmless the OWNER from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety, and provided there is no OWNER Default.

3. With respect to Claimants, this obligation shall be null and void if the CONTRACTOR promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the Surety (at the addresses described in paragraph 12) and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with the CONTRACTOR:

1. Have furnished written notice to the CONTRACTOR and sent a copy, or notice thereof, to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from the CONTRACTOR, or not received within 30 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to the Surety and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.

5. If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety, that is sufficient compliance.

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

6.1. Send an answer to the Claimant, with a copy to the OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

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

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

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

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

12. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the OWNER or the CONTRACTOR, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

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

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

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR'S Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

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

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

WARRANTY BOND

Date of Warranty Bond Execution:_____

Name of Principal Contractor:_____

Name of Surety:_____

Name of Contracting Body: Town of Salem, New Hampshire_____

Amount of Bond: Fifty Thousand Dollars ($50,000.00)_____

Contract ID No.: _____

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of Fifty Thousand Dollars ($50,000.00) by the Principal for the project stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

WHEREAS, the said Principal entered into a certain contract, numbered as shown above, with the Contracting Body.

WHEREAS, the said Principal, through furnishing this bond from a Surety licensed to do business in the State of New Hampshire, is required to guarantee each element of the Project as specified and installed under said contract, against defects in material or workmanships which may develop during the Project Warranty Term (subject to any extensions thereof) in accordance with the Contract, and beginning on the date(s) identified in the contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if said Principal shall faithfully carry out and perform the said guarantee requirements of the Contract and shall, on due notice, repair and make good at its own expense any and all defects in material or workmanship in the said work which may develop during the Project Warranty Term (2 years), as may be extended, or shall pay over, make good and reimburse to the said Contracting Body all loss and damage which said Contracting Body may sustain by reason of failure or default of said Principal so to do, then this bond shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED HOWEVER, that in the event of any default on the part of the said Principal, no claim, suit or action by reason of any default of Principal shall be brought hereunder until the Contracting Body shall deliver to the Surety within ten (10) days of the date as determined below, by registered mail, a written statement of the particular facts showing that the Principal has knowledge of such default and Principal's failure to carry out and perform the said guarantee requirements or to pay over, make good or reimburse Contracting Body for loss and damage extends beyond the expiration of thirty (30) days from the end of the Project Warranty Term as determined by Contracting Body in accordance with the Contract.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

WARRANTY BOND

Affix Seal of Surety Company

_____
Print or type Surety Company Name

By _____
Print, stamp or type name of Attorney-in-Fact

_____
Signature of Attorney-in-Fact

_____
Signature of Witness

_____
Print or type witness' name

_____
Address of Attorney-in-Fact

WARRANTY BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

_____

Print or type full name of Corporation

_____

Address of Corporation

By _____
Authorized Signature

_____
Print or type signers name

_____
Print or type signers Title

Attest _____
Authorized Signature

_____
Print or type signers name

_____
Print or type signers Title

Affix Corporate Seal

WARRANTY BOND

Attach certified copy of Power of Attorney to this sheet.

CERTIFICATE OF SUBSTANTIAL COMPLETION

Date:

Project: Sewer Interceptor Rehabilitation

Agent: Underwood Engineers, Inc.

Owner: Town of Salem, New Hampshire

Contractor:

This Certificate of Substantial Completion applies to all Work under the Contract Documents for the Sewer Interceptor Rehabilitation, or to the following specified parts thereof:

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on:

Date of Substantial Completion: _____

A tentative list of items to be completed or corrected is attached hereto. This list is not all-inclusive, and the failure to include an item in it does not alter the responsibility of Contractor to complete all the Work in accordance with the Contract Documents.

The items in the tentative list shall be completed or corrected by Contractor within ___ days of the above date of Substantial Completion.

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer (acting on behalf of the Town of Salem, NH) on: _____

By: _____ _____
Town of Salem, NH: Date

Contractor accepts this Certificate of Substantial Completion on _____

By: _____ _____
Contractor: Date

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 Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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TABLE OF CONTENTS

Page

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY 6
1.01 *Defined Terms* 6
1.02 *Terminology* 8
ARTICLE 2 - PRELIMINARY MATTERS 9
2.01 *Delivery of Bonds and Evidence of Insurance* 9
2.02 *Copies of Documents* 9
2.03 *Commencement of Contract Times; Notice to Proceed* 9
2.04 *Starting the Work* 9
2.05 *Before Starting Construction* 9
2.06 *Preconstruction Conference* 9
2.07 *Initial Acceptance of Schedules* 9
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE 10
3.01 *Intent* 10
3.02 *Reference Standards* 10
3.03 *Reporting and Resolving Discrepancies* 10
3.04 *Amending and Supplementing Contract Documents* 11
3.05 *Reuse of Documents* 11
3.06 *Electronic Data* 11
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS 11
4.01 *Availability of Lands* 11
4.02 *Subsurface and Physical Conditions* 12
4.03 *Differing Subsurface or Physical Conditions* 12
4.04 *Underground Facilities* 13
4.05 *Reference Points* 13
4.06 *Hazardous Environmental Condition at Site* 13
ARTICLE 5 - BONDS AND INSURANCE 14
5.01 *Performance, Payment, and Other Bonds* 14
5.02 *Licensed Sureties and Insurers* 15
5.03 *Certificates of Insurance* 15
5.04 *Contractor's Liability Insurance* 15
5.05 *Owner's Liability Insurance* 16
5.06 *Property Insurance* 16
5.07 *Waiver of Rights* 17
5.08 *Receipt and Application of Insurance Proceeds* 17
5.09 *Acceptance of Bonds and Insurance; Option to Replace* 17
5.10 *Partial Utilization, Acknowledgment of Property Insurer* 18
ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES 18
6.01 *Supervision and Superintendence* 18
6.02 *Labor; Working Hours* 18
6.03 *Services, Materials, and Equipment* 18
6.04 *Progress Schedule* 18
6.05 *Substitutes and "Or-Equals"* 19
6.06 *Concerning Subcontractors, Suppliers, and Others* 20
6.07 *Patent Fees and Royalties* 21
6.08 *Permits* 21
6.09 *Laws and Regulations* 21
6.10 *Taxes* 22
6.11 *Use of Site and Other Areas* 22
6.12 *Record Documents* 22
6.13 *Safety and Protection* 22
6.14 *Safety Representative* 23
6.15 *Hazard Communication Programs* 23

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6.16 *Emergencies* ... 23
6.17 *Shop Drawings and Samples* ... 23
6.18 *Continuing the Work* ... 24
6.19 *Contractor's General Warranty and Guarantee* ... 24
6.20 *Indemnification* ... 24
6.21 *Delegation of Professional Design Services* ... 25
ARTICLE 7 - OTHER WORK AT THE SITE ... 25
7.01 *Related Work at Site* ... 25
7.02 *Coordination* ... 26
7.03 *Legal Relationships* ... 26
ARTICLE 8 - OWNER'S RESPONSIBILITIES ... 26
8.01 *Communications to Contractor* ... 26
8.02 *Replacement of Engineer* ... 26
8.03 *Furnish Data* ... 26
8.04 *Pay When Due* ... 26
8.05 *Lands and Easements; Reports and Tests* ... 26
8.06 *Insurance* ... 26
8.07 *Change Orders* ... 26
8.08 *Inspections, Tests, and Approvals* ... 26
8.09 *Limitations on Owner's Responsibilities* ... 27
8.10 *Undisclosed Hazardous Environmental Condition* ... 27
8.11 *Evidence of Financial Arrangements* ... 27
ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION ... 27
9.01 *Owner's Representative* ... 27
9.02 *Visits to Site* ... 27
9.03 *Project Representative* ... 27
9.04 *Authorized Variations in Work* ... 27
9.05 *Rejecting Defective Work* ... 27
9.06 *Shop Drawings, Change Orders and Payments* ... 28
9.07 *Determinations for Unit Price Work* ... 28
9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work* ... 28
9.09 *Limitations on Engineer's Authority and Responsibilities* ... 28
ARTICLE 10 - CHANGES IN THE WORK; CLAIMS ... 28
10.01 *Authorized Changes in the Work* ... 28
10.02 *Unauthorized Changes in the Work* ... 29
10.03 *Execution of Change Orders* ... 29
10.04 *Notification to Surety* ... 29
10.05 *Claims* ... 29
ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK ... 30
11.01 *Cost of the Work* ... 30
11.02 *Allowances* ... 31
11.03 *Unit Price Work* ... 31
ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES ... 32
12.01 *Change of Contract Price* ... 32
12.02 *Change of Contract Times* ... 33
12.03 *Delays* ... 33
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK ... 33
13.01 *Notice of Defects* ... 33
13.02 *Access to Work* ... 33
13.03 *Tests and Inspections* ... 33
13.04 *Uncovering Work* ... 34
13.05 *Owner May Stop the Work* ... 34
13.06 *Correction or Removal of Defective Work* ... 34
13.07 *Correction Period* ... 34
13.08 *Acceptance of Defective Work* ... 35
13.09 *Owner May Correct Defective Work* ... 35
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION ... 36
14.01 *Schedule of Values* ... 36
14.02 *Progress Payments* ... 36
14.03 *Contractor's Warranty of Title* ... 37
14.04 *Substantial Completion* ... 37

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14.05 *Partial Utilization* 38
14.06 *Final Inspection* 38
14.07 *Final Payment* 38
14.08 *Final Completion Delayed* 39
14.09 *Waiver of Claims* 39
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION 39
15.01 *Owner May Suspend Work* 39
15.02 *Owner May Terminate for Cause* 39
15.03 *Owner May Terminate For Convenience* 40
15.04 *Contractor May Stop Work or Terminate* 40
ARTICLE 16 - DISPUTE RESOLUTION 41
16.01 *Methods and Procedures* 41
ARTICLE 17 - MISCELLANEOUS 41
17.01 *Giving Notice* 41
17.02 *Computation of Times* 41
17.03 *Cumulative Remedies* 41
17.04 *Survival of Obligations* 41
17.05 *Controlling Law* 41
17.06 *Headings* 41

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

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20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

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

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

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

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

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

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *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.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

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administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

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

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

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

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following 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 requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day*

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

D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

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 14.04 or 14.05).

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

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

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review**:**

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

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1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

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

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

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(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, 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 Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

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4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

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

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

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

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

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c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

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

a. reviewing and checking all such information and data,

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

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

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

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

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1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified

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in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

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3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

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deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

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Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

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

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

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1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

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c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

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

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

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or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

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

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

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6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

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

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

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ings or Specifications or to the acts or omissions of Owner or Engineer or , 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).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

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

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

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

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

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

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with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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

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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 respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, 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.

6.21 *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 law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. 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

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properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

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

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

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8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

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9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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

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

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

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

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promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

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F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

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resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*

1. Contractor agrees that:

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

b. Contractor's costs for unloading and handling on the Site, labor, installation , overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

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

11.03 *Unit Price Work*

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

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B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner 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 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

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

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

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

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

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

1. a mutually acceptable fixed fee; or

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

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

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

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

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

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

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

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by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

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be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

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B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

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payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

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

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

B. *Review of Applications*

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

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

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inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

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

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

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Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

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

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *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

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under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

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3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

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governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

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SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC, 2002 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

Amend paragraph A by amending paragraph A.5 to add the following to the end of the paragraph:

> "The Bid shall include all required documents completed and executed in accordance with Section 00100 and Section 00301A."

Amend Paragraph A by amending paragraph A.19 to add the following to the end of the paragraph:

> "who is the Consultant or Owner representative, responsible for Engineering and observation of the construction, acting directly or through duly, authorized representatives. Engineer shall be responsible for administration of the contract."

Amend Paragraph A by amending paragraph A.42 to add the following to the end of the paragraph:

> "The extent of the Project Site is shown in the Contract Documents and may or may not be identical with the description of the land on which the Project is to be built."

Amend paragraph A by amending paragraph A.45 to add the following to the end of the paragraph:

> "This project shall be considered substantially complete when the following items are complete. The below list is intended to be encompassing for any Project. All items on this list may not be part of the Project.
>
> - drainage system is complete and functional to the satisfaction of the OWNER,
> - box culvert work, including utility relocations, is complete and functional to the satisfaction of the OWNER,
> - guardrail installation, is complete and functional to the satisfaction of the OWNER,
> - water system work is complete and functional to the satisfaction of the OWNER,

- sewer system work is complete and functional to the satisfaction of the OWNER,
- all bituminous concrete berm is complete to the satisfaction of the OWNER,
- all driveway aprons and driveways are complete to the satisfaction of the OWNER,
- all walkways are complete to the satisfaction of the OWNER
- side slopes, swales and stone aprons are complete to the satisfaction of the OWNER,
- stone walls, landscaping and mulch are complete to the satisfaction of the OWNER,
- vegetation is established on all disturbed areas to the satisfaction of the OWNER, and
- all paving is complete to the satisfaction of the OWNER,
- Traffic Signals are installed and operational to the satisfaction of the OWNER,
- all signs and pavement markings are complete to the satisfaction of the OWNER.

All work shall be completed to the satisfaction of the OWNER and the ENGINEER."

Amend paragraph A by amending paragraph A.49 to add the following to the end of the paragraph:

", and structures including their foundations."

The following terms, in addition to those outlined in the General Conditions as used in the Contract Documents, are defined as follows:

53. *MEASUREMENT AND PAYMENT* – Shall be in accordance with Section 01025.

54. Working Day: Calendar day excluding Saturday, Sunday and holidays as defined in the Summary of Work (Section 01010).

ARTICLE 2. PRELIMINARY MATTERS

SC-2.01

Insert the following paragraphs 2.01.C and 2.01.C.1 into the General Conditions:

2.01.C Before any work, layout, or delivery of materials and equipment to 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 5.

2.01.C.1 Contractor shall include and identify on the certificate of insurance, indemnification as required by Article 6.20 of the General Conditions (Section 00700).

SC-2.02

Amend the first sentence of paragraph 2.02A to read as follows:

"OWNER shall furnish to the CONTRACTOR up to three (3) printed or hard copies of the Project Manual."

SC-2.03

Delete paragraph 2.03.A of the General Conditions in its entirety and insert the following in its place to read as follows:

2.03.A The Contract Time will commence to run as specified in the Agreement. In no event will the Contract Times commence to run later than the 120th day after the date of the bid opening.

SC-2.08

Add the following new paragraphs immediately after paragraph 2.07 of the General Conditions as follows:

2.08 Progress of the Work

It is the intent of the Owner that once the Contractor has mobilized to begin construction that the project be prosecuted continuously without interruption with the work continuing until the project is complete. Stoppage of the work for any reason shall be only as approved/directed by the Owner in writing.

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01

Add the following new paragraphs immediately after paragraph 3.01.A of the General Conditions which are 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.

Add the following new paragraphs immediately after paragraph 3.01.C of the General Conditions which are to read as follows:

3.01.D **Coordination of Plans, Specifications, Supplemental Specifications, and Special Provisions.** The Specifications, Supplemental Specifications, Plans, Special Provisions, other special Contract requirements and all supplemental documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete Contract. In case of discrepancy between these Contract documents, calculated dimensions, unless obviously incorrect, will govern over scaled dimensions and the parts of the Contract will prevail in the following descending order:

Division 0 – Bidding and Contract Requirements, included herein
Division 1 – General Requirements, included herein
Project Plans, See Appendix A herein
Technical Specifications, included herein
Special Provisions, included herein
Supplemental Specifications, included herein
Special Attentions, included herein
Town of Salem Standard Details
NHDOT Special Attentions
NHDOT Standard Specifications
NHDOT Standard Details
NHDOT Standard Plans

The Contractor shall not take advantage of any apparent error or omission in the Contract. If an error or omission is discovered, the Engineer shall be notified in accordance with 3.04 so corrections and interpretations necessary to fulfill the intent of the Contract can be made.

When general reference is made on bridge plans to "AASHTO Specifications," it shall refer to the AASHTO publication entitled "LRFD Bridge Design Specifications." The reference shall be to the current edition of such specifications, or latest revision adopted thereof and in effect on the date of invitation for bids.

ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

SC-4.02C Add the following new paragraph immediately after paragraph 4.02.B

C. Reports and Drawings: See Appendicies

ARTICLE 5. BONDS AND INSURANCE

SC-5.01.A.1

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

"1. The CONTRACTOR shall furnish a Warranty Bond in the amount of Fifty Thousand Dollars ($50,000.00) for the purposes of a project warranty. This Bond shall remain in effect until two (2) years after the date which final payment is made."

SC-5.04

The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

5.04.A.1 and 5.04.A.2 Worker's Compensation, etc. under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

(1) Worker's Compensation	As required by the laws of the State of New Hampshire
(2) Employer's Liability	$100,000 each accident $500,000 disease –policy limit $100,000 disease - employee

5.04.A.3, 5.04.A.4, and 5.04.A.5 Contractor's Liability Insurance under paragraphs 5.04.A.3 through 5.04.A.5 of the General Conditions which shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of Contractor:

(1) General Aggregate (Except Products--Completed Operations)	$2,000,000
(2) Products--Completed Operations Aggregate	$2,000,000
(3) Personal and Advertising Injury (Per Person/ Organization)	$1,000,000
(4) Each Occurrence (Bodily Injury and Property Damage)	$1,000,000
(5) Property Damage liability insurance including Collapse, and Underground coverages. If blasting is to be used, also include explosion coverage.	$1,000,000

5.04.A.6 Automobile Liability:

(1) Bodily Injury:	
Each Person	$1,000,000
Each Accident	$1,000,000
Property Damage:	
Each Accident	$1,000,000
or	

(2) Combined Single Limit (Bodily Injury and Property Damage):

Each Accident	$2,000,000

SC-5.04.B.4 The Contractual Liability coverage required by paragraph 5.04.B.4 in the General Conditions shall provide coverage for not less than the following amounts:

(1) General Aggregate	$2,000,000
(2) Each Occurrence (Bodily Injury and Property Damage)	$1,000,000

SC-5.04.B.1

Add the following to the first sentence after the word “OWNER“:

“Underwood Engineers, Inc.”.

