

DOCUMENTS AND SPECIFICATIONS
FOR
**CLEANING AND REDEVELOPING
GRAVEL PACKED WELL NO. 4**

TOWN OF SEABROOK
SEABROOK, NEW HAMPSHIRE

JANUARY 2017

JN 17-01

**CLEANING AND REDEVELOPING GRAVEL PACKED WELL NO. 4
TOWN OF SEABROOK
SEABROOK, NEW HAMPSHIRE**

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NOTE: Bidders shall check the attached documents with the above list before submitting a Bid.

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DOCUMENT 00010

ADVERTISEMENT FOR BIDS

The Town of Seabrook is requesting written, and sealed Bids for the Cleaning and Redeveloping of Gravel Packed Well No. 4. All proposals will be accepted by the Office of the Town Manager, C/o Shaylia Marquis, 99 Lafayette Road, Seabrook NH 03874 until 2pm EST on Thursday, February 16th, 2017, at which time the bidding will be closed. Bids submitted after this time will not be accepted and will be returned unopened.

The Work consists of cleaning and redeveloping an 85-foot gravel packed well, modifications to pumping unit and related Work.

Copies of the Proposal Specifications and Contract Documents may be obtained by calling the Purchasing Office at (603) 474-5601 or at the Town's website, www.Seabrooknh.info/Procurement.

Hard copies of all documents are available upon request with a deposit of \$35.00 by check or money order made payable to the Town of Seabrook. Contract Documents may be mailed to prospective Bidders upon receipt of a separate check or money order for \$25.00 made payable to the Town of Seabrook or by providing a United Parcel Service (UPS) account number.

The Contract Documents may be examined during regular business hours from 9:00 a.m. to noon and from 1:00 p.m. to 3:00 p.m. at the following locations:

Seabrook Water Department
550 Route 107
Seabrook, NH 03874

Town Manager's Office
Town Hall
99 Lafayette Road
Seabrook, New Hampshire 03874

The Town of Seabrook reserves the right to accept or reject any proposal if it determines such acceptance or rejection to be in the best interest of the Town of Seabrook. Failure to submit all information specified may be sufficient for disqualification.

William M. Manzi III, Town Manager
Town of Seabrook, New Hampshire

END OF DOCUMENT

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INSTRUCTIONS AND INFORMATION FOR BIDDERS

1.00	Project Identification	1.06	Execution of the Agreement
1.01	Receipt of Bids	1.07	Notice to Proceed
1.02	Modifications and Withdrawal of Bids	1.08	Laws and Regulations
1.03	Examination of Contract Documents and Project Site	1.09	Time Schedule for Completion of Work
1.04	Addenda and Interpretations	1.10	Inspection of the Work
1.05	Award of Contract	1.11	Guarantees
		1.12	Owner's Representative

1.00 PROJECT IDENTIFICATION

- A. Owner: Town of Seabrook, New Hampshire
- B. Awarding Authority: Town Manager
- C. Mailing Address: Office of the Town Manager
C/o Shaylia Marquis
99 Lafayette Road
Seabrook, New Hampshire 03874
- D. Project Name: Cleaning and Redeveloping Gravel Packed Well No. 4

1.01 RECEIPT OF BIDS

- A. Bids for this Project will be received by the Awarding Authority, at the time and place stated in Document 00010, Advertisement for Bids, and then at said place publicly opened and read aloud.
- B. Each Bid must be submitted in a sealed envelope, addressed to the Office of the Town Manager, C/o Shaylia Marquis, 99 Lafayette Road, Seabrook, NH 03874. Each sealed envelope containing a Bid must be plainly marked on the outside with “**Bid for Cleaning and Redeveloping Gravel Packed Well No. 4**”, and the envelope should bear on the outside the name of the Bidder and its address. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Town Manager at the above address.
- C. All Bids must be made on the Bid form included in the specifications. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid form must be completed and executed when submitted. Only one set of the Bid documents is required.
- D. Bidders shall not remove and submit the Bid Documents separate from the volume of Contract Documents, but shall submit their Bids bound with the complete volume of attached Contract Documents.

List of required Documents to be completed for General Bid submission:

1. Form for General Bid.....Document 00300

1.02 MODIFICATIONS AND WITHDRAWAL OF BIDS

- A. The Owner may waive any informalities or minor defects or reject any and all Bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between Owner and the Bidder.
- B. No Bidder may withdraw a Bid within 60 days (Saturdays, Sundays and legal holidays excluded) after the actual date of the Bid opening.
- C. Prior to Bid Opening, Bids may be withdrawn upon written or telegraphic request of the Bidder provided conformation of any telegraphic withdrawal, signed by the Bidder, is placed in the mail and postmarked prior to the time set for the Bid Opening. Bid documents of any Bidder withdrawing its Bid in accordance with the foregoing conditions will be returned.

1.03 EXAMINATION OF CONTRACT DOCUMENTS AND PROJECT SITE

- A. Each Bidder is responsible for inspecting the Project Site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to its Bid.
- B. Bidders must satisfy themselves of the accuracy of the estimated quantities for each Bid Item contained in Document 00300, Form for General Bid by examination of the Project Site and a review of the Contract Documents. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of Work or of the nature of the Work to be done.
- C. The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Bidder or relieve it from fulfilling any of the conditions of the Contract.
- D. The Owner shall provide to Bidders, prior to bidding, all information that is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

1.04 ADDENDA AND INTERPRETATIONS

- A. All questions by prospective Bidders as to the interpretation of the Contract Documents shall be submitted in writing to Shaylia Marquis at Smarquis@seabrooknh.org by 2pm on February 10th, 2017. The Town of Seabrook will post any and all addenda to the Town Website at Seabrooknh.info/Procurement.

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- B. Each Bidder shall be responsible for receiving all addenda issued and shall acknowledge said receipt on Document 00300, Form for General Bid.

1.05 AWARD OF CONTRACT

- A. Each Bidder shall sign its name in the space provided therefore. If the Bid is made by a partnership or corporation, the name and address of the partnership or corporation shall be shown together with the names of the partners or officers. A Bid made by a partnership shall be acknowledged by one of the partners; a Bid made by a corporation shall be acknowledged by one of the authorized officers thereof, and the corporate seal attached.
- B. A conditional or qualified Bid will not be accepted.
- C. The Owner may make such investigations as it deems necessary to determine the ability of the Bidder to perform the Work and the Bidder shall furnish to the Owner such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.
- D. The low responsible and eligible Bidder shall supply the names and addresses of major material suppliers and subcontractors when required to do so by the Owner.

1.06 EXECUTION OF THE AGREEMENT

- A. The party to whom the Contract is awarded will be required to execute Document 00500, Form for Agreement and obtain the Certificates of Insurance within ten (10) calendar days from the date when Document 00430, Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the necessary Form for Agreement and Certificates of Insurance.
- B. The Owner within ten (10) days of receipt of acceptable Certificates of Insurance and Document 00500, Form for Agreement signed by the party to whom the Contract was awarded, shall sign Document 00500, Form for Agreement and return to such party an executed duplicate. Should the Owner not execute Document 00500, Form for Agreement within such period, the Bidder may by written notice withdraw its signed Document 00500, Form for Agreement. Such notice of withdrawal shall be effective upon written receipt of the notice by the Owner.

1.07 NOTICE TO PROCEED

- A. Document 00650, Notice to Proceed shall be issued within ten (10) days of the execution of Document 00500, Form for Agreement by the Owner. Should there be reasons why Document 00650, Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and Contractor. If Document 00650, Notice to Proceed has not been issued within the ten (10) day period or within the period mutually agreed upon, the Contractor may terminate Document 00500, Form for Agreement without further liability on the part of either party.

1.08 LAWS AND REGULATIONS

- A. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout.
- B. This Project is subject to all of the OSHA Safety and Health Regulations (see 29 CFR Part 1926/1910 and all subsequent amendments) as promulgated by the United States Department of Labor on June 24, 1974. Contractors shall be familiar with the requirements of these regulations.

1.09 TIME SCHEDULE FOR COMPLETION OF WORK

- A. All Work shall be completed by April 28, 2017.

1.10 INSPECTION OF THE WORK

- A. The Contractor shall provide at all times proper facilities for access and inspection by representatives of the Owner, federal, state or other agency having jurisdiction over the Work of this Project.

1.11 GUARANTEES

- A. In addition to other guarantees due the Owner, the Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one (1) year from and after the date of completion and acceptance of the Work unless otherwise specified herein.
- B. If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, corrections, or replacements. If the Contractor neglects to commence making such repairs, corrections, or replacements to the satisfaction of the Owner within

three (3) days from the receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make the same, and all direct and indirect costs of making repairs, corrections or replacements, including compensation for additional professional services, shall be paid by the Contractor.

