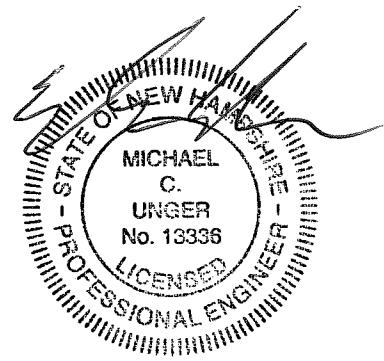


ADDENDUM NO. 1

EXIT 2 AREA WATER SYSTEM IMPROVEMENTS
Town of Salem
Salem, New Hampshire



April 22, 2016

The following changes and information are hereby incorporated into the Contract Documents (Project Manual and Drawings):

PROJECT MANUAL

CHANGES TO FRONT END CONTRACT DOCUMENTS:

1. *Section A-3.6 - Contractor's Bid Schedule*
 - Replace page A-3.6 with the attached page A-3.6.
2. *Section D-8 – Wage Rates*
 - Replace pages D-8.1 through D-8.5 with the attached pages D-8.1 through D-8.5.

CHANGES TO TECHNICAL SPECIFICATIONS:

1. *Section 01025 – Measurement and Payment*
 - Replace page 01025-8 with the attached page 01025-8.
2. *Section 13310 – Pressure Measurement*
 - Add Section 13310 – Pressure Measurement to the Contract Documents.

DRAWINGS

1. *Dwg No. C-1, Sheet 3 of 24, Manor Parkway Pumping Station Site Plan.*
 - Revise per the attached sketch SKC-01.
2. *Dwg No. C-2, Sheet 4 of 24, Commercial Drive Pumping Station Site Plan.*
 - Revise per the attached sketch SKC-02.
3. *Dwg No. C-5, Sheet 7 of 24, Water Details.*
 - Revise per the attached sketch SKC-03.
4. *Dwg No. P-3, Sheet 16 of 24, Commercial Dr. Pumping Station Process Plan.*
 - Delete note 4 entirely.
5. *Dwg No. E-3, Sheet 24 of 24, Electrical Details.*
 - Revise per the attached sketch SKE-01.

OTHER

1. *Prebid Meeting Notes*
 - Notes attached.
2. *Prebid Meeting Attendance List*
 - List attached.

3. *Existing Water Manhole at Manor Parkway Station*
 - Photograph of existing structure with valves to be removed has been attached.

4. *Questions received during bidding period and answers provided.*

Q1: **Is all the work required per spec. section 13350 included in the B.1.3 Allowance?**

A1: *Please refer to the Prosecution of Work page 01000-4, Item 9.*

Q2: **Reference drawing G-1 General Note #3. Will there be a cost to the contractor for the required permits?**

A2: *Please refer to the Summary of Work page 01010-3.*

Q3: **Reference drawing C-1. Please indicate a location for the two 12" gate valves, and a location and a spec. for the 12" zone isolation check valve to be replaced.**

A3: *The gate valves and the isolation check valve are located in the existing water manhole as shown on C-1. The zone isolation valve is a silent non-slam check valve specified in 15100-3. [Please note that since responding to this question, the scope of work for the existing manhole has been modified as identified in this Addendum].*

Q4: **Reference drawings C-2 and C-5. Please clarify the piping going in and out of the 6 ft. water manhole (6" vs. 12" check valve and 8" vs. 12" gate valves).**

A4: *An addendum will be issued to clarify pipe and valve sizes at the 6 ft. water manhole.*

Q5: **Reference drawing P-3. Please furnish a spec. for the 8" suction control valve and the 6" pressure relief valve required to be furnished by the contractor.**

A5: *Please refer to the Fire Pumping System Specification page 11306-12. The 8" suction control valve and the 6" main relief valve are accessories to be supplied by the pump manufacturer.*

Q6: **Reference drawing P-3, Note #4. Will the FRP wall panels require finish painting?**

A6: *The FRP walls do not require finish painting. Note #4 will be deleted by Addendum.*

Q7: **Reference drawing C-1. Are the gate valves and check valve to be replaced in the existing water manhole flanged fittings or MJ? Will the Town shutoff and isolate the main at this location for the Contractor to do the work?**

A7: *Please see the attached photograph that shows the inside of the existing water manhole structure. [Please note that since responding to this question, the scope of work for the existing manhole has been modified as identified in this Addendum].*

Q8: **Reference drawing C-2. Can the area where the proposed line from the booster station ties into the existing pressure main (uphill of closed zone isolation valve) be isolated and will the Town do this?**

A8: *Yes, this area can be isolated. The Town will operate existing gate valves.*

Q9: Reference drawing C-2. Note 5 says the Contractor is responsible for maintaining traffic control as required by Town (incidental). What is Bid Allowance for?

A9: *Police are required for traffic details and the bid allowance is included for paying police. All other costs associated with maintenance of traffic, including but not limited to; signage, development of a traffic management plan, coordination, etc. are incidental. See Section 01025 – Measurement and Payment for additional information.*

Q10: Reference drawing C-2. The gas regulator is shown adjacent to the generator, will this be an issue with the propane company?

A10: *The gas regulator location has been revised from adjacent the generator to adjacent to the propane tank (see SKC-02).*

Q11: What is the intent of extended 2% Warranty Bond in Bid Item 7?

A11: *The intent of Bid Item 7 is to provide an extended one (1) year warranty period for the project. The Contractor shall provide a 2% warranty bond and a one (1) year extension of the contractual warranty period. Bid Item 7 does not alter or modify the requirements for the contractual one (1) year warranty period required by the General Conditions for work included in the Base Bid.*

Q12: At Manor Parkway there is the BPS w/PLC, FP w/Control Panel and SCADA Screen. How will this communication work?

A12: *VFD's on the BPS will control pump speed to maintain constant discharge pressure in the system. If the BPS cannot maintain the pressure, the fire pump pressure switch will be activated and the fire pump will turn on. There is a delay between the BPS and fire pump turning on to ensure that the fire pump only turns on when it is needed. The fire pump control panel operates independently of the BPS control panel. The SCADA RTU only transmits indications and alarms to SCADA.*

Q13: Reference the note on sheet P-2 that identifies the Pressure transducers and Gauges to SCADA (2 locations, also at Commercial Drive). Where are these specified and what do they do? BPS has pressure transducers already that go to BPS PLC. Are these the same or additional? How are they wired? Sheets E-1 and E-2 do not show any conduit, wire size etc. Also, E-3 SCADA Interconnection Diagram does not show them.

