



**TOWN OF STRATFORD  
PURCHASING DEPARTMENT  
STRATFORD, CONNECTICUT**

BID No. 2011-040

Issued : May 10, 2011

Subject : Installation of Aboveground Storage Tank with Fuel System

The Town of Stratford through the Office of the Purchasing Agent, will receive SEALED BIDS for furnishing the equipment described in the accompanying specifications, in accordance with the instructions, conditions and reservations that follow:

**A. CLOSING DATE:**

Bids will be received until 3:00 pm June 1, 2011 at which time they will be publicly opened and read. All bidders are invited to attend this public opening, which will be held immediately following the closing time specified above, in the Office of the Purchasing Agent, Room 202, Town Hall, 2725 Main Street, Stratford, CT 06615.

Any bid may be withdrawn prior to the above-scheduled time for receiving bids or authorized postponement thereof. Any bids received after the date and time specified shall NOT be considered. No bidder may withdraw a bid within 45 days after the actual opening thereof.

**A mandatory pre-bid meeting and walk-through for Contractors will be held at the Recreation Department , 1 Dorne Drive, Stratford, on May 17, 2011 at 9:30 AM.**

**B. INSTRUCTIONS:**

Bid proposals are to be submitted (**THREE COPIES**) in a sealed envelope and clearly marked with the bid number and description on the outside of the envelope, including all outer packaging (DHL, FedEx, UPS, etc).

Bids must be delivered to:

Purchasing Department  
Stratford Town Hall – Rm 202  
2725 Main Street  
Stratford, CT 06615

### **C. CONDITIONS:**

#### **Bid Surety:**

A Certified Check, Cashier's Check or Bid Bond in the amount of 5% of the base bid must accompany each proposal, made payable to the Town of Stratford. No bid will be considered without this surety. Upon award or rejection of the bid, all Certified Checks or Cashier's Checks received in lieu of Bid Bonds will be returned to the bidders.

**Payment:** Final payment will be made upon the acceptance of the completed work by an authorized representative of the Town of Stratford. NO partial payments will be made. Invoices covering the work specified herein should be forwarded to the Purchasing Department upon completion of the project.

**Taxes:** The Town of Stratford is exempt from all State and Federal taxes. Do not include these amounts in your quotation.

**Addendums:** All addendums will be posted on the town website, [www.townofstratford.com](http://www.townofstratford.com). It is the responsibility of the bidder to check the website for any addendums before submitting their bid.

**F.O.B. Destination:** All prices quoted must be net delivered to destination.

**Conflict of Interest:** No public official or employee shall, while serving as such, have any financial interest or engage in any business, employment, transaction or professional activity or incur any obligation of any nature which is in substantial conflict with the proper discharge of his/her duties or employment in the public interest.

### **Insurance Requirements:**

#### A. General Liability

Occurrence limit \$1,000,000; aggregate limit \$2,000,000. The insurance carried by the proposer shall be on form CG 00 01, or equivalent. The Town of Stratford shall be named as an additional insured on the contractor's General Liability Insurance Policy with form CG 20 10 or CG 20 33, *and* CG 20 37.

#### B. Automobile Liability

Combined single limit of \$1,000,000. Comprehensive automobile policy to cover all owned, hired or non-owned automobiles or vehicles.

C. Workers Compensation

The proposer must have workers' compensation and employers liability insurance as required by Connecticut and federal law, plus employers liability limits of \$1,000,000 per accident, 1,000,000 disease each employee and \$1,000,000 disease policy limit.

D. Umbrella Liability

The proposer shall have a minimum coverage of \$1,000,000 excess umbrella coverage, naming the Town as additional insured.

The proposer shall procure and pay for the insurance coverage described above and must maintain the indicated insurance for a period of two (2) years after completion of the contract. All policies shall provide for thirty (30) days written notice prior to cancellation, substantial change or nonrenewal. The successful bidder must file an Insurance Certificate within two weeks of the date of notification of award. Failure or neglect to do so may be considered by the Town as proof that the proposer is unable to fulfill the contract. A current insurance certificate and a copy of the endorsement or policy wording adding the Town as Additional Insured must be in the Town's possession at all times. In addition, the selected firm shall require its subcontractors, if any, to meet the same insurance requirements and to furnish the Town with similar evidence of insurance.

In addition, the proposer shall, at all times, save, indemnify and hold harmless the Town of Stratford, its officers, agents, employees and servants from liability of any nature or kind, including costs and expenses for or on account of, any patented or copyrighted equipment, materials, articles, or processes used in the performance of this contract, or on account of any and all claims, damages, losses, litigation expense and counsel fees arising out of loss or injuries (including death) sustained by or alleged to have been sustained by the public or any persons affected by the proposer's work, or by the proposer or any subcontractor, or anyone directly or indirectly employed by them while engaged in the performance of their duties in connect

**D. RESERVATIONS:**

The Town of Stratford may consider informal any proposal not prepared and submitted to the Town in accordance with the provisions herein stated. The Town of Stratford reserves the right to reject any or all proposals or parts of proposals; to waive defects in same proposals; or to accept any proposal or part thereof deemed to be in the best interests of the Town of Stratford.

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Michael Bonnar, Purchasing Agent

For questions or additional information, please contact Brian Carey at 203-385-4080.

**SPECIFICATIONS:** See next page.

**TOWN OF STRATFORD  
STRATFORD RECREATION FACILITY  
1 DORNE DRIVE  
STRATFORD, CONNECTICUT 06615**

**BID #2011-040**

**SPECIFICATIONS FOR  
INSTALLATION OF ABOVEGROUND STORAGE TANK  
WITH FUEL SYSTEM  
IN  
STRATFORD, CONNECTICUT**

**MAY 2011**

**Prepared by:**

**HRP *Associates, Inc.***  
**197 SCOTT SWAMP ROAD**  
**FARMINGTON, CT 06032**

## TECHNICAL SPECIFICATIONS

<u>NUMBER</u>	<u>TITLE</u>
01001	INTRODUCTION TO SPECIFICATIONS
02221	EXCAVATION, BACKFILLING, COMPACTION AND GRADING
02223	GRANULAR FILL
03300	CAST IN PLACE CONCRETE
03420	STRUCTURAL PRECAST CONCRETE
15191	ABOVEGROUND STORAGE TANK, GASOLINE/DIESEL FUEL PIPING AND DISPENSER SYSTEM
16015	ELECTRICAL CONDUIT

**SECTION 01001**

**INTRODUCTION TO SPECIFICATIONS**

**PART 1      GENERAL**

The following Specifications shall apply to the work under this Contract. Within the Specifications of this Contract, the following definitions shall apply.