1.12 OWNER'S REPRESENTATIVE

All Questions regarding the Contract Documents shall be directed to Shaylia Marquis, Chief Procurement Officer, Town of Seabrook at Smarquis@seabrooknh.org to preserve the integrity of the bid process.

END OF DOCUMENT

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DOCUMENT 00300

FORM FOR GENERAL BID

PROPOSAL OF: _____
(hereinafter called "Bidder"), organized and existing under the laws of the State of _____
doing business as _____
(a corporation, or a partnership, or an individual), with its principal place of business at _____.

TO: The Town of Seabrook, Town Hall, 99 Lafayette Road, Seabrook, NH 03874, hereinafter called "Owner", acting by and through its Town Manager.

- A. In compliance with your Document 00010, Advertisement for Bids, Bidder hereby proposes to perform all Work for Cleaning and Redeveloping Gravel Packed Well No. 4, in strict accordance with the Contract Documents, within the time set forth herein and at the prices stated below.
- B. The Bidder further certifies under the penalties of perjury that this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used herein the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity.
- C. The Bidder hereby agrees to commence Work under this Contract within 10 consecutive calendar days after a date to be specified in Document 00650, Notice to Proceed and fully complete the Project by April 28, 2017, unless the time for completion is extended otherwise by the Contract Documents.
- D. The Bidder agrees not to withdraw its Bid within 60 days (Saturdays, Sundays or legal holidays excluded) after the actual date of the Bid opening.
- E. Bidder acknowledges receipt of Addenda No. _____ through _____.
- F. The Bidder agrees that, if it is selected as Contractor, it will within ten (10) days after presentation thereof by the Awarding Authority, execute a Contract in accordance with the terms of this Bid and furnish Certificates of Insurance.

END OF DOCUMENT

00300-1

BID ITEMS

- G. Bidder agrees to perform all the Work, including all incidental labor, materials and equipment necessary for the satisfactory completion of the Work and in full compliance with the contents and intent of the Contract Documents, for the following prices listed below.
- H. All prices, except item totals, shall be stated in both words and figures. In the event of a discrepancy between the price in words and the price in figures, the words shall govern. In the event of a discrepancy between the total of the Items and the total stated, the total of the Items shall govern.
- I. Interlineation, alternation or erasure may void the Bid. All prices shall be typewritten or written by hand in ink.

<u>Item</u>	<u>Quantity</u>	<u>Extended Total</u>
1. For mobilization and demobilization of well development equipment, and all work not covered by Items 2 through 9, as specified, the sum of _____ Dollars (\$)) Lump Sum	_____ L.S.	_____
2. For cleaning and re-developing gravel packed well using conventional well development methods and chemical treatment, as specified, the sum of _____ Dollars (\$)) Lump Sum	_____ L.S.	_____
3. For additional hours required to clean or redevelop well using conventional well development methods and chemical treatments, as specified, the sum of _____ Dollars (\$)) Per Hour	_____ 8	_____
4A. For additional well cleaning chemicals (Acid), as specified, the unit price of _____ Dollars (\$)) Per Gallon	_____ 1	_____

Item	Quantity	Extended Total
4B. For additional well cleaning chemicals (Chlorine and Phosphate), as specified, the unit price of	<u>1</u>	_____
Dollars (\$) _____) Per Pound		
5. For video inspections of gravel packed well, as specified, the sum of	<u>2</u>	_____
Dollars (\$) _____) Per Inspection		
6. For modifications to pumping equipment, installation of pumping unit and related work, as specified, the sum of	<u>L.S.</u>	_____
Dollars (\$) _____) Lump Sum		
7. For making repairs to the pump stuffing box as specified, the sum of	<u>L.S.</u>	_____
Dollars (\$) _____) Lump Sum		
8. For balancing the pump and motor as specified, the sum of	<u>L.S.</u>	_____
Dollars (\$) _____) Lump Sum		
9. For two (2) rigid schedule 40 PVC stilling tubes with threaded joints as specified, the sum of	<u>L.S.</u>	_____
Dollars (\$) _____) Lump Sum		

TOTAL AMOUNT OF BID BASED ON OWNER'S ESTIMATE OF QUANTITIES:
 (Items 1 through 9, inclusive) - (BASIS OF AWARD)

_____ Dollars (\$ _____)

- J. Bidder hereby certifies that it has visited the Project Site, received, and reviewed the Contract Drawings and Project Manual (Bidding Documents, Conditions and Technical Specifications) dated January 2017 and titled, Cleaning and Redeveloping Gravel Packed Well No. 4, Town of Seabrook, Seabrook, New Hampshire.
- K. Bidder hereby certifies that it is able to furnish labor that can work in harmony with all other labor employed or to be employed on the Work and that it will comply fully with all laws and regulations applicable to awards made in the State of New Hampshire.
- L. This Bid must bear the written signature of the Bidder or an authorized agent of the Bidder. If the Bidder is a corporation or a partnership, the Bid must be signed by a duly authorized officer of such corporation or by a partner and the title of such officer must be stated.

Respectfully submitted:

Date _____

By _____

(Signature and Title of Person Authorized to Sign Bid)

(Name of Bidder)

(Business Street Address)

(Town/City, State and Zip Code)

Business Phone: _____

Business Facsimile Number: _____

Business E-mail Address: _____

(SEAL – If Bid is by a corporation)

Attest: _____

END OF DOCUMENT

00300-4

DOCUMENT 00430

NOTICE OF AWARD

TO: _____

Project Description: Cleaning and Redeveloping Gravel Packed Well No. 4, Town of Seabrook, New Hampshire.

The Owner has considered the Bid submitted by you for the above described Work in response to its Document 00010, Advertisement for Bids dated _____2017, and Document 00100, Instructions and Information for Bidders. You are hereby notified that your Bid has been accepted in the amount of \$_____.

You are required by Document 00100, Instructions and Information for Bidders to execute Document 00500, Form for Agreement and furnish the required Certificates of Insurance within ten (10) calendar days from the date of this Notice of Award. If you fail to execute said Agreement and to furnish said Certificates of Insurance within ten (10) days from the date of this Notice of Award, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Bid as abandoned. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _____ day of _____2017.

Owner: Town Of Seabrook, New Hampshire
99 Lafayette Road
Seabrook, NH 03874

By its Town Manager

William M. Manzi III

Acceptance of Notice:

Receipt of the above Notice of Award is hereby acknowledged by _____ this _____ day of _____, 2017.

By _____

(Authorized Signature)

Title _____

END OF DOCUMENT

00430-1

DOCUMENT 00500

FORM FOR AGREEMENT

This Agreement, made this _____ day of _____ 2017 by and between the Town of Seabrook, New Hampshire, hereinafter called "Owner", acting by and through its Town Manager, and _____, hereinafter called "Contractor", doing business as _____ (a corporation, partnership, or an individual).

Witnesseth: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The Contractor will commence and complete the work for Cleaning and Redeveloping Gravel Packed Well No. 4, Town of Seabrook, New Hampshire 03874.
2. The Contractor will furnish all of the materials, supplies, tools equipment, labor and other services necessary for the construction and completion of the Project described herein.
3. The Contractor will commence the Work required by the Contract Documents within ten (10) calendar days after a date to be specified in Document 00650, Notice to Proceed and will complete the Project by April 28, 2017, unless the period for Completion is extended otherwise by the Contract Documents.
4. The Contractor agrees to perform all of the Work described in the Contract Documents and comply with the terms therein for the sums shown in Document 00300, Form for General Bid.
5. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative actions to ensure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.
6. The Contractor agrees that the "direct labor mark-up" rate for any change order work performed under this Agreement will be 15 percent.

7. The term “Contract Documents” means and includes the following:
- (A) Advertisement for Bids
 - (B) Instructions and Information for Bidders
 - (C) Form for General Bid
 - (D) Notice of Award
 - (E) Form for Agreement
 - (F) Notice to Proceed
 - (G) General Conditions
 - (H) Special Conditions In General
 - (I) Change Order Form
 - (J) Certificate of Substantial Completion
 - (K) Waiver of Liens Prime Contractor
 - (L) Specifications prepared by the Town of Seabrook, dated January 2017
 - (M) Addenda No. _____
8. The Owner will pay to the Contractor in the manner and at such times as set forth in the Contract Conditions such amounts as required by the Contract Documents.
9. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

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In witness whereof, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in three (3) copies, each of which shall be deemed an original on the date first above written.