A13: *The pressure transducers are additional to those provided with the BPS system. They are not included in A/D Instruments scope of work and shall be provided by the Contractor. They transmit pressure to SCADA for informational purposes only (not control). The electrical drawings have been revised to include the required wiring for connection. Specification 13310 – Pressure Measurement is included as part of this Addendum.*

CONTRACTOR'S BID SCHEDULE

BID ITEM	EST. QUANT.	UNITS	DESCRIPTION	UNIT PRICE	EXTENDED TOTAL
BID ALTERNATE NO. 1					

7	1	LS	Provide one-year warranty extension and 2% warranty bond for one (1) additional year after expiration of contractual warranty period.	LS	LS
			Dollars and Cents per		

2. BID ALTERNATE NO. 1 SUB TOTAL 3. TOTAL (Base Bid + Bid Alt. No. 1) 1. BASE BID SUB TOTAL 2. BID ALTERNATE NO. 1 SUB TOTAL 3. TOTAL (BASE BID + BID ALT. NO. 1)

Name of Contractor: _____

Date: _____

1. Award will be based on the Base Bid Total (Line 1).
2. It is the intent of the Owner to award the Contract to the lowest responsible bidder.
3. 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 Owner.

D - 8.1

General Decision Number: NH160013 04/01/2016 NH13

Superseded General Decision Number: NH20150013

State: New Hampshire

Construction Type: Building

County: Rockingham County in New Hampshire.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016
2	01/29/2016
3	04/01/2016

BRME0003-001 05/01/2015

	Rates	Fringes
BRICK POINTER/CAULKER/CLEANER....\$ 30.36		20.48

CARP0118-006 04/01/2015

	Rates	Fringes
CARPENTER (Acoustical Ceiling Installation, Drywall Hanging, Form Work and Floor Layer Including Carpet, Hardwood and Resilient).....\$ 26.19		18.89

ELEC0490-004 09/01/2015

	Rates	Fringes
ELECTRICIAN		
Electrician.....\$ 28.00		18.69
Low Voltage Wiring		
Installer.....\$ 19.34		16.43

ELEV0004-002 01/01/2016

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 54.53	29.985

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day and the Friday after Thanksgiving.

b. VACATION: Employer contributes 8% of basic hourly rate for 5 years or more of service; 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

* IRON0007-007 03/16/2016

	Rates	Fringes
IRONWORKER (Reinforcing and Structural).....	\$ 23.68	21.14

LABO0976-001 06/01/2013

	Rates	Fringes
LABORER: Common or General (Industrial Work Only).....	\$ 19.71	16.42

LABO0976-002 06/01/2013

	Rates	Fringes
LABORER: Concrete Worker (removing forms, demolition and removal of concrete, pouring and leveling of concrete).....	\$ 19.71	16.42

SUNH2011-009 02/22/2011

	Rates	Fringes
CARPENTER (Drywall Finishing/Taping Only).....	\$ 27.02	11.69
CARPENTER, Excludes Acoustical Ceiling Installation, Drywall Finishing/Taping, Drywall Hanging, and Formwork.....	\$ 23.53	8.25
CONCRETE FINISHER.....	\$ 20.65	0.00
GLAZIER.....	\$ 20.25	4.07
LABORER: Common or General.....	\$ 16.46	0.00
LABORER: Mason Tender - Brick....	\$ 18.15	7.97
OPERATOR: Backhoe.....	\$ 19.30	6.52

OPERATOR: Excavator.....\$ 21.27	7.63
OPERATOR: Loader.....\$ 22.03	0.95
PAINTER: Brush and Roller.....\$ 16.15	0.00
PLUMBER/PIPEFITTER, Includes HVAC Pipe Work.....\$ 25.34	5.85
ROOFER.....\$ 17.55	3.25
SHEET METAL WORKER (HVAC Duct Installation Only).....\$ 25.50	13.90
SPRINKLER FITTER (Fire Sprinklers).....\$ 24.91	5.74
TRUCK DRIVER.....\$ 20.47	6.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5. (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the

Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

2. Payment shall be at the Contract price as stipulated by the Salem Police Department or designated Department requested by the Salem Police Department.
3. Payment will only be made if use of uniformed police has been approved by the Owner and the Engineer.

ITEM NO. 7: BID ALT. NO. 1 - PROVIDE ONE-YEAR WARRANTY EXTENSION AND 2% WARRANTY BOND FOR ONE (1) ADDITIONAL YEAR AFTER EXPIRATION OF CONTRACTUAL WARRANTY PERIOD

- A. Method of measurement:
 1. Measurement for this item shall be by lump sum.
- B. Basis for payment
 1. Said lump sum price shall include full compensation for Provide One-Year Warranty Extension and 2% Warranty Bond for One (1) Additional Year after Expiration of Contractual Warranty Period.
 2. Said lump sum shall include full compensation for Provide One-Year Warranty Extension and 2% Warranty Bond for One (1) Additional Year after Expiration of Contractual Warranty Period costs including associated fees and any other work necessary for the project not paid for under a separate item.
 3. The 2% Warranty Bond shall be executed by the Contractor and a corporate bonding company licensed to transact business in the State of New Hampshire and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570 in accordance with the General Conditions of the Contract.
 4. An increase in the scope of work shall not be grounds for increase in the value of the 2% warranty bond extension item. Additional insurance and administrative costs shall be included in the change order value that increased the scope of work.
 5. The additional one-year warranty shall be in accordance with the General Conditions Article 38.
 6. An increase in the installed quantity of an item measured for payment and described in the bid schedule shall not be grounds for increase in the value of the 2% warranty bond extension item.
 7. Bid Item 7 does not alter or modify the requirements for the contractual one (1) year warranty period required by the General Conditions for work included in the Base Bid.

PART 2 – PRODUCTS

(Not Part of This Section)

PART 3 – EXECUTION

SECTION 13310

PRESSURE MEASUREMENT

PART 1 - GENERAL

1.1 SCOPE

- A. The Contractor shall provide the labor, tools, equipment, and materials necessary to install pressure measurement equipment in accordance with the contract drawings and as specified herein.
- B. The types of equipment specified in this section shall include, but not limited to, the following:
 - 1. Gauge pressure transmitters.

1.2 RELATED SECTIONS

- C. The following divisions and sections contain requirements that relate to this section:
 - 1. Section 13301, "Instrumentation Systems Basic Requirements."
 - 2. Section 13360, "Instrumentation and Control System."

1.3 QUALITY ASSURANCE

- A. Reference Standards.
 - 1. National Electrical Manufacturers Association (NEMA).
 - 2. National Electrical Code (NEC).
 - 3. Underwriters' Laboratories, Inc. (UL)
 - 4. See Section 13301, "Instrumentation Systems Basic Requirements."
- B. Qualifications
 - 1. Manufacturer's Qualifications. Firms regularly engaged in manufacture of pressure measurement equipment whose products have been in satisfactory use in similar service for not less than 5 years.
 - 2. Installer's Qualifications. Qualified with at least 5 years of successful installation experience on projects with pressure measurement equipment similar to that required for this project. An approved manufacturer's representative for the maintenance, installation, and start-up of the level measurement equipment.

1.4 SUBMITTALS

- A. Furnish manufacturer's product data, test reports, and material certifications as required. See Section 13350, "Supervisory Control and Data Acquisition (SCADA) Addition," for reference.
- B. Submit a list of materials giving quantities, manufacturer's name, and catalog numbers.
- C. Submit wiring diagrams showing all connections for all equipment furnished under this section.
- D. Furnish two certified copies of calibrations.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver equipment properly packaged and mounted on pallets or skids to facilitate handling of heavy items. Utilize factory fabricated type containers or wrappings for components which protect equipment from damage.

