

FUEL OIL UST TANK REPLACEMENT
AT
EAST WINDSOR MIDDLE SCHOOL

38 Main Street,
Broad Brook, CT 06016

OWNER
East Windsor Public Schools
70 South Main Street
East Windsor, Connecticut 06088
tel: (860) 623-3346
fax: (860) 292-6817

MECHANICAL AND ELECTRICAL ENGINEER:



MCILVEEN AND COMPANY, INC.
220 Albany Turnpike, Building 1, P.O. Box 69
Canton, Connecticut 06019
tel: (860) 352-8092
fax: (860) 352-2568
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INVITATION TO BID

FUEL OIL TANK REPLACEMENT PROJECT

EAST WINDSOR MIDDLE SCHOOL
38 MAIN STREET
BROAD BROOK, CT 06016

The Town of East Windsor invites sealed bids for the Underground Fuel Oil Storage Tank Replacement Project at East Windsor Middle School, 38 Main Street, Broad Brook, CT 06016.

Drawings and Specifications for bid are available through the Town Website, <https://www.eastwindsor-ct.gov/invitations-bidrfps/pages/invitations-bidrfps>, on or after **Tuesday, June 18, 2019**.

A mandatory pre-bid walk-thru will be conducted on **Friday, June 21, 2019 at 11:00am** at East Windsor Middle School, 38 Main Street, Broad Brook, CT. **Bids will not be accepted from any firm that does not attend.**

Sealed Bids will be accepted from eligible bidders at the **Town of East Windsor Board of Education Building, 70 South Main Street, East Windsor, CT 06088** until **11:00 am, Wednesday July 1, 2019** at which time they shall be publicly opened at the Board of Education Building. **Bids received after that time will be returned unreviewed.**

BID FORM

To: Town of East Windsor Board of Education
70 South Main Street
East Windsor, CT 06088

Project: Fuel Oil UST Tank Replacement
East Windsor Middle School
38 Main Street
Broad Brook, CT 06016

Date: _____

Submitted By: _____

1. In conformity with the Bid Documents for the Project and in accordance with all legal requirements of federal, state and local laws, rules, regulations and requirements, and after an examination of the Contract Documents as well as the site and locality, the undersigned herein agrees to secure all permits and licenses, provide all incidental work, provide all testing, monitoring, documentation, reporting, labor, materials, equipment, superintendence, all means of construction, pay all fees, removal, proper disposal and complete all work as specified or indicated in accordance with the intent of the Contract Documents. The bidder accepts all of the Terms and Conditions of the Specifications.
2. The State of Connecticut Prevail Wage Rates apply to this Project. The State Wage Determination is included following this bid form.
3. It is understood that the Owner reserves the right to reject any/or all proposals, or part thereof or items therein, and to waive technicalities as required for the best interests of the Owner. It is further understood that competency and responsibility of Bidders will receive consideration before the award of the contract.
4. All Bidders shall attach their current Certificate of Insurance with limits at the time of Bid for review. If awarded a contract, the Insured will provide the following provision:
"It is agreed that Town of East Windsor included as additional Insured."
5. The Bidder will complete the work for the following price(s):

a. **Base Bid Proposal:**

The Bidder proposes to perform all of the Testing, monitoring, documentation, reporting, and Tank Removal and Replacement work at the East Windsor Middle School for the East Windsor School District as described in the Plans and Specifications for the base bid lump sum of:

_____ Dollars

(\$ _____)

(amount shall be in both words and figures. In case of discrepancy, the amount shown in words shall govern).

b. **ADD ALTERNATE NO. 1**

Should the boilers not be on line prior to August 21, 2019, provide temporary portable, skid mounted double wall contained fuel oil tank, double wall contained fuel oil suction, double wall contained fuel oil return piping, fuel oil, vent, options, accessories, appurtenances as necessary to operate the boilers to provide domestic water for the returning administration, staff and students until which time the new fuel oil tank and distribution systems are operating the boilers and are substantially complete.

_____ Dollars (\$_____)

c. **UNIT PRICES:**

1) Removal and proper disposal of contaminated soil, per ton.

_____ Dollars (\$_____)

2) Removal and proper disposal of contaminated ground water or other liquid material, per gallon.

_____ Dollars (\$_____)

3) Removal and proper disposal of residual fuel, sludge and sediment from tank removal/closure, per gallon.

_____ Dollars (\$_____)

6. The undersigned agreed that the Contract Documents are incorporated herein by reference and shall be construed to be part thereof, with the same effect as if such were repeated at length herein, or were physically attached hereto as part of this Bid Form. The undersigned further certified that (1) this Proposal is genuine and is not sham, collusive or fraudulent; (2) this Proposal is not made in the interest or in behalf of any person other than the undersigned; (3) the undersigned has not sought in any manner, by collusion or otherwise, to secure any advantage over any other Bidder.
7. The bidder agrees that the work will be substantially completed on or before the dates or within the number of calendar days indicated in the specification.
8. Communication concerning this bid should be addressed to East Windsor School District, 74 South Main Street, East Windsor, CT 06088, Attention Roger Baker (rbaker@ewct.org) and McIlveen and Company, Inc., 220 Albany Turnpike, Building 1, P.O. Box 69, Canton, CT 06019, attention Adrian McIlveen (acmcilveen@mcilveen.us)
9. The Bidder acknowledges receipt of:

Addendum No. _____ Addendum No. _____

Dated: _____ Dated: _____

SUBMITTED ON: _____
Date

By: _____
Name of Business or Corporation

State of Incorporation

Authorized Signature

Typewritten Name of Person Authorized to Sign

(CORPORATE SEAL)

Project: East Windsor Middle School Fuel Oil UST Replacement

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

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

ID#: H 26234

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

Project Number:

Project Town: East Windsor

FAP Number:

State Number:

Project: East Windsor Middle School Fuel Oil UST Replacement

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	34.72	32.15
2) Carpenters, Piledrivermen	33.53	25.66
2a) Diver Tenders	33.53	25.66

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3) Divers	41.99	25.66
03a) Millwrights	34.04	26.09
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	49.75	21.05
4a) Painters: Brush and Roller	33.62	21.05
4b) Painters: Spray Only	36.62	21.05
4c) Painters: Steel Only	35.62	21.05
4d) Painters: Blast and Spray	36.62	21.05

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4e) Painters: Tanks, Tower and Swing	35.62	21.05
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	40.00	27.67+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	35.77 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	42.62	31.21
----LABORERS-----		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	30.75	20.84
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.00	20.84

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Project: East Windsor Middle School Fuel Oil UST Replacement