Owner: Town of Seabrook, NH
By its Town Manager

William M. Manzi III

(SEAL)

Attest:

Name _____

Title _____

Contractor:

Name _____

Title _____

Address _____

(SEAL)

Attest:

Name _____

END OF DOCUMENT

00500-3

DOCUMENT 00650

NOTICE TO PROCEED

TO: _____

Date: _____

Project: Cleaning and Redeveloping

Gravel Packed Well No. 4

Seabrook, New Hampshire

You are hereby notified to commence Work in accordance with the Agreement dated _____, 2017, on or before _____, 2017, and you are to complete the Work by April 28, 2017. The date of completion of all Work is therefore April 28, 2017.

Owner: Town of Seabrook
99 Lafayette Road
Seabrook, NH 03874

By its Town Manager

William M. Manzi III

Acceptance of Notice to Proceed:

Receipt of the above Notice to Proceed is hereby acknowledged by _____ this _____ day of _____, 2017.

By _____
(Authorized Signature)

Title _____

END OF DOCUMENT

00650-1

DOCUMENT 00700

GENERAL CONDITIONS

1. TIME OF COMPLETION

- 1.1 Time of completion (stated elsewhere in the Contract Documents) is of the essence in this Contract and is based upon maintenance by the Contractor of a regular and consistent rate of progress based upon the order of the Work and the time limits as stated elsewhere in the Contract.

2. OTHER CONTRACTS

- 2.1 The Owner may award other contracts for additional or adjoining work, equipment or supplies and the Contractor shall cooperate with such other contractors and suppliers and carefully fit its own Work to that provided under other contracts as may be directed by the Owner. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor.

3. EXTRA WORK

- 3.1 Performance: The Contractor agrees to perform such Extra Work related to the subject matter of the Contract, as it may from time to time be directed to perform upon written order from the Owner.
- 3.2 Payment: Payment for such Extra Work shall be made in accordance with one or more of the following procedures:
- (a) By a price based on the applicable unit prices of the contract; or agreed upon mutually by the Contractor and the Owner.
 - (b) By a lump-sum price agreed upon between the parties and stipulated in the order for the Extra Work.
 - (c) By a price determined by adding 15% to the actual net cost of the Extra Work performed, such reasonable cost to be determined by the Owner when no agreement is reached on a unit price or on a lump-sum basis.

4. REDUCTION OF QUANTITIES

- 4.1 The Owner reserves the right to decrease the quantity of Work. Should such reduction be made in the quantities of Work originally called for, the Contractor shall have no claim for loss of anticipated profits for that portion of the Work omitted. Unit prices, where prescribed in the Contract, shall apply without change to any reduction in the quantity of the items.

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5. PERMITS

- 5.1 The Contractor shall procure and pay for all permits and licenses necessary for the execution of its Work. The Contractor shall assist the Owner in obtaining the NHDES Temporary Discharge Permit which shall become a part of this Contract.

6. INSURANCE REQUIREMENTS

- 6.1 The Contractor shall carry, with an insurance company satisfactory to the Owner, the insurance coverages specified in this Section. Failure to provide and continue in force such insurance shall be deemed a material breach of the Contract and may at the Owner's election, with notice to the Contractor, operate as an immediate termination. No cancellation of such insurance whether by the insurer or by the insured shall be valid unless written notice of such cancellation is given by the party proposing cancellation to the other party and to the officer or agent who awarded the Contract at least 30 days prior to the intended effective date of such cancellation which date shall be expressed in said notice. Notice of cancellation sent by the party proposing cancellation with a return-receipt of the addressee requested shall be sufficient notice. An affidavit of any officer, agent, or employee of the insurer or of the insured, as the case may be, duly authorized for the purpose, that it has sent such notice addressed as aforesaid shall be prima facie evidence of the sending thereof as aforesaid. Prior to the effective date of any such cancellation the Contractor shall take out at its own cost new insurance to cover the policies so cancelled. This Section shall apply to the legal representatives, trustee in bankruptcy, receiver, assignee, trustee and the successor in interest of any such Contractor.
- 6.2 Prior to approval of the Contract by the Owner, the Contractor shall deposit insurance certificates with the Owner and a written statement from the insurers to the effect that the insurance coverages required by this Section have been issued to the Contractor. The certification shall reflect the non-cancellation provisions required above. All liability insurance shall include the Town of Seabrook, and it's agent as additional insured.
- 6.3 Worker's Compensation Insurance and Employer's Liability Insurance: The Contractor shall procure and maintain during the Contract Time, in accordance with the provisions of the laws of the State in which the Work is performed, Workmen's Compensation Insurance and Employer's Liability Insurance, including occupational disease provisions for all of its employees at the site of the Project; and, in case any Work is sublet, the Contractor shall require such subcontractor similarly to provide Workmen's Compensation Insurance and Employers Liability Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous Work under this Contract at the site of the Project is not protected under Workman's Compensation statute, the Contractor shall provide, and shall cause each Subcontractor to provide adequate and suitable insurance for the protection of its employees not otherwise protected. The limit of Employer's Liability Insurance shall not be less than the following: \$100,000.00 each accident; \$500,000.00 disease-policy limit; \$100,000.00 disease-each employee.

- 6.4 Liability: The Contractor shall take out and maintain:
- (a) Contractors Comprehensive General Liability - Bodily Injury Insurance in the amount of \$1,000,000 on account of any one person or occurrence and \$1,000,000 of any claim or in the aggregate.
 - (b) Contractors Comprehensive General Liability - Property Damage Insurance. Blasting, collapse, and underground utilities damage is included and shall be so stated on the certificate.
 - (c) Owner's Protective Liability Policy including Bodily Injury & Property Damage.
- 6.5 All of the above shall be in the amounts stated in the Contract Documents. All coverages except protective shall include the hold harmless clause as stated in Section 7.1 and must be endorsed to provide contractual liability as stated.
- 6.6 Automobile Liability: The Contractor shall take out and maintain Automobile Bodily Injury and Property Damage Liability in the amount of \$1,000,000. The Automobile Bodily Injury Liability and Automobile Property Damage Liability shall each be taken out and maintained for owned automobiles, for hired automobiles and for non-owned automobiles.
- 6.7 For builder's risk insurance (fire and extended coverage) and until the Work is completed and accepted by the Owner, the Contractor is required to maintain builder's risk type insurance on a 100 percent completed value basis on the insurable portion of the Work for the benefit of the Owner, the Contractor, and Subcontractors as their interests may appear.

7. INDEMNITY

- 7.1 The Contractor shall hold harmless, indemnify and defend the Owner, and their agents and employees while acting within the scope of their duties from and against any and all liability, claims, damages and cost of defense arising out of the Contractor's negligent performance of the Work or failure to comply with any part of this Contract, including any concurrent negligence of the Owner, the Engineer, and their agents or employees. The Contractor will require any and all Subcontractors to conform with the provisions of this clause prior to commencing any Work and agrees to insure this clause in conformity with Section 6.
- 7.2 The Contractor shall bear all losses resulting from the use or storage of explosives and highly inflammable materials and shall save the Owner or its agents harmless from all claims for bodily injuries or death to any person and from all claims for property damage or destruction arising out of the use or storage of explosives and highly inflammable materials.

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8. FAILURE OF PERFORMANCE

- 8.1 If the Work shall be abandoned or if the Contract or any part thereof shall be sublet without the previous written consent of the Owner, or if the Contractor shall be adjudged as bankrupt, or if it shall make a general assignment for the benefit of creditors, or if a receiver of its property shall be appointed, or if at any time the Owner shall be of the opinion that the Work, or any part of the Work, is unreasonably delayed or that the Contractor has violated any of the provisions of the Contract, or if the Contractor should repeatedly fail, except in cases for which extension of time is provided, to supply enough properly skilled persons or proper materials, or if it should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances, or the instructions of the Owner, the Owner may, without prejudice to any other right or remedy and after giving the Contractor seven days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances and finish the Work by whatever method it may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the Work including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.
- 8.2 If the Owner shall certify by written notice to the Contractor that the rate of progress is not satisfactory, the Owner may, instead of notifying the Contractor to discontinue all of the Work or any part thereof, notify it from time to time to increase the force, equipment and plant, or any of them, employed on the whole or any part of the Work, stating the amount of increase required. Unless the Contractor shall, within five (5) days after such notice, increase its force, equipment and plant to the extent required therein, and maintain and employ the same from day to day until the completion of the Work or such part thereof or until the conditions as to the rate of progress shall be fulfilled, the Owner may employ and direct the labors of such additional force for the Contractor's account, equipment and plant as may be necessary to insure the completion of the Work or such part thereof within the time specified or at the earliest possible date thereafter, and charge the expense thereof to the Contractor. Neither the notice from the Owner to the Contractor to increase its force, equipment or plant, nor the employment of additional force, equipment or plant by the Owner shall be held to prevent a subsequent notice to the Contractor from the Owner to discontinue the Work under the provisions of the preceding portion of this Section.