PART 2 - PRODUCTS

2.1 Gauge Pressure Transmitters

A. Features

- a) Sensing Element. Sealed capacitance sensing with silicone oil fill.
- b) Solid state transmitter.
- c) Two wire operation.
- d) Field serviceable, noninteracting, zero and span controls.
- e) Zero elevation and suppression.
- f) Adjustable dampening.
- g) NEMA 4 housing with 1/4 inch NPT pressure connection.

B. Accessories

- a) Shutoff valve, pulsation dampener, tubing, and fittings.
- b) Manual air release with threaded fitting for attachment of portable calibration unit.
- c) Local indicated reading in engineering units.
- d) Stainless steel tag.

C. Materials.

- a) Sensor Body. 316 stainless steel.
- b) Wetted Parts. 316 stainless steel.

D. Sizes and Ratings.

- a) Overpressure Protection. 2,000 pounds per square inch gauge (psig) minimum.
- b) Accuracy. ± 0.2 percent of span.
- c) Ambient Temperature. -20 to 180 degrees Fahrenheit ($^{\circ}$ F.).
- d) Pressure Input Range. 0 psi to 200 psi.
- e) Signal Output. 4-20 milliampere direct current (mAdc).

E. Manufacturer.

- a) Foxboro.
- b) Rosemount Inc.
- c) Or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. In the event any discrepancies are discovered, immediately notify the Owner's

Representative in writing. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 INSTALLATION

- A. General
 - 1. Install equipment as indicated in accordance with manufacturer's written instructions and in compliance with recognized industry practices.
 - 2. Mount instruments so that they may be readily approached and easily serviced.
 - 3. Install transmitters with local indicators in a position readily observable from the operating area.
 - 4. Pressure Measurement Installation.
 - a) Coordinate the installation of pressure sensing devices with the process equipment and contract drawings.
 - b) Install manufacturer's supplied cable between level element and transmitter. If flexible conduit is not provided or where conditions dictate, furnish and install rigid conduit sized according to manufacturer's recommendations.
 - c) Install ground references as required by the manufacturer for the application.

3.3 FIELD QUALITY CONTROL

- A. Upon completion of this portion of the work, the Contractor shall provide for services of a qualified representative of the manufacturer to inspect and approve installation.
- B. Upon completion of all inspections and prior to acceptance by Owner, perform field tests outlined in Section 13350, "Supervisory Control and Data Acquisition (SCADA) Addition."

3.4 CLEANING

- A. Pressure Measurement. Each pressure device shall be kept clean and free of dust during the storage, start-up, demonstration, and warranty period.

3.5 DEMONSTRATION

- A. Reliable and accurate operation of each pressure sensor and all specified accessories shall be demonstrated. This shall include accuracy, stability, and repeatability as specified over a range inclusive of the maximum (full scale, overflow, high alarm, etc.) and the minimum (low level alarm, low level stop) levels which can occur without operator intervention.
- B. Each pressure sensor being demonstrated by the Contractor shall be individually recorded on a 24 hour paper chart. Discrete sensors shall be temporarily connected to provide a recording showing "on-off" changes in the sensor. Recording meters shall be certified accurate, demonstrated accurate, and provided by the Contractor for testing of the provided pressure sensors.

END OF SECTION

Addendum #1
SKC-01
Dwg. C-1
4/22/16

TAX MAP 87 LOT 7490

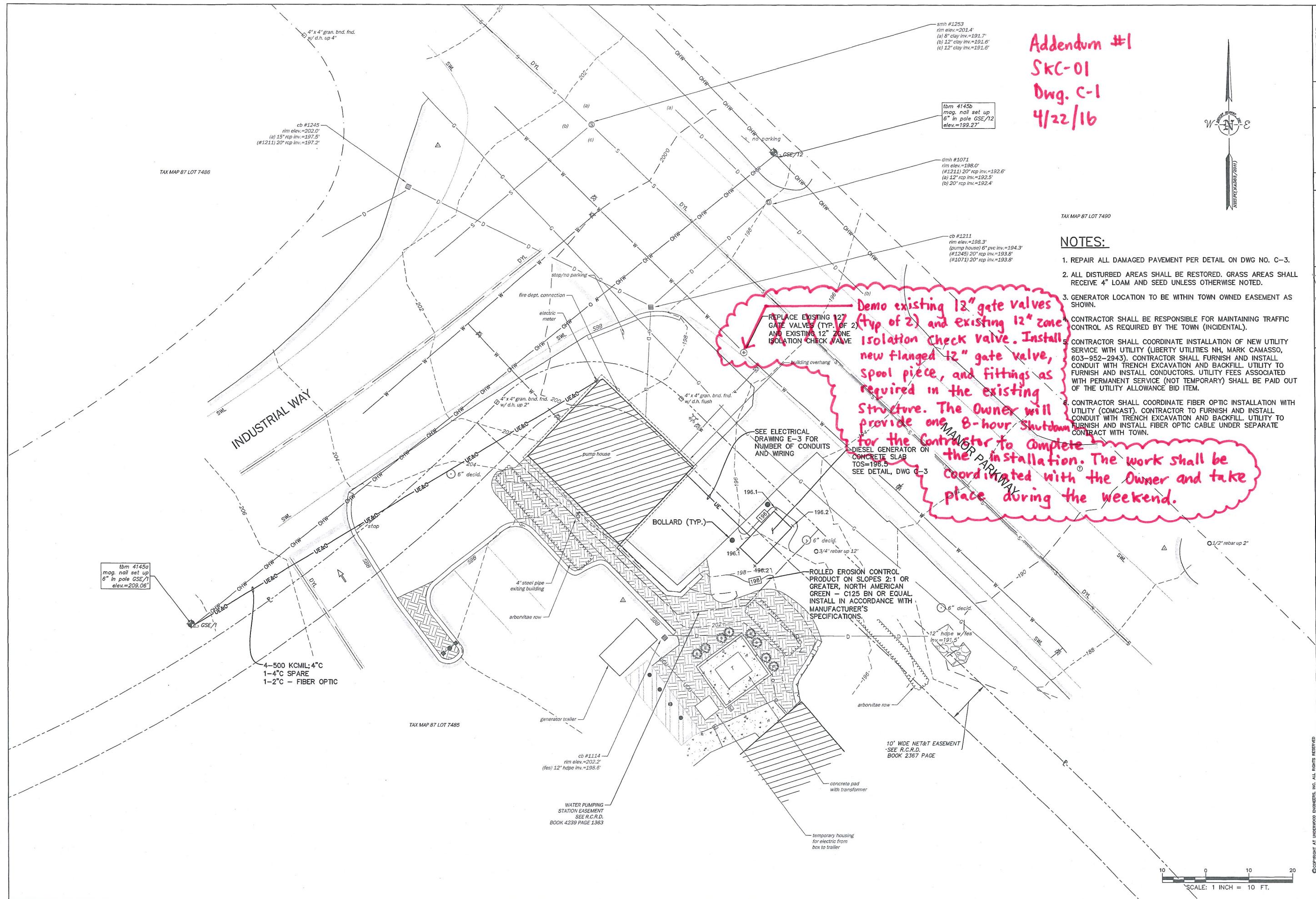
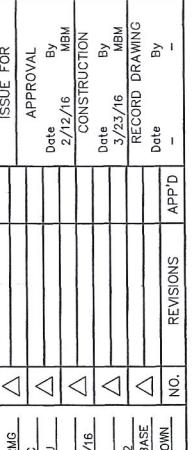
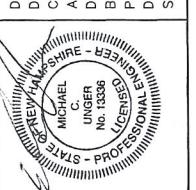
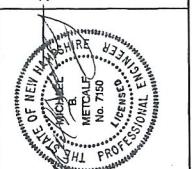
1. REPAIR ALL DAMAGED PAVEMENT PER DETAIL ON DWG NO. C-3.
2. ALL DISTURBED AREAS SHALL BE RESTORED. GRASS AREAS SHALL RECEIVE 4" LOAM AND SEED UNLESS OTHERWISE NOTED.
3. GENERATOR LOCATION TO BE WITHIN TOWN OWNED EASEMENT AS SHOWN.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC CONTROL AS REQUIRED BY THE TOWN (INCIDENTAL).
5. CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW UTILITY SERVICE WITH UTILITY (LIBERTY UTILITIES NH, MARK CAMASSO, 603-952-2943). CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT WITH TRENCH EXCAVATION AND BACKFILL. UTILITY TO FURNISH AND INSTALL CONDUCTORS. UTILITY FEES ASSOCIATED WITH PERMANENT SERVICE (NOT TEMPORARY) SHALL BE PAID OUT OF THE UTILITY ALLOWANCE BID ITEM.
6. CONTRACTOR SHALL COORDINATE FIBER OPTIC INSTALLATION WITH UTILITY (COMCAST). CONTRACTOR TO FURNISH AND INSTALL CONDUIT WITH TRENCH EXCAVATION AND BACKFILL. UTILITY TO FURNISH AND INSTALL FIBER OPTIC CABLE UNDER SEPARATE CONTRACT WITH TOWN.