10) Group 3: Pipelayers	31.25	20.84
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	31.25	20.84
12) Group 5: Toxic waste removal (non-mechanical systems)	32.75	20.84
13) Group 6: Blasters	32.50	20.84
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	31.75	20.84
Group 8: Traffic control signalmen	18.00	20.84
Group 9: Hydraulic Drills	29.30	18.90

Project: East Windsor Middle School Fuel Oil UST Replacement

----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	32.98	20.84 + a
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13b) Brakemen, Trackmen	32.01	20.84 + a
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----CLEANING, CONCRETE AND CAULKING TUNNEL----

14) Concrete Workers, Form Movers, and Strippers	32.01	20.84 + a
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15) Form Erectors	32.34	20.84 + a
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----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----

As of:

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16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.01	20.84 + a
17) Laborers Topside, Cage Tenders, Bellman	31.90	20.84 + a
18) Miners	32.98	20.84 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	39.47	20.84 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	39.27	20.84 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	37.29	20.84 + a

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21) Mucking Machine Operator	40.06	20.84 + a
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----TRUCK DRIVERS----(*see note below)

Two axle trucks	29.51	24.52 + a
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Three axle trucks; two axle ready mix	29.62	24.52 + a
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Three axle ready mix	29.67	24.52 + a
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Four axle trucks, heavy duty trailer (up to 40 tons)	29.72	24.52 + a
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Four axle ready-mix	29.77	24.52 + a
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Heavy duty trailer (40 tons and over)	29.98	24.52 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.77	24.52 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	40.97	24.80 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	40.64	24.80 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	39.88	24.80 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	39.48	24.80 + a

Project: East Windsor Middle School Fuel Oil UST Replacement

Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	38.87	24.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	38.87	24.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	38.55	24.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	38.20	24.80 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	37.79	24.80 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	37.34	24.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	35.24	24.80 + a

Project: East Windsor Middle School Fuel Oil UST Replacement

Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	35.24	24.80 + a
Group 12: Wellpoint Operator.	35.18	24.80 + a
Group 13: Compressor Battery Operator.	34.58	24.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	33.41	24.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	32.99	24.80 + a
Group 16: Maintenance Engineer/Oiler	32.32	24.80 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	36.76	24.80 + a

Project: East Windsor Middle School Fuel Oil UST Replacement

Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	34.26	24.80 + a
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**NOTE: SEE BELOW

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

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
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21) Heavy Equipment Operator	42.26	6.5% + 19.88
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22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
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23) Driver Groundmen	26.50	6.5% + 9.00
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Project: East Windsor Middle School Fuel Oil UST Replacement

23a) Truck Driver	40.96	6.5% + 17.76
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---LINE CONSTRUCTION---

24) Driver Groundmen	30.92	6.5% + 9.70
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25) Groundmen	22.67	6.5% + 6.20
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26) Heavy Equipment Operators	37.10	6.5% + 10.70
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27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
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28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45
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01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. ****See Laborers Group 5 and 7****

Project: East Windsor Middle School Fuel Oil UST Replacement

Welders: Rate for craft to which welding is incidental.

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

***Note: Hazardous waste premium \$3.00 per hour over classified rate*

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

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

Crane with 150 ft. boom (including jib) - \$1.50 extra
Crane with 200 ft. boom (including jib) - \$2.50 extra
Crane with 250 ft. boom (including jib) - \$5.00 extra
Crane with 300 ft. boom (including jib) - \$7.00 extra
Crane with 400 ft. boom (including jib) - \$10.00 extra

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

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

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

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

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

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

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

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

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

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

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Project: East Windsor Middle School Fuel Oil UST Replacement

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

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

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

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

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of:

Tuesday, June 11, 2019

SECTION 01010**SUMMARY OF WORK**

PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

- A. The work shall include the furnishing of all testing, materials, equipment, labor and services necessary to complete the project. This includes clean-up and disposal of waste, refuse and debris caused by this work.
- B. The work shall consist of removal and replacement of the fuel oil tank, piping, leak detection systems, gauging systems at East Windsor Middle School, Broad Brook, CT. as shown on the drawing and indicated herein. The work shall also include the repair of the grassed, repair and paving of all surfaces affected by the work.

1.2 RELATED DOCUMENTS

- A. Following bid and award of the Construction Contract, the successful Contractor will enter into an Agreement with the Owner using Standard Documents by The American Institute of Architects documents, whose terms and conditions shall be included in the bid price. The following American Institute of Architects documents are to be used for their designated purpose, except as agreed to otherwise by the Owner:

A101 Standard Form of Agreement Between Owner and Contractor
A201 General Conditions of the Contract for Construction

1.3 EXAMINATION OF THE SITE

- A. The bidders shall visit the site prior to submitting their bid and become familiar with all existing conditions that may affect their bid or performance of the work. The bidder shall evaluate potential access difficulties and provide all necessary vehicles, lifts, cranes or other equipment and include in bid the taking of all precautions as may be necessary to comply with the requirements of the plan and specifications. It is not the intent of the Drawings to show all existing conditions. Failure to fully investigate and address all site conditions, fuel oil tank and supply/return system conditions shall in no way relieve the Contractor from completing the work as required or allow him extra compensation due to any oversight on his part. The Engineers assume no responsibility for information or opinions concerning site conditions not specifically stated in writing.

1.4 QUALITY OF CONSTRUCTION

- A. All construction shall be of the utmost quality and consistency. All work will be inspected carefully by the Owner's agents for compliance with these Contract Documents, related industry standards, and good workmanship practices.

- B. All work shall be laid out in such a manner where lines, pipes, and conduits are arranged in neat, parallel runs with neat and orderly turns. Conflicts between mechanical, electrical, plumbing, or other systems or services shall be avoided.
 - C. All work shall be hung, supported, and braced in a firm, neat, and orderly fashion.
- 1.5 CONTRACTOR USE OF PREMISES:

- A. The following are in addition to requirements of General Conditions governing Contractor's use of premises:
 - 1. Nothing contained in the Specifications, and nothing marked upon the Drawings shall be interpreted as giving the Contractor exclusive use of the premises where the work is to be performed.
 - 2. The Contractor shall be held solely responsible for any damage to the existing structures, systems, equipment and site, including but not limited to lawns, pavement and sidewalks, conduits and sleeves caused by him, his employees and his subcontractors and shall repair or replace same to their original condition as directed at no additional cost to the Owner.
 - 3. The work in this contract should not interfere with the normal continuous and safe operation of the building and site; and if such interference appears possible because of new connections to existing work or other reasons, the work involved must be done at a time and manner directed by the Owner as a part of the contract. Daily activities will extend over all working hours throughout the entire duration of this contract work and any necessity to disrupt these activities shall be kept to an absolute minimum.
 - 4. The Contractor will be granted the use of paved roads and parking areas but shall not infringe on use of same, or access thereto, for passage over the Owner's property. Access to parking areas shall not be blocked by standing trucks, parked cars, material storage, construction operations or in any other manner.
 - 5. Do not load existing or new structure with weight that will endanger structure.