SC-5.05

Delete paragraph 5.05 of the General Conditions in its entirety and insert the following in its place:

5.05.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:

5.05.A.1 Bodily Injury:

Each Occurrence	$1,000,000

5.05.A.2 Property Damage:

Each Occurrence	$1,000,000
Annual Aggregate	$2,000,000

SC-5.06

Delete paragraph 5.06 of the General Conditions in its entirety.

ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES

SC-6.01B

Add the following to the first sentence of paragraph B immediately following the word “who”:

"shall be acceptable to the OWNER and who"

SC-6.03D

Add the following new paragraph immediately after paragraph 6.03.C

"The CONTRACTOR shall carefully protect the work of the project against damage due to inclement weather. In the event of the temporary suspension of work or whenever the ENGINEER shall direct, the CONTRACTOR will protect his work, and the work of his subcontractors against damage from the weather. If in the opinion of the ENGINEER, any work or material shall have been damaged by reason on the part of the CONTRACTOR or any of his subcontractors, the damaged materials and work shall be removed and replaced at the expense of the CONTRACTOR."

SC-6.06.D

Add the following new subparagraph as follows:

6.06.D.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-6.08B

Add the following language after paragraph 6.08.A of the General Conditions:

6.08.B "Copies of any permits for the Project are included in the Appendices. The CONTRACTOR is responsible for complying with the project specific conditions outlined in the permits. If the CONTRACTOR intends to proceed with construction means and methods that are outside the General Conditions and Specific Conditions of the permits, it is the CONTRACTOR's responsibility to obtain new permits for these means and methods and bear all costs associated with applying for and obtaining the new permits."

SC-6.10

Add the following language after paragraph 6.10.A of the General Conditions:

6.10.A.1 The materials and supplies to be used in the Work under this Contract are exempt from the Sales and Use Tax of the State of New Hampshire. Contractor shall obtain the proper certificates, maintain the necessary records, and otherwise comply with all applicable requirements governing the exemption from sales tax.

SC-6.11B

Amend paragraph B by adding the following:

"All waste materials, rubbish, surplus materials obtained from any type of excavation, or other work, and not needed for further use as determined by the

ENGINEER and other rubbish shall become the property of the CONTRACTOR and shall be legally disposed of by him outside of the project site."

SC-6.13D

Add the following to the first sentence of paragraph D immediately following the word "Work":

"and adjacent features or conditions as defined in Article 6.13.A"

SC-6.17F

Add the following new paragraph immediately after paragraph 6.17.E of the General Conditions, which is to read as follows:

6.17.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.

SC-6.19A

Amend paragraph A by adding the following after the last sentence:

"The warranty period shall commence on the date which final payment is made and shall run for two (2) years."

ARTICLE 8. OWNER'S RESPONSIBILITIES

SC-8.06

Delete paragraph 8.06 of the General Conditions in its entirety.

ARTICLE 10. CHANGES IN THE WORK; CLAIMS

SC-10.01A

Add the following new paragraph immediately after paragraph 10.01A of the General Conditions, which is to read as follows:

10.01.A.1 Upon request of the Owner or the 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 and equipment, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor and equipment 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 fact 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 or subcontractors for furnishing any material, labor or equipment included in such Work. Such estimates shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the Contractor's expense. The Contractor shall state in the estimate any extension of time required for the competition of the Work if the change or extra work is ordered.

ARTICLE 11. COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-11.03.D

Delete paragraph 11.03.D in its entirety and insert the following in its place:

D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. If the total cost of a particular item of Unit Price Work amounts to 10% or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by contractor differs by more than 25% from the estimated quantity of such item in the agreement; and

2. If there is no other corresponding adjustment with respect to any other item of work; and

3. If CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either the OWNER or CONTRACTOR may make a claim for adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of the Unit Price Work performed.

ARTICLE 12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC 12.01.C2.a

Amend the first sentence of by changing “15 percent” to “10 percent”.

ARTICLE 13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.05A

Amend paragraph A by adding the following:

"The CONTRACTOR shall not be entitled to any extension of the Contract times or an increase in the Contract Price due to stoppage of the work by the OWNER as identified herein."

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

SC 14.02.C.1

Amend the first sentence of by changing “Ten” to “Thirty (30)”

Add the following sentence at the end of paragraph 14.02.C.1

> “OWNER or ENGINEER may furnish to any Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about the amounts paid to CONTRACTOR on account of Work performed for CONTRACTOR by any particular Subcontractor, Supplier, or other individual or entity.

SC 14.09A

Add the following new paragraph immediately after paragraph 14.09.A.2

3. The CONTRACTOR agrees that he will indemnify and save the OWNER harmless from all claims growing out of the lawful demands for payment for any labor or materials of subcontractors, laborers, workmen, mechanics, material, men, and furnishers of machinery and parts thereof, equipment, power tools and all supplies, including commissary, incurred in the furtherance of the performance of this contract. The CONTRACTOR shall, at the OWNER’S request, furnish satisfactory evidence that all obligations of the nature herein designated have been paid, discharged, or waived in connection with this contract. The CONTRACTOR shall not be in default of its obligations under this paragraph if the reason that the CONTRACTOR has not paid a subcontractor is that such payment is covered by an Application for Payment for which CONTRACTOR has not yet been paid by OWNER.

ARTICLE 16. DISPUTE RESOLUTION

SC-16.01.A

Add the following new paragraph immediately after paragraph 16.01.A of the General Conditions to read as follows:

16.01.A.1 The 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 17. MISCELLANEOUS

SC-17.06

Add the following new paragraph immediately after paragraph 17.06.A of the General Conditions, which is to read as follows

17.06.A.1 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.

SC-17.07

Add the following new paragraphs immediately after paragraph 17.06 of the General Conditions as follows:

17.07 Legal Address of Contractor

17.07.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 and OWNER. Service of any notice, letter, or other communication upon the CONTRACTOR personally shall likewise be deemed sufficient service.

SC-17.08

Add the following new paragraphs immediately after paragraph 17.07 of the General Conditions as follows:

17.08 Contract Documents At Site

The Contractor and all subcontractors are to keep a copy of this contract and accompanying PROJECT DRAWINGS at the site of the Work at all times while Work is being performed and said copy is to be available to those in charge of the Work.

SC-17.09

Add the following new paragraphs immediately after paragraph 17.08 of the General Conditions as follows:

17.09 Town of Salem Personnel

Manpower/equipment coordination with the Town of Salem Municipal Services Department which involves after hours/overtime by Town staff shall be back-charged to the contractor (for example, if a water service is broken during night shift operations and Town of Salem water crew needs to be brought in on overtime, that will be charged to the contractor).

Coordinated/scheduled items with Town of Salem Municipal Services Department consent shall be conducted during normal Town of Salem Municipal Services Department hours (7:00am to 3:30 pm) and will not be charged to the Contractor.

END OF SECTION 00800

WORK CHANGE DIRECTIVE

No. _____

DATE OF ISSUANCE _____ EFFECTIVE DATE _____

CONTRACTOR _____
Contract: Sewer Interceptor Rehabilitation
Project: Sewer Interceptor Rehabilitation
OWNER'S Contract No. _____ ENGINEER'S Project No. 2308

You are directed to proceed promptly with the following change(s):
Description:

Purpose of Work Change Directive:

Attachments: (List documents supporting change)

If OWNER or CONTRACTOR believe that the above change has affected Contract Price any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents.

Method of determining change in
Contract Price:

☐ Unit Prices
☐ Lump Sum
☐ Cost of the Work_____

Estimated increase (decrease) in Contract Price:
$_____.
If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Times:
Substantial Completion: _____ days;
Ready for final payment: _____ days.

RECOMMENDED:	AUTHORIZED:	Accepted:
_____	_____	_____
ENGINEER	OWNER	CONTRACTOR
By: _____	By: _____	By: _____

CHANGE ORDER

No. _____

DATE OF ISSUANCE _____ EFFECTIVE DATE_____

Project: Sewer Interceptor Rehab.	Owner: Town of Salem	Owner's Contract No.:
Contract: Sewer Interceptor Rehab.		Date of Contract:
Contractor:		Engineer's Project No.: 2308

The Contract Documents are modified as follows upon execution of this Change Order:
Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price $_____	Original Contract Times: Substantial Completion: _____ Ready for final payment:_____ (days or dates)
Net Increase (decrease) from previous Change Orders No. _0_ to _0_: $_____	Net change from previous Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for final payment:_____ (days)
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial Completion:_____ Ready for final payment:_____ (days or dates)
Net Increase (decrease) of this Change Order: $___0.00_____	Net increase this Change Order: Substantial Completion:_____0_____ Ready for final payment:_____0_____ (days)
Contract Price with all approved Change Orders: $_____	Contract Times with all approved Change Orders: Substantial Completion:_____ Ready for final payment:_____ (days or dates)

RECOMMENDED: APPROVED: ACCEPTED:

By: _____ By: _____ By: _____
ENGINEER (Authorized Signature) OWNER (Authorized Signature) CONTRACTOR (Authorized Signature)

Date: _____ Date: _____ Date: _____

TECHNICAL SPECIFICATIONS

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01010

SUMMARY OF WORK

PART 1 -- GENERAL

1.1 DESCRIPTION OF WORK

A. The work of this Contract is located within the sewer reaches shown on the CCTV Findings Plan Sheets (Appendix A). All the work of this contract is located with the boundaries of the Town of Salem, NH.

B. The Contractor shall furnish all labor, materials, equipment and incidentals required to perform sewer rehabilitation of the existing wastewater collection system including but not limited to the following:

1. Sewer rehabilitation work including but not limited to the following: cleaning of sewers; confirmation of pipe dimensions, liner design calculations stamped by a Professional Engineer registered in the State of New Hampshire, installation of UV cured cured-in-place liner repairs, including TV inspection; all bypass pumping and other related work and miscellaneous items as specified herein.

2. Obtain a NHDOT Access Permit to access work area via the Rail Trail.

3. Cleanup as specified or required to complete the contract.

C. The general location of the work is shown on the CCTV Findings Plan Sheets (Appendix A).

D. The repairs are within a cross-country section of sewer interceptor. The sewer manholes can be accessed from the existing NHDOT-owned Rail Trail. Manholes are located along side the Rail Trail down an embankment within a wetlands area. The Contractor shall be responsible to evaluate the site and determine if work can be performed from the Rail Trail or if additional access is required (i.e. vegetation clearing, equipment mats for wetlands access, etc.) and account for temporary provisions for equipment access and restoration to pre-construction conditions as subsidiary to the work in preparation of their bid.

E. Contractor shall be aware that sewer interceptor is located within wetlands which may be susceptible to flooding and other changing conditions.

F. Existing sewer and manholes are located on private property within existing sewer use agreements. All impacts from the rehabilitation shall be limited to the sewer corridor. Work is anticipated on the following properties:

1. Lot 81/3126. Red E & V Realty LLC, 201 Merrimack St, Lawrence, MA 01843

2. Lot 81/3124. Town of Salem, 33 Geremonty Rd., Salem, NH 03079
3. Lot 81/3122. Sanel Auto Parts Inc., PO Box 504, Concord, NH 03303
4. Lot 89/3130. Morgan Development Corp., 400 Bedford St., Manchester, NH 03101 *(Additive Alternate No. 1)*

G. Specific details for each area of defects to be rehabilitated, based on available information, can be found in Section 02011 Sewer Data.

1.2 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall have the following responsibilities:
1. Furnish all labor, material, equipment, and incidentals as required to perform the work in its entirety as specified herewith.
2. Coordinate all rehabilitation activities, including bypass pumping, as necessary, with the Engineer and Owner.
3. Obtain a NHDOT Access Permit and provide associated bonding to NHDOT. This is in addition to the bonding requirements of the Town specified in the General Conditions.
4. Conform to the requirements of the Town's wetlands permit (Appendix D)
5. Complete this rehabilitation project in accordance with the bid documents within the allotted time schedule and provide the required warranties.
6. Throughout the entire rehabilitation project the Contractor shall be responsible for all security and protection against vandalism. The costs associated with these security measures shall be at the General Contractor's expense as an incidental bid item. Vandalism costs shall be covered by the General Contractor's Insurance.
7. The Contractor is responsible or all applicable health and safety requirements during rehabilitation.
8. Any damage to existing structures, equipment and property, accepted equipment or structures, and property or work in progress by others; as a result of the Contractor's or his subcontractor's operations shall be repaired/restored by the Contractor at no additional cost to the Owner.
9. Coordinate work with telephone and electrical utilities as necessary.
10. The work includes, but is not limited to, furnishing all materials, labor and equipment to perform the following activities:
    a. Preparation and submittal of contract specified submittals
    b. Preconstruction Conference
    c. Safety and quality control
    d. Temporary utilities
    e. Bypass pumping or other temporary systems
    f. State and local permits, if applicable.

PART 2 -- PRODUCTS

Not Used

PART 3 -- EXECUTION

3.1 WORK SEQUENCE

A. Perform work to accommodate use of existing sewer system during rehabilitation. Coordinate Progress Schedule and performance with OWNER during construction

B. Do not close off usage of or access to existing facilities and roadways during rehabilitation.

C. In sewer reaches requiring multiple rehabilitation techniques, i.e., cured-in-place spot repairs and joint testing and sealing, the joint testing and sealing shall be performed last.

3.2 CONTRACTOR'S USE OF PREMISES

A. Coordinate use of premises with the Town, NHDOT, and Engineer.

B. If directed by the Engineer, move any stored items which interfere with operations of Owner or other contractors.

C. Obtain and pay for use of additional storage or work areas if needed to perform the work.

D. Contractor shall determine the lead time of all materials required and shall schedule and coordinate work to accommodate the delivery of equipment and materials.

E. Any proposed change in the existing system status shall be coordinated in advance with the Owner and Engineer.

F. Contractor shall maintain repair parts on-site for emergency repairs.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 -- GENERAL

1.1 **DESCRIPTION**

A. For all items other than those to be paid for by lump sum amounts, after the work is completed and before final payment is made, the Owner's Representative shall make final measurements to determine the quantities of various items of work accepted as the basis for final settlement. The Contractor, in the case of unit price items, will be paid for the actual amount of work accepted and for the actual amount of materials in place, as shown by the final measurements.

B. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and as interpreted by the Engineer.

C. At the end of each day's work, the Contractor's Superintendent or other authorized representative of the Contractor shall meet with the Owner's Representative and determine and agree upon the quantities of unit price work accomplished and/or completed during the work day.

D. The Owner's Representative will then prepare a "Daily Field Report" which shall be signed by both the Owner's Representative and Contractor's Superintendent indicating complete agreement and approval of the quantities listed. These completed forms will provide the basis of the Engineer's monthly quantity estimate upon which payment will be made. Items appearing on forms not properly signed by the Contractor may not be included for payment.

E. The Contractor shall submit a cost breakdown of all lump sum items for payment purposes. This cost breakdown shall be submitted prior to contract signing and shall be approved by the Engineer.

1.2 **SCOPE OF PAYMENT**

A. Payments to the Contractor will be made for the actual quantities of contract items performed and accepted in accordance with the plans and specifications. Upon completion of the rehabilitation, if these actual quantities show either an increase or decrease from the quantities given in the Bid (form), the contract unit prices will still prevail, except as provided hereinafter.

B. The Contractor shall accept compensation, as herein provided, in full payment for furnishing all materials, labor, tools, equipment and incidentals necessary to complete the work and for performing all work included in the contract; for all loss or damage arising from the nature of the work, or from the action of the elements; or from any unforeseen difficulties which may be encountered during the prosecution of the work and until its final acceptance by the Engineer; and for all risks of every description connected with the prosecution of the work, except as provided herein, also for all expenses incurred in consequence of the suspension of the work as herein authorized.

C. The payment of any partial estimate or of any retained percentage except by and under the approved final invoice, in no way shall affect the obligation of the Contractor to repair or renew any defective parts of the construction or to be responsible for damage due to such defects.

1.3 **PAYMENT FOR INCREASED OR DECREASED QUANTITIES**

A. When alterations in the quantities of work not requiring supplemental agreements are ordered and performed, the Contractor shall accept payment in full at the Contract price for the actual quantities of work done in accordance with the General Conditions. No allowance will be made for anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as stipulated in such agreements.

1.4 **ELIMINATED ITEMS**

A. Should any items contained in the Bid (form) be found unnecessary for the proper completion of the work contracted, the Engineer may eliminate such items from the Contract in accordance with the General Conditions, and such action shall in no way invalidate the Contract, and no allowance will be made for items so eliminated in making final payment to the Contractor.

1.5 **PARTIAL PAYMENTS**

A. Partial payments shall be made monthly as the work progresses. All partial payments and payments shall be subject to correction in the final quantity invoice and payment.

B. No monthly payment shall be required to be made when, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last payment amounts to less than $1,000.00.

C. The partial payments will be based upon invoices prepared by the Contractor and reviewed by the Engineer of the value of the work performed, and materials complete in place in accordance with the contract. Retainage shall be as specified in the Article 6.02 of The Agreement. The Owner shall pay the Contractor within 30 days of receipt of the invoiced amount.