UNDERWOOD
engineers

25 Vaughan Mall, Portsmouth, N.H. 03801
Tel. 603-436-6192 Fax. 603-431-4733

MANOR PARK
PUMPING STATION
EXIT 2 ARE
WATER SYSTEM IMP
TOWN OF SALEM, NE

<u>DWG NO</u>	<u>SHEET</u>
C-1	3 OF 24

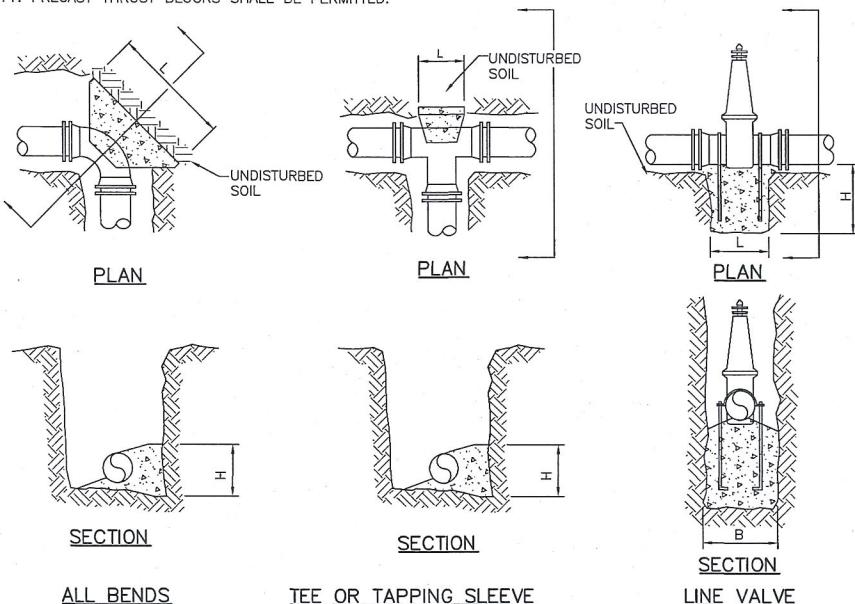


THRUST BLOCK SCHEDULE
MINIMUM BEARING AREA
(SQUARE FEET)

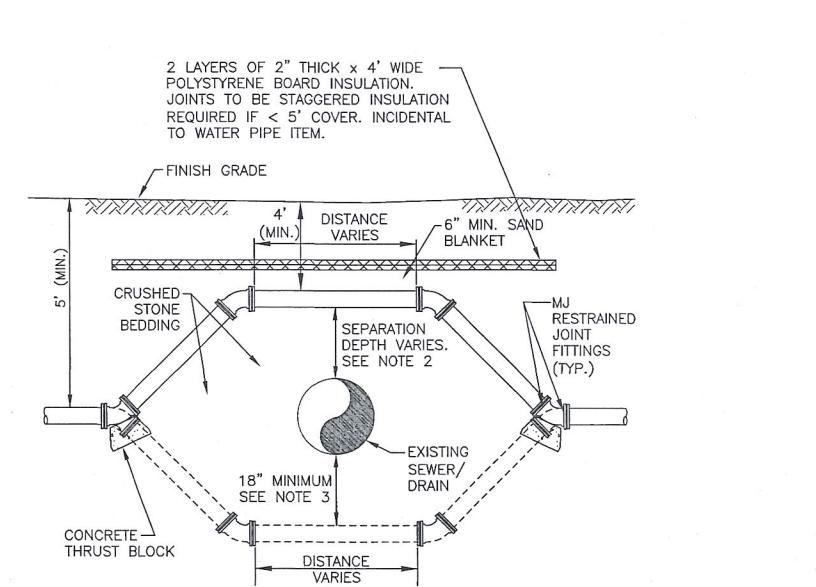
Nominal Dia. (in)	PIPE SIZE							
	4	6	8	10	12	16	20	24
Tees, Caps, Plugs, & Tapping Sleeves	1.31	2.90	5.18	7.96	11.43	20.28	31.80	45.72
90 Degree Bends	1.85	4.11	7.32	11.26	16.16	28.7	44.96	64.66
45 Degree Bends	1.00	2.22	3.96	6.10	8.75	15.52	23.33	25.00
22-1/2 Degree Bends	0.51	1.13	2.01	3.11	4.46	7.91	12.40	17.33
11-1/4 Degree Bends	0.26	0.57	1.01	1.56	2.23	3.97	6.23	8.97

NOTES:
System Pressure: 125 psi
Safety Factor: 1.5
Soil Bearing Capacity: 2,000 psf