1.6 STORAGE OF MATERIALS:

- A. The Contractor shall store materials, tools and equipment only in areas designated by the Owner. The Contractor shall keep storage areas clean and clear of combustible waste. At all times the Contractor shall maintain these areas to the full satisfaction of the Owner.

- B. All materials subject to damage by exposure to the weather shall be stored free of the ground on decks or pallets. When not being used, they shall be kept completely covered with watertight coverings (polyethylene is not acceptable) to prevent the intrusion of water.
- C. The Contractor shall assume full responsibility for the protection and storage of products on the premises.

1.7 GUARANTEE REQUIREMENTS

- A. All work and materials shall be covered by a standard one (1) year guaranteed, commencing at the Substantial Completion date.

1.8 SUBMITTALS

- A. Standard Documents: The following American Institute of Architects documents are to be used for their designated purpose, except as agreed to otherwise by the Owner:
 - 1) AIA-G701 Change Order.
 - 2) AIA-G702 Application and Certificate for Payment.
 - 3) AIA-G704 Certificate of Substantial Completion.
 - 4) AIA-G709 Proposal Request
 - 5) AIA-G710 Architect's Supplemental Instructions.
 - 6) AIA-G712 Shop Drawing and Sample Record.
 - 7) AIA-G714 Construction Change Directive.
 - 8) AIA-G805 List of Subcontractors.
 - 9) Other American Institute of Architects documents as referenced with the Project Manual.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION (Not applicable).

END OF SECTION

SECTION 11115 DEMOLITION, PATCHING AND REPAIRING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The Drawings and general provisions of the Contract, including General Conditions and Special Conditions, apply to the work specified in this Section.
- B. The requirements specified in Section 15010, "Basic Mechanical and Electrical Requirements", apply to this Section.

1.2 SCOPE OF WORK:

- A. This work includes the furnishing of all labor, materials, equipment and services necessary for, and reasonable incidental to, completion of all Demolition, Cutting, Patching and Repairing work as required for the installation of the work, whether or not listed below.
- B. The following list is intended to be a general outline and all work necessary for the completion of all the work herein specified or indicated on the drawings shall be included whether or not listed below.
 - 1. Following testing, documenting and reporting where required, removal and proper disposal of any and all materials shown or required to be removed from the premises to all state and local requirements. The Contractor shall obtain all necessary permits and approvals as may be required to dispose of all demolition material off site.
 - 2. Proper patching, finishing and painting of all holes, cracks, openings, etc., where damaged by the Contractor, or made by removal of equipment to match adjoining and surrounding surfaces.
 - 3. Cutting and removal of all walls, equipment, floors, ceilings etc., as shown or logically required to complete the work as shown on the drawings.
 - 4. Cutting of holes and/or openings where required and complete cooperation with all trades for the completion of all work. No reinforcing steel or structural members shall be cut. All openings in walls, floors and ceilings shall be made with a impact hammer drill to ensure that no reinforcing steel is cut. Concrete finish to match existing by means of a non-shrink, non-metallic structural grout.
 - 5. It shall be the responsibility of the Contractor to remove, in their entirety, all existing materials and accessory materials where necessary or as indicated on the Drawings. All of the above shall be removed from the site and properly disposed of by the Contractor. Extreme care shall be exercised by the Contractor not to disturb

existing operating material which may be scheduled to remain.

6. New equipment shall be mounted on new concrete bases as indicated on the Drawings.

1.1 QUALIFICATIONS:

- A. All work shall be performed by qualified mechanics, skilled in their respective trades.

1.2 DAMAGE TO EXISTING CONDITIONS:

- A. All damage to work whether to new or existing construction shall be repaired and finished and painted to match existing in an approved manner. Where an existing surface is damaged, the damaged area shall be finished and the entire ground, floor, wall or ceiling painted to match existing. Any damage to existing fire rated separations shall be replaced with new matching fire rated separation in an approved manner.
- B. All work shall be finished to match existing painting as required, by this Contractor.
- C. All paint shall be of manufacture and type as directed by the owner.

1.3 SCHEDULING:

- A. All demolition work shall be accomplished during normal business hours as coordinated with Owner Monday through Friday, unless directed otherwise by the Owner in any particular week.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION

SECTION 15010 BASIC & ELECTRICAL MECHANICAL REQUIREMENTS

PART I- GENERAL

1.1 RELATED DOCUMENTS:

- A. Each and every Contractor, Subcontractor and/or supplier providing goods or services referenced in or related to this Division shall also be bound by the Documents identified in Section 01010, "Related Documents".

1.2 INCLUDED IN THIS SECTION:

- A. Removal of existing 8,000 gallon Fuel Oil Tank, piping, gauging and all accessories and appurtenances.
- B. Replacement of existing 8,000 gallon Fuel Oil Tank, piping, gauging and all accessories and appurtenances with new as shown on drawing and specifications.

1.3 DESCRIPTION OF WORK:

- A. This Section specifies general requirements for removal and replacement of existing fuel oil tank, piping, gauging, leak detection, accessories and appurtenances.

1.4 INTENT:

- A. It is the intention of the Drawings and Specifications to call for finished work and removal of existing fuel oil tank and accessories.
- B. Any apparatus, appliance, material, or work not shown on the Drawings, but mentioned in the Specifications, or vice versa, or any incidental accessories, or minor details not shown, but necessary to make the work complete and perfect in all respects, even if not particularly specified, shall be provided by the Contractor without additional expense to the Owner.
- C. With the submission of bid, the Contractor shall give written notice to the Engineer of any materials, apparatus or omissions believed to be in violation of laws, ordinances, rules or regulations or authorities having jurisdiction. In the absence of such written notice it is mutually agreed that the Contractor shall include the cost of providing all systems in accordance with applicable regulations without extra compensation.

1.5 DRAWINGS:

- A. The Drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangement of equipment being removed.

1.6 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:

- A. Any questions or disagreements arising as to the true intent of this Specification or the Drawings, or the kind and quality of work required thereby, shall be decided by the Engineer, whose interpretations thereof shall be final, conclusive and binding on all parties.
- B. In the case of disagreement between Drawings and Specifications, or within either document itself, the better quality, greater quantity or more costly work shall be included in the contract price, and the matter referred to the Engineer's attention for decision and/or adjustment.