9. ANNULMENT OF CONTRACT

- 9.1 The Owner shall have the right at any time, for such reasons as shall appear good and sufficient to the Owner to annul this Contract upon written notice to the Contractor. The Contractor shall be entitled to the full amount of the estimate for the Work done under the Contract and materials delivered upon the site of the Work up to the time of such annulment. Any additional sums which can be fairly justified to be due the Contractor due to moving on and off the site of the Work and which the Owner determines are so justified, shall be paid to the Contractor.

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10. PAYMENT TO CONTRACTOR

- 10.1 At least ten (10) days before each progress Payment falls due (but not more often than once a month), the Contractor shall submit to the Owner, a partial payment estimate filled out and signed by the Contractor covering the Work performed during the period covered by the partial payment estimate and supported by such data as the Owner may reasonable require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment and protect their interest therein, including applicable Insurance.

11. SAFETY PRECAUTIONS AND ACCIDENT PREVENTION

- 11.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.
- 11.2 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:
- (a) All employees on the Work and all other persons who may be affected thereby;
 - (b) All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors; and
 - (c) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities.
- 11.3 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.
- 11.4 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.
- 11.5 The safety provisions of applicable laws, OSHA, and Construction Codes shall be observed, and the Contractor shall take or cause to be taken such additional safety and health measures to insure that these provisions shall be complied with.
- 11.6 Machinery, equipment and other hazards shall be guarded in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in conflict of applicable law.

END OF DOCUMENT

00700-5
DOCUMENT 00850

SPECIAL CONDITIONS IN GENERAL

1.01 Statutory Requirements in General

- A. Keep fully informed of all existing and future State and Federal Laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same and of all provisions required by law to be made a part of this Contract, all of which provisions are hereby incorporated by reference and made a part thereof. If any discrepancy or inconsistency is discovered in the Contract Documents for this Work in relation to any such law, ordinance, regulation, order or decree, report the same to the Owner in writing. At all times observe and comply with, and cause all agents and employees to observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees; and protect and indemnify the Owner and Engineer and all of its and their officers, agents, and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by itself or its employees or subcontractors.

- B. All materials furnished and Work done is to comply with all State and Federal laws and regulations.

END OF DOCUMENT

00850-1

DOCUMENT 00905

CHANGE ORDER FORM

DATE: _____

CHANGE ORDER NUMBER: _____

CONTRACT NUMBER: _____

PROJECT: _____

OWNER: _____

CONTRACTOR: _____

CONTRACT DATE: _____

TO: _____
(Contractor)

YOU ARE HEREBY AUTHORIZED AND DIRECTED TO MAKE THE CHANGES NOTED BELOW IN THE SUBJECT CONTRACT:

APPROVED BY: _____
(Owner)

BY: _____
(Signature)

DATE: _____

DESCRIPTION OF CHANGE:

REASON FOR CHANGE:

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These changes result in the following adjustment of CONTRACT PRICE and CONTRACT TIME:

Original CONTRACT PRICE: \$ _____

CONTRACT PRICE prior to this CHANGE ORDER: \$ _____

The CONTRACT PRICE due to this CHANGE ORDER
will be (INCREASED) (DECREASED) by: \$ _____

The New CONTRACT PRICE including this CHANGE ORDER: \$ _____

This CHANGE ORDER (INCREASES) (DECREASES) the
CONTRACT TIME by: _____ Calendar Days

The revised CONTRACT COMPLETION DATE is:

Other Contracts affected (if any): _____

REVIEWED BY: _____
(Owner)

(Signature)

(Date)

ACCEPTED BY: _____
(Contractor)

(Signature)

(Date)

END OF DOCUMENT

00905-2

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: Town of Seabrook, New Hampshire

Project Name: Cleaning and Redeveloping Gravel Packed Well No. 4

CONTRACTOR

Contract For Contract Date

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To: Town of Seabrook, New Hampshire (Owner)

And To

.....
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of Owner and Contractor 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 may not be 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.

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The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as follows:

RESPONSIBILITIES:

OWNER:

CONTRACTOR:

The following documents are attached to and made a part of this Certificate:

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.

CONTRACTOR accepts this Certificate of Substantial Completion on, 2017

.....
CONTRACTOR

By

OWNER accepts this Certificate of Substantial Completion on, 2017

.....
OWNER

By

END OF DOCUMENT

00945-2

DOCUMENT 00950

WAIVER OF LIENS

Agreement Date: _____

Owner: Town of Seabrook, New Hampshire

Project Name: Cleaning and Redeveloping Gravel Packed Well No. 4

Completion Date per Agreement and Change Orders: _____

The undersigned Contractor hereby swears under penalty of perjury that (1) all previous progress payments received from the Owner on account of Work performed under the Contract referred to above have been applied by the undersigned to discharge, in full, all obligations of the undersigned incurred in connection with Work covered by prior Estimates for Partial Payment under said Contract, being Estimates Number 1 through _____ inclusive; and (2) all labor, materials and equipment incorporated in said Project or otherwise listed in or covered by these Estimates for Partial Payment are free and clear of all liens claims, security interests and encumbrances, except those listed below by obligee, nature and amount of obligation and covered by appropriate Bond or Bonds, as listed beside each obligation and attached to and made a part of this certification.

Obligation

Bond

Dated: _____

Contractor

Signed by Officer of Corporation

Title

COUNTY OF _____

STATE OF _____

Before me on this _____ day of _____ personally appeared _____ known to me, who being duly sworn, did depose and save that he is the _____ (Officer) of the Contractor above mentioned; that he executed the above statement on behalf of said Contractor and that all of the statements contained therein are true, correct and complete.

NOTARY PUBLIC

My Commission Expires

END OF DOCUMENT

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SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

- A. The purpose of this section is to define the method of measurement and payment for each of the lump sums or unit prices listed in the Document 00300, Form for General Bid.
- B. The Contractor shall become acquainted with all Work associated with each Payment Item and shall have no claim for additional compensation due to unfamiliarity with the Work required to complete each Item in accordance with the Contract Documents.

1.02 PAYMENT ITEMS

A. ITEM DESCRIPTION

- 1. Mobilization and Demobilization.
- 2. Cleaning and Redeveloping Gravel Packed Well Using Conventional Equipment.
- 3. Additional Hours for Cleaning and Redevelopment – Conventional Well Development.
- 4A. Additional Well Cleaning Chemicals (Acid).
- 4B. Additional Well Cleaning Chemicals (Chlorine or Phosphate)
- 5. Video Inspections of Gravel Packed Well.
- 6. Modifications to Pump, Installation of Pumping Unit and Related Work
- 7. Repairs to Pump Stuffing Box
- 8. Balancing Pump and Motor
- 9. PVC Stilling Tubes

1.03 BASIS OF MEASUREMENT AND PAYMENT

ITEM 1 – MOBILIZATION AND DEMOBILIZATION

General. The price bid under Item 1 shall be considered fair compensation for all labor, equipment, tools and materials necessary to complete the Work as specified, which shall include: attending preconstruction conference; required submittals; mobilization

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and demobilization of equipment to and from the site; assisting Owner with obtaining NHDES Temporary Groundwater Discharge Permit; steam cleaning equipment to be used

for cleaning well; removal of existing pumping equipment and appurtenances; installation and removal of test pumping equipment; testing required for initial and final specific capacity tests, including discharge piping and orifice weir; installation of waste discharge piping; installation of haybales, filter fabric and sedimentation basin (Owner to furnish the haybales and filter fabric); required well-cleaning and pumping-test reports; cleanup daily during course of the Work; and all other Work not included in Items 2 through 9.

Payment. Payment for mobilization and demobilization as specified, shall be made at the lump sum price bid under Item 1.

ITEM 2 – CLEANING AND REDEVELOPING GRAVEL PACKED WELL USING CONVENTIONAL EQUIPMENT

General. The price bid under Item 2 shall be considered fair compensation for all labor, equipment, tools and materials necessary to complete the Work as specified. This item shall include furnishing, installing and removing conventional well development tools such as submersible pumps, air-lift pumps, surge blocks and piping, high-pressure jetting equipment, test pumps for rating the well or other equipment the Contractor suggests and the Owner agrees to. This item shall include all pumping, surging, and jetting activities, and rating the well. The price bid under Item 2 shall also include furnishing, installing and removing all equipment needed for chemical treatment; furnishing all chemicals and supplies; furnishing tools and a chemical neutralization tank; and furnishing other equipment the Contractor may suggest and the Owner agrees to. This item shall include furnishing, mixing and injecting chemicals; agitation of chemicals, surging and pumping with chemicals (for a minimum of 40 hours of redevelopment time as specified), surging and pumping with clean water; pumping required to meet pH levels (for acid cleaning) and chlorine residual levels (for chlorination); rating the well for one hour each morning; and neutralization of acid and chlorine. This item includes the time required to install and remove well cleaning equipment from the borehole.