1. PLACE THRUST BLOCKS SUCH THAT THE LENGTH (L) OF THE BLOCK IS APPROX. TWICE AS LONG AS THE DEPTH (D).
2. PLACE THRUST BLOCKS AGAINST UNDISTURBED SOIL.
3. PLACE THRUST BLOCKS ALONG THE FULL LENGTH OF THE FITTING TO MAXIMIZE BEARING AREA.
4. PLACE 2 LAYERS OF POLYETHYLENE OR ROOFING PAPER AROUND FITTINGS PRIOR TO PLACEMENT OF THE CONCRETE TO CREATE A BOND BREAK & PROTECT THE BOLTS.
5. PLACE A SOLID CONCRETE BLOCK BETWEEN CAP/PLUGS AND THRUST BLOCKS.
6. PLACE A 12" LONG STEEL HORSESHOE-SHAPED PICKUP HOOK IN ALL PLUG AND CAP THRUST BLOCKS. DIAMETER OF HOOK SHALL BE A MINIMUM OF 5/8".
7. USE OF THRUST BLOCKS DOES NOT ELIMINATE THE REQUIREMENT OF OTHER RESTRAINTS. ALL VALVES AND FITTINGS SHALL BE RESTRAINED MJ.
8. THRUST BLOCKS ARE REQUIRED ON ALL FITTINGS.
9. COAT ALL THREADED RODS, NUTS, AND BOLTS WITH BITUMINOUS PAINT.
10. PLACE ANTI-SEIZE LUBRICANT ON ALL BOLTS.
11. PRECAST THRUST BLOCKS SHALL BE PERMITTED.

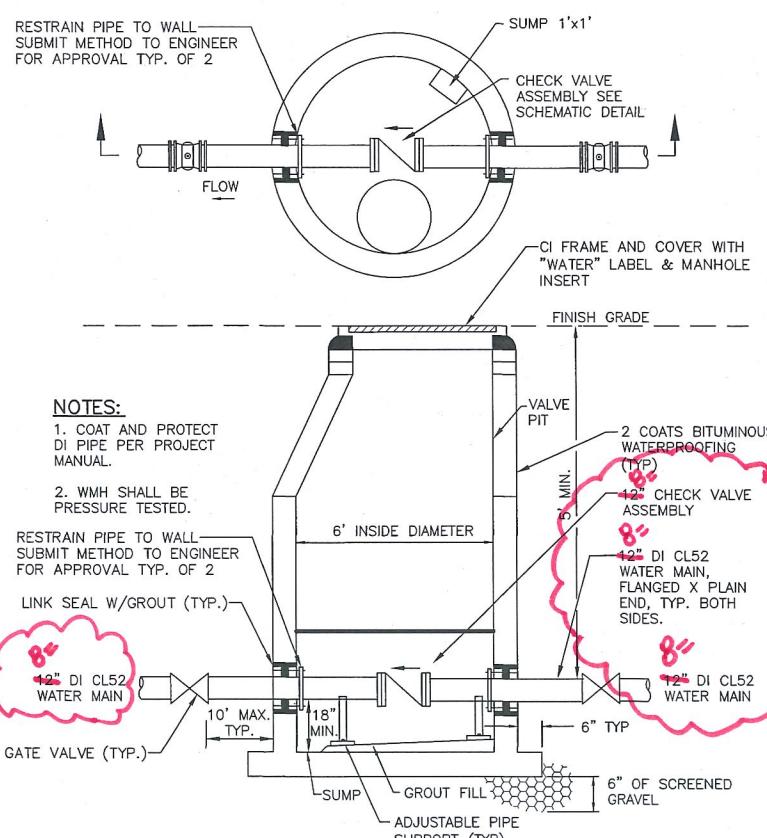


CONCRETE THRUST BLOCKS AND ANCHORS
NOT TO SCALE

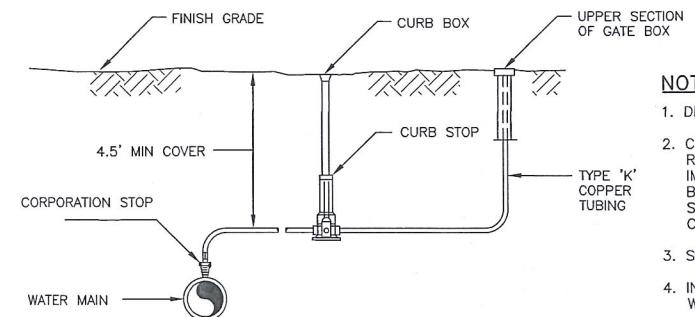


NOTE:
1. INSTALL (4) FOUR 45° MJ BENDS WITH RESTRAINED JOINT FITTINGS.
2. SEPARATION DEPTH BETWEEN WATER AND SEWER SHALL BE 18" (MIN.) PER NHDES ENV-Wq 704.12. WHERE SEPARATION DEPTH IS LESS THAN 18" IN ORDER TO HAVE 4'-0" (MIN.) COVER OVER WATER MAIN, THEN SEWER SHALL BE PRESSURE PIPE AS INDICATED ON DRAWINGS. VERTICAL SEPARATION OF LESS THAN 18" ALLOWED ONLY WITH WAIVER FROM NHDES.
3. WATER UNDER SEWER ALLOWED ONLY WITH WAIVER FROM NHDES

WATER MAIN/SEWER/DRAIN CROSSING
NOT TO SCALE



CHECK VALVE STRUCTURE (TYP.)
NOT TO SCALE

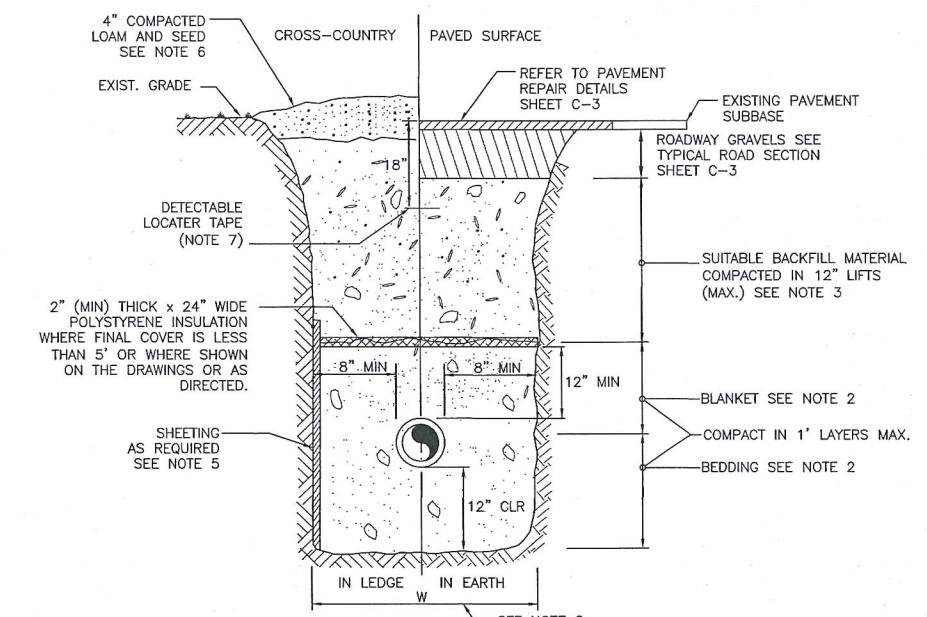


Addendum #1
SKC-03
DWG. C-5
4/22/16

NOTES:

1. DIRECT PIPING AWAY FROM ROADWAY.
2. CHLORINE INJECTION AND MANUAL AIR RELEASE ASSEMBLIES ARE TO BE REMOVED IMMEDIATELY FOLLOWING A SUCCESSFUL BACTERIA TEST. LEAVE THE CORPORATION STOP AND 12" LENGTH OF TUBING (WITH A CRIMPED END) IN PLACE.
3. SIZE AS NOTED ON PLAN OR 1" MINIMUM.
4. INSTALL AS REQUIRED TO DISINFECT AND TEST WATER MAIN. INCIDENTAL.