Owner                      Town of Stratford

Contractor                The company selected to complete the specified work

The following format is used to differentiate sections of each specification:

- XX.1 - DESCRIPTION
- XX.2 - MATERIALS
- XX.3 - CONSTRUCTION
- XX.4 - MEASUREMENT
- XX.5 - PAYMENT

**PART 2      CODES / REGULATORY REQUIREMENTS**

The Contractor shall comply with and conduct work in accordance with all Local, State and Federal regulations applicable to the work detailed in these specifications.

The Applicable Safety Code shall mean the latest edition including any and all amendments, revisions and additions thereto of the Federal Department of Labor, Occupational Safety and Health Administration's "Occupational Safety and Health Standards"; "Building Code", National Electrical Code, NFPA 70, and NFPA 30 as supplemented by the State of Connecticut, whichever is the more stringent for the applicable requirement.

Comply with 29 CFR 1926 "Safety and Health Regulations for Construction".

Comply with OSHA regulations for excavation and trenching 29 CFR 1926-(650-653).

Comply with applicable Sections of Connecticut Department of Transportation "Standard Specifications for Roads, Bridges and Incidental Construction", Form 816, as amended.

Comply with applicable Sections of the Connecticut Department of Environmental Protection "2002 Connecticut Guidelines For Soil Erosion and Sediment Control", Bulletin 34.

Comply with all applicable Federal, State and local regulations, including local permits, if applicable.

### **PART 3 LIST OF ABBREVIATIONS**

The term "ASTM" shall mean the American Society for Testing and Materials.

The term "AWWA" shall mean the American Water Works Association.

The term "ANSI" shall mean the American National Standards Institute.

The term "ACI" shall mean the American Concrete Institute.

The term "AWS" shall mean the American Welding Society.

The term "IEEE" shall mean the Institute of Electrical and Electronic Engineers.

The term "AWPA" shall mean the American Wood Preservers Association.

The term "NEC" shall mean the National Electric Code.

The term "NEMA" shall mean the National Electric Manufacturers Association.

The term "ASME" shall mean the American Society of Mechanical Engineers.

The term "AISC" shall mean the American Institute of Steel Construction.

The term "AASHTO" shall mean the American Association of State Highway and Transportation Officials.

The term "NFPA" shall mean the National Fire Protection Association.

The term "OSHA" shall mean the Occupational Safety and Health Administration.

**END OF SECTION**

**SECTION 02221**

**EXCAVATION, BACKFILLING, COMPACTION, AND GRADING**

**PART 1      DESCRIPTION**

1.01      **SCOPE OF WORK**

- A.      The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to perform all excavation for tank and concrete tank slab, backfilling, grading, and restoration of surfaces.
- B.      Excavation shall extend to the depth needed to place the concrete tank on suitable base.

1.02      **RELATED WORK NOT INCLUDED**

- A.      Granular fill materials are included in Section 02223.
- B.      Aboveground Storage Tank Section 15191.

**PART 2      MATERIALS**

- A.      Obvious non-contaminated soils excavated during the work will be used as clean backfill in the excavation. In addition, imported granular fill will be used, as specified in Section 02223 "Granular Fill".

**PART 3      CONSTRUCTION**

3.01      **TOPSOIL**

Strip and stockpile topsoil on-site for re-use prior to excavating.

3.02      **EXCAVATION**

- A.      For preparation of concrete slab installation for aboveground tank, excavate to soil capable of supporting 3000 psf bearing capacity.
- B.      Install 10 inches of crushed stone (3/4" size) on top of bearing soil.
- C.      Install 4 inches to 6 inches of crushed stone (3/8" size) on top of 10" stone layer and make surface is perfectly level.

3.03      **BACKFILLING AND COMPACTION**

On-site materials and imported granular fill shall be placed in layers not to exceed eight inches in thickness as measured before compaction for areas to be compacted by heavy compaction equipment. Layers shall not exceed 4 inches for areas to be compacted by hand operated equipment. Each layer shall be compacted according to below.

- A. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D1557:
  - a. Under tank slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent; and areas within 10 feet of structures, building slabs, steps, and pavements at 92 percent.
  - b. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
  - c. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.04 GRADING

- A. Grading shall be performed to match existing adjacent grades.

3.05 DISPOSAL OF EXCAVATED MATERIAL

- A. No excavated materials shall be removed from the site of the work or disposed of by the Contractor without permission of the Owner.

**PART 4 MEASUREMENT**

The work of “Backfilling, Compaction, and Grading” will not be measured for payment.

**PART 5 PAYMENT**

The payment for the item will be lump sum for the entire job.

**END OF SECTION**

**SECTION 02223**

**GRANULAR FILL**

**PART 1 DESCRIPTION**

1.01 Granular fill materials are specified in this section, but their uses are specified in Section 02221 "Excavation, Backfilling, Compaction, and Grading".

**PART 2 MATERIALS**

2.01 GRANULAR FILL/COMMON FILL

Common Fill shall consist of mineral soil substantially free of clay, organic material, loam, wood, trash, snow, ice, frozen soil, and other objectionable material which may not be compressible, or which cannot be compacted properly. Common Fill shall not contain stones larger than 10 inches in largest diameter, broken concrete, rubble, pavement or other similar materials, and shall have a maximum of 75% passing the No. 4 sieve and a maximum of 20% passing the No. 200 sieve. It shall have physical properties such that it can be readily spread and compacted. .

**PART 3 CONSTRUCTION**

None in this section.

**PART 4 MEASUREMENT/PAYMENT**

The work of "Granular Fill" shall be measured by the weight of material in tons delivered to the site. All payments will be made based on the lump sum bid price.

Backfilling and compaction of imported granular fill will not be measured for payment under "Granular Fill", and shall be included in the contract lump sum price for the Section 02221 item "Backfilling, Compaction, and Grading".