Payment. Payment for cleaning and redeveloping using conventional equipment as specified shall be made at the lump sum price bid under Item 2.

ITEM 3 – ADDITIONAL HOURS FOR CLEANING AND REDEVELOPMENT-CONVENTIONAL WELL DEVELOPMENT

General. The price bid under Item 3 shall be considered fair compensation for all labor, equipment, tools and materials necessary to furnish additional hours for cleaning and redeveloping as recommended by the Contractor and agreed to by the Owner.

Payment. Payment for additional hours of well cleaning and redevelopment shall be made at the unit price bid under Item 3.

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ITEM 4 – ADDITIONAL WELL CLEANING CHEMICALS (ACID, PHOSPHATE OR CHLORINE)

General. The price bid under Item 4 shall be considered fair compensation for all labor, equipment, tools and materials necessary to furnish additional chemicals for well cleaning above the amount specified as recommended by the Contractor and agreed to by the Owner.

Payment. Payment for additional well cleaning chemicals shall be made at the unit prices bid under Item 4.

ITEM 5 – VIDEO INSPECTIONS OF GRAVEL PACKED WELL

General. The price bid under Item 5 shall be considered fair compensation for all labor, equipment, tools and materials necessary for video inspections of the well prior to and after cleaning the gravel packed well.

Payment. Payment for video inspections shall be made at the unit price bid under Item 5.

ITEM 6 – MODIFICATIONS TO PUMP, INSTALLATION OF PUMPING UNIT AND RELATED WORK

General. The price bid under Item 6 shall be considered fair compensation for all labor, equipment, tools and materials necessary for cleaning existing pump components; inspection and reporting condition of existing pumping equipment; removal and legal disposal of right angle gear and motor stand; cleaning and painting pump discharge head and 1-inch thick pump setting plate; providing new top shaft (from stuffing box through motor); reinstalling the pumping unit including adapting electric motor to discharge head; final disinfection of the well, testing and startup of pumping equipment; final cleanup; and providing record drawings of pump installation.

Payment. Payment for modifications to pump and installation of pumping unit shall be made at the unit price bid under Item 6.

ITEM 7 – REPAIRS TO PUMP STUFFING BOX

General. The price bid under Item 7 shall be considered fair compensation for all labor, equipment, tools and materials necessary for making repairs to the existing pump stuffing box in the discharge head as specified.

Payment. Payment for modification/repairs to setting plate and stuffing box shall be made at the lump sum price bid under Item 7.

ITEM 8 – BALANCING PUMP AND MOTOR

General. The price bid under Item 8 shall be considered fair compensation for all labor,

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equipment, tools and materials necessary for balancing pump and motor by an independent qualified contractor at the lump sum price bid under Item 8.

Payment. Payment for balancing pump and motor shall be made at the unit price bid under Item 8.

ITEM 9 – PVC STILLING TUBES

General. The price bid under Item 9 shall be considered fair compensation for all labor, equipment, tools and materials necessary for furnishing and installing two (2) new 1-inch rigid schedule 40 PVC stilling tubes with threaded joints.

Payment. Payment for furnishing and installing two (2) 1-inch rigid schedule 40 PVC stilling tubes with thread joints shall be made at the lump sum price bid under Item 9.

END OF SECTION

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SECTION 01030

SPECIAL REQUIREMENTS

PART 1 GENERAL

1.01 APPLICATION

- A. The “Special Requirements” under these specifications are applicable to all Work contemplated under this Contract.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for Work described in this section will be made in accordance with the provisions of Section 01025, Measurement and Payment.

1.03 DEFINITIONS

- A. As used in the Contract Documents, the following items are understood to have the following meanings:
 - 1. “Furnish” shall mean purchase and deliver to the Project Site, complete with every necessary accessory and support.
 - 2. “Install” shall mean unload at the delivery point at the Project Site and perform all Work necessary to establish secure mounting, proper location and operation in the Project.
 - 3. “Provide” shall mean furnish and install.
 - 4. “Work” shall mean all labor, materials, equipment, apparatus, controls, accessories, and all other items required for a proper and complete installation.

1.03 SPECIFICATIONS AND PLATES

- A. All Work shall conform to these specifications entitled:

**CLEANING AND REDEVELOPING GRAVEL PACKED
WELL NO. 4
TOWN OF SEABROOK, NEW HAMPSHIRE**

dated January 2017 on file with the Owner, and any changes, drawings, plans, and directions that may be furnished from time to time by the Owner.

1.04 PROJECT LOCATION

- A. The site of the Work is located on the Owner’s property in Seabrook, NH.

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- B. Bidders shall contact George Eaton, Chief Operator, telephone number: (603) 474-9921 for review of the Project Site during the Bidding process. The remote site location will require that personnel from the Town provide access for this site.

1.05 PROGRESS OF WORK

- A. The Contractor shall promptly start and continue actual construction Work under this Contract with the necessary equipment to properly execute and complete in the specified time. No cessation of construction activities will be allowed without the approval of the Owner. The Contractor shall furnish to the Owner a progress schedule for the Work.
- B. The Contractor shall provide the Owner with seven (7) days notice prior to pulling the pumping equipment for the well cleaning.
- C. The Contractor shall be responsible for securing the pumping station during the Contract period and also locking the pumping station fence gates and access roadway entrance gate daily.

1.06 CHANGES IN AMOUNT OF WORK

- A. The Owner reserves the right to increase or decrease the amount of any item of the Work listed as may be found desirable or necessary during the carrying out of this Contract and the prices quoted in the Document 00300, Form for General Bid shall apply without change to such variation in the quantity of each of the Bid Items.

1.07 VISIT TO THE PROJECT SITE

- A. Before submitting a Bid, visit the Project Site, examine the existing conditions and become thoroughly acquainted with the effort required to perform the Work.
- B. Study the Contract Documents and compare the same with the information gathered during examination of the Project Site, as no extra compensation will be authorized for extra Work caused by unfamiliarity with the Project Site and/or Contract Documents or the conditions peculiar to this Project.

1.08 SHOP DRAWINGS

- A. The Contractor shall submit four (4) copies of shop drawings to the Owner for review. Submittals are required for Section 02660, Well Cleaning and Section 11215, Installation of Pumping Equipment and Related Work.

1.09 TECHNICAL SPECIFICATIONS

- A. Where reference is made to AWWA specifications or other associations, it is understood that the latest revisions as of the date of the Contract Documents shall apply.

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1.10 CONTRACT DOCUMENTS IN THE FIELD

- A. The Contractor shall keep an unexecuted copy of this Contract Document 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.

1.11 TEMPORARY UTILITIES

- A. The Contractor shall make arrangements for, and furnish at its expense, all telephone and other utility except for 115 volt electric required for construction purposes. The Contractor may use the available 115 volt electricity at the site for construction purposes.
- B. Sanitary conveniences shall not be placed within 400 feet of any well.

1.12 CLEANUP

- A. During the course of the Work, the Contractor shall keep the site of its operations in as clean and neat a condition as is possible on a daily basis.
- B. The Contractor shall legally dispose of all residue resulting from the construction Work, and at the conclusion of the work day remove and haul away old parts, equipment, temporary structures, and any other refuse remaining from the Work, and shall leave the entire site of the Work in a neat and orderly condition.
- C. The interior of the pumping station shall be cleaned to its original condition or better after the well cleaning and pumping equipment installation.

1.13 COOPERATION WITH OTHER CONTRACTORS AND OWNER'S OPERATIONS

- A. The Contractor is advised that there may be other contractors on and adjacent to the site of this Contract, and this Contractor shall cooperate with such other contractors and allow reasonable time for others to complete their work when working in or adjacent to the same areas.
- B. The Owner has facilities on and adjacent to the Project Site. The Contractor shall conduct its operations so as to minimize interference with the Owner's operations in these areas and shall allow the Owner access at all times.

1.14 PROTECTION OF PROPERTY

- A. The Contractor shall protect existing buildings, grounds and existing utilities. If damage is done to such areas, the Contractor shall make all repairs necessary to restore such areas to their original condition, at no expense to the Owner.

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1.15 HOURS OF OPERATION

- A. The Contractor including all subcontractors and all others relating to this Project shall conform to the following Work schedule:
 - 1. No outdoor activity on or adjacent to the site will be permitted before 7:00 a.m. or after 4:30 p.m. All outdoor activity shall be confined to Monday through Friday except for emergency conditions which shall be reviewed and approved by the Owner in advance.