TYPICAL CHLORINE INJECTION TAP AND/OR
MANUAL AIR RELEASE ASSEMBLY
NOT TO SCALE



WATER TRENCH NOTES:

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWINGS.
2. BEDDING AND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER (SECTION 02228). BLANKET MAY BE OMITTED FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED, HOWEVER, THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
3. BACKFILL MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS; PIECES OF PAVEMENT; ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION; AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
4. IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF ENGINEER IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE PIPE LINE, FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WILL BE PRESERVED.
5. MINIMUM COVER NOT LESS THAN 5 FEET, AND TO AVOID EXISTING AND PROPOSED STRUCTURES. PIPE TO BE DEEPER THAN 5' IF NECESSARY TO AVOID CONFLICTS WITH EXISTING AND PROPOSED DRAINAGE OR OTHER UTILITIES.
6. SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
7. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
8. LOCATOR TAPE TO BE TERRA TAPE SENTRY LINE 1350 OR APPROVED EQUAL.
9. W = MAXIMUM ALLOWABLE TRENCH PAYMENT WIDTH: FOR ROCK EXCAVATION, FOR ORDERED EXCAVATION BELOW GRADE AND HANDLING OF EXCAVATED CONTAMINATED SOILS, FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.).
10. COMPACTATION: ALL BACKFILL SHALL BE COMPAKTED AT OR NEAR OPTIMUM MOISTURE CONTENT BY PNEUMATIC TAMPERS, VIBRATORY COMPACTORS OR OTHER APPROVED MEANS. BACKFILL BENEATH PAVED SURFACES SHALL BE COMPAKTED TO NOT LESS THAN 95 PERCENT OF ASHTO T99, METHOD C. CROSS COUNTRY ROUTES SHALL BE COMPAKTED TO 90%.

TRENCH - WATER
NOT TO SCALE

ISSUE FOR APPROVAL	By MBM
Date 2/12/16	By MBM
CONSTRUCTION	By MBM
Date 3/23/16	By MBM
RECORD DRAWING	By -
Date -	Revisions App'd
NO.	

Drawn/Chk-TLB/RMG
Designed - JMC
Checked - MCU
Approved -
Date 3/23/16
Book No. 1612
Project No. 1612
Dwg. ID 1612-DLIC
Scale AS SHOWN

THE STATE OF NEW HAMPSHIRE
MICHAEL J. MCINTYRE
LICENSING BOARD OF PROFESSIONAL ENGINEERS
No. 13206

THE STATE OF NEW HAMPSHIRE
MICHAEL J. MCINTYRE
LICENSING BOARD OF PROFESSIONAL ENGINEERS
No. 7580

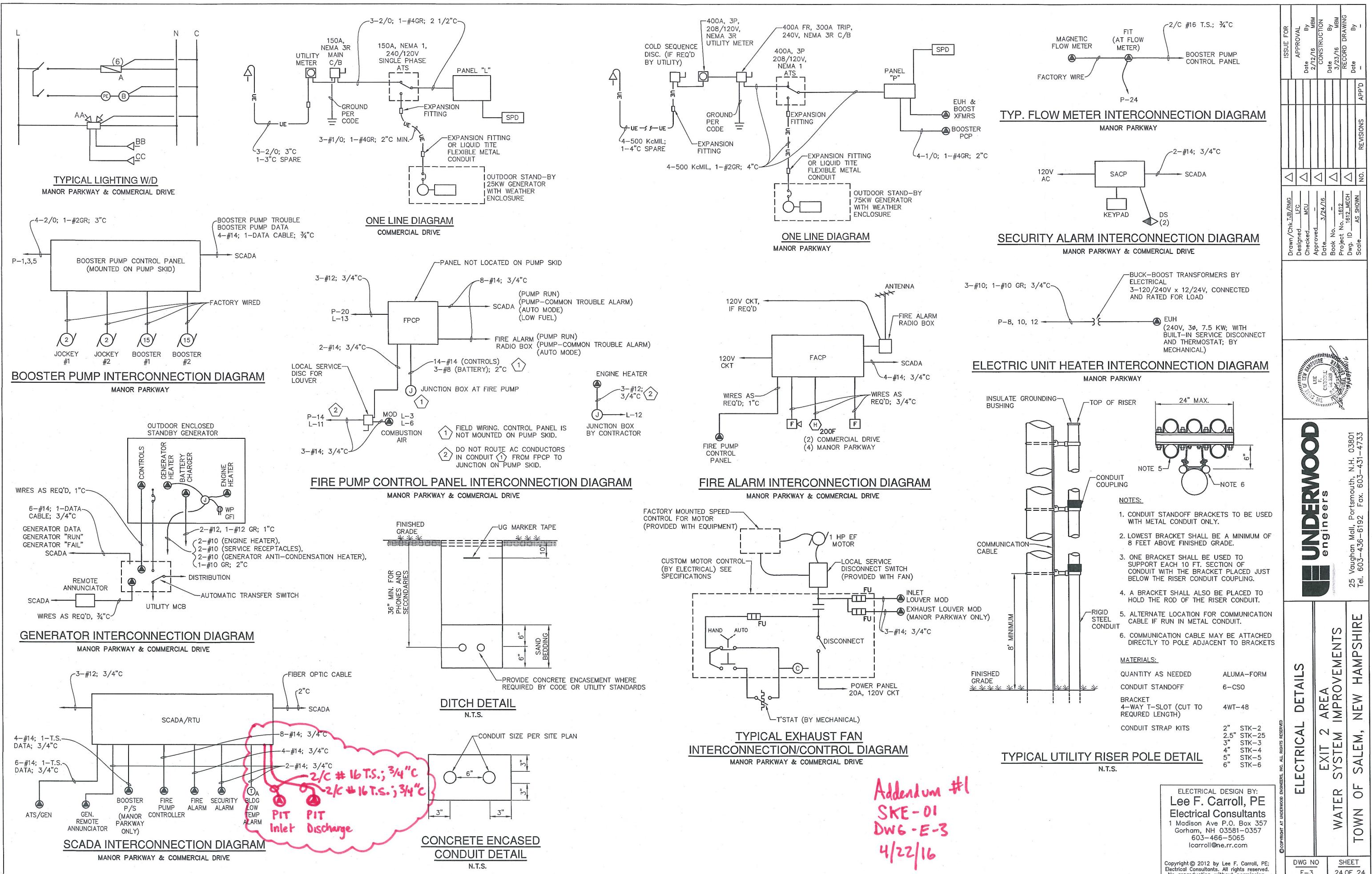
UNDERWOOD
engineers

25 Vaughan Mall, Portsmouth, N.H. 03801
Tel. 603-436-6192 Fax. 603-431-4733

WATER DETAILS
EXIT 2 AREA
WATER SYSTEM IMPROVEMENTS
TOWN OF SALEM, NEW HAMPSHIRE

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DWG NO C-5
SHEET 7 OF 24



Town of Salem, NH

Exit 2 Area Water System Improvements
Pre-Bid Meeting
-Notes-

Town Hall, 33 Geremonty Drive
Salem, NH
April 19, 2016 at 3:00 P.M.