1.6 **FINAL PAYMENT**

A. The Engineer shall make, as soon as practicable after the completion of the project, a final quantity invoice of the amount of work performed under the Contract and establish the value of such work.

B. The Owner shall retain a sum determined in accordance with The Agreement of the final contract cost for a one-year warranty period commencing on the date of substantial completion.

C. The Owner shall then pay the entire sum found to be due, after deducting therefrom all previous payments and the aforementioned retainage. In addition, any amounts to be retained or deducted under the provisions of the Contract may be held by the Owner for a period of sixty (60) days after the completion of the final quantity invoice, or until

such time as the Contractor submits satisfactory evidence that all bills for labor and materials used under this Contract have been paid and all required documents submitted to the Engineer.

1.7 **INCIDENTAL WORK**

A. Incidental work items for which separate payment is not measured includes the following items:
   1. Clean Up.
   2. Signs and sign relocation not paid for under other items.
   3. Restoration of property.
   4. Cooperation with other Contractors and others.
   5. Repair to utilities damaged by the Contractor.

1.8 **DESCRIPTION OF PAY ITEMS**

A. The following sections describe the measurement of and payment for the work to be done under the respective items listed in the Bid (form).

B. Each unit of lump sum price stated in the Bid (form) shall constitute full compensation, as herein specified, for each item of the work completed.

1.9 **ITEM NO. 1: MOBILIZATION, PERMITS, AND BONDS (NOT TO EXCEED 20% OF THE BASE BID)**

A. Method of Measurement:
   1. The quantity to be measured for payment shall be lump sum for mobilization, NHDOT access permit, required bonds, and all other project setup and permits as measured and approved by the Engineer.
      - 75% will be paid after obtaining necessary bonds, insurance, permits, etc.
      - 25% will be paid after project completion, warrantee bonds are provided and project cleanup/demobilization is complete.

B. Basis of Payment:
   1. Mobilization, permits, and bonds shall be paid for at the Contract lump sum price.
   2. Said lump sum price shall constitute full compensation for the furnishing of all labor, equipment and materials associated with the mobilization and project setup in accordance with the Contract Documents.
   3. Said lump sum price shall include, but not be limited to; mobilization; obtaining a Use and Occupancy Permit from NHDOT including specific bonds required by NHDOT; obtaining all required bonds and other administrative costs; setting up the contractor’s staging area; demobilization; and all other work required for or incidental to the satisfactory completion of the work.

1.10 **ITEM NO.s 2 & A1: SEWER - CURED-IN-PLACE PIPE LINER 15 INCH PIPE**

A. Method of Measurement:

1. Measurement shall be for the actual number of linear feet of sewer CIPP liner installed as measured and approved by the ENGINEER.

B. Basis of Payment:

1. Payment shall be at the unit price bid for the actual number of linear feet of sewer CIPP liner installed. Payment shall include but not be limited to furnishing all materials, labor, equipment, power, supplies, to perform the work; controlling sewage flow; clearing brush, vegetation, and other provisions required to access manholes; locating confirmation of sewer dimensions; provide sewer liner design and calculations; bypass pumping; controlling groundwater and infiltration flow; pipe cleaning; pressure testing prior to and after repair; TV inspection and documentation before and after the repair; locating and opening existing manhole covers; and re-instating any service connections in the repair area; warrantee inspections; and all other work required for or incidental to the completion of this item. **Any repairs required due to failure of the original work shall be at no cost to the OWNER**.

END OF SECTION

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 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. Samples.
4. Mock Ups.
5. Construction Photographs.
6. Or Equal Submittals.

B. Additional general submission requirements are contained in Paragraph 6.17 of the General Conditions.

C. A complete list of all required submittals will be provided to the selected contractor when Notice to Proceed is provided.

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, schedule information, setting diagrams, actual shop work 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 sheets, such as 8 ½-in. by 11-in., 11-in, by 17-in. or 24-in. by 36-in.

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. All shop drawings submitted by subcontractors for review shall be sent directly to the Contractor for approval. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

5. The Contractor shall check all subcontractor 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 to the Engineer thereof.

6. 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 measurement; such measurements shall be made and noted on the drawings before being submitted for approval.

7. The Contractor shall provide complete designs for items such as modular block retaining walls or box culverts which shall be completed by the product manufacturer. The full design of such structures shall be stamped by a Professional Engineer licensed in the State of New Hampshire. All engineering, certification, administrative, plan production, shipping, and other such ‘soft’ costs shall be subsidiary to the structure line item

B. Product Data:

1. Product data as specified in individual sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and printed installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances including certificates of compliance and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications and recommended spare-parts listing, and printed product warranties, as applicable to the Work.

2. Submit manufacturer’s literature and catalog data, or both, showing that the materials provided meet the requirements of this Specification.

3. Submit Certificates of Compliance for all materials provided for the project indicating that the material meets the project specifications.

C. Samples:

1. Samples specified in individual sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the Work.

1.4 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall review shop drawings, product data and samples, including those by subcontractors, 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. Conformance with the Specifications: 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 shall be 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 that are 11-in. X 17-in. and smaller shall be bound together 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” the 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 ordered, 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, as 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, he 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 baring 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, piping, electrical work, etc. necessary to accommodate the proposed "or equal" line item. All additional costs associated with the implementation of an "or equal" line item shall be subsidiary to that item and shall be borne solely by the Contractor.

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) business days for review from the time the submission is received at the Engineer's reviewing office. For submittals of major equipment, that require more than fifteen (15) business 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 four (4) copies.

2. Product Data: Unless otherwise stated in the respective Specifications submit four (4) copies.

3. Samples: Submit the number stated in the respective Specification Sections.

D. Submittals shall contain:

1. The date of submission, the submission number 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 or Federal Specification numbers.

9. Identification of deviations from Contract Documents.

10. Identification of revisions on re-submittals.

11. An 8-in. X 4-in. blank space for Contractor and Engineer review stamps.

E. Each shipment 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.

1.7 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 therefrom. 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, for the performance of the product based on installation, and for performing work in a safe manner. If requested, approval of departures from details furnished by the Engineer shall be as provided here in.

B. The review of shop drawings, data, and samples will be general. 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. 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.

D. One (maximum) copy of shop drawings or product data will be returned to the Contractor. Samples will not be returned.

E. Submittals will be returned to the Contractor under one of the action codes indicated and defined on the transmittal form furnished by the Engineer.

F. Re-submittals will be handled in the same manner as first submittals. On re-submittals, 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.

G. 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.

H. 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.

I. 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.

1.8 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, re-submittal (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.

1.9 CERTIFICATION FORMS

A. If specifically specified in other sections of these Specifications, the Contractor shall submit the applicable certification form for each item required, and in the form attached to this section, completely filled in and stamped.

1.10 CERTIFICATES OF COMPLIANCE

A. Certificates of Compliance required in the specifications shall include and mean certificates, manufacturer’s certificates, certifications, certified copies, letters of certification and certificate of materials.

B. In addition to the certification statement required in 1.4(B) above, the Contractor shall be responsible for providing Certificates of Compliance requested and specified in the technical specifications. Certificates are required for demonstrating proof of compliance with contract requirements and shall be executed in four (4) copies unless otherwise specified. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Supplier, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Supplier from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01300

CERTIFICATE OF DESIGN

The undersigned hereby certifies that he/she is a Professional Engineer registered in the state of _New Hampshire_ and that he/she has been employed by (Name of Contractor) _____ to design _____ in accordance with Specifications Section _____ for the Sewer Interceptor Rehabilitation Project. The undersigned further certifies that he/she has performed similar designs previously and has personally performed or directly supervised the design of the _____; that said design is in conformance with all applicable local, state, and federal codes, rules, and regulations and professional practice standards; 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 full responsibility of the undersigned for that design.

The undersigned hereby certifies that he/she has Professional Liability Insurance or will be covered by an Employer Policy 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 Salem, NH or Owner's representative within seven (7) days following written request therefore by the Owner.

_____	_____
P.E. Name	Contractor's Name
_____	_____
Signature	Signature
_____	_____
Title	Title
_____	_____
Address	Address

SECTION 01518

BYPASS PUMPING

PART 1 -- GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Provide all labor, power, equipment, and materials and pay for all temporary systems to assure the uninterrupted flow of Sanitary Sewage around the Work Area at no additional cost to the Owner including the placement, maintenance and removal of these systems.
2. Make all necessary arrangements for power. The type of pump power and refueling requirements are to be outlined in the proposed plan.
3. Estimated Sewer Flows:
   a. Estimated Average Day Flow = 0.75 MGD
   b. Estimated Maximum Day Flow = 1.7 MGD

1.2 SUBMITTALS

A. The Contractor shall submit a detailed description and plan showing the proposed bypass pumping system within ten days after the effective date of the Agreement between Owner and Contractor, and at least seven (7) days prior to commencement of any construction that will affect sewage flow.

B. The submission shall include the following:

1. A description of the overall procedure to be used.
2. Identify the sections to be bypassed.
3. Type of equipment and materials to be used.
4. Size of the pumps.
5. Temporary wet well location.
6. Backup power source.
7. Locations of temporary force mains.
8. Methods of protection of mains at crossings.
9. The names and telephone and pager numbers for three (3) Contractor contact persons that will be on 24-hour notice to maintain the temporary water system.

1.3 QUALITY ASSURANCE

A. Comply with all Local, State and Federal requirements forbidding the discharge of untreated effluent into other than a functional sanitary sewer facility.

PART 2 -- PRODUCTS

2.1 MATERIALS

A. Two operable pumps each of which has a discharge rate sufficient to handle peak flow rates. One to be on line, the other as back-up.
B. Adequate discharge piping, free of leaks, to carry the effluent from source to an adequate sanitary discharge point.
C. Provide adequate plugs to ensure that no sewage flows into the work area.

PART 3 -- EXECUTION

3.1 PERFORMANCE

A. Provide power supply from a secure source.
B. Maintain adequate power at all times, whether by refueling or standby generator.
C. Maintain and operate the system to assure uninterrupted sewage flow around the work area as long as work requires replacement of active sewers.
D. Protect the discharge piping from damage caused by vehicular traffic or other outside influences.
E. Maintain all system elements in a sanitary working order free of leaks.
F. All work shall be performed in a manner to insure the health and welfare of the general public from accidental or intentional discharge of untreated effluent into other than a sanitary sewer system.

3.2 TEMPORARY FORCE MAIN REQUIREMENTS

A. If a temporary force main is to be used, the temporary force main shall be installed along the road edge or curb line.
B. The main shall be secured from movement with approved devices.
C. Protect the piping from damage caused by vehicular traffic or other outside influences.

3.3 MAINTENANCE

A. Repairs to the system shall be made by the Contractor immediately upon notification of damage or malfunction. During non-business hours, notification shall go to the 3 individuals on the Contractor's contact list. If those individuals cannot be reached, the repair(s) shall be made by the Owner and the Contractor shall be billed for the time and materials required to make the repair. The minimum charge for the Owner making the repair is $500.

3.4 REMOVAL

A. After the work is complete, the Contractor shall remove the entire temporary bypass pumping system and restore all affected areas to preconstruction condition.
B. The Contractor shall restore growth to all disturbed areas.
C. The Contractor shall remove all hard-pack ramps.

3.5 MESUREMENT AND PAYMENT

A. Measurements and Payment for bypass pumping shall be subsidiary to all bid items.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02011

SEWER DATA

PART 1 -- GENERAL

1.1 GENERAL

A. This data for existing sewer conditions has been furnished only for the BIDDER'S information and convenience without any warranty or guarantee, expressed or implied, that the sewer conditions actually encountered will be the same as shown on the television inspection logs (Appendix B). Inspection logs are not intended as representations or warranties and it is expressly understood that neither the OWNER nor the ENGINEER will be responsible for any interpretations or conclusions drawn therefrom by the BIDDER.

B. The BIDDER shall be especially cognizant of the infiltration observations shown on the inspection logs, in that the measurement was generally estimated visually, only at the time of inspection and may not indicate the true infiltration at that time, or at the time of actual construction. Infiltration data is provided with no guarantee being expressed or implied by the OWNER, ENGINEER or Inspection Consultant as to its meaning with respect to conditions present at the time rehabilitation work is scheduled by the BIDDER or successful Contractor.

C. Sewer and manhole inspection information is offered in good faith solely for the purpose of providing the BIDDER all pertinent information available to the OWNER.

D. The BIDDER shall satisfy themselves as to sewer and manhole conditions.

1.2 DESCRIPTION

A. Sewer inspection via closed circuit TV was performed throughout various areas of the Salem sewer system. Inspection logs for those sewer reaches to be rehabilitated as part of this contract are included in Appendix B. This data is provided solely for the CONTRACTOR'S information and is not warranted to be an accurate representation of existing conditions at the site.

1.3 ADDITIONAL INFORMATION

A. The CONTRACTOR shall visit the site and acquaint himself with all existing conditions.

PART 2 -- PRODUCTS

Not Used

PART 3 -- EXECUTION

Not Used

PART 4 -- ATTACHMENTS

A. Sewer Line Inspection Logs for applicable sewer defects are attached as Appendix B.

B. CCTV video inspection logs for applicable sewer defects can be downloaded in .mp4 file format from the following link: http://gofile.me/2RfIJ/6q0RgRmqO

END OF SECTION

SECTION 02761

SEWER CLEANING

PART 1 -- GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Furnishing materials and equipment for thoroughly cleaning sanitary sewer lines and manholes required to perform sewer repairs, removing roots, controlling sewage flow, confirmatory TV inspection and disposal of material removed from the sewer.
2. Heavy cleaning should be anticipated (see Appendix B for CCTV logs). Note: large sags are present and Contractor shall do all work to remove water and solids as required for liner.

B. Work Specified Elsewhere. This Section is not a stand-alone Section. Other requirements which relate to this Section are noted elsewhere in these documents. The Contractor and all Subcontractors are required to review this entire document along with the Drawings in an effort to identify all requirements.

1.2 SUBMITTALS

A. Submit schedule, methods, equipment proposed for cleaning, disposal methods and site, and grit dam construction to the ENGINEER for approval.

B. Submit details of all by-pass piping systems proposed, including pumps, plugs, pipe size, material, location, pump calculations, noise control methods, etc. to the ENGINEER for approval.

1.3 QUALITY ASSURENCE

A. Confined space requirements and all other federal OSHA regulations shall be strictly observed. The CONTRACTOR shall be responsible for providing all necessary safety equipment.

PART 2 -- PRODUCTS

2.1 CLEANING EQUIPMENT

A. Hydraulically Propelled Equipment: The equipment used shall be of a movable-dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of grease. If sewer cleaning balls or other equipment which cannot be collapsed is used, special precautions to prevent flooding of the sewers and public or private property shall be taken.

B. High-Velocity Jet (Hydro-cleaning) Equipment: All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The 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 lines designated to be

cleaned. 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.

2.2 ROOT TREATMENT CHEMICALS

A. Not Used.

2.3 CONFIRMATORY TV INSPECTION

A. Refer to requirements of Section 02762.

PART 3 -- EXECUTION

3.1 GENERAL

A. Contractor shall clean all debris and foreign matter from inside of sewers to be renewed, with the end goal being that the sewer shall have no debris prior to the CIPP's installation. Cleaning shall be divided into two categories as delineated by NASSCO based on the level of effort required in a reach of pipe.
   1. Light Sewer Cleaning
      a. Removal of Deposits Settled (DS) up to a depth of 25% of the rise (vertical diametrical) for pipes up to 12-inches in diameter, up to 15% for 13 to 24-inches in diameter, and up to 10% for 25 to 30-inches in diameter.
      b. This is for an unlimited number of passes with the hydraulic flusher.
   2. Heavy Sewer Cleaning
      a. Removal of obstructions (OB) and DS that exceed the percentage established for light cleaning. This also includes Deposits Attached Grease (DAGS)
      b. Removal of Root (RM/RB), Deposits Attached Encrustation (DAE) and DAGS that requires a cutter be employed for their removal.

3.2 CLEANING PREPARATIONS

A. Prior to cleaning, the CONTRACTOR shall install watertight plugs in the upstream manhole and a grit dam of suitable design and construction in the downstream manhole to prevent all grit, stones, and other materials from being flushed downstream. When cleaning operations for each section are completed, the watertight plug and grit dam shall be removed.

3.3 CLEANING PRECAUTIONS

A. During sewer cleaning operations, satisfactory precautions shall be taken in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow in the sewer line are used, precautions shall be taken to insure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. When possible, the flow of sewage in the sewer shall be utilized to provide the necessary pressure for hydraulic cleaning devices. Any damage cause by such flooding shall be repaired to the original condition by the CONTRACTOR at no additional cost to the OWNER.

B. When additional water is necessary to avoid delay in normal work procedures, the CONTRACTOR shall obtain such water. No water shall be taken from fire hydrants without written permission from the OWNER; the water shall be conserved and not used unnecessarily and no fire hydrant shall be obstructed in case of a fire in the area served by the hydrant. The CONTRACTOR shall be responsible for providing adequate backflow prevention devices for the hydrant.

3.4 SEWER CLEANING

A. The designated sewer sections shall be cleaned using hydraulically propelled, high-velocity jet, or mechanically powered equipment. Selection of the equipment used shall be based on the conditions of lines at the time the Work commences. The CONTRACTOR shall be responsible for proper selection of equipment. The equipment and methods selected shall be satisfactory to the ENGINEER. The equipment shall be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sewer lines, manholes and other structures. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be set up at the next closest manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire section from manhole to manhole, it will be assumed that a blockage exists and the ENGINEER shall be notified of the location immediately.