1.7 DEFINITIONS:

- A. "Provide" means to supply, erect, install, and connect up in complete readiness for regular operation, the particular work referred.
- B. "Furnish" means to supply and deliver to the job.
- C. "Install" means to erect, install and connect up in complete readiness for regular operation.
- D. "Conduit" includes, in addition to conduit, all fittings, sleeves, connections, hangers, and other accessories related to such conduit.
- E. "Wiring" means, in addition to wire, all needed connectors, circuit breakers, switches and devices, junction boxes and other items necessary for normal operation of the item being referred to.
- F. "Piping" includes, in addition to pipe, all fittings, valves, hangers, and other accessories related to such piping.
- G. "Concealed" means hidden from sight, as in chases, furred spaces, shafts, hung ceilings, or embedded in construction.
- H. "Exposed" means not concealed as defined above. Trenches, crawl spaces, and tunnels shall be considered exposed.

- I. "Governmental" means all municipal, state, and federal governmental agencies.
 - J. "Owner" means the tenant who shall occupy the space after final acceptance.
 - K. "Extend" means to supply, erect, install and connect up on complete readiness for regular operation the particular work referred.
 - L. "Architect" shall mean Engineer.
- 1.8 INTENT:
- A. It is the intention of the Drawings and Specifications to call for finished work, tested and ready for operation. All materials, equipment and apparatus shall be new and of first-class quality.
 - B. Any apparatus, appliance, material, or work not shown on the Drawings, but mentioned in the Specifications, or vice versa, or any incidental accessories, or minor details not shown, but necessary to make the work complete and perfect in all respects, and ready for operation, even if not particularly specified, shall be provided by the Contractor without additional expense to the Owner.
 - C. With the submission of bid, the Contractor shall give written notice to the Engineer of any materials, apparatus or omissions believed to be in violation of laws, ordinances, rules or regulations or authorities having jurisdiction. In the absence of such written notice it is mutually agreed that the Contractor shall include the cost of providing all systems in accordance with applicable regulations without extra compensation.
- 1.9 DRAWINGS:
- A. The Drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangement of equipment, conduits, piping, fixtures and connections.
 - B. The Drawings do not indicate all offsets, fittings, and accessories which may be required. Investigate structural and finish conditions affecting this work, and arrange work accordingly, providing such fittings, valves, and accessories required to meet the conditions.
 - C. The locations of all items shown on the Drawings or called for in the Specifications, that are not definitely fixed by dimensions, are approximate only. The exact locations necessary to secure the best conditions and results must be determined at the project, and shall have the approval of the Engineer before being installed. DO NOT SCALE DRAWINGS.

- E. Follow Drawings as closely as actual building conditions will permit in laying out work. Check Drawings for other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions throughout. Where headroom or space conditions appear inadequate, the Engineer shall be notified before proceeding with installation.
 - F. If directed by the Engineer, the Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- 1.10 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:
- A. Any questions or disagreements arising as to the true intent of this Specification or the Drawings, or the kind and quality of work required thereby, shall be decided by the Engineer, whose interpretations thereof shall be final, conclusive and binding on all parties.
 - B. In the case of disagreement between Drawings and Specifications, or within either document itself, the better quality, greater quantity or more costly work shall be included in the contract price, and the matter referred to the Engineer's attention for decision and/or adjustment.
- 1.8 APPROVALS:
- A. The materials, workmanship, design and arrangement of all work installed under the Contract shall be subject to the approval of the Engineer. If material or equipment is installed before it is approved, the Contractor shall be liable for removal and replacement, at no extra cost to the Owner, if, in the opinion of the Engineer, the material or equipment does not meet the intent of the Drawings and Specifications.
- 1.9 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES:
- A. The Contractor shall submit Adobe Acrobat (.pdf) copies of Shop Drawings, Product Data and/or Samples to the Engineer for review prior to releasing an order for fabrication and/or shipment. These submittals shall be given for materials and equipment and as called for under each particular Section of the Specifications.
 - B. Product Data submittals shall consist of complete catalog data clearly indicating all applicable items, in the following manner:
 - 1. State sizes, capacities, brand names, motor HP, accessories, materials, gauges, dimensions, and other pertinent information.
 - 2. List on catalog covers page numbers of submitted items.

3. Underline applicable data. Highlighting applicable data is not sufficient.
- C. Incomplete or unclear submittals will be returned unreviewed for correction and resubmission.
- D. Submittals of equipment or materials other than those indicated on the Drawings or in the Specifications will be returned unreviewed.

1.10 CODE REQUIREMENTS, PERMITS AND FEES:

- A. Perform work in accordance with applicable provisions of the accepted version of the Connecticut State Building Code, Connecticut State Fire Safety Code, International Plumbing Code, International Mechanical Code, International Building Code, NFPA codes including NFPA 30, NFPA 31, the National Electric Code and Life Safety Code, ASHRAE Handbooks/Standards, American National Standards Institute, Inc. (ANSI) Standards, applicable edition, U.S. EPA, CT DEEP, Local Fire Marshal and all state and local codes. All work shall also be in compliance with utility companies' requirements.
- B. In cases of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify Engineer in writing of such differences.
- C. Include in the work, without extra cost to the Owner, any labor, material, service, test, apparatus, or drawing (in addition to Contract Drawings and Documents) in order to comply with applicable laws, ordinances, rules, regulations, and local authority's requirements, whether or not shown on Drawings and/or specified.
- D. Give all necessary notices, obtain all permits before commencing work, and pay all governmental taxes, fees and other costs in connection with the work. File all necessary plans, prepare all documents, and obtain all necessary permits and approvals of the authorities having jurisdiction. Obtain all required Certificates of Inspection for the work, and deliver them to the Owner before requesting final payment for the work.
- E. The Contractor shall ensure that all system components, methods of installation, and materials complies with ASTM, OSHA, NFPA, U.S. EPA, Connecticut DEEP, and Owners' standards for off-gassing.
- F. The Contractor shall be licensed in accordance with the guidelines of the Department of Consumer Protection. The workers employed by the Contractor shall be skilled and licensed to perform the work involved.

1.12 ROYALTIES AND PATENTS:

- A. The Contractor shall pay all royalties and shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof.
- B. If the Contractor observes that a process or article specified is an infringement of a patent, the Contractor shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work. If the Contractor performs any work specified, knowing it to be an infringement of a patent, the Contractor shall bear all costs arising there from.

1.13 RECORD DRAWINGS:

- A. Clearly record differences between mechanical and electrical work as installed and as shown or called for in the Contract Documents. Accurate notations of all locations, sizes and inverts of all concealed materials shall be made. These records shall be marked, concurrent with progress, on a set of prints labeled "RECORD DRAWINGS."
- B. On completion of project, mark a set of prints with data transferred from the Record Drawings, and submit them to the Engineer for review for legibility and clearness of presentation of the recorded conditions of construction.