ATTENDEES

Roy Sorenson
Frank Giordano
Glenn Burton
Michael Unger, P.E.
Jeff Clifton

REPRESENTING

Town of Salem (Town)
Town
Town
Underwood Engineers (UE)
UE

Addresses and Phone Numbers

Underwood Engineers*
Michael Unger, P.E., Senior Project
Engineer
Jeff Clifton, E.I.T., Project Engineer

Town of Salem**
Roy Sorenson, Municipal Services Director
21 Cross Street
Salem, NH 03079

Phone 603-436-6192
Fax 603-431-4733
25 Vaughan Mall, Unit One
Portsmouth, New Hampshire 03801

*Direct all technical questions to Underwood Engineers.

** Bidding documents may be obtained from the Purchasing Agent, Salem Town Hall.
See attached Sign In Sheet for bidder contact information.

Project Background

The Town of Salem (Town) maintains the Manor Parkway high pressure zone which is defined by zone isolation valves located on Manor Parkway and Commercial Drive. The high pressure zone boundary includes properties served on Manor Parkway (portion), Industrial Way, Northwestern Drive and Commercial Drive. The high pressure zone domestic water is served by the existing booster pumping station on Manor Parkway. The Manor Parkway existing fire flow is served by an existing fire pump located in the Manor Parkway station. The project goals include:

- Increase available fire flow to 3,500 gpm at 20 psi residual in all Town-owned mains in the Manor Parkway Pressure Zone, per Insurance Service Office (ISO) and Fire Department requirements. (Existing fire pump rated for 1,500 gpm.)
- Reduce over-pressurization caused by existing fire pump.

- Improve fire pump controls and enable fire pump to start independently of alarm transmission from private sprinkler systems.
- Replace existing booster pumping system, which is at the end of its useful life, with a new booster pumping system sized to meet peak hour demand with the largest pump out of service.

Project Overview

In summary, the work will include:

Existing Manor Parkway Station

- Furnish and install booster pumping skid for domestic water supply including two (2) vertical multistage jockey pumps, two (2) end suction centrifugal booster pumps, pump controls including VFDs and a PLC, and all associated piping and valves.
- Furnish and install one (1) horizontal diesel driven fire pump with control panel and all associated piping and valves shown on the drawings.
- Furnish and install one (1) fire department alarm control panel, one (1) radio box and associated wiring.
- Install one (1) RTU to be furnished and integrated by the Owners SCADA contractor (cost to furnish and program the RTU paid under SCADA allowance).
- Furnish and install diesel gas powered generator.
- Complete site work including yard piping, grading, paving and landscaping.
- Construct miscellaneous improvements.
- Other construction as indicated on the Drawings.
- Complete restoration of all properties and structures both public and private.

Proposed Commercial Drive Station

- Construct a 20' x 24' split faced CMU building outside dimensions at 7 Commercial Drive.
- Furnish and install one (1) horizontal diesel driven fire pump with control panel and all associated piping and valves shown on the drawings
- Furnish and install one (1) fire department alarm control panel, one (1) radio box and associated wiring.
- Install one (1) RTU to be furnished and integrated by the Owners SCADA contractor (cost to furnish and program the RTU paid under SCADA allowance).
- Furnish and install LP gas powered generator.
- Complete site work including yard piping, grading, paving and landscaping.
- Other construction as indicated on the Drawings.
- Complete restoration of all properties and structures both public and private.

Bids

Bids are due 3:00 P.M. April 28, 2016 at the Building Office, and then will be opened and read publicly in the Knightly Room.

Basis of Award

Award will be based on the Base Bid (Line 1) as noted on the Bid Schedule. The Owner may also add the additional bid alternative if funding allows.

Bid Alternate No. 1

The intent of Bid Item 7 is to provide an extended one (1) year warranty period for the project. The Contractor shall provide a 2% warranty bond and a one (1) year extension of the contractual warranty period. Bid Item 7 does not alter or modify the requirements for the contractual one (1) year warranty period required by the General Conditions for work included in the Base Bid.

Addendum

An addendum, including pre-bid meeting minutes, will be issued prior to the bid due date. Questions from Contractors will be received until Thursday April 21, 2016. The Addendum is anticipated Friday April 22, 2016.

Funding

This project is funded by a loan provided under the New Hampshire State Drinking Water Revolving Loan Fund (DWSRF).

General Contract Requirements

Requirements include:

- 5% Bid Security with bid.
- 100% Performance and Payment bonds.
- Retainage will be held from progress payments per the General Conditions (10% per payment request until work is 50% complete).
- General liability insurance: Town of Salem, and Underwood Engineers shall be additional insured as noted in General and Supplemental Conditions.
- Requirements of DWSRF (blue forms must be included with bid).

DWSRF Requirements

Federal provisions and special DWSRF provisions apply as described in the Contract Documents Parts A, B, C, and D. DWSRF requirements include but are not limited to:

- Project Sign.
- Non-discrimination in employment.
- Davis Bacon Wage Rates.
 - “Building Construction” rates shall apply to all work.
- American Iron and Steel
- Certified Payrolls (weekly submission).
- Utilization of Minority and Women’s Business Enterprises (MBE/WBE), goals and reporting. Contractor shall provide utilization information with monthly payment applications to support Owner’s quarterly reporting.
- Nonsegregated Facilities.

Permits/Inspections

The following permits and inspections are required as a part of this contract:

- Design approval has been obtained from the Department of Environmental Services (DES).
- Construction General Permit for Construction Dewatering, including Notice of Intent (NOI): Contractor's responsibility.
- Town of Salem requirements: Building permit, Street Opening Permit, Fire Alarm Permit. Contractor's responsibility (Fees waived for Town project).
- Note: The wetlands to the South of the proposed building are prime wetlands and the Town has obtained a Conditional Use Permit for the work at this location.

Field Testing

Field testing includes geotechnical and structural testing as specified for quality control during construction.

The Contractor shall engage a third party testing agency approved by the Engineer to conduct tests and perform other services specified for quality control during construction. A bid allowance is provided for payment of field testing based on invoices from the testing agency submitted to the Engineer. The Contractor shall coordinate with the testing agency to permit the testing agency to be on-site in a timely manner. The Contractor shall communicate directly with the testing agency to coordinate the testing agency's presence on the project site when needed.