**PART 5 PAYMENT**

The payment for the item will be lump sum for the entire job.

**END OF SECTION**

## **SECTION 03300**

### **CAST-IN-PLACE CONCRETE**

#### **PART 1 DESCRIPTION**

##### 1.01 **SECTION INCLUDES**

- A. Bollards for tank protection.

##### 1.03 **REFERENCES**

- A. ACI 117 - Standard Tolerances for Concrete Construction and Materials.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting and Placing Concrete.
- E. ACI 305R - Hot Weather Concreting.
- F. ACI 306R - Cold Weather Concreting.
- G. ACI 308 - Standard Practice for Curing Concrete.
- H. ACI 309 - Standard Practice for Consolidation of Concrete.
- I. ACI 311 - Recommended Practice for Concrete Inspection.
- J. ACI 318 - Building Code Requirements for Reinforced Concrete.
- L. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- M. ANSI/ASTM DI 752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- N. ASTM C33 - Concrete Aggregates.
- O. ASTM C94 - Ready-Mixed Concrete.
- P. ASTM C 150 - Portland Cement.
- Q. ASTM C494 - Chemicals Admixtures for Concrete.

##### 1.04 **SUBMITTALS**

- A. None

1.05 QUALITY ASSURANCE

- A. Acquire cement and aggregate from same source for all work.
- B. Conform to ACI 305R when concreting during hot weather.
- C. Conform to ACI 306R when concreting during cold weather.

**PART 2 MATERIALS**

2.01 CONCRETE MATERIALS

- A. Cement: ASTM C150, Portland Type I or III - Use one brand of concrete throughout.
- B. Fine Aggregate: Natural washed sand of hard and durable particles meeting ASTM C33.
- C. Coarse Aggregates: Crushed rock or washed gravel consisting of hard durable fragments of rock of uniform quality throughout and meeting ASTM C33, Severity Class 3 S, Grading Size No. 67.
- D. All admixtures and curing compounds shall be from one manufacture or else the Ready Mix Concrete Producer shall certify compatibility.
- E. Water: Clean, potable, and not detrimental to concrete.

2.02 ADMIXTURES

- A. Air Entraining Agent: ASTM C260. Air Mix by Euclid, Micro Air by Master Builders, Daravair By W.R. Grace, or Approved Equal.
- B. Chemical: ASTM C494 Type A - Water Reducing Type B - Retarding Type C Accelerating Type D - Water Reducing and Retarding Type E - Water Reducing and Accelerating

2.03 CONCRETE MIX

- A. Mix and deliver concrete in accordance with ASTM C94. Use 3000 psi concrete mix minimum.

**PART 3      CONSTRUCTION**

3.01      PLACING CONCRETE

- A.      Notify Owner minimum 24 hours prior to commencement of operations.
- B.      Four (4) bollards must be installed on perimeter of new aboveground storage tank exposed to vehicle traffic. Bollards shall be a minimum 4 inch diameter concrete filled steel pipe and shall be a minimum 6 feet long and installed in concrete a minimum of 3 feet. Bollards shall be located approximately four (4) feet from the tank and spaced no more than five (5) feet apart. The steel pipe shall be primed and painted yellow with two coats of paint as specified in ASTM A-53 to prevent corrosion. The bollards shall be filled with concrete having a minimum compressive strength of 3,000 psi. Location of bollards shall be in accordance with state and local codes.

3.02      CONCRETE FINISHING

Use ACI 301 for repair and finish, unless otherwise specified.

3.03      CURING AND PROTECTION

- A.      Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B.      Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.04      FIELD QUALITY CONTROL

- A.      Field inspection and testing shall be performed in accordance with ACI 301.

3.07      PATCHING

- A.      Allow OWNER to inspect concrete surfaces immediately upon removal of forms.
- B.      Patch imperfections at no cost to OWNER, as directed and in accordance with ACI 301.

3.08      DEFECTIVE CONCRETE

- A.      Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements will be repaired or replaced at no cost to the OWNER.

**PART 4 MEASUREMENT**

The work of “Bollards” shall be measured by the number of bollards installed for protection of the new aboveground storage tank.

**PART 5 PAYMENT**

The payment for the item will be based on the lump sum for the entire job.

**END OF SECTION**



## SECTION 03420

### STRUCTURAL PRECAST CONCRETE

#### PART 1 DESCRIPTION

##### 1.1 DESCRIPTION OF WORK

###### A. Work Included:

1. Aboveground Storage Tank and tank slab are preconstruction.

##### 1.2 QUALITY ASSURANCE

- ###### A. Manufacturer:
- The precast concrete manufacturing plant shall be certified by the Prestressed Concrete Institute, Plant Certification Program, prior to the start of production.

##### 1.3 SUBMITTALS

###### A. Shop Drawings:

1. Submit shop drawings indicating position, span, dimensions, reinforcement, location of anchor plates or clips, and as required, openings, hanger spacing and anchoring details.
2. Final shop drawings shall bear the seal and signature of a Registered Engineer licensed in the State that the work will be installed.

#### PART 2 - MATERIALS

##### 2.1 MATERIALS

###### A. Portland Cement:

1. ASTM C150 - Type I or M.

###### B. Admixtures:

1. Air-entraining admixtures: ASTM C260.
2. Water reducing, retarding, accelerating, high range water reducing admixtures: ASTM C494.

###### C. Aggregates:

1. ASTM C33 or C330.

- D. Water:
1. Potable or free from foreign materials in amounts harmful to concrete and embedded steel.
- E. Reinforcing Steel: The slab shall have reinforcing steel consisting of #4 and #5 bars which comply with ASTM A615 Grade 60 or A706 Grade 60 bar bending. Placement of the reinforcing steel shall comply with the latest ACI standards.
1. Bars:
    - a. Deformed billet-steel: ASTM A615 Grade 60.
  2. Wire:
    - a. Cold-drawn steel: ASTM A82.
  3. Wire Fabric:
    - a. Welded steel: ASTM A185.
- F. Strand:
1. Uncoated, 7-wire, stress-relieved strand: ASTM A416, Grade 250K or 270K.
- G. Anchors and Inserts:
1. Materials
    - a. Structural Steel: ASTM A36.
    - b. Malleable iron.
  2. Finish
    - a. Shop Primer: Manufacturer's standards.
    - b. Hot Dipped Galvanized: ASTM A153.
- H. Concrete Topping (where applicable):
1. Normal weight concrete with pea stone aggregate.
  2. 28-day compressive strength: 4,000 psi min.
- I. Grout:
1. Cement Grout: Portland cement, sand, and water sufficient for placement and hydration.
  2. Non-Shrink Grout: Premixed, packaged ferrous and non-ferrous aggregate shrink-

resistant grout.