1.16 GUARANTEE

- A. The Contractor shall guarantee the material or equipment furnished and the performance thereof to be in accordance with the requirement of the Contract Documents and agrees upon written notice to make promptly and without charge, all necessary changes, corrections, and replacements (including installation of replacement parts) required to make good all defects developing in the material or equipment under ordinary use and proper care within a period of twelve months after acceptance of the Work.

1.17 PRECONSTRUCTION CONFERENCE

- A. A preconstruction conference with the Contractor and Owner shall be held at the Project Site to determine the location of the sedimentation control basin and to discuss the details of the Work.

1.18 WORK BEING PERFORMED IN EXISTING WELLFIELDS

- A. The Contractor shall at all times perform all Work with the utmost caution as the location where the Work is being performed is within existing wellfields. These wellfield areas provide safe drinking water for the Town and are regulated by State and Regulatory Agencies. The Contractor shall be responsible for any and all requirements regarding any impact to these wellfields due to accidental or improper damage due to the results of any Work being performed. The Contractor shall immediately contact the Town, State and Regulatory Agencies regarding any accidents or damage that may occur during the Work of this Contract. All related costs due to any situation noted and required to correct shall be the complete responsibility of the Contractor.
- B. The Contractor will not be permitted to perform any maintenance work on construction equipment with 400 feet of any of the wells. Any construction equipment used that leaks any fluids shall be removed from the 400 foot buffer zone of the wells.

END OF SECTION

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SECTION 02660

WELL CLEANING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, equipment, chemicals, and materials necessary to video inspect, rate, clean, redevelop, and disinfect Gravel Packed Well No. 4 at Seabrook's Riley wellfield.
- B. Gravel Packed Well No. 4 was constructed in 1975 and is a 48" x 24" gravel-packed well with a 10 foot long, 24-inch diameter, 120 slot shutter type stainless steel well screen. The bottom of the 24-inch screen is located approximately 85 feet below the top of the well casing.
- C. The specific capacity of the well in 1975 when the well was constructed was 22 gallons per minute per foot of drawdown (gpf) at the end of a four hour pump test. The specific capacity when the well was last cleaned in 2007 was 13 gpf after a 4 hour pumping test. In April 2016, a 4 hour field test indicated a specific capacity of 10.9 gpf.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for Work described in this section will be made in accordance with the provisions of Section 01025, Measurement and Payment.

1.03 CARE OF MATERIALS

- A. The Contractor shall have charge of, and be liable for the loss of, or injury to, any materials delivered to it. The Contractor shall keep all materials trimmed up in piles, in places so as not to endanger the Work, until removed, and shall not occupy private land without the approval of the Owner or its authorized agent.

1.04 EXISTING PIPING AND EQUIPMENT

- A. Prior to beginning any Work, the Contractor and Owner shall closely examine all piping and equipment. The condition of the equipment as well as any operating irregularities with the equipment and the variable frequency drive unit (VFD) shall be duly recorded by both parties. The Contractor shall take special precautions to protect and cover the equipment within the station during the well cleaning operation.
- B. Prior to removing the pumping equipment, the Contractor shall run the existing pumping unit and take note of the pump setting while pumping into the water system. Since the existing pump has open impellers, the pumping unit will need to be adjusted after the pump is reinstalled.

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- C. The Contractor shall dismantle and remove any existing piping, pumping equipment and appurtenances, as necessary for the television inspection and well cleaning. Any pipes,

services, or equipment broken during the course of the Work, shall be promptly repaired or replaced by the Contractor at its own expense.

- D. The Contractor shall provide its own equipment to power its pumps and equipment. The Owner's VFD equipment shall not be used during the well cleaning process. If the Contractor uses the Owner's pumping equipment during the four hour pumping (before and after the well cleaning), the Owner shall be present to operate the VFDs.

1.05 RECORDS, ACCESS, PERFORMANCE

- A. Upon completion of all Work, the Contractor shall deliver to the Owner two (2) copies of all records, measurements, pumping rates, water quality data, pumping tests, water levels, chemical treatment, equipment used and actual steps taken to clean the well.
- B. Prior to submitting the Bid, the Contractor shall inspect the Project Site for access to the well.
- C. All Work shall conform to the standard practice and requirement of the American Water Works Association (AWWA) and these specifications.

1.06 SUBMITTALS

- A. The following submittals shall be made in accordance with the provisions of the General Conditions.
 1. Acknowledgement that Contractor has examined the Project Site and specifications prior to bidding as stated in Document 00300, Form for General Bid.
 2. Contractor's description of all equipment to be used.
 3. Contractor's description of proposed cleaning and redevelopment methodology.
 4. Work schedules.
 5. All chemicals to be used in well cleaning.
 6. Equipment and methodology for surging and pumping for well redevelopment
 7. Methodology for well pumping testing and replacement equipment.
 8. Methodology for acid waste neutralization.
 9. Methodology for de-chlorination of wastewater after chlorination Work.

10. Prior to starting the field Work, the Contractor shall assist the Owner in obtaining from a Temporary Groundwater Discharge Permit from the NHDES before the wastewater is discharged to the environment.

PART 2 PRODUCTS

2.01 ACID

- A. The acid used shall be 27.92% acid grade inhibited MURIATIC ACID (Hydrochloric acid). If inhibited acid is unavailable, one ounce of KNOX gelatin, dissolved in warm water shall be mixed with each gallon of acid.

2.02 POLYPHOSPHATE

- A. The polyphosphate used shall be sodium hexametaphosphate, and it shall be introduced to the well as a water solution, after it has been dissolved by placing the phosphate in a wire basket or burlap bag and then suspending the container in water or as directed by the manufacturer's recommendations. The concentration of sodium polyphosphate in the well screen and gravel pack shall be 10 pounds of polyphosphate per 100 gallons of screen and gravel pack water volume.

2.03 CHLORINE

- A. Calcium hypochlorite and sodium hypochlorite, which meet the requirements of AWWA B-300, shall be used for chlorine treatment of the well. A concentration of not less than 200 parts per million and not more than 500 parts per million of free available chlorine shall be maintained in the well during the cleaning process.

2.04 WATER SUPPLY

- A. The Owner will supply the Contractor with water as needed for well-cleaning operations, including video inspections.

2.05 VIDEO INSPECTION EQUIPMENT

- A. Video inspections shall be performed using a video camera capable of recording video images in color and suitable for submerged use in a 24-inch diameter well. The video camera and associated equipment shall be capable of televising the inside of the well complete from top to bottom and transmitting a clear visual image to the viewing monitor screen.
- B. A video monitor shall be provided for viewing the video inspection Work. The monitor shall be housed in a weatherproof enclosure.
- C. If cloudy water exists within the well during the inspection, the Contractor shall pump water out of the well using a small pump.

- D. Provide two (2) copies of the video tape (DVD) of each well inspection to the Owner at the completion of each video inspection for the well.

PART 3 EXECUTION

3.01 EQUIPMENT REMOVAL

- A. The Contractor shall carefully disassemble piping, pumping equipment and appurtenances from the well as required. The Contractor shall provide the necessary pump equipment and necessary apparatus for well cleaning operations.
- B. All electrical work shall conform to the latest standards of all state and local requirements having jurisdiction. In general, all Work shall comply with the latest requirements of the National Electrical Code. All ground wires shall be reinstalled to their original condition.

3.02 STEAM CLEAN WELL CLEANING EQUIPMENT

- A. The Contractor shall steam clean all its well cleaning equipment prior to the cleaning of the well.

3.03 CHEMICAL FOR USE IN CLEANING

- A. The Contractor shall furnish the required amount of chemical(s) to effectively treat the water in and surrounding the well in order to remove all incrustation residue or deposits, to restore the capacity of the well to the Owner's satisfaction. The quantity of any chemicals shall be sufficient to obtain the required results. The amounts and types of chemicals to be used shall be submitted to the Owner for review, prior to use.
- B. The Contractor shall provide and post at the Project site Material Safety Data Sheets (MSDS) for each chemical brought to the site.

3.04 METHOD OF WELL CLEANING

- A. The Contractor shall complete the following:
 - 1. Measure and record the static water level and the depth of the well before, during, and after each cleaning treatment.
 - 2. Determine the specific capacity of the well according to the following schedule:
 - a. Before well cleaning. Specific capacity to be determined utilizing the existing pump after well has been pumped continuously for four (4) hours under current system operating conditions. The Contractor is to coordinate with the Town to assist in operating the well pump in advance of specific capacity measurements. The specific capacity test shall be conducted after the gravel packed well has been shut down for a minimum of 12 hours. Rating will be conducted using Contractor's flow measuring equipment (orifice weir).