B. Manholes, siphons, junction chambers and boxes shall be cleaned so that grease, sludge or other deleterious materials are not visible on walls, benches or manhole rungs.

C. All sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. During cleaning operations, a suitable container shall be provided to receive materials removed from the sewers. No sewage, sludge, solids, or other materials removed from the sewers shall be dumped or pumped into the streets or ditches, catch basins or other drains or sewers. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.

D. All material removed from the sewer shall be disposed of at an approved and licensed disposal facility at no cost to the OWNER.

3.5 ROOT REMOVAL

A. All manhole to manhole pipe sections that have root intrusion through sewer joints or from house connections shall have roots removed by mechanical means. Special attention should be used during the cleaning operation to assure almost complete removal of roots from the joints. Any roots which could prevent the proper installation of the CIPP liner shall be removed.

B. Control flow in the sewers in accordance with paragraph 3.6.

C. Roots shall be thoroughly removed from all joints. The CONTRACTOR is responsible for all further work required to completely remove the roots as approved by the ENGINEER.

3.6 SEWAGE FLOW CONTROL

A. Pumping and Bypassing: The CONTRACTOR shall supply the pumps, conduits, and other equipment to divert the flow of sewage around the section in which Work is to be performed. The bypass system shall be of sufficient capacity to handle existing flow,

plus additional flow that may occur during rainfall. Sewer surcharging will not be allowed. If bypass pumping is required, it shall be performed in accordance with section 01518.

B. Flow Control Precautions: When flow in a sewer line is plugged, blocked, or bypassed, sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Further, precautions must be taken to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

C. Sewage flow shall be controlled and bypass pumping implemented to prevent byproducts from the root removal process to enter the wastewater treatment plant.

3.7 DISPOSAL OF MATERIALS

A. All debris removed from the sewers shall be disposed of by the CONTRACTOR in such a manner and location in accordance with all state and local laws, ordinances or regulations, and as approved by the ENGINEER. All materials shall be removed from the site no less often that at the end of each work day. Under no circumstances will the CONTRACTOR be allowed to accumulate debris, etc., on the site of Work beyond the stated time, except in totally enclosed containers as approved by the ENGINEER.

3.8 SQUEEGEE INSPECTION

A. When directed by ENGINEER, the CONTRACTOR shall pull a double squeegee (with each squeegee the same diameter as the sewer) through each pipe section from manhole to manhole as evidence of adequate cleaning.

3.9 CONFIRMATORY TV INSPECTION

A. At the completion of each reach cleaning, the CONTRACTOR shall pull a TV camera through each pipe section for the ENGINEER to view as evidence of adequate cleaning. If the ENGINEER deems that cleaning to be unsatisfactory, the CONTRACTOR shall be required to re-clean and re-TV the line at no additional cost to the OWNER.

3.10 INSPECTION ASSISTANCE

A. Provide assistance to the ENGINEER for inspecting cleaned sewer lines and manholes. Assistance shall include, but not be limited to, removal and replacement of manhole covers, lamping of pipe segments and other assistance as directed by the ENGINEER.

3.11 FINAL ACCEPTANCE

A. Acceptance of sewer line cleaning may be made upon physical inspection of the cleaned sewer lines by the ENGINEER. If inspection of the ENGINEER shows the cleaning to be unsatisfactory, the CONTRACTOR shall re-clean and re-inspect the sewer line until the cleaning is shown to be satisfactory with no additional Contract Time and at no cost to the OWNER.

END OF SECTION

SECTION 02762

TV INSPECTION

PART 1 -- GENERAL

1.1 DESCRIPTION

A. Work Included:
   1. Furnishing materials, equipment and miscellaneous appurtenances, inspecting sewer pipe by means of closed circuit color television, and controlling sewage flow.
   2. Providing recordings, photographs and printed logs of inspections to the OWNER.

B. Work Specified Elsewhere. This Section is not a stand-alone Section. Other requirements which relate to this Section are noted elsewhere in these documents. The Contractor and all Subcontractors are required to review this entire document along with the Drawings in an effort to identify all requirements.

1.2 SUBMITTALS

A. Submit schedule, proposed equipment specifications, and methods for inspection.

B. Submit details of all by-pass piping systems proposed, including pumps, plugs, pipe size, material, location, pump calculations, noise control methods, etc. to the ENGINEER for approval.

C. Qualifications of CONTRACTOR or subcontractor performing the work.

D. Three (3) copies of post-lining TV inspection videos and logs.

1.3 QUALTIY ASSURANCE

A. The CONTRACTOR or subcontractor performing the TV inspection work shall have a minimum of four years experience in TV inspection work.

B. All TV inspections shall be performed in accordance with PACP standards including the specific date and time of inspection.

C. Confined space requirements and all other federal OSHA regulations shall be strictly observed. The CONTRACTOR shall be responsible for providing all necessary safety equipment.

PART 2 -- PRODUCTS

Not Used

PART 3 -- EXECUTION

3.1 TELEVISION INSPECTION

A. The sewer lines and lateral connections shall be inspected by means of pan and tilt closed-circuit color television. Sewer lines shall be cleaned in accordance with Section 02761 prior to TV inspection.

B. Equipment shall be capable of inspecting pipelines, from one access point, at least 500 feet in both upstream and downstream directions.

C. Employ bypass pumping of sewage flows during TV inspections where determined necessary by the ENGINEER, in accordance with section 01518.

D. The camera shall be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. In no case shall the television camera be pulled at a speed greater than 30 feet per minute.

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

F. If, during the inspection operation, the television camera will not pass through the entire pipe section between manholes, the CONTRACTOR shall set up his equipment so that the inspection can be performed from the opposite manhole. If, again, the camera fails to pass through the entire pipe section, the CONTRACTOR shall notify the ENGINEER immediately.

G. Two-way radio or other suitable means of communication shall be set up between the two manholes of the pipe section being inspected to insure good communications between members of the crew.

H. Accurate distance measurements shall be made. Measurement for location of defects shall be aboveground by means of a meter device. Marking of the cable or similar measuring procedures, which would require interpolation for depth of manhole, will not be allowed. Accuracy of the footage meter on equipment shall be checked by use of a walking meter, roll-a-tape, or other suitable device, and the accuracy shall be satisfactory to the ENGINEER.

3.2 TELEVISION CAMERA

A. The color television camera used for the inspection shall be specifically designed and constructed for such inspection. The camera shall be capable of 360-degree rotation to look directly at all areas of the pipe.

B. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe.

C. The camera shall be operative in 100% humidity conditions.

D. The camera shall have a minimum of 500 line resolution.

E. The camera shall be capable of clearly viewing above water line area of any pipe flowing one-third (1/3) diameter full or less.

F. Picture quality and definition shall be to the complete satisfaction of the ENGINEER and, if unsatisfactory, equipment shall be removed and no payment made for unsatisfactory inspection. (Irrespective of compliance with 3.2 A-E.)

3.3 DOCUMENTATION

A. Contractor shall perform all confirmatory TV inspection in the presence of the Engineer. The purpose of confirmatory TV inspection is to document that each sewer reached has been adequately cleaned so that the design and repairs can be performed as called for in the Specifications and as shown on the Drawings. The Engineer shall document in their daily reports which sewer reaches have been adequately cleaned based on their personal observations of the closet circuit TV video screen shots.

B. Television Inspection Logs:

1. A written log of each run shall be furnished after rehabilitation, indicating as a minimum:

a. Project name, location, description of area being inspected (street name, trunk line name, etc.)
b. Identifying number of access point.
c. Identifying number of destination point.
d. Date
e. Size and material of pipe
f. Direction of camera travel
g. Direction of flow
h. Location by footage reference of service tie-ins, broken pipe, infiltration, bends, tees, wyes, etc

2. The CONTRACTOR shall supply three (3) copies of the printed logs to the OWNER.

C. Printed location records shall be kept by the CONTRACTOR. Records shall clearly show the location, in relation to an adjacent manhole, of each infiltration point observed during inspection. In addition, other points of significance such as locations of building sewers, unusual conditions, roots, storm sewer connections, broken pipe, presence of scale and corrosion, and other discernible features shall be recorded and copies of such records shall be supplied to the OWNER

D. Video Recordings

1. DVD format color recordings shall be provided of the post-rehabilitation inspections. For the first 30 seconds of each run, the date, identifying number of the starting access point, identifying number of the destination point, size of pipe and distance meter reading 0 feet shall be displayed before moving the camera forward
2. Throughout the inspection a distance meter shall be displayed constantly indicating, in feet, the distance from the starting access point. A verbal narrative shall be recorded on the tape noting wyes, tees, bends, breaks, etc
3. The purpose of recording shall be to supply a visual and audio record of problem areas of the lines that may be replayed. The CONTRACTOR shall supply three (3) copies of the recordings to the OWNER

3.4 FLOW CONTROL

A. Pumping and Bypassing: The CONTRACTOR shall supply the pumps, conduits, and other equipment to divert the flow of sewage around the section in which Work is to be performed where necessary. The bypass system shall be of sufficient capacity to handle existing flow plus additional flow that may occur during rainfall. Sewer surcharging will not be allowed. If bypass pumping is required, it shall be performed in accordance with section 01518.

B. Flow Control Precautions: When flow in a sewer line is plugged, blocked, or bypassed, sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Further, precautions must be taken to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

END OF SECTION

SECTION 02766

SEWER UV CURE CIPP LINING

PART 1 -- GENERAL

1.1 DESCRIPTION

A. Work Included:
   1. Furnish materials, equipment and labor to execute structural lining of sewers as identified in Section 01010, inspection and testing, and controlling sewage flow.
   2. The CONTRACTOR shall rehabilitate the structurally and/or functionally deteriorated sanitary sewer using the trenchless method of Glass Reinforced Plastic cured-in-place pipe (GRP CIPP) by ultraviolet light cure in accordance with these Specifications.
   3. The CIPP material shall consist of a resin-impregnated fiberglass material tube ("Liner") which when cured shall extend the full length of the original pipe and provide a structurally sound, smooth, joint-less and watertight pipe.

B. Work Specified Elsewhere. This Section is not a stand-alone Section. Other requirements which relate to this Section are noted elsewhere in these documents. The Contractor and all Subcontractors are required to review this entire document along with the Drawings in an effort to identify all requirements.

1.2 REFERENCE STANDARDS

A. ASTM F2019 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Resin Pipe (CIPP).
B. ASTM F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pull in and Inflate and Curing of a Resin-Impregnated Tube.
C. ASTM D543 Test Method for Resistance of Plastics to Chemical Reagents.
D. ASTM D578 Standard Specification Glass Fiber Strands.
E. ASTM D638 Standard Test Method for Tensile Properties of Plastics.
F. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
G. ASTM D3567 Standard Practice for Determining Dimensions of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings.

1.3 QUALITY ASSURANCE

A. All work shall be performed by factory certified and trained applicators.
B. Confined space requirements and all other federal OSHA regulations shall be strictly observed. The CONTRACTOR shall be responsible for providing all necessary safety equipment.
C. Material Safety Data Sheets shall be submitted for all compounds used.
D. The process proposed shall have a minimum three year history of success. A list of at least 15 projects completed in the last three years in similar conditions shall be submitted for verification of experience.
E. The CONTRACTOR or Subcontractor performing the point repair work shall have the following minimum experience:

1. Three (3) years using the methods, materials and equipment proposed.
2. Fifteen (15) sewer pipe repair projects where repairs were performed using the same method and materials proposed and where the work was inspected one (1) year after the work was completed and found to be satisfactory.
3. For each method of installation and curing used on this project, the CIPP Work shall be supervised by a foreman having previously supervised a minimum of 50,000 linear feet of CIPP using a similar resin and flexible tube and using the specific method of installation and curing method proposed.
4. The Contractor shall provide five (5) references of completed projects of similar installations.
5. Proof of all above requirements shall be submitted with all bid documentation.

F. The pipe and joints shall have a smooth surface.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver only materials that fully conform to these specifications or for which submittals have been provided to the ENGINEER and approved for use.

B. Care shall be taken in shipping, handling and storage to avoid damaging the liner. Any liner damaged in shipment shall be replaced as directed by the OWNER at no additional cost to OWNER.

C. While stored, the CIPP shall be adequately supported and protected. The UV Cure GRP CIPPL shall be stored in a manner as recommended by the manufacturer and as approved by the ENGINEER.

1.5 QUALITY CONTROL

A. At the time of manufacture, inspect each lot of liner for defects. At the time of delivery, the liner shall be homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters or deleterious faults.

B. The wet out of the liner must be done in an indoor environmentally controlled manufacturing setting. No onsite wet out will be allowed. This facility maybe inspected at the manufacturer’s plant(s) for compliance with these Specifications by OWNER or ENGINEER.

C. The CONTRACTOR shall prepare three quality assurance samples for every 3,000 LF of CIPP installed. The samples shall be restrained samples for diameters of CIPP less than 18"; and flat plate samples for diameters of CIPP 18" and larger.

D. The CONTRACTOR shall maintain responsibility for the chain of custody for the samples.

E. Testing of the quality assurance samples shall be performed by an independent, certified ISO 17025 testing facility. Each test shall be performed by a laboratory with an American Association for Laboratory Accreditation (AALA) for the specific test to be performed. Testing shall be in accordance with applicable ASTM test methods as given below:

1. Wall Thickness: The reported finished thickness of the CIPP's wall shall be found in accordance with the appropriate procedure given in the ASTM standard D3567. For restrained circular samples the technician will make a series of at least 8 readings at randomly selected locations that are approximately equally spaced around the circumference.

2. For reinforced (full composite) CIPP wall thickness measurements the lab shall employ an optical scale comparator with a 7 to 10X magnification. After making the surface preparation of the cut edge, the reinforced wall thickness and neat resin inner and outer surface layers thicknesses shall be measured

F. Flexural Properties: The initial tangent modulus of elasticity and flexural strength shall be measured for gravity pipe applications in accordance with the ASTM 0790 standard as amended in the appropriate CIPP installation standard and as further amended below. This testing shall be accomplished using test method 1-procedure A on at least 3 specimens; but 5 specimens are preferred.

1. Non-reinforced CIPP test specimens may be cut from the restrained quality assurance sample along the longitudinal axis. The support span shall be 16 (tolerance ± 1) times the depth of the beam specimen (CIPP thickness). Any polymeric film on the inner or outer surface of the specimen preferably should be removed before testing is commenced. The testing of the beams in flexure should be terminated when the maximum strain in the outer surface of the test specimen has reached 5% or at break if the break occurs prior to reaching this maximum strain.
2. Reinforced (full composite) CIPP test specimens shall be cut in the hoop direction at a minimum width of 2.0 inches (axial direction of the in-situ liner). Modifications to the D790 flexural testing shall follow the guidance found in Annex B of the ISO standard I 1296-4. The nominal span to depth ratio used in their testing shall be 16:1 just as for the non-reinforced CIPP specimen. These modifications address how to derive the true unsupported span length and the radius of curvature of the test piece at its mid-thickness. The datum or zero point for strain measurement shall be established from the point of intersection of the slope of the initial linear portion of the stress-strain curve with the strain axis. Where the testing machine software does not automatically correct for zero errors, the testing lab must follow the procedure described in B.5.3 (of Annex B) for deriving the flexural modulus from uncorrected strain data to find the true strain datum. Reinforced CIPP flexural testing should be terminated when the maximum strain in the outer-most fiber surface has reached 3.5% or at break if the break occurs prior to reaching this maximum strain.
3. The flexural properties test report shall include a statement as to the orientation of each test piece (i.e. hoop or longitudinal): the mean composite thickness and the maximum percentage deviation from the mean within the middle third of the test piece; and in the case of curved hoop test pieces: the mean total thickness; the true span length; and the determination of the mean radius. The flexural properties test report shall also include a copy of the stress-strain curve to a scale sufficient to evaluate the nature of the specimens' performance in bending.

G. The finished CIPP should be watertight throughout its full length. When this is not found to be the case, the allowable water infiltration (or exfiltration) between its termination points shall not exceed 50 gallons per inch of internal pipe diameter per mile per day. Any obvious visual leaks through the CIPP wall shall be repaired by the CONTRACTOR using a methodology recommended by the CIPP System manufacturer.

1.6 SUBMITTALS

A. Submit schedule of all work, specification for all materials proposed and equipment to be used and installation procedures for the ENGINEER's approval.