J. Bearing Pads:

1. Plastic: Multi-monomer plastic strips shall be non-leaching and support construction loads with no visible overall expansion.

2.2 CONCRETE MIXES

- A. 28-day Compressive Strength: Minimum of 5,000 psi;
- B. Release Strength: Minimum of 3,500 psi.
- C. Use of calcium chloride, chloride ions or other salts is not permitted.

2.3 MANUFACTURE

- A. Manufacturing procedures shall be in general compliance with PCI MNt-116.
- B. Manufacturing tolerances shall comply with PCI MNL-116.
- C. Finishes:
  1. Standard Underside: Resulting from casting against approved forms using good industry practice in cleaning of forms, design of concrete mix, placing and curing. Small surface holes caused by air bubbles, normal color variations, normal form joint marks, and minor chips and spans shall be tolerated, but no major or unsightly imperfections, honeycomb, or other defects shall be permitted.
  2. Top finish for architecturally exposed concrete.
  3. Exposed Vertical Ends: Strands shall be recessed and the ends of the member shall receive sacked finish.

**PART 3 CONSTRUCTION**

3.1 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery and Handling:

1. Precast concrete members shall be lifted and supported during manufacturing, stockpiling, transporting and erection operations only at the lifting or supporting point, or both, as shown on the shop drawings, and with approved lifting devices. Lifting inserts shall have a minimum safety factor of 4. Exterior lifting hardware shall have a minimum safety factor of 5.
2. Transportation, site handling, and erection shall be performed with acceptable equipment and methods, and by qualified personnel.

3.2 PRECAST SLAB : . A 6” thick precast slab (8” if poured in the field) shall be used for the storage tank.

3.3 INSPECTION AND ACCEPTANCE

- A. Final inspection and acceptance of erected precast, prestressed concrete shall be made by the Architect/ Engineer.

**PART 4** MEASUREMENT

The work of “Structural Precast Concrete” shall be measured as the actual number of precast slabs delivered and installed.

**PART 5** PAYMENT

No separate payment will be made for the Contractor’s general work required under this item. All labor, equipment, tools, and materials required shall be included in the Contract Lump Sum bid per tank for the Section 15191 item “Aboveground Storage Tank”.

**END OF SECTION**



## SECTION 15191

### ABOVEGROUND STORAGE TANK, GASOLINE/DIESEL FUEL PIPING, AND DISPENSER SYSTEM

#### **PART 1      DESCRIPTION**

##### 1.1      SUMMARY

- A.      This Section includes aboveground tank and gasoline/diesel fuel dispenser systems. Products include the following:
1.      Gasoline/diesel aboveground storage tank.
  2.      Aboveground tank concrete slab.
  3.      Fill Limit valve
  4.      Tank level gauge.
  5.      Gasoline/Diesel Fuel dispensing system.

##### 1.2      SUBMITTALS

- A.      Product Data: For the following:
1.      Aboveground Storage Tank.
  2.      Gasoline/Diesel transfer pumps. Include rated capacities, operating characteristics, furnished specialties, accessories, pressure ratings, dimensions, and written description of controls.
  3.      Tank fill limit valve (Guillotine)
  4.      Tank fill gauge.

##### 1.3      QUALITY ASSURANCE

- A.      Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B.      Comply with NFPA 30, "Flammable and Combustible Liquids Code,"

## **PART 2 MATERIALS**

### **2.1 PIPING MATERIALS**

- A. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B, black. Wall thickness of wrought-steel pipe shall comply with ASME B36.1 OM.
  - 1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern, with threaded ends according to ASME B1.20.1.
  - 2. Steel Threaded Fittings: ASME B16.11, forged steel with threaded ends according to ASME B1.20.1.
  - 3. Steel Welding Fittings: ASME B16.9, wrought steel or ASME B16.11, forged steel.
  - 4. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends according to ASME B1.20.1.
  - 5. Gasket Material: Thickness, material, and type suitable for fuel oil/diesel fuel.

### **2.2 SPECIALTY VALVES**

- A. Safety Breakaway Valve: OPW 66RB 1"; valve should separate at maximum force of 350 lbs and be designed to work at maximum of 50 psi; valve shall have aluminum body; sleeve shall be HDPE; seals shall be Viton; spring shall be stainless steel; poppet shall be aluminum;
- B. Fuel Restrictor Flow Valve: 4" Guillotine

### **2.3 FUEL TRANSFER PUMPS**

- A. Gasoline Transfer Pump: Factory-fabricated and -wired, packaged unit; for gasoline service; mounted inside control cabinet with mechanical gauge.
  - 1. Manufacturers:
    - a. Fill-Rite (Model FR702RU)
  - 2. Assembled inside metal cabinet which contains the following:

- a. One diesel fuel vane pump with 1/3 HP motor and built in check valve.
  - b. Mechanical fuel gauge that can measure up to 1000 gallons with reset button.
3. Transfer pump shall deliver the constant flow of up to 18 gpm of diesel fuel.
4. Transfer pump shall be factory wired for 115V 60 hz electrical service.
5. Transfer pump shall have 3/4" NPT hose connection.
6. Pump motor shall be provided with at least a 15 amp circuit breaker and with a magnetic type motor starter. Pump selector switch shall operate so that power to the non-operating motor starter is disconnected when its circuit breaker is tripped. In addition to the foregoing, each pump shall be provided with protective and disconnecting devices, and wiring.
7. A mechanical meter gauge shall be connected to the pump. The gauge shall be designed for measuring gasoline/diesel fuel at a flow rate of 5 to 20 gpm. The gauge shall be calibrated for diesel fuel in gallons and capable of measuring a single delivery from 0.1 gallons up to 1,000 gallons. The gauge shall have an accuracy of +/-1%.
8. Manual nozzles shall be provided for both gasoline and diesel dispensing.
9. Pumps shall have a 30 micron filter rated at 40 gpm and maximum pressure of 50 psi.
- B. Diesel Fuel Transfer Pump: Factory-fabricated and -wired, packaged unit; for diesel fuel service; mounted inside control cabinet with mechanical gauge.
  1. Manufacturers:
    - a. Fill-Rite (Model FR702RU)
  2. Assembled inside metal cabinet which contains the following:
    - c. One diesel fuel vane pump with 1/3 HP motor and built in check valve.
    - d. Mechanical fuel gauge that can measure up to 1000 gallons with reset button.
10. Transfer pump shall deliver the constant flow of up to 18 gpm of diesel fuel.