- b. After each chemical addition and surging process for a one (1) hour period, or at a minimum of once per day for a one (1) hour period. Water level readings shall be taken and recorded every 10 minutes.
 - c. After well cleaning: Determine the specific capacity after pumping continuously for four hours (4) at a pumping rate to be determined by the Contractor and Owner. The specific capacity test shall be conducted after the well has been shut down for a minimum of 12 hours. Rating will be conducted using Contractor's flow measuring equipment (orifice weir).
3. The Owner will collect water samples from the well and have them analyzed for the following water quality parameters prior to cleaning the well and at the completion of the well cleaning treatment.
- | | | | |
|----|-----------------|----|--------------------------|
| 1. | pH (field test) | 4. | Manganese |
| 2. | Iron | 5. | Alkalinity |
| 3. | Color | 6. | Sodium |
| | | 7. | Volatile Organics (VOCs) |

The Owner will deliver water samples to a State certified laboratory for the analysis. The Owner will pay for the laboratory water quality analysis.

- 4. During the well cleaning, pump and rate the well with the Contractor's pumping equipment and flow measurement equipment. Measure and record pumping water levels, test flow rate, specific capacity, rate of recovery at time of shut down, and estimate quantity of fines removed. These measurements shall be taken and recorded before, during, and after the cleaning and redeveloping of the well.
- 5. When the permanent well equipment has been installed, the Contractor may pump and rate the well with the Owner's pumping equipment and the Contractor's flow measurement equipment with the assistance of the Owner. Measure and record pumping water levels, test flow rate, specific capacity of the well, rate of recovery at time of shutdown, and estimate quantities of fines removed.
- 6. Discharge of waste and chemicals. The Contractor shall discharge all wastes from the cleaning operations about 70 feet from the well and any other existing well, at a location to be determined in the field acceptable to the Owner and approved as part of the NHDES Temporary Groundwater Discharge Permit. Acid and chlorine shall be neutralized by the Contractor in an approved tank prior to discharge to the environment. The Contractor shall discharge the water from the neutralizing tank into a sedimentation basin constructed with haybales and filter fabric. The Owner will provide the haybales and filter fabric to the Contractor. The Contractor shall check the pH and chlorine residual of the neutralized water frequently. No chemicals or waste shall be discharged directly into surface water.

- B. Cleaning the Well. The procedure to be used by the Contractor to clean the well shall be generally as outlined below. The Contractor may submit a method other than that outlined below, however, the method must be reviewed and approved by the Owner prior to the start of Work.
1. Mix the required amount of each chemical, according to the manufacturers' recommendations, and pour (inject) it into the well by means of a plastic pipe extending from the top of the well to within 3 feet of the bottom of the well. Raise the pipe slowly as the pouring continues, thus preventing excessive dilution of the chemicals.
 2. Insert surge block and surge the well casing (not the screen section) lightly (16 strokes per minute) for 20 minutes, then gradually increase the surging action for the specified time. During surging, the surge block apparatus must be capable of being lowered, at the direction of the Owner into the well screen. A drilling machine with a continuous spud action no shorter than 30 inches, suitable to the Owner, shall be used in cleaning the gravel packed well screen and steel well casing. The drilling machine must be capable of surging (30 inch stroke) at a rate of 40 strokes per minute. All cleaning equipment to be used shall be reviewed and approved by the Owner prior to starting the Work.
 3. During the first day of well cleaning, muriatic acid shall be injected in the well using the method described above. The acid concentrations in the entire screen and gravel pack shall be 15 percent. The chemical solution shall be agitated as described in 3.04, Paragraph B.2 for about 4 hours. After agitation, the solution shall be allowed to react overnight for at least 12 hours and then be pumped to the neutralizing tank. The pH of the solution pumped shall be determined by the Contractor. If the solution pH is less than 3, the Contractor shall proceed to the next step of cleaning. If the pH is greater than 3, acid shall be reintroduced into the well following the same procedure in 3.04, B.1., 2., and 3. This process shall be repeated until pH is less than 3.
 4. After the treatment with muriatic acid is completed, premixed sodium hexametaphosphate shall be injected into the well on the second day of well cleaning. The polyphosphate shall then be agitated as described in 3.04 B.2 for about 2 hours. After the agitation of the polyphosphate, 1 pound of calcium hypochlorite and 1 gallon of sodium hypochlorite shall be mixed for each 30 pounds of polyphosphate and shall be injected into the well as described in 3.04 B.1. The well shall be surged for a period of 6 hours. The solution shall be allowed to react overnight for at least 12 hours. After surging, pump to waste a volume of solution equal to the volume of the well bore. The Contractor shall then determine the chlorine concentration. If the concentration is more than 10 percent of the original concentration, the Contractor shall proceed to the next phase of cleaning. If the concentration is less than 10 percent of the original concentration, the Contractor shall repeat the steps in 3.04 B.1., 2., and 4 until the concentration is more than 10 percent of original concentration.

5. After the acid and polyphosphate treatment is complete, the third day of well cleaning shall consist of well chlorination. The Contractor shall provide a chlorine concentration of 1 pound calcium hypochlorite per 100 gallons of water in the screen and gravel pack. The total volume of chlorine solution shall be 3 times the volume of the water in the screen and gravel pack. Immediately, following injection of chlorine solution, clear water shall be injected to purge the pump, pump column and screen. The solution shall be allowed to react overnight for at least 12 hours. The well shall then be surged for 6 hours the next day and the solution pumped to waste.
6. The Contractor shall then surge the well with clean water for 4 hours during the remainder of the fourth day of cleaning. The surge water shall then be pumped to waste.
7. At an informal pre-construction conference the amount of chemicals to be initially used shall be determined.
8. The Contractor shall anticipate using 165 gallons of muriatic acid, 200 pounds of premixed polyphosphate and 30 pounds of chlorine during the cleaning of the well. The Contractor shall anticipate placing more than one initial application of chemical(s) during the 40-hour surge and development period. An appropriate amount of chemicals shall be provided to neutralize the acid and chlorine.
9. Safety equipment as required by OSHA shall be worn by workmen while working with acid, polyphosphate and chlorine. The Contractor shall ensure that there is adequate ventilation during acid, polyphosphate and chlorine treatment and shall be responsible for the safety of all personnel involved in the Work and protection of the station equipment.

3.05 REDEVELOPMENT

- A. Redevelopment of the well shall include surging and pumping until no traces of gravel, sand, silt, clay or chemicals remain in the pump discharge water. Surging shall be by a method approved by the Owner using the Contractor's pumping equipment.
- B. The method must ensure that reversal of flow takes place through the well screen area without any contact between the surge block and screen section.
- C. The Contractor shall anticipate spending a minimum of 40 hours of actual redevelopment time for the well (does not include the time for removal of equipment, installation of Contractor's equipment, rating the well before, during, and after treatment, final disinfection of well and pump equipment, and installation of new pumping equipment). Redevelopment time shall include the time for mixing and injecting chemicals, backflushing chemicals with clean water, agitation of chemicals, and surging and pumping the well. Redevelopment time does not include the overnight (12 hours) chlorine solution reaction time.
- D. The Contractor shall use an approved method of measuring flow (orifice with plastic tubing) before and after cleaning operations.

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- E. The Contractor shall measure and determine that the well is clean to its original depth. The Contractor shall remove any accumulations of sand and silt in the well to make the well clean to its original design depth.

3.06 PUMPING TESTS

- A. The Contractor shall furnish all necessary labor, equipment and materials for testing the well for a period of time of not less than 4 hours. The well shall be pumped at rates determined by the Owner/Engineer. The minimum frequency of recording water levels shall be as follows:
 - 1. Static water level
 - 2. 1 minute to 10 minutes (each 2 minutes)
 - 3. 10 minutes to 240 minutes (each 10 minutes)
 - 4. Rate of recovery
- B. The well shall be pumped without interruption throughout the testing period. If the pumping test is interrupted for any reason during the test period, the Owner may declare the test a failure and may order the Contractor to repeat the test without additional compensation. Water levels shall be recorded throughout the test at the well.
- C. No pumping test shall be conducted without prior approval of the Owner.
- D. Upon completion of all Work, the Contractor shall submit two (2) copies of all records, measurements, pumping rates, water levels, water quality data, etc. and documented procedures used to clean the well to the Owner.

3.07 REPLACEMENT OF PUMPING EQUIPMENT (Refer to Section 11215)

3.08. FINAL DISINFECTION OF WELL AND WATER QUALITY TESTING (Refer to Section 11215)

3.09 CLEAN-UP AND BASIS OF ACCEPTANCE

- A. Upon completion of all specified Work at the well site, the pump station and surrounding area shall be left in a condition equal to or better than existed prior to the Work. All materials used in the Work but not permanently installed shall be removed from the site.
- B. Final acceptance of the specified Work for the well will be made by the Owner, based upon the well meeting the capacity criteria as follows:
 - 1. Specific capacity of the gravel packed well: The original specific capacity of the well was about 22 gpf at the end of a 48 hour pumping test. The intent of this Project is to clean and redevelop the well to the highest specific capacity that is reasonable to obtain during the minimum 40 hour actual redevelopment time.