1.14 INSTRUCTION OF OWNER'S PERSONNEL:

- A. After completion of all work and all tests and at such time as designated by the Owner's representative, the Contractor shall provide the necessary skilled personnel to operate each entire installation for a period of one (1) days of eight hours.
- B. During the operating period, the Contractor shall fully instruct the Owner's representative in the complete operation, adjustment, and maintenance of the entire installation.

1.15 OPERATION AND MAINTENANCE MANUALS:

- A. Prepare a manual of operation and maintenance instructions, in draft form, and submit to the Engineer for review.
- B. The Manual shall contain the following items:
 - 1. Brief description of each system covering its basic operating characteristics.
 - 2. List of all equipment with manufacturer's name and model number for each item.

3. Contractor's own written operating and maintenance instructions, including detailed step-by-step instruction for starting, summer operation, winter operation, and shutdown of each system.
 4. Copies of submittals having final review stamps.
 5. Manufacturer's bulletins, data, parts lists, operating and maintenance instructions, guarantees and any other information pertinent to the proper operation of each system and item of equipment installed.
 6. Copy of each automatic control diagram with respective sequence of operation.
 7. Copy of each valve chart.
 8. Information of actions to be taken in the event of a malfunction or other emergency.
 9. Time schedule for recommended maintenance operation.
- C. At least two weeks prior to the scheduled instruction of Owner's representatives, provide the Engineer with a legible, Adobe Acrobat (.pdf) electronic copy of complete copies of the final form of the Operation and Maintenance Manual, suitable indexed with bookmarks for each item.

1.16 WARRANTY:

- A. The Contractor shall warrant that all work installed will be free from any and all defects, and that all apparatus will develop capacities and characteristics specified, and that if, during a period of one (1) year from date of completion and acceptance of the work, any such defects in workmanship, materials, or performance appear, the Contractor shall immediately replace, repair or otherwise correct the defect or deficiency without cost and within a reasonable time to be specified in writing to the Owner.
- B. The Contractor shall also replace or repair, to the satisfaction of the Owner and Engineer, all damage done to any material or finish in consequence of work performed in fulfilling the warranty.
- C. In the case of default on this warranty by the Contractor, the Owner may have such work done as required, and charge the cost to the Contractor.

1.17 VISITING THE SITE:

- A. Before submitting a final proposal, the Contractor shall examine the site of the proposed work to determine the existing conditions that affect the work. The Contractor will be held responsible for any assumptions made by him in regard thereto. Time for this examination must have prior approval of the Owner.
- B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions. All existing systems shall remain in operation at all times except as otherwise arranged under shutdowns.

1.18 EXISTING SYSTEMS:

- A. Prior to bid, the Contractor shall make a detailed examination of the existing building(s) including all existing services and systems to become thoroughly familiar with the scope of work and working conditions. Contractor shall pay particular attention to all existing services and interconnecting systems. All existing systems shall remain in operation at all times except as otherwise arranged under SHUTDOWNS.
- B. The Contractor shall include, in his proposal, for all necessary relocation or revamping of such services and systems, where necessitated by the renovation work, to provide a finished final project. All relocation or revamping shall be provided by the Contractor without additional cost to the Owner, and shall be arranged, as directed by the Owner in the field, to be encased in a finished manner within the building. Any equipment or material to remain or be reused that may be damaged during construction shall be replaced by the Contractor at no additional cost to the Owner. Any existing equipment or material to be removed shall be disposed of by the Contractor or stored by the Contractor, as directed by the Owner.
- C. Where required by the Authority Having Jurisdiction, provide the services, personnel, vehicles, equipment and operations as may be required including, but not limited to: local fire department personnel, vehicles and equipment for an approved "fire watch"; on-site local fire department equipment, tankers, pumpers, trucks and aerial vehicles; local police department personnel, vehicles and equipment; ambulance personnel, vehicles and equipment; and utility company's personnel, vehicles and equipment, etc., as may be required or necessary.

1.19 EXISTING FACILITY:

- A. All work within the existing facility shall be done at a time prearranged with occupants so as to minimize disturbing the facility's operation.

- B. As the buildings will remain partially occupied during the course of construction, extreme care shall be exercised by the Contractor to protect the occupants and their furnishings and belongings from damage due to the renovation and modernization work being performed.
- C. Where required by the Authority Having Jurisdiction, provide the services, personnel, vehicles, equipment and operations as may be required including, but not limited to: local fire department personnel, vehicles and equipment for an approved "fire watch"; on-site local fire department equipment, tankers, pumpers, trucks and aerial vehicles; local police department personnel, vehicles and equipment; ambulance personnel, vehicles and equipment; and utility company's personnel, vehicles and equipment, etc., as may be required or necessary.

PART 2 – PRODUCTS (not used)

PART 3 - EXECUTION

3.1 PROTECTION OF WORK AND PROPERTY:

- A. The Contractor shall be responsible for the maintenance and protection of all equipment, materials and tools supplied by the Contractor and stored or installed on the job site, from loss or damage of all causes, until final acceptance by the Owner.
- B. The Contractor shall be responsible for the protection of any finished work of other trades from damage or defacement by the Contractor's operation and must remedy any such injury at the Contractor's own expense.

3.2 SCAFFOLDING, RIGGING, AND HOISTING:

- A. The Contractor shall provide all scaffolding, rigging, hoisting, cranes, lifts and services necessary for access, erection and delivery into the premises for all equipment and materials furnished, and remove same from premises when no longer required.

3.3 CUTTING, PATCHING, EXCAVATION AND BACKFILL:

- A. All cutting, patching, excavation and backfill shall be provided by other Divisions. Coordinate all requirements well in advance.

3.3 TESTS:

- A. All equipment shall be tested as determined by all authorities having jurisdiction, but in no case less than that specified under each section of the Specifications.

- B. Labor, materials, instruments and power required for testing shall be furnished by the Contractor, unless otherwise indicated under the particular section of the Specifications.
- C. Tests shall be performed to the satisfaction of the Engineer and such other parties as may have legal jurisdiction.
- D. All defective work shall be promptly repaired or replaced and the tests shall be repeated until the particular system and component parts thereof receive the approval of the Architect.
- E. Any damages resulting from tests shall be repaired and damaged materials replaced, all to the satisfaction of the Engineer.

3.4 REMOVED EQUIPMENT:

- A. All existing material or equipment replaced or superseded by the Contractor's work shall be removed and properly disposed of by the Contractor in an approved manner and the existing structure, grounds, driveway and surfaces shall be restored by the Contractor to match the surroundings. All removed equipment shall be tested and properly disposed of.
- B. Prior to work and removal and proper disposal of existing material, including the tank, piping, gauging system, leak detection system, etc., submit the names of all fully permitted disposal facilities in which he proposes to dispose of the excavated tank, all liquid wastes and sludge pumped from the tank, and any contaminated soils removed from the excavation. Prior to work, submit documentation of current applicable permits for handling of the waste material and the appropriate permits for the disposal subcontractor.
- C. Following completion of the work, submit manifest forms for all disposed materials and comply with all manifest signature requirements and deliver all materials to be disposed in accordance with the direction on the manifest. Record all waste shipments and transport materials in accordance with all applicable federal, state and local requirements.
- D. Transport materials in accordance with all applicable federal, state and local requirements. Should any spill occur during transportation, the Contractor shall respond in accordance with 40 CFR 263 and be responsible for any cleanup activities resulting from a spill or release to requirements of all federal, state and local officials.