B. Provide design calculations for each liner, including field verified and assumed conditions stamped by a Professional Engineer registered in the state of New Hampshire in accordance with the following design criteria:

1. CIPP installations in circular pipe shapes shall be designed as "fully deteriorated" pipe in accordance with the non-mandatory design Appendix X1 in the ASTM CIPP installation standard F1216. The Engineer of Record's design submittal shall clearly identify the physical properties of the proposed CIPP System upon which his/her design is based.
2. Prior to performing the required wall thickness design calculations and the ordering of the CIPP tube, the internal dimensions, including currently existing variations in the various radii of the existing sewer mainlines shall be verified by the CONTRACTOR to ensure the CIPP will be designed and constructed using the current site specific dimensions and geometry.
3. The design parameters for CIPP thickness calculation shall be based on the following:
   a. A minimum service life of 50 years.
   b. All pipes shall be assumed to be fully deteriorated.
   c. A minimum overall safety factor of 2.0 shall be employed in the engineer's calculations to account for seasonal variations in the external hydrostatic pressure, small variations in the wall thickness as defined in the referenced ASTM standards, and minor variations in the size of the annular space.
   d. The elevation (location) of the phreatic surface in the groundwater (i.e. water table) shall be assumed as 5' above the crown of the host pipe or at the ground surface whichever is more conservative.
   e. The depth of cover shall be field verified by the CONTRACTOR, as determined by the manholes or other access locations on the reach to be lined with the CIPP. The project plans indicate the vertical depths of upstream / downstream manholes.
   f. An ovality of 10.0% may be assumed for circular shaped pipes up to 12 inches in diameter in rigid host pipe materials exhibiting longitudinal fractures that are visually indicating some change in shape has occurred. No ovality beyond what is allowed during manufacturing is required for rigid pipes that are not found to be so distressed (i.e. un-cracked and cracked pipes). For larger diameter circular pipe shapes demonstrating fractures and changes in shape, the site specific ovality shall be determined by the CONTRACTOR using QUANTIFIABLE measuring tools such as laser profiling. Man-entry size pipes should be profiled using 3-dimensional profiling tools or other approved methods that allow for the variations in radii around the circumference of the pipe to be captured for use in the wall thickness design.
   g. The minimum Enhancement Factor (K) value of 7.0 for calculations made using the referenced ASTM F1216 design appendix may be used for circular shaped pipes up to 12 inches in diameter. For larger circular shaped pipes the Engineer of Record should employ an Enhancement Factor commensurate with the size and DR of the proposed CIPP liner as per that given in the engineering literature.
   h. The minimum shot term flexural modulus of elasticity (ASTM D790) for various glass fiber reinforced (GFR) shall be as follows:

1). Polyester System: 325,000 psi
2). Enhanced Polyester System: 400,000 psi
3). Vinyl Ester System: 300,000 psi
4). Glass Fiber Reinforced(GFR) Polyester System: 550,000 psi
5). Full-Fiber Composite System: 1,000,000 psi

i. The Flexural Modulus of Elasticity of the proposed CIPP System shall have a minimum creep retention factor of 0.50 for an estimated 50-year hydrostatic design loading period. The creep retention factor shall be determined by the CIPP System Manufacturer through long-term, qualification testing lasting a minimum of 10,000 hours at an appropriate stress level. Documentation of the retention factor will be submitted to the ENGINEER prior to any design calculations being made.

C. MSDS sheets for all compounds proposed.
D. Certificate of factory training and product application authorization from the manufacturer.
E. Calculations of repair section hydraulic capacity.
F. Test reports of liners.
G. Manufacturers' published literature for liner storage and handling, installation methods, and quality control program.
H. Work Plan: CIPP CONTRACTOR' installation site plan including site layout, filed verified reach lengths, equipment, access points, termination points for each reach, method of CIPP insertions (e.g. air inversion. Pulled-in-place), traffic control devices.
I. Details of all bypass pumping systems.
J. The CONTRACTOR shall submit to the ENGINEER's on-site construction observer (inspector) the following information for each CIPP reach within fourteen (14) calendar days of installation of the CIPP:
   1. Resin Saturation Documentation (Wet-out Report).
   2. Hardening documentation in the form of contemporaneous logging of the light intensity(s) and length of exposure time as the light train moves along the length of the subject reach of pipe. This log shall also be imprinted with the air pressure maintained inside of the liner during the hardening process. The data shall be recorded in digital format that is tamper proofed.
K. F. CONTRACTOR shall submit the proposed work schedule a minimum of seven (7) days prior to all planned work. CONTRACTOR shall provide 48 hours advance verbal notice prior to pre- and post-installation CCTV inspections.

PART 2 -- PRODUCTS

2.1 MATERIALS

A. All liner repairs shall be installed such that the repaired section of pipe has the same hydraulic capacity as the original pipe. Calculations illustrating maintenance of hydraulic capacity shall be submitted for the ENGINEER's review.
B. The CIPP System shall be capable of conforming to the irregularities normally found in buried pipes requiring renewal such as offset joints, fractured pipe, and otherwise disfigured pipe sections. It shall be able to stretch to fit these localized and/or global irregular pipe sections; and when noted in the plans for the subject pipe reaches, negotiate bends.

C. The glass fiber tubing shall include an exterior and interior film that protects and contains the polyester, vinylester or ortho-based resin used in the liner. The exterior film will be provided with a UV light blocker foil.

D. The wet out Tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the Design thickness.

E. The Tube shall be sized such that when installed, will tightly fit the internal circumference and length of the original pipe structure while simultaneously minimizing the creation of any wrinkles or fins on the interior wall surface. Allowances should be made for the normally anticipated longitudinal and circumferential stretching that occurs during placement of the proposed tube into the host pipe structure.

F. Any plastic film attached to the tube on what will become the interior wall of the finished CIPP shall be compatible with the resin system used, translucent enough that the resin is clearly visible, and shall be firmly bonded to the fabric tube when it is to become a permanent part of the finished CIPP. It shall also be formulated to create an impermeable barrier or membrane against the leaching of any volatile components of the resin system such as styrene prior to resin hardening taking place.

G. The glass fiber tube shall be saturated with the appropriate resin using a resin bath system to allow for the lowest possible amount of air entrapment. An inner and outer material will be added that are both impervious to airborne styrene, with the outer material also having UV blocking characteristics. The inner membrane will be removed after the installation and curing processes are completed.

H. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

I. The liner should be seamless in its cured state to insure homogenous physical properties around the circumference of the cured liner.

J. The tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 feet. Such markings shall also include the manufacturer's name or identifying symbol.

K. The resin used shall not be cured with heat, but shall use UV light to cure the pipe. The liquid UV resin shall saturate the tube and produce a properly cured liner which is resistant to abrasion due to solids, grit, and sand.

L. The repair liner shall be corrosion resistant with the following minimum structural properties:

Flexural Strength:	4,500 psi
Flexural Modulus	300,000 psi

M. The liner shall be designed to the specific field conditions existing at the defective pipe section (depth of pipe, loads, groundwater, etc.). All design calculations shall be submitted for the ENGINEER's review. The above stated are minimum required properties.

N. The liner shall be fully structural with excellent corrosion and abrasion resistance.

O. Pre-liners shall be required on all the CIPP installed on this project to control resin loss, CIPP finished thickness, physical properties, contamination of the resin, and prevent blocked or plugged laterals. The pre-liner shall also be used to create an impermeable barrier for the resin system against styrene and other chemical odors that may be given off before and during the resin hardening process.

P. The pre-liner tube shall be reinforced plastic sheet formed into a tube sized to fit the hoist pipe being lined and shall be continuous with the proposed CIPP in length from manhole to

manhole. CIPP systems incorporating an external film (plastic membrane) as an inherent part of their construction do not require a separate pre-liner.

Q. Hydrophilic Seals: The ends of the installed CIPP entering and exiting the manholes or other access structures on this project shall be sealed with a performed neoprene rubber material that possesses significant expansive properties that are activated by the presence of any water at the Host pipe-CIPP interface to provide that are activated by the presence of an hydraulic cement and quick-set cement products are not acceptable for this application. Acceptable materials shall be those products that have a demonstrated performance for the environmental service conditions of the host pipe: and are capable of undergoing alternate wet and dry ground conditions without deleterious effects. End seals shall be the Insignia™ manufactured by LMK Technologies or approved equal and shall prevent the migration of water between the liner and host pipe.

2.2 EQUIPMENT

A. All equipment required to install, cure, test and inspect the point repair shall be supplied by the CONTRACTOR.

B. Temperature sensors shall be placed at the upstream and downstream ends of the pipe being lined to monitor the pressurized fluid's (air or water) temperature during the curing process.

PART 3 -- EXECUTION

3.1 CLEANING AND TV INSPECTION

A. All pipelines to receive repairs shall be cleaned and inspected in accordance with Section 02761 and 02762.

B. Standing water and solids shall be removed from the pipe prior to repairs.

3.2 SEWER POINT REPAIR

A. CIPP liners shall be installed and cured in accordance with the manufacturer's recommendations.

B. The finished liner shall be continuous over the entire length of the sewer section. The finished liner will tightly conform to the walls of the existing (host) sewer main; therefore, it is the CONTRACTOR's responsibility to verify the section lengths and pipe dimensions. No gap or annular space between the finished liner and the existing (host) sewer main will be visible at the manhole, sewer service connection or other exposed points within the finished lined section. The finished liner shall be homogeneous throughout and free of any wrinkles, protrusions, holes, cracks, foreign material, blisters or other deleterious faults or defects, which in the opinion of the AUTHORITY ENGINEER, will affect the liner's structural integrity, hydraulic performance, future maintenance access and overall line performance.

C. The layers of the finished CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or such that the knife blade moves freely between the layers.

D. All layers, after cure, shall form one homogeneous structural pipe wall with no obvious indication that a part of tube was left unsaturated by resin.

E. The CIPP shall fit tightly to the internal circumference of the existing pipe. In the case of small diameter pipes there should be no visible annular space at the lateral openings.
F. Wrinkles or fins are undesirable cosmetic defects that may affect the operation of the subject reach of pipe. Where they occur, the engineer will utilize the industry acceptance criteria provided by NASSCO regarding the size and orientation of these defects in order to discern if they can be deemed as commercially acceptable. If they are not deemed acceptable they must be brought into compliance with this standard.
G. Hardened "lifts" in the finished CIPP arc unacceptable and must be repaired in accordance with the CIPP Manufacturer's recommendation for the type of CIPP System that was used.
H. Point repairs shall be located using closed circuit color TV.
I. All repair sections shall extend a minimum of 1 foot beyond either side of the defect with a minimum length of 4 feet. Where longitudinal cracks occur in the vicinity of the point repair, the ENGINEER shall be notified prior to performing the repair, if it would be appropriate to repair the length of pipe between joints to prevent further cracking of the pipe.
J. Repairs shall be conducted using trenchless technology. Excavation will not be permitted.
K. The liner shall be of corrosion-resistant material, suitable for use in a sewer and shall be fully structural.
L. Any service branches which are blocked during the repair shall be re-opened using a remote control cutting device monitored by a video TV camera.
M. The sewer service connection cuts shall be uniform and free of burrs and sharp edges. CONTRACTOR shall use a "brushing" technique to smooth edges of reinstated lateral openings.
N. No significant interior pipe volume changes shall occur due to the installation of the liner.
O. The liner shall be bonded to the pipe to prevent infiltration of groundwater into the pipe.
P. No water shall be able to migrate between the CIPP and the host pipe; otherwise, the CIPP installation shall be considered defective and shall be repaired or replaced at no additional cost to Owner.

3.3 INSPECTION AND TESTING

A. The CONTRACTOR shall provide a final TV inspection of the pipe after the repair is completed. Three copies of the DVD shall be provided to the OWNER. All DVDs shall be clearly labeled and meet the requirements of Section 02762.
B. Acceptance of the CIPP installed on this project shall be based on compliance with this Section as demonstrated with submitted quality control reports, curing logs, and post-installation inspection video.

3.4 CONTROLLING SEWAGE FLOW

A. When sewer flows are such that the work cannot be properly executed, when required for testing, and when recommended by the manufacturer, the following method of flow control shall be used:
   1. Pumping and bypassing: Perform wherever lines are blocked off and the possibility of backing up the sewage and causing harm to public and/or private property exists. The CONTRACTOR shall provide equipment, piping, etc., and all

labor for bypass pumping. The bypass system shall be of sufficient capacity to handle existing flows plus additional flow that may occur during periods of a rain storm if pumping is required on a 24-hour basis. If bypass pumping is required it shall be performed in accordance with section 01518.

2. If service laterals must be shut off to perform the work, residents shall be notified a minimum of 72 hours in advance of the proposed work. Each resident shall then be notified again immediately prior to the work, and shall be instructed when flow may resume.

3.5 GUARANTEE

A. All point repair work shall be guaranteed against faulty workmanship and materials for a period of two years.

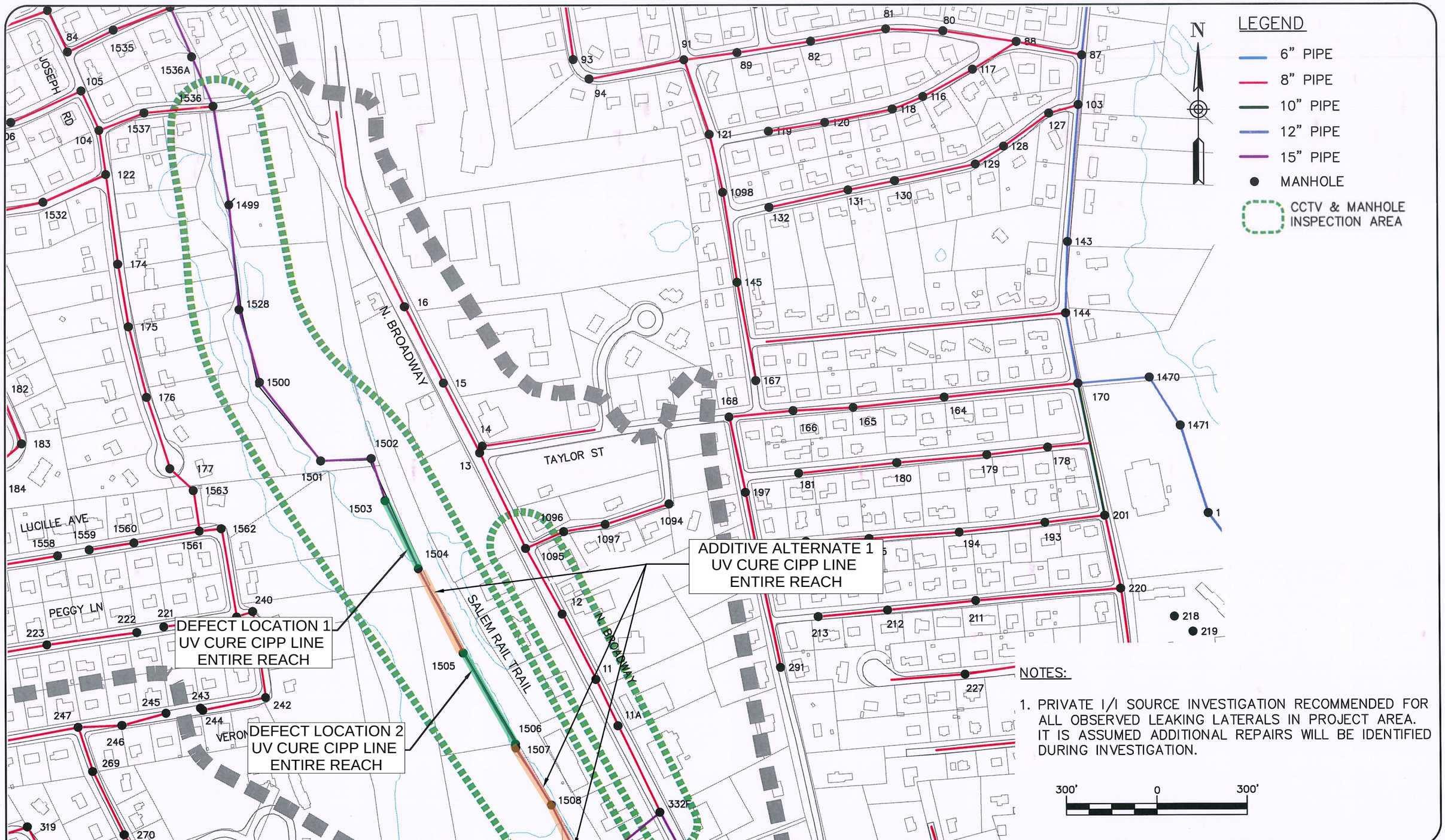
B. A re-inspection using closed circuit color TV shall be conducted by the CONTRACTOR, in the presence of the OWNER or ENGINEER, for a minimum of 50 percent of the liners executed. Any unsatisfactory point repairs identified during the re-inspection shall be repaired at the CONTRACTOR's expense. Three (3) copies of a DVD recording of the inspections shall be made and the three copies turned over to the OWNER.

C. If all the repairs tested in the test area pass, the work shall be considered satisfactory. If one or more repairs fail in the test area, an additional retest area equal in size to the first retest area shall be selected and repairs inspected. This additional inspection and repair shall continue until a successful test area is met. Any additional testing and repairing required due to failure of the test requirements shall be at no cost to the OWNER.

END OF SECTION

APPENDIX A

CCTV Findings Plan Sheet



NOTES:

1. PRIVATE I/I SOURCE INVESTIGATION RECOMMENDED FOR ALL OBSERVED LEAKING LATERALS IN PROJECT AREA. IT IS ASSUMED ADDITIONAL REPAIRS WILL BE IDENTIFIED DURING INVESTIGATION.