END OF TEXT

See Attached Plate - Diagram of Gravel Packed Well No. 4
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SECTION 11215

INSTALLATION OF PUMPING EQUIPMENT AND RELATED WORK

PART 1 GENERAL

1.01 SCOPE

- A. Furnish and install all labor, materials, tools, and equipment to make modifications to the vertical turbine pump, reinstall the vertical turbine pumping unit in the gravel packed well, and perform related Work. Such Work shall include but is not limited to the following and as specified:
1. Clean and inspect the pump column, bowl assembly and discharge head (Bid Item 6);
 2. Remove and legally dispose of the right angle gear and motor (Bid Item 6);
 3. Paint the pump discharge head and pump setting plate (Bid Item 6);
 4. Reinstall the pumping unit, column and pump bowl assembly with new top shaft, electric motor to be adapted to pump discharge head (Bid Item 6);
 5. Final disinfection of the well (Bid Item 6)
 6. Provide testing and startup of equipment (Bid Item 6);
 7. Final cleanup of pumping station and surrounding area (Bid Item 6);
 8. Provide record drawings of all information related to pump installation (Item 6);
 9. Make repairs to pump stuffing box in existing discharge head (Bid Item 7);
 10. Balance the pump and motor (Bid Item 8);
 11. Provide two (2) PVC stilling tubes (Bid Item 9).
- B. The existing discharge head, right angle gear and motor stand are the original parts of the pumping unit installed in 1975. The existing pump column, line shafts, bowl assembly (open impeller), and electric motor were installed in 2007. See attached plates at the end of this section for additional pumping equipment information. The Contractor shall visit the station and collect any additional information necessary to prepare its Bid.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for Work described in this section will be made in accordance with the provisions of SECTION 01025, MEASUREMENT AND PAYMENT

1.03 SUBMITTALS

- A. Shop drawings and catalog cuts shall be submitted for all items furnished in this section.
- B. Provide record drawing of the pump installation, report on balancing pump and motor, and inspection report on condition of pump components as specified.

1.04 PRODUCT HANDLING

- A. All materials and equipment shall be delivered, handled and installed in such a manner as not to degrade quality, serviceability or appearance. The materials and components shall be stored to prevent damage.

PART 2 PRODUCTS

2.01 VERTICAL TURBINE PUMPING UNIT

- A. New Top Shaft. The Contractor shall verify the diameter of the existing shaft extending from the discharge head through the motor. The new top shaft shall be 416 stainless steel and sized to ensure proper installation for the existing discharge head and electric motor. The stainless steel shaft shall have key and adjusting nut on the top of the motor for adjusting the open impellers.
- B. Pump Discharge Head. The existing pump discharge head is a Deming and shall be reused.
 - 1. The Contractor shall adapt the existing electric motor to the existing discharge. Provide new bolts, nuts and washers for the installation.
- C. The Contractor shall make the following repairs to the stuffing box of the pump.
 - 1. Replace existing studs and bolts which hold the gland in place with new brass studs and brass bolts.
 - 2. Replace throttle bushing with new throttle bushing.
 - 3. Repack the stuffing box with new stuffing box material.
 - 4. Replace vertical brass sleeve with new brass sleeve.
- D. Stilling Tubes. Provide two (2) stilling tubes in the well. Each stilling tube shall consist of rigid 1-inch diameter schedule 40 PVC pipe and PVC well screen with threaded joints (no glued joints are allowed). The PVC well screen shall be five (5) feet long. Each stilling tube shall be 75 feet long.
- E. Paint. Paint for the discharge head and the pump setting plate shall be a quality epoxy paint system. The paint manufacturer and paint products shall be approved by the Owner.

PART 3 EXECUTION

3.01 INSPECTING AND CLEANING PUMPING EQUIPMENT

- A. The Contractor shall disassemble, clean, and inspect the pump components. Provide a report to the Owner on the condition of the pump column pipes, shafts, pump bowls, motor, discharge head and appurtenances.

- B. The pump discharge head shall be cleaned and painted with two (2) coats of epoxy paint. The 1-inch thick pump setting plate shall be cleaned and painted with a primer and two (2) finish coats of epoxy paint. The color system shall match the color of the existing pumping unit.
 - 1. Remove rust, scale, dirt and dust from the steel and iron surfaces. Sand, scrape and wire brush surfaces to remove rust. Prior to cleaning the pump setting plate secure a cover over the well opening so that no dust and debris enters the well.

3.02 PUMP INSTALLATION

- A. The deep well turbine which consists of a number of component parts designed for assembly in the pumping station is to form a complete pumping unit and shall be installed in accordance with published manufacturer's instructions for installation of deep well turbine pumps. The pump motor shall be installed so that the oil sight glass is facing in the direction requested by the Owner.
- B. Furnish the required oil and grease for the operation. The grades of oil and grease shall be in accordance with the manufacturer's recommendations.
- C. All flanged discharge pipe dismantled shall be thoroughly cleaned prior to reinstallation.
- D. The electrical work required for the pump reinstallation will require new wiring to the motor control center. The Owner's electrical contractor will perform the electrical work required for the reinstallation of the pumping unit at no cost to the Contractor.

3.03 BALANCING PUMP AND MOTOR

- A. After the pumping unit has been installed and wired by the Town's electrical contractor, an independent qualified contractor approved by the Owner shall balance the pump and motor in the presence of the Owner. A report indicating the results of the balancing shall be submitted to the Owner. Any additional work required to satisfactorily balance the pump and motor shall be at the Contractor's expense.

3.04 STORAGE

- A. Pump, shaft, and column stored on site shall have covered and taped ends for protection. Pump equipment damaged or bent during shipping or storage shall be replaced at no expense to the Owner.

3.05 REMOVAL OF EXISTING EQUIPMENT

- A. The Contractor shall take all precautions to protect the existing equipment. The Contractor

shall remove the motor stand and right angle gear without spilling the fluids and shall legally dispose of them offsite upon removal.

3.06 INSTALLATION OF NEW STILLING TUBES

- A. There are three 1-1/2 inch pipe nipple openings on the pump setting plate for access to the well for the following: 1) well level transducer, 2) access to the well for recording water level measurements and 3) air vent. The two 1-inch stilling tubes specified shall be placed in the openings for the well transducer and access to the well. Each stilling tube shall be installed through the existing 1-1/2 inch nipple on the pump setting plate. Provide the necessary fittings to hold each stilling tube in place at the top of the setting plate 1-1/2 inch nipple.

3.07 FINAL DISINFECTION OF WELL AND WATER QUALITY TESTING

- A. Prior to putting the well into operation, the Contractor shall disinfect the well. The method of disinfection shall be approved by the Owner prior to use and shall result in a chlorine residual concentration in the well of at least 50 ppm. The solution shall remain in the well at least 8 hours prior to flushing. The Contractor shall pump the water in the well to waste, until the chlorinated water has cleared.
- B. The Owner will collect water samples and deliver them to a state approved laboratory for bacteriological and VOC analysis. Upon receipt of successful bacteriological and VOC test results the pumping unit shall be acceptable for pumping into the system.
- C. In the event that positive reports of contamination or excessive chemical parameters are received, the well and discharge line shall be flushed and chlorinated as many times as necessary to meet the approval of the NHDES at no additional cost to the Owner.
- D. The Owner will pay for the bacteriological and VOC testing. The Contractor shall pay for any additional testing required to meet NHDES approval in the event that positive reports of contamination or excessive chemical parameters are received.

3.08 FINAL CLEAN-UP AND BASIS OF PUMP ACCEPTANCE

- A. Upon completion of all specified Work at the well site, the pump station and surrounding area shall be left in a condition equal to or better than existed prior to the Work.
- B. Upon completion of the reinstallation of the pump and successful water quality testing, the Contractor shall conduct a one (1) hour test by pumping water into the water system in the presence of the Owner to verify that the complete pumping unit is working properly. The pump open impellers shall be adjusted to the setting that existing prior to removal of the pump from the well.
- C. The Owner shall be satisfied that the pump and piping have been restored to the same condition that existed prior to disassembly by the Contractor.

3.09 RECORD DRAWINGS

- A. Two sets of record drawings containing all information relating to the pump installation shall be furnished.
- B. Provide a pictorial record drawing of the pump installation with exact depths of all pump components and appurtenances including stilling tubes

END OF TEXT

See Attached Plates:

1. 1975 Original Pump Record
2. 2007 Pump Installation Record
3. 2007 Electric Motor Catalog Cut