3.5 RELOCATED EQUIPMENT:

- A. All equipment, scheduled for relocation, shall be carefully removed by the Contractor and stored in a protected manner until relocated.

- B. Any damage done to relocated equipment during removal, storage or relocation shall be corrected by the Contractor in an approved manner, including repair or replacement, as directed by the Engineer.

END OF SECTION

SECTION 15505**FUEL OIL SYSTEMS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Each and every Contractor, Subcontractor and/or supplier providing goods or services referenced in or related to this Division shall also be bound by the Documents identified in Section 01010, Paragraph 1.1A, and entitled Related Documents.
- B. The requirements specified in Section 15010, "Basic Mechanical Requirements," apply to this Section.

1.2 INCLUDED IN THIS SECTION:

- A. Fuel oil tank.
- B. Fuel oil piping.
- C. Fuel oil system accessories.

1.3 DESCRIPTION OF WORK:

- A. This Section includes the providing of all labor, materials, equipment, accessories, services and tests necessary to remove, replace, complete and make ready for operation by the Owner all fuel oil work as shown on the Drawings and called for in these Specifications. It is the intent of these Documents to terminate with complete, operational systems within the building.
- B. Also included, but not limited to, are the following items subject to applicable provisions of Section 15010, "Basic Mechanical & Electrical Requirements", which are to be provided under this Section of the Specifications.
 - 1. Nameplates.
 - 2. Seismic requirements.
 - 3. Removal and replacement of existing fuel oil tank, piping, gauging and leak detection systems.

1.4 ANCILLIARY WORK:

- A. A. The following paragraphs list the only items of labor and materials incident to or related to the installation of the plumbing work which will be provided under this contract at no cost to this Section.

- B. Removal and proper disposal of demolished products and materials being obsoleted by the new work in the existing school .
 - C. Demolition, cutting, patching, excavation and backfill outside and inside the building shall be by this contractor.
 - D. Temporary services and facilities shall be by other Divisions.
- 1.5 SHOP DRAWINGS PRODUCT DATA AND SAMPLES:
- A. Furnish product data submittals in accordance with the provisions set forth in Section 15010, "Basic Mechanical Requirements". Submittals shall be submitted on the following material and equipment.
 - 1. Fuel Oil Tank
 - 2. Fuel Oil System Accessories
 - 3. Fuel Oil Leak Detector/Monitoring System

PART 2 - PRODUCTS

2.1 FUEL OIL SYSTEM:

- A. Provide a complete No. 2 fuel oil tank, piping, accessories and appurtenances system as indicated on the Drawing and specifications. Complete fuel oil system shall comply with NFPA 30 and NFPA 31.
- B. Replace the existing fuel oil tank, piping, gauging and leak detection systems as follows:
 - 1. Furnish and install a 8000 gallon underground steel storage tank, 8'0" inches in diameter by 21'4" inches long with the TITAN™ corrosion control and secondary containment system as manufactured by Highland Tank. The tank shall be built in accordance with UL-58, UL-1746, and TITAN™ specifications. The tank shall include:
 - a) (3) 4" dia. NPT fittings on top center line.
 - b) 24" reverse flange manway with (4) 4" dia. NPT fittings in cover.
 - c) (1) 2" dia. NPT interstitial fitting.
 - d) Titan Containment Collar with Bravo Sump and sealant kit.
 - e) Striker plates required under each opening.
 - f) TITAN™ Corrosion Control System.
 - g) TITAN™ HMW Polymer Secondary Containment System

- h) (3) Polyester hold-down straps for TITANTM tanks.
Strap package shall consist of :
- Polyester strap for use with full concrete pad, including turnbuckle, clamps, and galvanized wire cable per strap;
2. The secondary containment tank wall shall be made of High Molecular Weight (HMW) Polymer extruded and applied at the tank factory.
 3. Both the primary storage tanks and secondary containment jacket shall be compatible with Heating oil, gasoline, ethanol, methanol, jet fuel, av-gas, kerosene, diesel fuel, and motor oil at ambient underground temperature or fuel oil stored at temperatures not to exceed 100° F.
 4. The primary storage tank shall be contained in a 360°, air-pressure testable and unbreakable jacket, bonded together and sealed off at the fittings.
 5. There shall be an interstitial space between the primary and secondary containment jacket to allow 100% fluid migration between the walls under maximum load conditions.
 6. The corrosion control system shall be in strict accordance with TITAN™ specifications as applied by a licensee of TITAN™ Inc. and shall have a limited 30-year warranty against failure due to exterior corrosion and internal corrosion when used with petroleum products or alcohol. Tank shall bear UL-1746, and TITAN™ labels.
 7. The tank excavation shall be free from material that may cause damage to the tank. Care shall be taken during installation that foreign matter is not introduced into excavation or backfill. The bottom of the excavation shall be covered with clean sand or gravel to depth of 12" suitably graded and leveled.
 8. Special Note: If tank is to be placed on a concrete pad for anchoring purposes, the tank must not be placed directly on the pad. A layer of fine or pea gravel, sand or #8 crushed stone (#8 coarse aggregate ASTM D-448) at least 6" deep must be spread evenly over the dimensions of the pad to separate the tank from the pad. If installation area is in a tidal area, the tank "bedding" material should be fine gravel or pea gravel rather than sand.