11. Transfer pump shall be factory wired for 115V 60 hz electrical service.
12. Transfer pump shall have 3/4" NPT hose connection.
13. Pump motor shall be provided with at least a 15 amp circuit breaker and with a magnetic type motor starter. Pump selector switch shall operate so that power to the non-operating motor starter is disconnected when its circuit breaker is tripped. In addition to the foregoing, each pump shall be provided with protective and disconnecting devices, and wiring.
14. A mechanical meter gauge shall be connected to the pump. The gauge shall be designed for measuring gasoline/diesel fuel at a flow rate of 5 to 20 gpm. The gauge shall be calibrated for diesel fuel in gallons and capable of measuring a single delivery from 0.1 gallons up to 1,000 gallons. The gauge shall have an accuracy of +/-1%.
15. Manual nozzles shall be provided for diesel dispensing.
16. Pumps shall have a 30 micron filter rated at 40 gpm and maximum pressure of 50 psi.

## 2.4

### ABOVEGROUND GASOLINE/DIESEL FUEL STORAGE TANK

- A. Manufacturers:
  1. CONVAULT TANK (Manufactured by United Concrete Products, Yalesville, CT)
- B. Primary Tank: The tank shall have a 1,000 gallon capacity. The tank shall be dual chamber design. Each chamber shall have a capacity of 500 gallons.
- C. The primary tank shall be rectangular in shape and have continuous welds on all sides conforming to The American Welding Society Standard for continuous weld. The primary tank shall be minimum 0.125 inch thick carbon steel approved per U.L. Standard 142. The outer surface of the tank shall be covered by a minimum of 1/4" thick (6.4 mm) Styrofoam insulation panels. The tank shall be warranted by the manufacturer for 20 years.
- D. Concrete Encasement: The concrete encasement shall be 6 inches thick with a minimum design strength of 5,000 psi. The concrete design shall include the following for long term durability: air entrainment, water-reducing admixture, rebar reinforcement. Vault shall be a coated concrete exterior and of a continuous and visually verification

monolithic (seamless) pour on top, bottom and sides of steel tank and contain no cold joints or heat sinks (heat transfer points) on bottom and sides. The steel tank shall be pressurized at 5 psi during concrete encasement.

- E. Fire Resistance: The tank system shall be designed and tested to provide 2-hour fire protection for the primary tank. No steel members shall penetrate the walls or floor of the concrete encasement to assure isolation front pool fire heat. The fire resistance of the tank shall be tested in accordance with the procedure established in U.L. 1709 by Warnock-Hersey International, a certified fire testing facility. The monolithic concrete construction provides a 2-hour fire protection rating and is listed in accordance with Underwriter's Laboratory subject 2085. The U.L. subject 2085 listing establishes not only fire protection, but also resistance to impact, bullet resistance and environmental resistance.
- E. Thermal and Corrosion Protection: The tank construction shall include thermal insulation to protect against temperature extremes and corrosion by isolating the steel tank from the concrete. No steel or insulating spacer in unit shall come in direct contact with concrete or any other corrosive material.
- F. Secondary Containment with Leak Monitoring: The secondary containment shall consist of a 30 mil (0.76 mm) High Density Polyethylene membrane enclosing the steel tank and insulation membrane. A leak detection access tube shall be located between the inner tank and secondary barrier. In the event of a leak, a positive space shall be available to permit leaked fluid to flow to the detection tube.
- G. Overfill/Spill Containment: The tank system shall include a minimum 7-gallon stainless steel (or powder coated) internal overfill/spill containment surrounding the fill pipe, which is U.L. Listed.
- H. Overflow Protection: Overfill protection should be provided by a Guillotine valve located within the fill pipe to close automatically at a specified fill level. Exterior Finish: The tank system has a coated concrete exterior to resist weather, reflect sunlight and inhibit corrosion.
- I. Venting: The primary steel tank shall have an "emergency vent" system as per NFPA 30 Code requirements. Tank system shall conform to local jurisdiction.
- J. Support Legs: Vaults shall have concrete support legs of unitized monolithic construction to provide visual inspection capability.

## **PART 3 CONSTRUCTION**

### **3.1 INSTALLATION OF FUEL STORAGE TANK**

- A. The tank system including accessories shall be installed in strict accordance with the manufacturer's recommendation and applicable fire and environmental codes. Local permits shall be obtained prior to installation.
- B. Tanks shall be installed on a precast reinforced concrete base slab designed to support the fully loaded
- C. Tanks shall be marked on all sides with warning signs: "FLAMMABLE" , "NO SMOKING", product identification, and other signs as required by the applicable codes.
- D. Electrical work shall be in accordance with local codes and shall be rated for hazardous area as required.
- E. Vaulted tank design shall have been in manufacturing production and commercial use for a minimum of twenty years.
- F. Tank and concrete vault shall be shop-fabricated as one unit at factory and require no assembly, construction or completion at installation site.

### **3.2 INSTALLATION OF GASOLINE/DIESEL FUEL DISPENSER SYSTEM**

- A. Install tank adapters onto both gasoline and diesel fuel tanks and install suction piping.
- B. Thread pump onto tank adapter
- C. Turn off all power and wiring and rigid conduit from supply to cabinet.
- D. Connect power to pump and test for proper operation.
- E. Calibrate meter per manufacturers recommendations.

## **PART 4 MEASUREMENT**

The work of "Aboveground Storage Tank Replacement" shall be measured separately for payment as the actual number of tanks delivered and installed.