DATE			FIG.
7/18	UNDERWOOD engineers	SEWER REHABILITATION RECOMMENDATIONS	
PROJECT 2308	25 Vaughan Mall, Portsmouth, N.H. 03801 Tel. 603-436-6192 Fax. 603-431-4733	BASIN A – RAIL TRAIL XC 2017 I/I EVALUATION SALEM, NEW HAMPSHIRE	1

H:\Real Numbers\Salem\2175 - 2018 Sewer Rehab Recomm\Drawings\2175 figures_updated.dwg, FIG 7.3, 3/23/2018 10:44:32 AM, rmg

APPENDIX B

Sewer Inspection Logs

Eastern Pipe Service
2 Thibeault Dr
Bow
Tel: 603-424-4600
Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

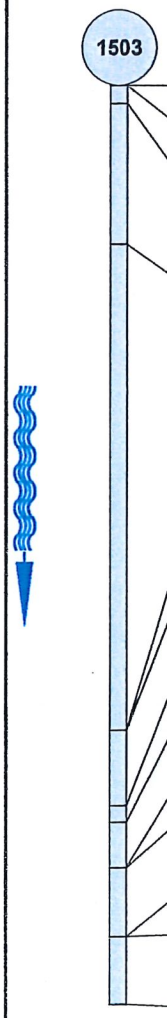
Inspection Report

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
5/19/2017		Dry	Todd Burns	1503 - 1504	110
Certificate No.	**Survey Customer**	**System Owner**	**Date Cleaned**	**Pre-Cleaning**	**Sewer Category**
U-212-14636	Underwood Eng. Salem,N	Salem WWTP		No Pre-Cleaning	

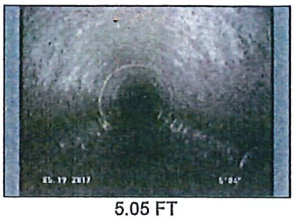
Street123	N.Broadway Easement	Use of Sewer	Sanitary	Upstream MH	1503
City	Salem,NH	Drainage Area		Dowstream MH	1504
Loc. details		Flow Control		Dir. of Survey	Downstream
Location Code	Easement/Right of way	Length surveyed	265.65 ft	Section Length	265.65 ft

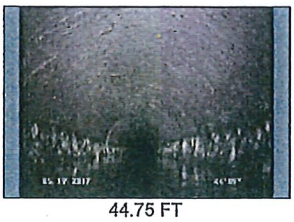
Purpose of Survey	Infiltration/Inflow Investigation	Joint Length	8.00 ft
Year Laid		Dia./Height	15 inch
Year Rehabilitated		Material	Reinforced Concrete Pipe
Tape / Media No.		Lining Method	

Add. Information :

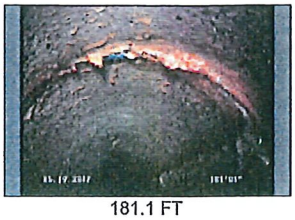


1:648	Position		Code	Observation	Grade
	0.00		AMH	Upstream Manhole, Survey Begins / Start Survey	
	0.00		MWL	Water Level, 15 %of cross sectional area	
	5.05	S1	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start	M 2
	44.75		MWLS	Water Level, Sag in pipe, 40 %of cross sectional area	S 3
	181.10		ID	Infiltration Dripper, from 08 to 04 o'clock, within 8 inches of joint: YES	M 3
	181.10		DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 01 to 04 o'clock, , within 8 inches of joint: YES	M 2
	202.45		MWLS	Water Level, Sag in pipe, 60 %of cross sectional area	S 4
	207.15		OBZ	Obstacles Other, 30 %of cross sectional area, from 04 to 08 o'clock / Under water	M 4
	219.80	F1	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Finish	M 2
	219.80	S2	MCU	Camera Underwater, Start	M 4
	239.20	F2	MCU	Camera Underwater, Finish	M 4
	239.20	S3	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start	M 2
	258.35	F3	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Finish	M 2


5.05 FT


44.75 FT

181.1 FT


181.1 FT

202.45 FT

City : Salem,NH

Eastern Pipe Service
2 Thibealt Dr
City : Bow
Tel: 603-424-4600
Fax: 603-856-8657
Email: tburns@easternpipeservice.com

Inspection Report

Date :	Job number :	Weather : Dry	Operator : Todd Burns	Counter : 110	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : No Pre-Cleaning	Rate :

1:648	Position	Code	Observation	Rate
1504	258.70	IG	Infiltration Gusher, from 08 to 04 o'clock, within 8 inches of joint: YES ~~/ 2 GPM~~ 40 gpm	M 5
	258.70	FC	Fracture Circumferential, from 08 to 04 o'clock, within 8 inches of joint: YES / II Gusher 2 GPM	S 2
	265.65	AMH	Downstream Manhole, Survey Ends / End Survey	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4131	5146	9	124	133	3	2.25	2.29

Eastern Pipe Service
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Inspection photos

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	N.Broadway Easement	5/19/2017	1503 - 1504	110

Photo: 1503 - 1504__19052017030805_A.JPG
5.05FT, Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start

Photo: 1503 - 1504__19052017030913_A.JPG
44.75FT, Water Level, Sag in pipe, 40 %of cross sectional area

Photo: 1503 - 1504__19052017031224_A.JPG
181.1FT, Infiltration Dripper, from 08 to 04 o'clock, within 8 inches of joint: YES

Photo: 1503 - 1504__19052017031300_A.JPG
181.1FT, Deposits Attached Encrustation, 5 %of cross sectional area, from 01 to 04 o'clock, , within 8 inches of joint: YES

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Inspection photos

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1503 - 1504**	**110**

Photo: 1503 - 1504__19052017031355_A.JPG
202.45FT, Water Level, Sag in pipe, 60 %of cross sectional area

Photo: 1503 - 1504__19052017031940_A.JPG
239.2FT, Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start

Photo: 1503 - 1504__19052017032051_A.JPG
258.7FT, Infiltration Gusher, from 08 to 04 o'clock, within 8 inches of joint: YES

Photo: 1503 - 1504__19052017032239_A.JPG
258.7FT, Fracture Circumferential, from 08 to 04 o'clock, within 8 inches of joint: YES

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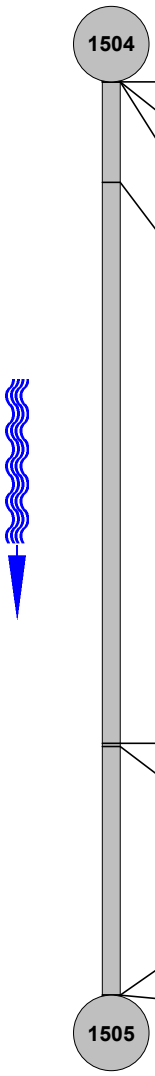
Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
5/19/2017		**Dry**	**Todd Burns**	**1504 - 1505**	**111**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-212-14636	**Underwood Eng. Salem,N**	**Salem WWTP**		**No Pre-Cleaning**	

Street123	**N.Broadway Easement**	Use of Sewer	**Sanitary**	Upstream MH	**1504**
City	**Salem,NH**	Drainage Area		Dowstream MH	**1505**
Loc. details		Flow Control		Dir. of Survey	**Downstream**
Location Code	**Easement/Right of way**	Length surveyed	**320.90 ft**	Section Length	**320.90 ft**

Purpose of Survey	**Infiltration/Inflow Investigation**	Joint Length	**8.00 ft**
Year Laid		Dia./Height	**15.00 inch**
Year Rehabilitated		Material	**Reinforced Concrete Pipe**
Tape / Media No.		Lining Method	

Add. Information :



1:810 Position		Code	Observation	MPEG	Photo	Grade
0.00		AMH	Upstream Manhole, Survey Begins / Start Survey	00:00:25		
0.00		MWL	Water Level, 35 %of cross sectional area	00:00:27		
0.00	**S1**	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start	00:00:34	112_3A	M 2
35.35		IW	Infiltration Weeper, from 08 to 04 o'clock, within 8 inches of joint: YES	00:01:24	112_4A	M 2
232.40		ID	Infiltration Dripper, from 12 to 04 o'clock, within 8 inches of joint: NO / .1 GPM	00:05:19	112_5A	M 3
233.65		CC	Crack Circumferential, from 12 to 04 o'clock, within 8 inches of joint: NO	00:05:55	112_6A	S 1
320.90	**F1**	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Finish	00:08:04		M 2
320.90		AMH	Downstream Manhole, Survey Ends / End Survey	00:08:07		

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
1100	**3122**	**1**	**7**	**8**		**2.33**	**2**

Eastern Pipe Service
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Inspection photos / Inspection: 1

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1504 - 1505**	**111**

Photo: 112_3A, MPEG #: 050517_1, 00:00:34
0FT, Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start

Photo: 112_4A, MPEG #: 050517_1, 00:01:24
35.35FT, Infiltration Weeper, from 08 to 04 o'clock, within 8 inches of joint: YES

Photo: 112_5A, MPEG #: 050517_1, 00:05:19
232.4FT, Infiltration Dripper, from 12 to 04 o'clock, within 8 inches of joint: NO

Photo: 112_6A, MPEG #: 050517_1, 00:05:55
233.65FT, Crack Circumferential, from 12 to 04 o'clock, within 8 inches of joint: NO

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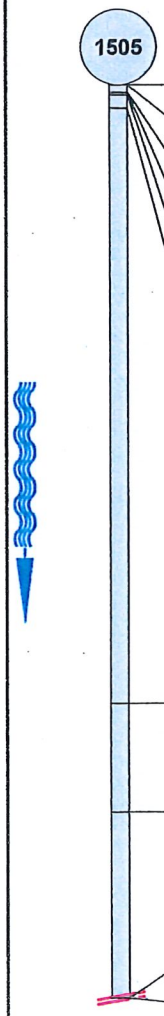
Inspection Report

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
5/19/2017		Dry	Todd Burns	1505 - 1506	112
Certificate No.	**Survey Customer**	**System Owner**	**Date Cleaned**	**Pre-Cleaning**	**Sewer Category**
U-212-14636	Underwood Eng. Salem,N	Salem WWTP		No Pre-Cleaning	

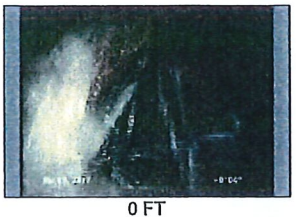
Street123	N.Broadway Easement	Use of Sewer	Sanitary	Upstream MH	1505
City	Salem,NH	Drainage Area		Dowstream MH	1506
Loc. details		Flow Control		Dir. of Survey	Downstream
Location Code	Easement/Right of way	Length surveyed	255.00 ft	Section Length	255.00 ft

Purpose of Survey	Infiltration/Inflow Investigation	Joint Length	8.00 ft
Year Laid		Dia./Height	15 inch
Year Rehabilitated		Material	Reinforced Concrete Pipe
Tape / Media No.		Lining Method	

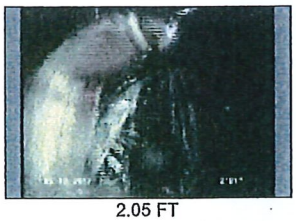
Add. Information :



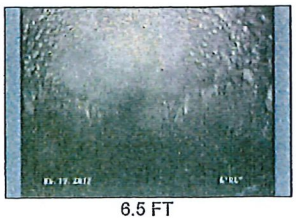
1:644	Position		Code	Observation	Grade
	0.00		AMH	Upstream Manhole, Survey Begins / Start Survey	
	0.00		MWL	Water Level, 40 %of cross sectional area	
	2.05		IG	Infiltration Gusher, from 08 to 04 o'clock, within 8 inches of joint: YES ~~15 GPM~~ 60 gpm	M 5
	2.05		D	Deformed, 30 %	S 5
	2.85		B	Broken, from 08 to 04 o'clock, within 8 inches of joint: YES	S 5
	6.50	S1	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: NO, Start	M 2
	172.65		MWLS	Water Level, Sag in pipe, 50 %of cross sectional area	S 3
	203.05		MWLS	Water Level, Sag in pipe, 55 %of cross sectional area	S 4
	255.00	F1	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: NO, Finish	M 2
	255.00		MSA	Survey Abandoned / Out of reach w/ camera to MH	


0 FT

2.05 FT


2.05 FT

2.85 FT


6.5 FT

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5241	5121	17	105	122	4.25	2.06	2.22

Eastern Pipe Service
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Inspection photos

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1505 - 1506**	**112**

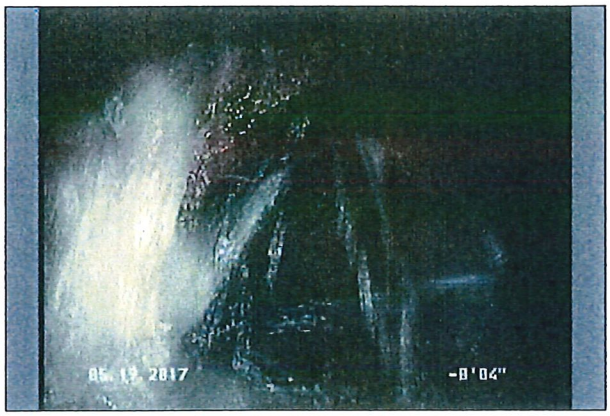

Photo: 1505 - 1506__19052017041518_A.JPG
0FT, Water Level, 40 %of cross sectional area

Photo: 1505 - 1506__19052017041724_A.JPG
2.05FT, Infiltration Gusher, from 08 to 04 o'clock, within 8 inches of joint: YES

Photo: 1505 - 1506__19052017041556_A.JPG
2.05FT, Deformed, 30 %

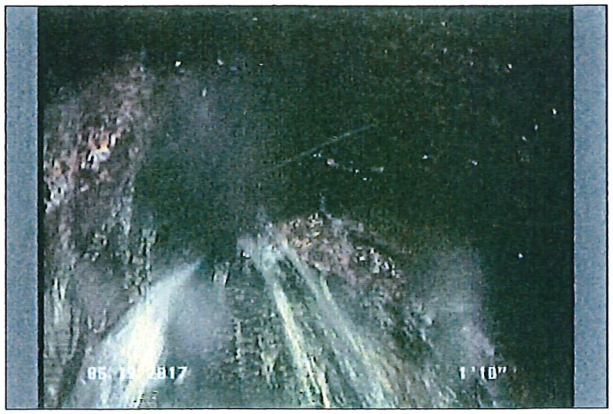

Photo: 1505 - 1506__19052017041639_A.JPG
2.85FT, Broken, from 08 to 04 o'clock, within 8 inches of joint: YES

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Inspection photos

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	N.Broadway Easement	5/19/2017	1505 - 1506	112

Photo: 1505 - 1506__19052017041758_A.JPG
6.5FT, Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: NO, Start

Eastern Pipe Service
2 Thibealt Dr
Bow
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Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

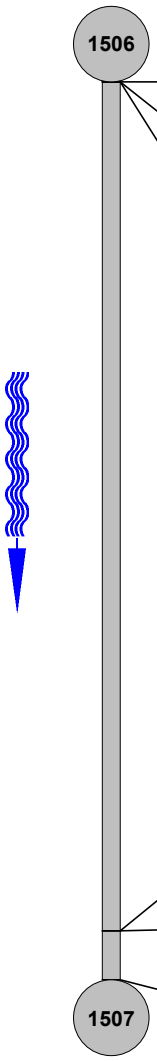
Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
5/19/2017		**Dry**	**Todd Burns**	**1506 - 1507**	**113**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-212-14636	**Underwood Eng. Salem,N**	**Salem WWTP**		**No Pre-Cleaning**	

Street123	**N.Broadway Easement**	Use of Sewer	**Sanitary**	Upstream MH	**1506**
City	**Salem,NH**	Drainage Area		Dowstream MH	**1507**
Loc. details		Flow Control		Dir. of Survey	**Downstream**
Location Code	**Easement/Right of way**	Length surveyed	**23.40 ft**	Section Length	**23.40 ft**

Purpose of Survey	**Infiltration/Inflow Investigation**	Joint Length	**8.00 ft**
Year Laid		Dia./Height	**15.00 inch**
Year Rehabilitated		Material	**Reinforced Concrete Pipe**
Tape / Media No.		Lining Method	

Add. Information :



1:60 Position		Code	Observation	MPEG	Photo	Grade
0.00		AMH	Upstream Manhole, Survey Begins / Start Survey	00:00:24		
0.00		MWL	Water Level, 80 %of cross sectional area	00:00:26		
0.00	**S1**	MCU	Camera Underwater, Start	00:00:32		M 4
22.10	**F1**	MCU	Camera Underwater, Finish	00:02:07		M 4
22.10		ID	Infiltration Dripper, from 11 to 01 o'clock, within 8 inches of joint: YES	00:02:11	114_5A	M 3
23.40		AMH	Downstream Manhole, Survey Ends / End Survey	00:03:06		

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**4431**	**0**	**19**	**19**		**3.8**	**3.8**

Eastern Pipe Service
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Inspection photos / Inspection: 1

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1506 - 1507**	**113**

Photo: 114_5A, MPEG #: 050517_1, 00:02:11
22.1FT, Infiltration Dripper, from 11 to 01 o'clock, within 8 inches of joint: YES

Eastern Pipe Service
2 Thibealt Dr
Bow
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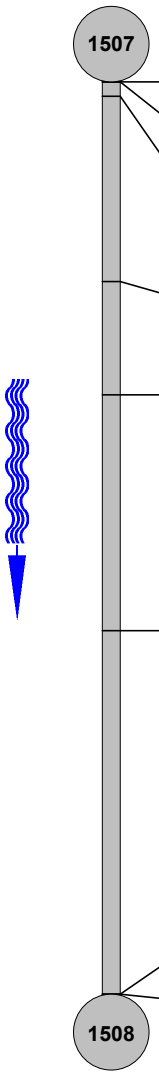
Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
5/19/2017		**Dry**	**Todd Burns**	**1507 - 1508**	**114**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-212-14636	**Underwood Eng. Salem,N**	**Salem WWTP**		**No Pre-Cleaning**	

Street123	**N.Broadway Easement**	Use of Sewer	**Sanitary**	Upstream MH	**1507**
City	**Salem,NH**	Drainage Area		Dowstream MH	**1508**
Loc. details		Flow Control		Dir. of Survey	**Downstream**
Location Code	**Easement/Right of way**	Length surveyed	**219.80 ft**	Section Length	**219.80 ft**