9. Tanks shall be shipped, delivered, installed and 3/4 backfilled while maintaining a constant vacuum (12 inches of mercury vacuum) on the interstitial space to assure integrity of both the primary storage tank and secondary containment tank wall simultaneously.
10. Site Test
 - a) Should a site integrity test be required, the vacuum may be released at the site and a 5 PSI air pressure test may be performed to the primary storage tank and an air pressure/soap test may be performed on the secondary tank (pressure no to exceed 1 PSI in accordance with the label instructions on the tank).
11. Before placing the tank in the excavation, all dirt clods and similar foreign matter shall be cleaned from the tank.
12. Equipment to lift the tank shall be of adequate size to lift and lower the tank without dragging and dropping to ensure no damage to the tank or the coating. Tanks shall be carefully lifted and lowered by use of cables or chains of adequate length (not less than 30° including angle) attached to the lifting lugs provided. A spreader bar should be used where necessary. Under no circumstances are chains or slings around the tank shell permitted.
13. Special Note: Hold Down Straps—Special care should be exercised when installing hold down straps. Ensure that the straps are separated from the tanks by separating pads made of an inert, insulation dielectric material. The separating pad should be at least 2" wider than the hold down strap width and must be carefully placed anywhere on the tank where hold down straps would come into direct contact with the tank shell.
14. Backfill consisting of sand, #8 crushed stone (#8 crushed aggregate ASTM D-448) or fine gravel, shall be placed along bottom side of tank by shoveling and tamping to ensure the tank is fully and evenly supported around bottom quadrant. The backfill shall be deposited carefully around tank and to a minimum depth (12" - PEI/RP100-97) over tank to avoid damage to the secondary containment jacket.
15. Tank shall be manufactured by Highland Tank, Stoystown, PA; Manheim, PA; Watervliet, NY; or Greensboro, NC.
16. The following petroleum equipment to be included with bid package:

- a) 5 Gallon Spill containment fill including: pipe nipple, fill cap, plunger.
 - b) Overfill Prevention valve.
 - c) Primary atmospheric vent with vent pipe with extractor fitting on tank.
 - d) Electronics package including: high level alarm with water detection, inventory control, & temperature. Interstitial leak detection monitoring, containment sump monitoring. High level audible & visual alarm.
 - e) Boots & accessories for piping sump penetration and watertight connection.
 - f) H-20 Grade level cover for piping sump & interstitial monitoring fitting.
 - g) As outlined below, Franklin Fueling Systems APT double wall flexible UL 971 containment pipes for suctions & return. Foot valves on tank internal suction pipes. Outer corrugated pipes to contain APT pipes.
17. Franklin Fueling Systems (FFS) APT XP-Series primary piping shall be UL rated pressure (psi) and secondary piping shall be vacuum (inHg) rated. All models of XP-Series piping shall have a minimum allowable bend radius of 36", an operating temperature up to 140°F and be used to -22°F. APT XP-Series shall also:
- a) Be tested to meet the UL 971 permeation requirements.
 - b) Have a secondary containment layer with an interstitial space that can be monitored for leakage.
 - c) Not be exposed to direct sunlight at any time and be delivered on reels with a protective wrap inhibiting UV damage during shipment.
 - d) Incorporate a scuff guard layer on secondary containment piping, also providing a degree of UV protection to jackets.
18. FFS APT fittings:
- a) Termination Fittings - The piping below ground shall be Continuous. There shall be no fittings or pipe connections in either the primary or the secondary piping which are not visible or accessible from a liquid tight containment sump. Appropriate model and size fittings are required for installation with XP-Series piping. The installation of fittings should be done in accordance with the current installation procedures published by FFS. XP-Series piping uses two styles of fittings to connect itself to the plumbing inside containment sumps; clamshell and swage.

- 1) Swivel & Non-Swivel Clamshell Fittings – The XP-Series swivel and non- swivel termination fittings are manufactured from solid brass. Grey iron clamps with blue powder coating compress the outside of the pipe onto the brass fittings inside the pipe. Each brass fitting has a barbed end that is installed into the pipe and a threaded connection on the opposite end. Fittings are available as swivel or non-swivel with male NPT connections. Fittings do not require special tools required for installation.
 - 2) Swage Fittings - The XP-Series swage termination fittings are manufactured from stainless steel. A stainless steel collar supports the piping on the outside. Each swage fitting has a barbed end that is installed into the pipe and a threaded connection on the opposite end. A mandrel is pulled through the inside of the barbed fitting and expands it into the pipe, while the collar supports the pipe from expanding on the outside. Swage fittings are only available in a swivel option with male NPT connections. Swage fitting installations must use the Franklin Fueling Systems Swage Kit tool (part number SWK-150, SWK-175 or SWK-200). Using other manufacturer’s expansion tooling will result in improper assembly and potential fitting failure.
19. Furnish and install for each double wall tank a remote reading, microprocessor based tank gauging and leak monitoring system. The controller shall be Veeder Root Model TLS-350. The system shall include an automatic tank gauge, a double wall fiberglass annular space probe, as well as a manway sump probe. Provide overfill warning sign, 4.5" weatherproof bell, and alarm silencing push-button(s) mounted on exterior of building for remote overfill alarm annunciation. Provide wiring, conduit, junction boxes, galvanized risers, etc., as recommended by the manufacturer in order to provide a complete installation. Provide accessories or modifications as required so that leak monitoring system meets all federal, state and local requirements. Start-up of leak monitoring system shall be performed by a factory trained representative of the manufacturer; submit start-up report to Engineer.
20. Provide new double wall fuel oil lines from tank into building (including all connections required at tank), and a complete pressure testing of tank to local officials’ requirements with written certified report by fuel oil component installer as to acceptability of existing tank. All work shall comply with NFPA 30/31 requirements.

21. Fill line shall offset horizontally and terminate in a 5 gallon spill container having a top cover, locking fill cap, integral flexible bellows, and drain valve which closes with tank pressure to help prevent leakage during tank testing or filling. Install at finished grade level in a concrete pad.
22. Provide new offset Vent line, terminating in a screened surface mounted vent cap located 7'-6" above finished grade and attached to the existing brick wall where the obsolete vent was removed.
23. Complete installation shall be in strict accordance with the manufacturers' recommendations and installation instructions. Prior to covering installation provide all testing to NFPA30/31 and Local Authorities having jurisdiction.
24. On completion of all testing of new fuel oil tank, piping, fill, vent, gauging, leak detection, immediately provide a full tank of No. 2 fuel oil. Full shall mean 90% of listed capacity. Also, on date of acceptance by Owner in writing of intent to commence use, refill the tank at no extra cost to the Owner.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Complete installation of tanks, piping and accessories shall conform to NFPA 30 NFPA 31 and all requirements of the local authority having jurisdiction. Contractor to provide all accessories including all valving, gauging, all safety valves, etc.
- B. Franklin Fueling Systems (FFS) APT XP-Series double wall fuel oil suction pipes and double wall fuel oil return pipe:
 - 1) Bury Depth – In installations with traffic meeting AASHTO H20 wheel loading requirements, the pipe must be buried at least 12" deep with a minimum of 6" of backfill above the pipe and 6" of concrete above the backfill. For installations using asphalt or other burial material, the pipe must be buried at least 18" deep with a minimum of 6" of backfill above the pipe and 12" of asphalt and/or other burial material above the backfill.
 - 2) Trenches – Where provided, trenches should be dug straight when possible. If changes in direction are required, trench corners should be cut at 45 degree angles to allow for the piping run's proper bend radius. There must be a minimum of 6" of space between the outside of a piping run and a trench wall. The minimum allowable pipe bend radius for all XP-Series piping is 36".