Traffic Regulation

The Contractor shall provide a Traffic Control Plan for review and approval by the Owner. The use of flaggers will not be permitted. An Allowance for Uniformed Officer (without cruiser) is included in the Bid Schedule. Invoices from the Police Department for Uniformed Officers will be paid out of this allowance.

Staging Areas

The Contractor is required to locate and secure all staging and material storage areas. Staging and storage will be allowed at the Commercial Drive Site project area within the proposed clearing limits and within the Owners Easement.

A portion of the cul-de-sac at the end of Manor Parkway will be available for Contractors staging area. Final locations are subject to Town approval.

Tree Clearing and Removal

No tree clearing shall be allowed outside the limits of clearing shown on the Drawings without prior approval. The Contractor shall mark his proposed limit of clearing in the field for review and approval by the Engineer a minimum of 48 hours prior to any cutting.

Erosion Control measures must be in place prior to grubbing and earth disturbance.

Coordination

The Contractor is responsible to coordinate with utility companies. Existing utilities – in addition to Town utilities – in the project area include Liberty Utilities (electric), Comcast (fiber optics), and the Town's propane supplier (Osterman Gas).

The Contractor shall be responsible for coordinating with Liberty Utilities for electrical improvements at Manor Parkway and a new electrical service and utility pole at Commercial Drive. The Contractor shall install conduits from utility poles to the building. No Liberty Utilities fees are anticipated as part of this contract. However, if there are fees they will be paid out of the utility allowance bid item.

The Town will coordinate with Comcast for fiber optics installation to the Manor Parkway station and the proposed Commercial Drive station. The costs for Comcast to furnish and install the fiber optics will be paid by the Town and is not included in the Contractor's scope of work. The Contractor shall be responsible for furnishing and installing underground conduits for fiber optics as shown on the drawings at each station. The Contractor will need to coordinate with the Town to ensure conduits are installed prior to fiber optic installation. The Contractor will also be responsible for making final connections from where Comcast terminates their installation to complete the fiber optic installation.

A new propane (LP) tank is required at Commercial Drive. The Contractor shall coordinate with the Town's propane supplier, Osterman Gas, to provide the tank and gas piping. The Contractor is responsible to provide a complete system. The Contractor shall perform all work not performed by the propane supplier which may include but not be limited to excavation and backfill of the tank and gas piping, furnishing and installing the concrete pad and connection to the standby generator, including gas piping, and regulators, as required by applicable codes and requirements of the propane supplier and equipment manufacturers.

Fees, if any, charged by the utilities for permanent services will be paid out of the Utility Allowance bid item. Utility costs for temporary services required or requested by the Contractor during the prosecution of the work shall be the responsibility of the Contractor. The Contractor shall be responsible for utility fees associated with new equipment until acceptance by the Owner through the Substantial Completion process.

SCADA Allowance

The Contractor shall obtain two (2) new SCADA RTU panels from the Owners integrator A/D Instrument Repair, Inc. 23B South Main Street, Newton, NH 03858. A/D Instruments is responsible for furnishing and programming the RTU's to be paid out of the SCADA allowance.

The Contractor is responsible for installation of the two (2) RTU's, one (1) at each station, and coordination with A/D Instruments, to be paid under the lump sum bid item. Installation includes mounting the panel and any wiring associated with making final connections to the panel. See Division 13 and the Appendix for additional information.

Dewatering

The Contractor's attention is directed to the provisions of 02650 of the Project Manual and the geotechnical report in the Appendix. High groundwater may be encountered during construction of the improvements.

The Contractor shall comply with the Environmental Protection Agency's (EPA) National

Pollutant Discharge Elimination System (NPDES) General Permit for Construction Dewatering before proceeding with the work. The Contractor is responsible for all application fees. Appropriate sediment and erosion controls shall be operational prior to commencing trench and/or structure de-watering operations.

Contract Time and Substantial Completion

Completion time for the project is 210 calendar days from the Notice to Proceed to Substantial Completion and 240 calendar days to Final Completion. A Notice to Proceed is anticipated in spring 2016 immediately following award. No seasonal shutdown will be allowed prior to Substantial Completion.

Work required to be performed prior to Substantial Completion includes:

- Water pumping stations at Manor Parkway and Commercial Drive constructed as designed, operational, tested satisfactory and available for use by the Owner.
- SCADA systems installed, tested satisfactory, and available for use by the Owner.
- Emergency generators installed, tested satisfactory, and available for use by the Owner.

The time between Substantial Completion and Final Completion is intended for completion of punchlist items and restoration. 2% retainage shall be held for the one-year warranty period commencing at Substantial Completion.

Refer to Specification Section 01000, Prosecution of Work, for additional information.

Opinion of Cost

The Engineer's Opinion of Cost is approximately \$1.2M including the Additive Alternate.

The Contractors were all invited to the existing Manor Parkway station and the proposed Commercial Drive site after the meeting.

Questions from Contractors

1. Is the intent of the Bid Alternate No.1 to provide an additional one-year warranty on the project?

Yes, that is the intent of the Bid Alternate. The Town will not hold the 2% retainage for the additional year. Instead of the 2% retainage there will be the 2% warranty bond for the additional one-year warranty period under the Bid Alternate No. 1.

Sign In Sheet

NON - MANDATORY PRE-BID MEETING

Exit 2 Area Water System Improvements
Town of Salem, NH

April 19, 2016 3:00 P.M.

Name	Company	Address	Phone	Email
Mike Hager	Underwood Engineers	25 Vaughan Hall P.O. Box 40000	436-6192	mhager@uwi.com
Jeff Chapman	Underwood Engineers	"	"	jchapman@underwoodengineering.com
Paul Bruneau	PEPS Construction	25 Country Club Rd Gardens Rd, Dracut, MA 01826	603-528-7703	peps@metacast.net
Chris Wixson	Infrastructure Constr. Corp.	9 Brown Hill Rd Dover, NH 03304	603-224-1004	chris.wixson@conwest.net
Tom Fauschuk	Porter Consulting Corp	Po Box 320 Moultham, NH 03256	603-426-5525	PorterCorp@PorterCorp.com
Beth Sander	waterworks	Po Box 818 Alton, NH	603-835-7000	b.sander@waterworksinc.com
Chris Grantham	Kingsbury Co. Water Treatment	Po Box 400 Dover, NH	"	ESTIVATING@KINGSBURYCO.COM

Sign In Sheet

NON - MANDATORY PRE-BID MEETING

Exit 2 Area Water System Improvements
Town of Salem, NH

April 19, 2016 3:00 P.M.

Name	Company	Address	Phone	Email
Frank Carter	Ayer Electric	246 High St. Barrington NH		Ayer Electric Inc @ Metrocast.Net
Kathie Bourret	DES	29 Waizen Concord	211-2902	Kathleen.Bourret @ DES.NH.Gov
Bob Scholten	Town of Salem			
Glen Burton	Salem Water			

Existing Water Manhole at Manor Parkway

Photograph of existing gate valves (2) and zone isolation check valve (silent non-slam).