The work of "Gasoline Dispensing System" shall be measured separately for payment as the actual number of fuel pump packages delivered and installed.

The work of "Diesel Dispensing System" shall be measured separately for payment as the actual number of fuel pump packages delivered and installed.

## **PART 5 PAYMENT**

Installation of aboveground storage tanks shall be paid under "Aboveground Storage Tank Replacement" at the Lump Sum Bid Price, which shall include materials cost, delivery, and installation, including all labor, tools and equipment. The cost of the concrete slab, guillotine, vents (emergency, atmospheric), 7-gallon overfill protection, guillotine valve, leak detection monitoring tube, fill gauge, and piping needed for the new tank will be included in the Lump Sum Bid Price.

Installation of fuel pump cabinet, fuel pump, dispensing hoses, safety breakaway valves, anti-siphon valves, miscellaneous valves, dispensing nozzles, and shall be paid under "Dispensing System" at the Unit Price, which price shall include the materials cost, delivery, and installation, including all labor, tools, equipment.

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
1,000 Gallon Aboveground Storage Tank	Lump Sum
Gasoline Dispensing System	Lump Sum
Diesel Dispensing System	Lump Sum

**END OF SECTION**

## SECTION 16011

### ELECTRICAL GENERAL REQUIREMENTS

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C2            1993 National Electrical Safety Code

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.147 Control of Hazardous Energy (Lock Out/Tag out)

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC. (IEEE)

IEEE 100            1992 Dictionary of Electrical and Electronics Terms

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA ICS 6        1988 (Rev. 1) Enclosures for Industrial Control and Systems

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70            1993 National Electrical Code

##### 1.2 RELATED REQUIREMENTS

This section applies to certain sections of Division 15, "Mechanical".

##### 1.3 DEFINITIONS

- A. Unless otherwise specified or indicated, electrical and electronics terms used in these specifications, and on the drawings, shall be as defined in IEEE 100.
- B. The technical sections referred to herein are those specification sections that describe products, installation procedures, and equipment operations and that refer to this section for detailed description of submittal types.

- C. The technical paragraphs referred to herein are those paragraphs in PART 2 - PRODUCTS and PART 3 - EXECUTION of the technical sections that describe products, systems, installation procedures, equipment, and test methods.

#### 1.4 QUALITY ASSURANCE

- A. Material and Equipment Qualifications

Provide materials and equipment that are products of manufacturers regularly engaged in the production of such products, which are of equal material, design and workmanship. Products shall have been in satisfactory commercial or industrial use for 2 years prior to bid opening. The 2-year period shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been on sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the 2-year period. Where two or more items of the same class of equipment are required, these items shall be products of a single manufacturer; however, the component parts of the item need not be the products of the same manufacturer unless stated in the technical section.

- B. Regulatory Requirements

Equipment, materials, installation, and workmanship shall be in accordance with the mandatory and advisory provisions of NFPA 70.

- C. Alternative Qualifications

Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturers, factory or laboratory tests, is furnished.

- D. Service Support

The equipment items shall be supported by service organizations, which are reasonably convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

- E. Manufacturer's Nameplate

Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

F. Modification of References

In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "shall" had been substituted for "should" wherever it appears. Interpret references in these publications to the "authority having jurisdiction," or words of similar meaning, to mean the ENGINEER.

1.6 ELECTRICAL REQUIREMENTS

Electrical installations shall conform to ANSI C2, NFPA 70, and requirements specified herein.

All electrical equipment shall be grounded. Incorporate a ground conductor in all feeder and branch circuiting. All grounding conductors shall be sized in accordance with the National Electrical Code. Where grounding conductor is run enclosed with other conductors, the grounding conductor shall be insulated with green colored insulation.

All conductors shall be installed in rigid galvanized steel conduit to match existing unless otherwise noted or permitted. Flexible conduit (Sealite) shall be utilized for the final connection to vibration producing equipment such as motors, transformers, etc. Minimum size conduit shall be  $\frac{3}{4}$ ".

All conductors shall be copper, minimum size 12 AWG. Conductor insulation shall 600 volt – type THHN/THWN multi-rated unless otherwise noted. Color-code all conductors in accordance with NEC.

1.7 LOCKOUT REQUIREMENTS

Provide disconnecting means capable of being locked out for machines and other equipment to prevent unexpected startup or release of stored energy in accordance with 29 CFR 1910.147. Mechanical isolation of machines and other equipment shall be in accordance with requirements of Division 15, "Mechanical." All tagging and lockout shall be coordinated with OWNER and Resource Recovery System of Connecticut (CRRS of C) and shall conform to the established procedures of CRRS of C attached as Appendix A to this section.

**PART 2 PRODUCTS**

All electrical equipment shall be UL listed. Products included, but not limited to the following:

1. Electric panel and dry core transformer.
2. Disconnect switches
3. Lighting fixtures, emergency lighting and exit signs
4. Time clock

**PART 3 CONSTRUCTION**

3.1 PAINTING OF EQUIPMENT

A. Factory Applied

Electrical equipment shall have factory-applied painting systems which shall, as a minimum, meet the requirements of NEMA ICS 6 corrosion-resistance test.

B. Field Applied

Paint electrical equipment as required to match finish of adjacent surfaces or to meet the indicated or specified safety criteria.

3.2 CABLE TAG INSTALLATION

Install cable tags in each manhole, handhole, and vault as specified, including each splice. Install cable tags over the fireproofing, if any, and locate the tags so that they are clearly visible without disturbing any cabling or wiring in the manholes, handholes, and vaults.

**PART 4 MEASUREMENT AND PAYMENT**

No separate measurement or payment will be made for the Contractor's general work required under this item unless otherwise specified. All work specified herein shall be included in the Lump Sum Contract Price.

**END OF SECTION**

## SECTION 16015

### ELECTRICAL CONDUIT

#### PART 1 DESCRIPTION

##### 1.1 DESCRIPTION

This item shall consist of furnishing and installing conduit of the size and type specified with necessary fittings, where called for, at locations shown on the plans or as directed by the Engineer and in accordance with these specifications.

#### PART 2 MATERIALS

##### 2.1 MATERIALS

Materials for this work shall conform to the requirements listed below.