- 3) Backfill Material – Only clean compacted sand, clean pea gravel, or clean $\frac{3}{4}$ " or smaller crushed rock (without sharp edges) can be used as backfill material. Backfill materials listed above with sharp edges are prohibited from use with XP-Series piping as it can cause damage to the piping over time. Backfill material must not be contaminated with any petroleum product, any additives found in petroleum products, and/or any other contaminant adversely affecting backfill integrity.
- 4) Pipe Slope – XP-Series piping that is being used to transfer fuel should slope back to the tank field at a minimum of $\frac{1}{8}$ " per foot. Piping runs that have multiple sumps (dispenser, transition, etc.) in series should be pitched at a slope of $\frac{1}{8}$ " per foot with each run draining back towards the tank field.
- 5) Piping Crossovers – Avoid pipe crosses, but if they are unavoidable, keep them close to, but not over, the tanks. For pipe crossovers, keep a minimum of 4" of backfill between the two pipe runs. The backfill above the highest crossover pipe must be a minimum of 6". The backfill on each side of the piping must extend a minimum of 6" from the side of the pipe.
- 6) Pipe Run Spacing – Piping runs shall be provided with multiple pipe runs per trench. Provide a minimum of 4" of backfill material below and between piping runs and a minimum of 6" of backfill above the pipe and on the outside of the outermost piping runs.
- 7) Containment Sumps – The containment sump shall encapsulate each termination fitting, prevent outside surface and ground water from entering it, and prevent fluids inside it from escaping into the environment.
- 8) Sump Penetrations – Install XP-Series piping perpendicular to the sump wall it is passing through whenever possible. The maximum angle that the pipe can deviate from this perpendicularity is 15 degrees. All containment sumps are required to be fit with pipe or conduit seals that are semi-absorbent to ground movement and sufficiently flexible enough to permit angled entries. Sump entries shall create a water tight seal capable of withstanding head pressures of up to 6 ft . FFS entry boots should be used for maximum system compatibility. Create a water tight seal by cutting back the scuff guard on Secondary Containment pipe so that it does not enter the sump.
- 9) Pipe Cutback - Once the pipe run is pulled and each section is cut to length, square off the end of the pipe and de-burr it. If you are using SC (Secondary Contained) piping, the scuff guard layer should be cut back so that it does not enter the sump (typically 9" (22.9 cm)) and the SC layer should be cut back $4\frac{1}{2}$ " (11.5 cm) from the end of the pipe.
- 10) Testing Requirements:

- a) Installation Testing - Once the XP-Series piping has been connected to the plumbing inside the containment sumps, pressure tested prior to burial. The installation testing should be done in accordance with the current procedures published by FFS.
- b) The primary carrier piping shall be tested between 50 psi and 100 psi.
- c) The secondary containment piping shall be tested between 5 psi to 8 psi.

3.2 STARTING UP:

- A. This Contractor shall clean all system piping and ducts prior to starting up the systems. Any damage to the building or system components caused by failure to clean the system properly, shall be corrected to the satisfaction of the Engineer and the cost shall be paid for by this Subcontractor. Eliminate all noise and vibration, and take all measures to secure proper circulation.

3.3 CONTAMINATED SOIL/WATER

- A. The contractor shall take three soil samples prior to beginning the oil tank removal. One sample will be taken from the bottom of the grave and one each from opposite ends of the grave walls.
- B. The soil/water samples will be sent to a certified testing laboratory to determine if any contaminants are present. If contaminated soil/water is encountered the contractor shall notify the owner and the Department of Environmental protection.
- C. All contaminated soil/water shall be removed in accordance with EPA regulations 418.1 section 8010 and 8020.
- D. The contractor shall include in the base bid a cost for the removal of twenty cubic yards of contaminated soil and 500 gallons of contaminated ground water.

3.4 EXISTING FUEL OIL STORAGE TANK REMOVAL AND REPLACEMENT

- A. Upon owner shutdown of the existing boilers for the summer, or as directed for phasing, the contractor shall discontinue use of the existing unused underground fuel oil tank in an approved manner. Provide a minimum of 30 day notice to Connecticut DEEP and local fire marshal of the intent to remove/close the existing 8,000 gallon fuel oil UST and replace it with a new double wall, 8,000 gallon UST. All work on the discontinued fuel oil tank shall be performed under the direct supervision of persons experienced in the venting, removal, transportation and disposal of fuel oil storage tanks.

- B. Remove and properly dispose of all remaining fuel oil and sludge. The discontinued/closed fuel oil tank shall have any remaining fuel oil or residue removed by the contractor in an approved manner. The contractor shall remove any offset fill and vent piping.
- C. The discontinued/closed fuel oil tank shall then be carefully removed from the site. The new fuel oil UST shall be installed as specified and once approved, the ground surfaces shall be refinished to match existing in compliance with all requirements and recommendations of NFPA-30, NFPA 31, NFPA 327 and Appendix 'B'; the Local Fire Marshal and the CT D.E.E.P.
- D. Existing discontinued fuel oil lines, gauge and vent lines, shall be cut, cleaned, vented and removed in an approved manner. Fuel oil gauges and oil lines within the Boiler Rooms shall be removed in an approved manner in compliance with all requirements of N.F.P.A. 30, N.F.P.A. 327, and Appendix 'B', the Local Fire Marshal and the D.E.P.
- E. After all flammable or combustible liquids have been removed from the tank and connecting piping, remove all connecting piping and cap or plug all tank openings. Dispose of all flammable or combustible liquids off-site in an approved manner complying with all U.S. EPA, CT D.E.E.P., OSHA and Local Fire Marshal's requirements.
- F. After tank removal, transport to an approved area not accessible to the public and gas free the tank to the Local Fire Marshal's recommendations. Prior to disposal of the tank to an approved dealer or area the tank shall be retested for flammable vapors and, if necessary, rendered gas free and a sufficient number of holes or openings made to render it unfit for further use.
- G. During excavation, provide a maximum 45° angle of repose for the undisturbed soil below the footings. If removal of existing soil requires exceeding 45° angle of repose, then all excavation shall cease and the Engineer shall be notified immediately to inspect the conditions and advise the Contractor about shoring or other measures accordingly.
- H. Upon tank removal, contractor shall remove all upper and lower concrete support slabs for tank.
- I. On completion, the Contractor shall refurbish all damaged areas to original condition (include all regrading, reseeding and repaving to match existing conditions).

3.5 EXISTING FUEL OIL SYSTEM ACCESSORIES REMOVAL

- A. Remove and replace all existing obsolete fuel oil piping, gauging and leak detection completely including all associated accessories as indicated on the plan and in these specifications.

END OF SECTION