Purpose of Survey	**Infiltration/Inflow Investigation**	Joint Length	**8.00 ft**
Year Laid		Dia./Height	**15.00 inch**
Year Rehabilitated		Material	**Reinforced Concrete Pipe**
Tape / Media No.		Lining Method	

Add. Information :



1:555	Position		Code	Observation	MPEG	Photo	Grade
	0.00		AMH	Upstream Manhole, Survey Begins / Start Survey	00:00:30		
	0.00		MWL	Water Level, 80 %of cross sectional area	00:00:32		
	3.45	**S1**	MCU	Camera Underwater, Start	00:01:02		M 4
	48.10	**F1**	MCU	Camera Underwater, Finish	00:02:13		M 4
	75.35	**S2**	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start	00:02:52	115_5A	M 2
	132.25		MWLS	Water Level, Sag in pipe, 50 %of cross sectional area	00:04:03	115_6A	S 3
	219.80	**F2**	DAGS	Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Finish	00:06:10		M 2
	219.80		AMH	Downstream Manhole, Survey Ends / End Survey	00:06:12		

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
3100	**492E**	**3**	**94**	**97**		**2.47**	**2.49**

Eastern Pipe Service
2 Thibealt Dr
Bow
Tel: 603-424-4600
Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

Inspection photos / Inspection: 1

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1507 - 1508**	**114**

Photo: 115_5A, MPEG #: 050517_1, 00:02:52
75.35FT, Deposits Attached Grease, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start

Photo: 115_6A, MPEG #: 050517_1, 00:04:03
132.25FT, Water Level, Sag in pipe, 50 %of cross sectional area

Eastern Pipe Service
2 Thibealt Dr
Bow
Tel: 603-424-4600
Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
5/19/2017		**Dry**	**Todd Burns**	**1508 - 1509**	**115**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-212-14636	**Underwood Eng. Salem,N**	**Salem WWTP**		**No Pre-Cleaning**	

Street123	**N.Broadway Easement**	Use of Sewer	**Sanitary**	Upstream MH	**1508**
City	**Salem,NH**	Drainage Area		Dowstream MH	**1509**
Loc. details		Flow Control		Dir. of Survey	**Downstream**
Location Code	**Easement/Right of way**	Length surveyed	**257.55 ft**	Section Length	**257.55 ft**

Purpose of Survey	**Infiltration/Inflow Investigation**	Joint Length	**8.00 ft**
Year Laid		Dia./Height	**15.00 inch**
Year Rehabilitated		Material	**Reinforced Concrete Pipe**
Tape / Media No.		Lining Method	

Add. Information :

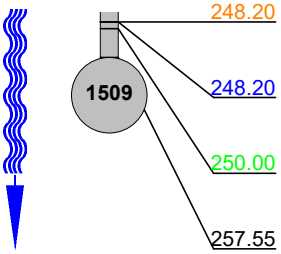
1:612 Position		Code	Observation	MPEG	Photo	Grade
0.00		AMH	Upstream Manhole, Survey Begins / Start Survey	00:00:28		
0.00		MWL	Water Level, 45 %of cross sectional area	00:00:30		
8.80	**S1**	DAGS	Deposits Attached Grease, 5 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start	00:00:50	116_3A	M 2
60.90		ID	Infiltration Dripper, from 01 to 02 o'clock, within 8 inches of joint: NO	00:02:36	116_4A	M 3
60.90		SRC	Surface Reinforcement Corroded, from 01 to 02 o'clock, within 8 inches of joint: NO	00:03:10	116_5A	S 5
92.90	**F1**	DAGS	Deposits Attached Grease, 5 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Finish	00:04:44		M 2
92.90		MWLS	Water Level, Sag in pipe, 70 %of cross sectional area	00:04:47		S 4
92.90	**S2**	MCU	Camera Underwater, Start	00:04:50		M 4
126.05	**F2**	MCU	Camera Underwater, Finish	00:05:45		M 4
134.20		IW	Infiltration Weeper, from 08 to 04 o'clock, within 8 inches of joint: YES	00:06:01	116_10A	M 2
162.25		ID	Infiltration Dripper, from 09 to 11 o'clock, within 8 inches of joint: NO	00:06:47	116_11A	M 3
162.25		SRV	Surface Reinforcement Visible, from 08 to 01 o'clock, within 8 inches of joint: NO	00:07:06	116_12A	S 5
162.25		DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 10 to 12 o'clock, , within 8 inches of joint: NO	00:07:15	116_13A	M 2
240.95		ID	Infiltration Dripper, from 10 to 11 o'clock, within 8 inches of joint: NO	00:09:12	116_14A	M 3
240.95		DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 09 to 11 o'clock, , within 8 inches of joint: NO	00:09:21	116_15A	M 2

City : Salem,NH

Eastern Pipe Service
2 Thibealt Dr
City : Bow
Tel: 603-424-4600
Fax: 603-856-8657
Email: tburns@easternpipeservice.com

Inspection Report / Inspection: 1

Date :	Job number :	Weather : **Dry**	Operator : **Todd Burns**	Counter : **115**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **No Pre-Cleaning**	Rate :



1:612 Position	Code	Observation	MPEG	Photo	Rate
248.20	ID	Infiltration Dripper, from 08 to 04 o'clock, within 8 inches of joint: YES	00:09:47	116_16A	M 3
248.20	DAE	Deposits Attached Encrustation, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES	00:09:58	116_17A	M 2
250.00	JSM	Joint Separated Medium	00:10:33	116_18A	S 1
257.55	AMH	Downstream Manhole, Survey Ends / End Survey	00:11:33		

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5241	**4734**	**15**	**82**	**97**		**2.56**	**2.69**

Eastern Pipe Service
2 Thibealt Dr
Bow
Tel: 603-424-4600
Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

Inspection photos / Inspection: 1

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1508 - 1509**	**115**

Photo: 116_3A, MPEG #: 050517_1, 00:00:50
8.8FT, Deposits Attached Grease, 5 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES, Start

Photo: 116_4A, MPEG #: 050517_1, 00:02:36
60.9FT, Infiltration Dripper, from 01 to 02 o'clock, within 8 inches of joint: NO

Photo: 116_5A, MPEG #: 050517_1, 00:03:10
60.9FT, Surface Reinforcement Corroded, from 01 to 02 o'clock, within 8 inches of joint: NO

Photo: 116_10A, MPEG #: 050517_1, 00:06:01
134.2FT, Infiltration Weeper, from 08 to 04 o'clock, within 8 inches of joint: YES

Eastern Pipe Service
2 Thibealt Dr
Bow
Tel: 603-424-4600
Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

Inspection photos / Inspection: 1

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1508 - 1509**	**115**

Photo: 116_11A, MPEG #: 050517_1, 00:06:47
162.25FT, Infiltration Dripper, from 09 to 11 o'clock, within 8 inches of joint: NO

Photo: 116_12A, MPEG #: 050517_1, 00:07:06
162.25FT, Surface Reinforcement Visible, from 08 to 01 o'clock, within 8 inches of joint: NO

Photo: 116_13A, MPEG #: 050517_1, 00:07:15
162.25FT, Deposits Attached Encrustation, 5 %of cross sectional area, from 10 to 12 o'clock, , within 8 inches of joint: NO

Photo: 116_14A, MPEG #: 050517_1, 00:09:12
240.95FT, Infiltration Dripper, from 10 to 11 o'clock, within 8 inches of joint: NO

Eastern Pipe Service
2 Thibealt Dr
Bow
Tel: 603-424-4600
Fax: 603-856-8657
E-mail: tburns@easternpipeservice.com

Inspection photos / Inspection: 1

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Salem,NH	**N.Broadway Easement**	**5/19/2017**	**1508 - 1509**	**115**

Photo: 116_15A, MPEG #: 050517_1, 00:09:21
240.95FT, Deposits Attached Encrustation, 5 %of cross sectional area, from 09 to 11 o'clock, , within 8 inches of joint: NO

Photo: 116_16A, MPEG #: 050517_1, 00:09:47
248.2FT, Infiltration Dripper, from 08 to 04 o'clock, within 8 inches of joint: YES

Photo: 116_17A, MPEG #: 050517_1, 00:09:58
248.2FT, Deposits Attached Encrustation, 10 %of cross sectional area, from 08 to 04 o'clock, , within 8 inches of joint: YES

Photo: 116_18A, MPEG #: 050517_1, 00:10:33
250FT, Joint Separated Medium

APPENDIX C

NHDOT Access Permit Forms

June 2017

REQUESTING A TEMPORARY USE AGREEMENT TO ENTER STATE-OWNED RAILROAD LAND TO PERFORM WORK

Those who wish to cross or enter onto State-owned railroad property on a short-term basis to perform some special work may request a Temporary Use Agreement from the NHDOT Bureau of Rail & Transit. The Bureau must first determine that the Temporary Use Agreement will not affect current or future railroad operations, other transportation or recreation needs, or environmental or historical resources. To initiate the Temporary Use Agreement, follow these steps:

1.) Address a written request to:

Shelley Winters, Administrator
New Hampshire Department of Transportation
Bureau of Rail and Transit
PO Box 483
Concord, NH 03302-0483

2.) Request permission for a Temporary Use Agreement to cross or enter on to State-owned railroad land and provide:

a) A photograph, a location map and a plan or sketch of the area showing the property lines and the area of the railroad corridor to be entered onto.
b) A description of your intended use of the railroad land, the length of time that the work will take and an explanation of the need for the crossing at the location identified. (e.g. construction access)
c) Documentation of your ownership (i.e. deed and/or assessor's card) of your property adjacent to the State-owned railroad property, if applicable.

3.) The Bureau of Rail and Transit will review your request and may inspect the proposed work location. If the use is justified, the Bureau will prepare a Temporary Use Agreement with a defined end date, denoting the agreement is not permanent, and send it to you. Once you have signed and returned it with the required fees and insurance, it will be reviewed by the Attorney General's Office. The completed Temporary Use Agreement will then be returned to you. The holder of the Temporary Use Agreement must contact the Bureau of Rail & Transit and the Operating Railroad before entering on to the State-owned railroad corridor. Flagmen may be required by the railroad to be on site when workers or equipment are on the State-owned railroad corridor, at your expense.

Execution of the agreement will include these special Requirements (do not send with your initial request):

a) There is a one-time preparation fee of $350 plus a fee of $50 per year for the term of the Agreement. Time extensions to the Temporary Use Agreement, beyond the original term, will incur an additional $50 annual fee.
b) You must provide a Certificate of Insurance showing you have acquired general liability coverage in the amount of $1,000,000 each occurrence and $2,000,000 in the aggregate. The Certificate of Insurance must designate the State of New Hampshire and the operating railroads (if any) as additional insured. You also may be required to provide Railroad Protective Public Property Damage Insurance in the amount of $1,000,000 each occurrence and $2,000,000 in the aggregate, where the work will be performed on an active railroad corridor.
c) You may provide a bond in an amount to be determined, where work in the railroad corridor may impact railroad facilities and/or property.
d) Corporations, Trusts, and other businesses must provide a Certificate of Vote for the Signatory and a Certificate of Good Standing from the New Hampshire Secretary of State.

NOTE: THIS PROCEDURE CAN TAKE A MINIMUM OF SIXTY DAYS, TO COMPLETE ONCE WE RECEIVE ALL THE REQUIRED INFORMATION AND DEPENDING ON THE COMPLEXITY OF THE WORK TO BE PERFORMED ON THE RAILROAD PROPERTY.

Suggested Letter

[*Project Number*]

[*Date*]

Ms. Shelley Winters, Administrator
New Hampshire Department of Transportation
Bureau of Rail and Transit
PO Box 483
Concord, NH 03302-0483

Re: ***Temporary Use Agreement Request***
Sewer Interceptor Rehabilitation Project
Salem, NH

Dear Ms. Winters:

[*Contractor's name*] requests a Temporary Use Agreement for trenchless pipe repair activities associated with the proposed Sewer Interceptor Rehabilitation Project located adjacent to the Salem, NH Rail Trail. The following documents are attached in support of this request:

- Description of intended use on State-owned Railroad Land/Right-of-Way.
- USGS Location Map.
- A photograph of State-owned Railroad Land/Right-of-Way.
- Sketch indicating area where activities will be performed or equipment placed on State-owned Railroad Land/Right-of-Way.
- Letter from the Town of Salem documenting authority to work in properties adjacent to the State-owned railroad property.

Please provide a draft Temporary Use Agreement for review.

Please call if there are any questions.

Very truly yours,

[*Contractor's Name*]

Encl.

The Town of Salem, New Hampshire (the Town) has been working with Underwood Engineers, Inc. (UE) to identify Infiltration and Inflow (I/I) within the wastewater collection system. The *Sewer Master Plan*, prepared by UE and dated June 2017 identified that approximately 60% of the Town's annual sewer flow was I/I and that I/I contributed to hydraulic bottlenecks in the Town's sewer interceptors. CCTV Inspections of select sewers in May 2017 identified including two (2) large leaking defects in a cross-country portion of the sewer near the NHDOT rail trail west of North Broadway.

This application is for truck access to the NHDOT rail trail to perform trenchless repair of these two leaking defects.

Project Description

The work consists of trenchless repair of the noted pipe defects by use of UV-cured Cast In Place Pipe (CIPP) liners for both pipe reaches. The work area is located adjacent to the Salem Rail Trail. It is anticipated that work can be performed by truck access from the Rail Trail.

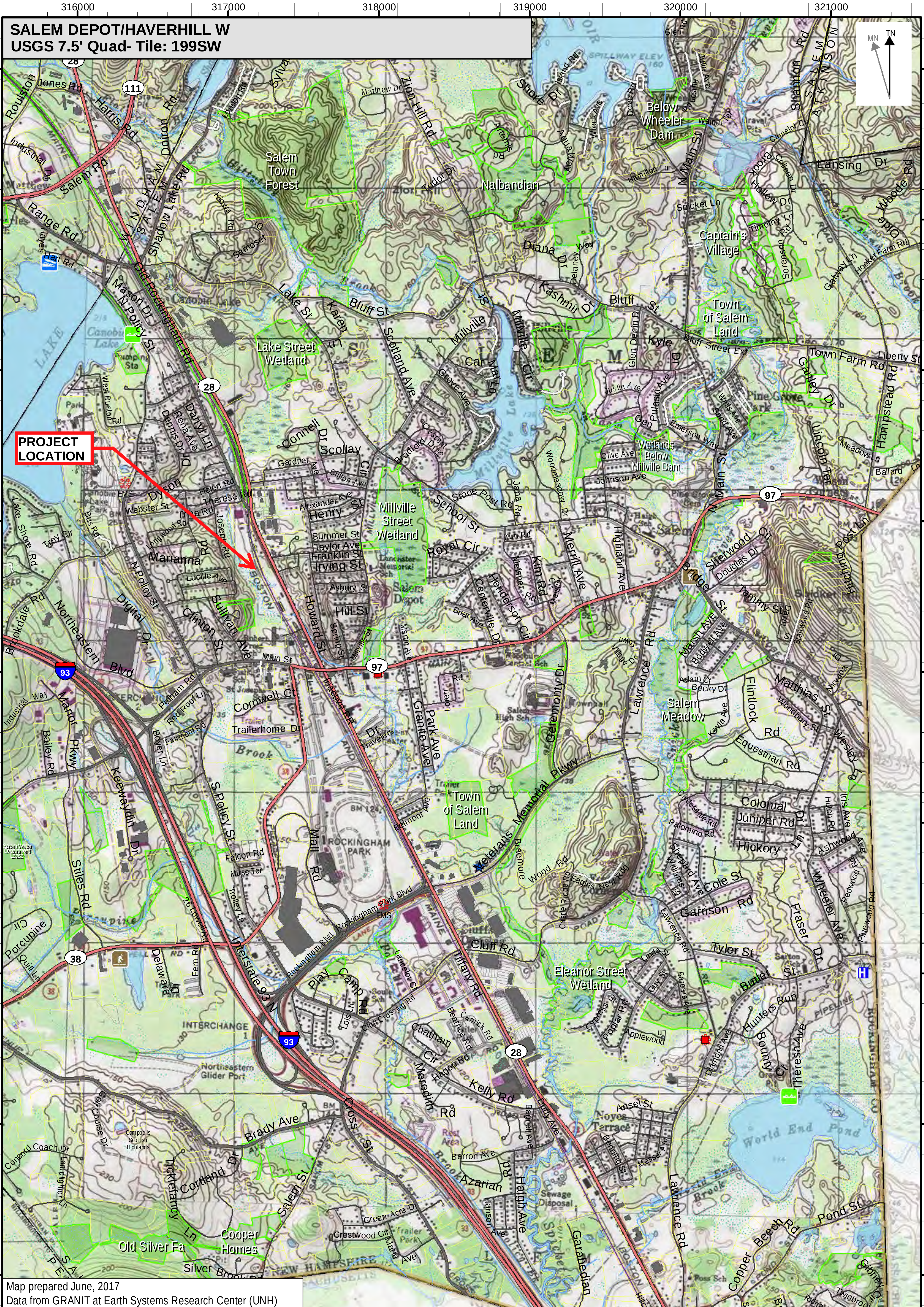
Intended Use and Duration

Two days of repair work is planned within the Salem Rail Trail (see attached Sketch indicating location). The CIPP repairs can be performed via manhole access and it is anticipated that all trucks, bypass pumps, and machinery will be staged within the Rail Trail for access to the manholes. No excavation is anticipated.