- (1) Rigid Metal Conduit: Rigid Metal Conduit (RMC) and fittings shall be galvanized steel. Each section of conduit shall be labeled as UL listed, and shall conform to the requirements of the latest UL and ANSI standards for Rigid Metal Conduit. Set-screw or compression fittings shall not be used.
- (2) Intermediate Metal Conduit: Intermediate Metal Conduit (IMC) and fittings shall be galvanized steel. Each section of conduit shall be labeled as UL listed and ANSI standards for Intermediate Metal Conduit. Set-screws or compression fittings shall not be used.
- (3) Polyvinyl Chloride Conduit: Polyvinyl Chloride Conduit (PVC) and fittings shall be UL listed, and shall conform to the requirements of the latest UL and ANSI standards for Polyvinyl Chloride Conduit. Schedule 40 grade shall be used.
- (4) M.15.10 – Cast Iron Junction Box: Junction Boxes shall be cast iron constructed to NEMA Type 4 requirements. The junction box cover shall be attached with approved stainless steel bolts and sealing washers, and shall be equipped with a neoprene cover gasket. For a 450 mm X 300 mm X 200 mm cast iron junction box, cover bolts shall be 6 mm X 16 mm; threads shall be 20 N.C.; and the head shall be hex type and shall accept an 11 mm socket.

The covers for cast iron junction boxes shall be 6 mm thick steel conforming to the requirements of ASTM A 36 and shall be galvanized in accordance with ASTM A 123. Holes for the cover bolts shall be recessed in the cover plate to accept an 11 mm socket wrench.

#### PART 3 CONSTRUCTION

##### 3.1 CONSTRUCTION METHODS

The electrical conduit shall be installed from the southwest corner of the building and travel in a southwest direction to the new tank location. The length of conduit is estimated to be 100 LF. All conduit runs shall be installed in a neat and workmanlike manner in accordance with recognized trade practices. Excavation and backfilling of conduit shall conform to Section 02221.

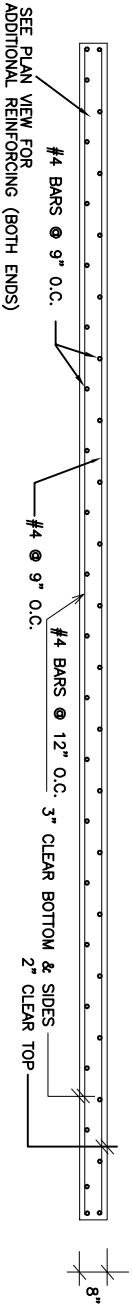
All conduit shall be installed in strict accordance with the current National Electrical Code. Where conduit is to be capped, a commercial pipe or conduit cap shall be used. An expansion fitting shall be used wherever required by an expansion joint in the structure

- A. Conduit Surface: Beam clamps or conduit strips with back spacers shall be provided at intervals in accordance with the National Electrical Code. Expansion fittings shall be installed at all expansion joints. All surface mounted conduit on wood poles shall be bonded to a driven ground rod. Stand-offs shall be installed in accordance with serving utility company regulations.
- B. Conduit in Trench: All conduit shall have a minimum covering of 28”.

#### **PART 4 MEASUREMENT AND PAYMENT**

No separate measurement or payment will be made for the Contractor's general work required under this item unless otherwise specified. All work specified herein shall be included as part of Section 15191 Aboveground Storage Tank. .

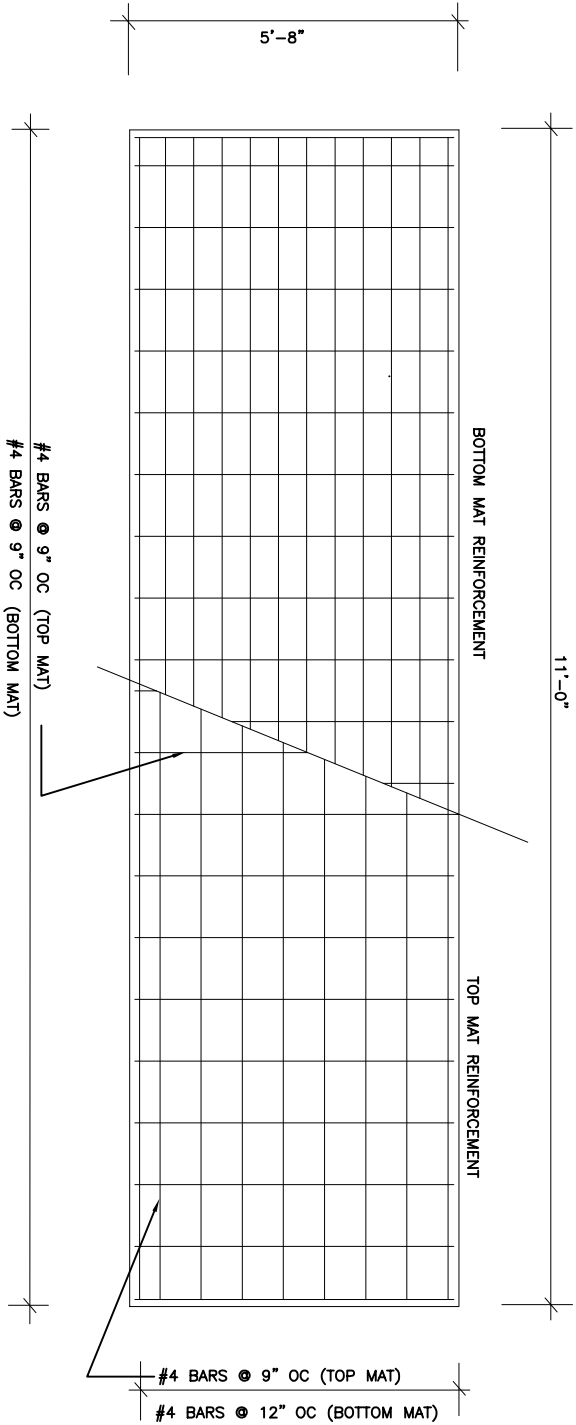
**END OF SECTION**



**SECTION - SLAB REINFORCING**

NOTE:

8" SLAB IS REQUIRED WHEN POURED IN THE FIELD  
6" SLAB IS AVAILABLE WHEN ORDERED IN PRECAST FROM UNITED CONCRETE



**PLAN - SLAB REINFORCING**

**SLAB DETAILS**

FOR

NOTES:  
CONCRETE COMPRESSIVE STRENGTH: 5,000 psi @ 28 DAYS  
REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60  
OR ASTM A706 GRADE 60. BAR BENDING AND PLACEMENT  
SHALL COMPLY WITH LATEST ACI STANDARDS.  
LETTING INSERTS FOR HANDLING SHALL BE INSTALLED  
PER MANUFACTURER'S REQUIREMENTS.  
APPROXIMATE SLAB WEIGHT = 5,500 lbs.  
MAX LOAD ON SOIL = 3000 psf.