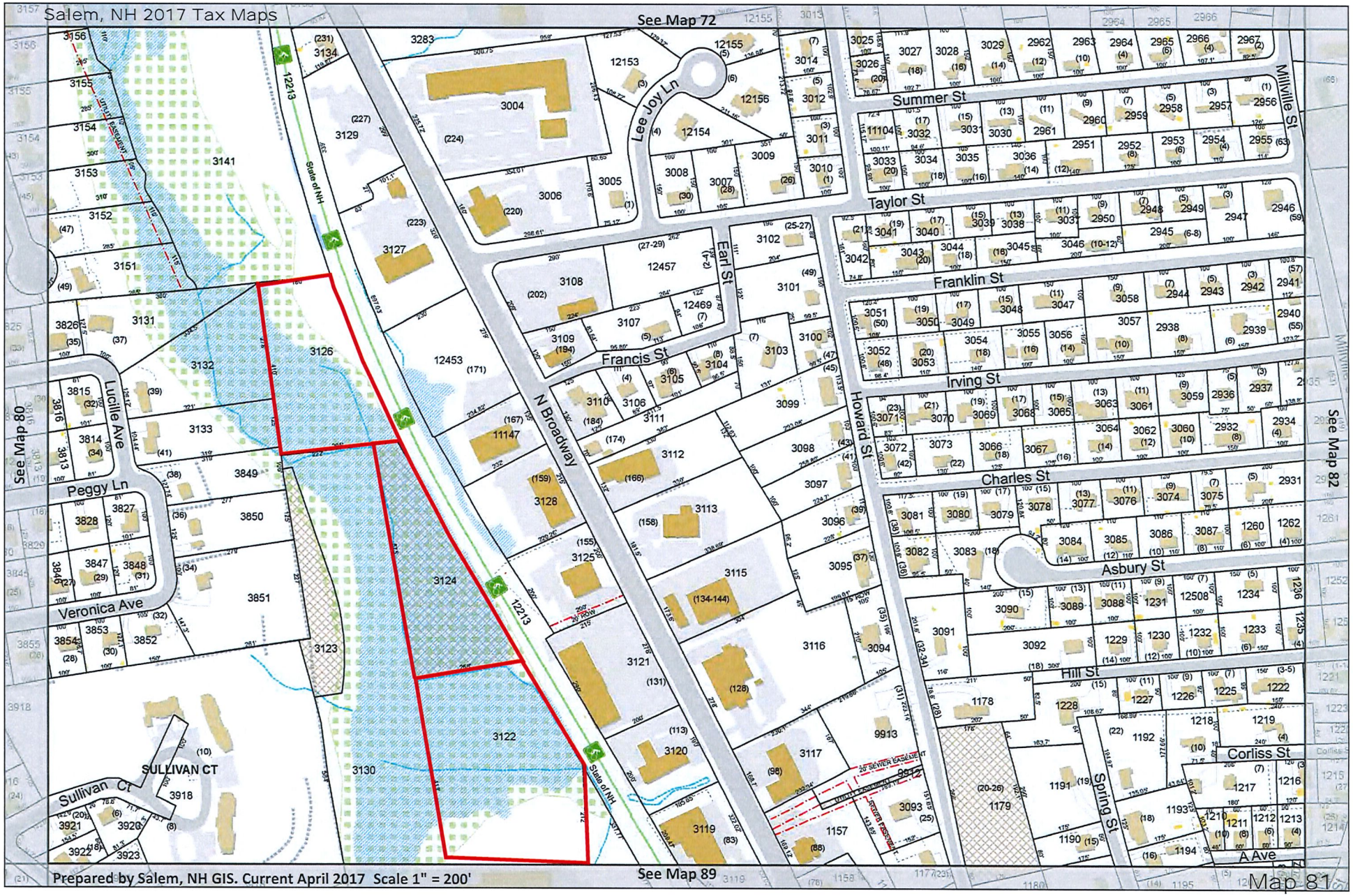
The repair will require two box trucks at the site. It is anticipated that the trucks will access the rail trail via the Sanel Auto Parts lot south of the project location. The trucks will be parked on the Rail Trail during the work.

The work is planned for the months of September/October, 2018 pending execution of the requested Temporary Use Agreement.

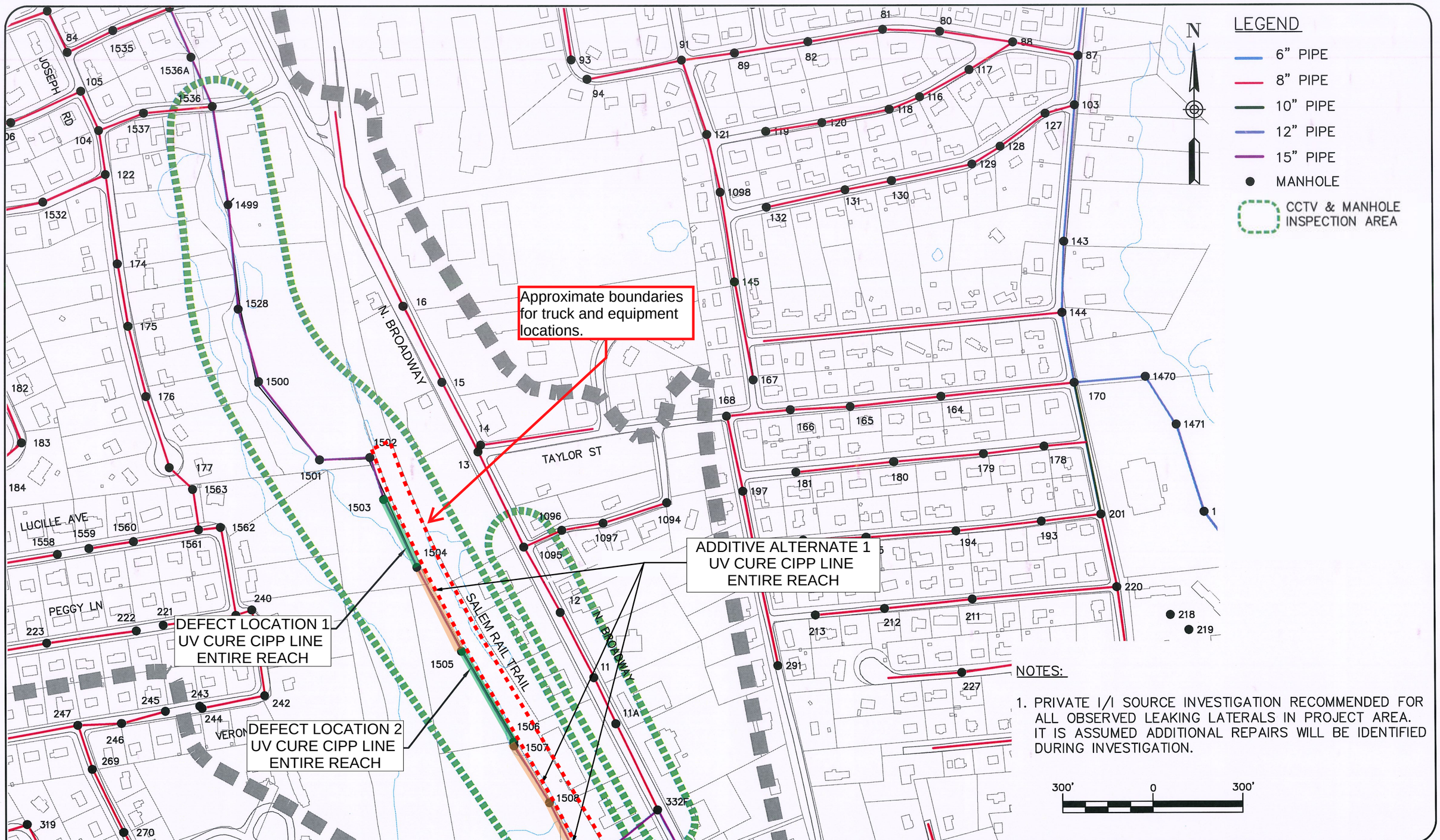
SALEM DEPOT/HAVERHILL W
USGS 7.5' Quad- Tile: 199SW



Map prepared June, 2017
Data from GRANIT at Earth Systems Research Center (UNH) and Open Street Map contributors. NH GRANIT and cooperating agencies make no claim to validity or reliability or to any implied uses of these data. Basemap © 2015 National Geographic Society



FOR ASSESSING PURPOSES ONLY - NOT FIELD VERIFIED



NOTES:

1. PRIVATE I/I SOURCE INVESTIGATION RECOMMENDED FOR ALL OBSERVED LEAKING LATERALS IN PROJECT AREA. IT IS ASSUMED ADDITIONAL REPAIRS WILL BE IDENTIFIED DURING INVESTIGATION.

DATE			FIG.
7/18	UNDERWOOD engineers	SEWER REHABILITATION RECOMMENDATIONS BASIN A – RAIL TRAIL XC 2017 I/I EVALUATION SALEM, NEW HAMPSHIRE	1
PROJECT 2308	25 Vaughan Mall, Portsmouth, N.H. 03801 Tel. 603-436-6192 Fax. 603-431-4733		

H:\Real Numbers\Salem\2175 - 2018 Sewer Rehab Recomm\Drawings\2175 figures_updated.dwg, FIG 7.3, 3/23/2018 10:44:32 AM, rmg

APPENDIX D

Wetlands Utility Maintenance Notification

WETLANDS UTILITY MAINTENANCE NOTIFICATION

Land Resources Management

Check the Status of your Notification: www.des.nh.gov/onestop

RSA/ Rule: Env-Wt 100-900

Complete No. (see bottom of page 2): _____

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

This notification form and process is for the maintenance and in-kind repair of **existing utility services** within **existing rights of way** consistent with the *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire* (Utility BMP manual) published by the NH Department of Natural and Cultural Resources, formerly the Department of Resources and Economic Development, (January 2010). Please read the before proceeding. Once the form is completed and submitted to the municipal clerk and the NHDES Wetlands Bureau, in accordance with RSA 482-A:3, XV, the work may begin.

1. UTILITY PROVIDER/COMPANY		
UTILITY PROVIDER/COMPANY NAME: **Town of Salem, NH**		
AUTHORIZED REPRESENTATIVE: **Daniel Hudson, P.E.**		
UTILITY MAILING ADDRESS: **33 Geremonty Rd.**		
TOWN/CITY: **Salem**	STATE: **NH**	ZIP CODE: **03079**
PHONE: **603-890-2030**	FAX: **603-898-1223**	EMAIL: **dhudson@salemNH.gov**
2. PROJECT LOCATION - A separate notification must be filed for each municipality jurisdictional impact will occur in.		
TOWN/CITY: **Salem, NH**	ZIP CODE: **03079**	
3. PROPOSED PROJECT DESCRIPTION		
This work includes the rehabilitation of approximately 520 LF of 15-inch sewer interceptor by means of UV-cured Cast In Place Pipe (CIPP) Liner within a wetlands area near N. Broadway in Salem NH. CIPP rehabilitation is a trenchless technology that will not require excavation. Temporary impacts will be limited to providing access for equipment. Work is anticipated to occur in September and/or October, 2018. Work will be performed by a contractor selected by the Town.		

DRAFT

4. PROJECT TYPE			
☐	Equipment repair and maintenance in rights of way (ROW)		
☐	Vegetative maintenance within ROW (If access through private property is needed to reach the ROW, permission from the landowner(s) is required prior to conducting work.)		
☐	Overhead Electric Lines	☐	Water supply Lines
☐	Overhead Telephone or Cable Lines	☒	Sewer Lines
☐	Natural Gas Lines	☐	Other:

5. IMPACTED RESOURCES - Check all that apply			
☒	Temporary Non-Tidal Wetland	☐	Temporary Intermittent Stream Crossing
☐	Temporary (2-years max) Perennial Stream or River Crossing		

6. ATTACHMENTS - Verify the following attachments are submitted with this form by checking each box below.	
☒	Copy of a USGS topographic map (at its original scale 1:24,000 or 1:25,000) with the project location(s) or utility corridor clearly identified.
☒	$200 filing fee (nonrefundable) made payable to: Treasurer, State of NH.
☒	A Letter or memo from the Department of Natural and Cultural Resources' Natural Heritage Bureau (NHB) indicating that NHB has reviewed your project. Contact NHB at (603) 271-2215 ext. 323 or NHBReview@dred.gov.nh for instructions on how to submit project information (method may vary depending on project complexity). NHB File No.: **NHB18-2393**

7. CONFIRMATIONS	
☒	All impacts are temporary and will be restored, repaired or removed upon completion of work.
☒	Temporary impacts are a result of in-kind repairs or replacement.
☒	The NH Natural Heritage Bureau (NHB) has reviewed the project and reported "No potential impacts" to exemplary natural communities and state-listed species OR such elements are present but I have received recommendations on how to avoid potential impacts from NHB and/or the NH Fish and Game Department.
☒	I have obtained, read, understand, and retained a copy of the *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire* published by the NH Department of Natural and Cultural Resources, formerly the Department of Resources and Economic Development.
☒	I understand that I may not proceed with the work until this completed application package has been submitted to the NHDES and the municipal clerk.
☒	I understand that once I submit this form, changes or additions to the projects within the municipality will be done by way of an amendment and within the 1 year duration of this Complete Utility Maintenance Notification.
☒	This notification does not exempt you from meeting all other local, state, or federal permits or requirements. Work carried out in violation of any statute rule or condition is subject to enforcement action.
☒	I will confirm that this Utility Notification has been deemed complete and has been issued a file number from NHDES by checking the "OneStop Wetland Permits Que http://www2.des.state.nh.us/OneStop/Wetland_Perm starting work. I will record the NHDES file number on t
☒	This complete Utility Maintenance Notification is valid f found on the NHDES OneStop website.

DRAFT

8. SIGNATURE		
PRINT NAME LEGIBLY	AUTHORIZED SIGNATURE	/ / DATE

lrm@des.nh.gov or (603) 271-2147
NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
www.des.nh.gov

SCALE 1:24000

0 1000 2000 3000 4000 5000 6000

FEET

New Hampshire Natural Heritage Bureau

To: Ransom Horner-Richardson
25 Vaughn Mall
Portsmouth, NH 03801

Date: 7/30/2018

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 7/30/2018

VALID ONLY FOR NOTIFICTION OR MINIMUM EXPEDITED APPLICATIONS SUBMITTED TO THE NHDES WETLANDS BUREAU

NHB File ID: NHB18-2393

Applicant: Daniel Hudson

Location: Tax Map(s)/Lot(s): 81/3126, 81/3124, 81/3122
Salem

Project Description: This work includes the rehabilitation of approximately 520 LF of 15-inch sewer interceptor by means of UV-cured Cast In Place Pipe (CIPP) Liner within a wetlands area near N. Broadway in Salem NH. CIPP rehabilitation is a trenchless technology that will not require excavation. Temporary impacts will be limited to providing access for equipment. Work is anticipated to occur in September and/or October, 2018. Work will be performed by a contractor selected by the Town.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

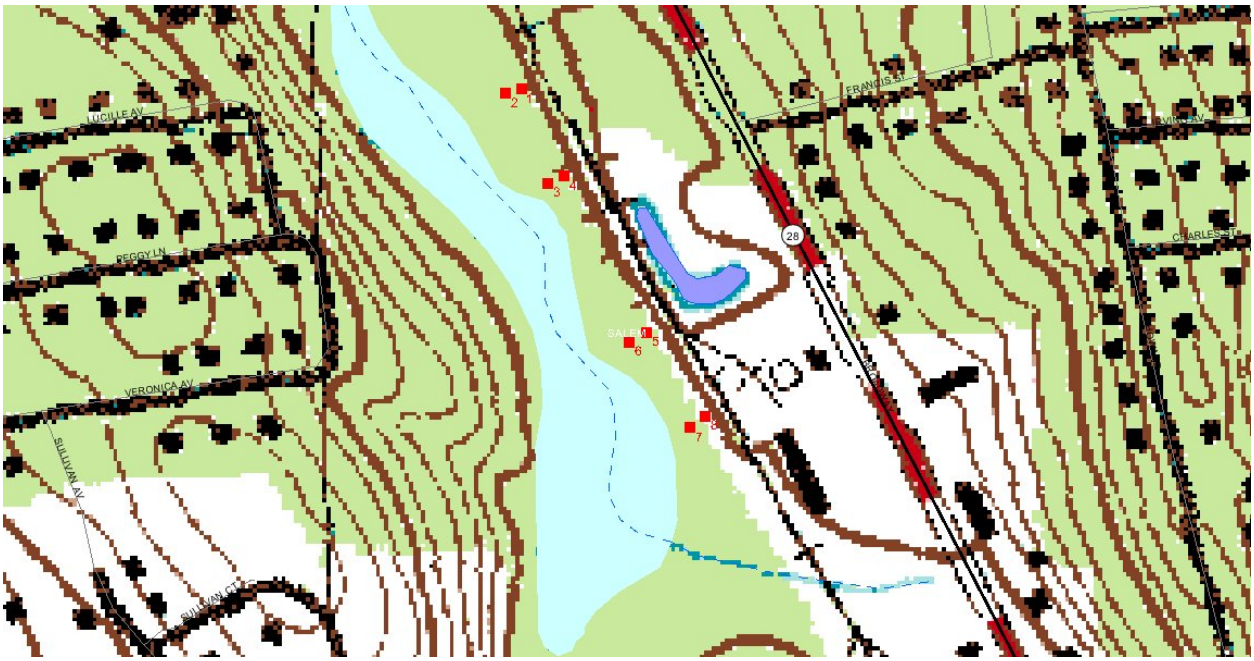
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 7/29/2019.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB18-2393



Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301