CONVAULT  
1000 GALLON TANK  
UNITED CONCRETE PRODUCTS, INC.  
173 CHURCH STREET  
YALESVILLE, CT

(203) 269-3119  
(203) 265-4941 FAX



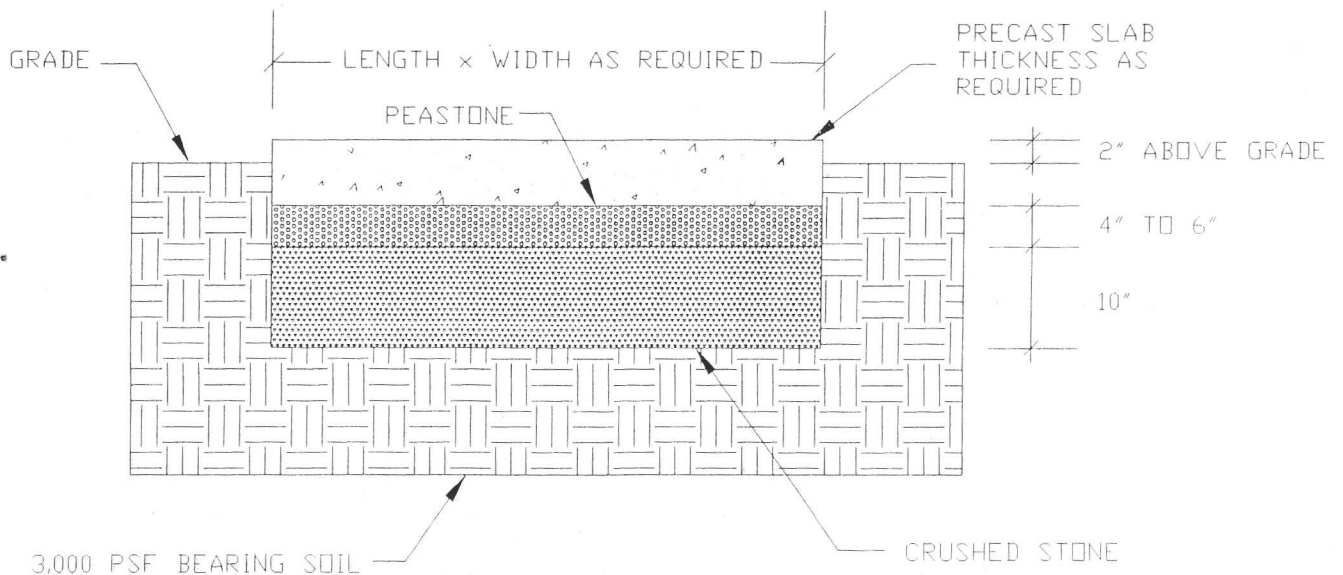
# UNITED CONCRETE PRODUCTS INC.

173 CHURCH STREET • YALESVILLE, CT 06492 • TEL. (203) 269-3119 • FAX (203) 265-4941

## CONVAULT

### RECOMMENDED SITE PREPARATION REQUIREMENTS FOR CONVAULT CONCRETE SLABS

1. EXCAVATE TOPSOIL DOWN TO 3000 PSF BEARING SOIL
2. INSTALL 10" OF CRUSHED STONE ON TOP OF BEARING SOIL
3. A FINAL SURFACE OF PEASTONE 4" TO 6" THICK SHOULD BE APPLIED PERFECTLY LEVEL
4. KEEP ALL SIDES ACCESSIBLE FOR OFF LOADING



**TOWN OF STRATFORD  
BID SHEET  
BID #2011-040  
INSTALLATION OF ABOVEGROUND STORAGE TANK  
AND FUEL SYSTEM**

The undersigned acknowledges that they have examined the specifications and stipulations attached, and being fully advised as to the extent and character of the work to be performed, and the equipment to be furnished, hereby proposed to furnish all labor, tools, material, and equipment necessary to successfully complete the project.

The undersigned further proposes to perform all work and furnish all equipment in accordance with the specifications and within the stipulations thereof, within the time limits specified for the price as stated below.

TOTAL BID PRICE :

\_\_\_\_\_ DOLLARS \_\_\_\_\_ CENTS

BIDDER understands that the city reserves the right to reject any or all bids and to waive any informality in bidding.

The bidder agrees their bid shall be good and may not be withdrawn for a period of thirty (45) days after the scheduled closing time for receiving bids.

Bidders Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_ Date: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title : \_\_\_\_\_

**TOWN OF STRATFORD  
INSTALLATION OF ABOVEGROUND STORAGE TANK WITH FUEL SYSTEM  
1 DORNE DRIVE, STRATFORD, CT  
SIMILAR PROJECT REFERENCES**

**SECTION D**

Please provide references for three (3) similar demolition project completed within the last three (3) years:

**Project #1**

Project: \_\_\_\_\_

Total Project Cost: \_\_\_\_\_

Date Completed: \_\_\_\_\_

Location: \_\_\_\_\_

Reference: \_\_\_\_\_

Phone Number: \_\_\_\_\_

**Project #2**

Project: \_\_\_\_\_

Total Project Cost: \_\_\_\_\_

Date Completed: \_\_\_\_\_

Location: \_\_\_\_\_

Reference: \_\_\_\_\_

Phone Number: \_\_\_\_\_

**Project #3**

Project: \_\_\_\_\_

Total Project Cost: \_\_\_\_\_

Date Completed: \_\_\_\_\_

Location: \_\_\_\_\_

Reference: \_\_\_\_\_

Phone Number: \_\_\_\_\_