ITEM 599.0611--04 M MECHANICAL WORK

DESCRIPTION

The work shall consist of mechanical work for the Washington Street Control Tower including all fixtures, pipe fittings, water heater, accessories and pipe insulation. The work shall also include furnishing and installing a 5678 liter (1500 gallon) holding tank to accept sanitary wastes from the lift bridge control tower, including tank, excavation, backfill, testing and alarm equipment.

QUALITY ASSURANCE

All work shall comply with:

1. Plumbing Code of New York (except for plumbing piping materials)
2. New York State Uniform Fire Prevention & Building Code section 904.6 only (per NYS Department of Labor regulation on plumbing piping materials).
3. Energy Construction Conservation Code of New York.
4. NYS Sanitary Code
5. Applicable Federal State and Local regulations

MATERIALS

1. Ball Valves: Watts Series 6000 or equal.

2. Clean Outs (labeled "CO" on plans): Provide 100 mm (4") cast iron body, ABS plug, model Z-1400 adjustable clean out by Zurn or equal.

3. Deck Plate Clean Out (labeled "DPCO" on plans). Same as CO above but add model Z-1404 Floor Access Housing by Zurn or equal.

3. Electric Heat Trace: Provide 5 watts per linear foot electric heat trace on all piping in the basement area. Install heat trace between the insulation and the piping. Provide controller and thermostat for heat trace. Chromolox or Thermon 15 watts per meter (5 watts per linear foot) heat trace or equal.

4. Electric Water Heater (labeled as "WH" on plans): AO Smith Model ELSF-10 or equal. Provide with Plastic safe pan, P&T valve and discharge tube.

5. Laundry Utility Sink (labeled "S" on plans):

   Bowl: ANSI Z124.6 1-piece thermoplastic leak-proof tub; 68 liter (18 gallon) capacity and 330 mm (13") deep, 610 mm (24") front to back, and 865 mm (34") overall height. DN 4 (1-1/2") drain molded into bottom of tray, 100 mm (4") centers, steel legs, height approximately 865 mm (34") from top of tub to floor. Model 18F Utilitub with part number 18.300F Floor Mounting Hardware by E.L. Mustee Company or equal.

   Trim: Provide ADA compliant, 2-handle, chrome plated faucet with diacore cartridge. Model LK2490 by Elkay or equal. Provide semi cast brass trap and reinforced stainless steel flex supplies with ball shutoffs.

6. Piping & Fittings:

Sanitary Piping:

Sanitary Piping (labeled "SAN" on plans) above grade and Vent Piping (labeled "V" on plans) shall be Service Weight Cast Iron with hub-less fittings with neoprene joints & 100% stainless steel backing. DWV copper (yellow stripe) may be substituted for cast iron piping.

Site Drainage Piping Below Grade:

SDR 35 push joint piping bedded on crushed stone.

Domestic Water piping Above Grade (labeled "CW" and "HW" on plans):

Type L Copper (Blue Stripe) with Lead-free solder joints.

Piping Insulation:

Piping in basement with heat trace:

Insulate all "HW" & "CW" piping below the first floor (in basement) with 1" of fiberglass and aluminum jacket and fittings

All other piping:

Insulate all other "HW" & "CW" piping with 25 mm, elastomeric closed cell foam insulation with flame spread rating of 25 or less and smoke developed rating of 50 or less; Armstrong Armaflex or equal.

7. Water Closet (shown as "WC" on plans):

Two piece, ADA compliant, handicapped accessible, elongated toilet with white elongated seat. Provide coordinating chrome trip lever, 10 Year Warranty on everything inside tank & bowl, flush tower design, 60 mm (2-3/8") siphon outlet, fully glazed with no choke points, high flow 75 mm (3") flush valve, 6.0 liters per flush (1.6 gpf), and seamless sweeping deck for cleanability; Champion Elongated Toilet by American Standard or equal.

8. Holding Tank & Accessories

Holding tank – provide a 1.800m diameter sanitary manhole structure. Tank shall be designed to withstand AASHTO M18 vehicle loading. Tank shall not have steps or tapered riser sections. Structure to be bituminous coated at the factory - both inside and outside surfaces. A 200 mm thick by 150 mm wide flange shall be cast into the precast base section for buoyancy uplift protection. The tank top slab shall be cast with a 915 mm square opening for the top hatch and will have a 75 mm diameter coated steel schedule 40 vent pipe cast into it. Tank wall shall have precut opening for sanitary pipe entry. Level alarm unit wall opening(s) may be field drilled.

Holding tank top access hatch – provide hatch-in-curb or equal. Hatch and curb to withstand AASHTO M18 vehicle loading.

High level liquid alarm equipment – refer to electrical specifications.

Excavation bedding and backfill – provide materials as shown on the contract plans.

Sanitary lateral – provide a 150mm PVC SDR 35 sewer meeting ASTM D3034, with push on joints.

Pipe Entry to holding tank – provide Kor-N-Seal flexible pipe-to-manhole connectors, by NPC, Inc., Milford, NH or equal.

9. Hose Bibs (HB-1)

   Watts model SC or equal.

CONSTRUCTION DETAILS

1. Plumbing

   Remove all existing plumbing piping from the control tower; including sanitary waste and domestic water, except concealed piping.

   Do not damage the existing historic finishes during removals and installation.

   Conceal piping under the existing finishes; carefully remove and replace existing wooden bead-board.

   Electric Heat Trace: Install electric heat trace between the insulation and the piping.

   Pressure test all piping per the Plumbing Code of New York in the presence of the Engineer prior to covering the pipe.

   Disinfect all domestic water piping in accordance with NYS Health Department policies.

2. Holding Tank & Accessories

   General
   All work shall be in conformance with the requirements of the Monroe County Department of Health (MCDOH), as well as, applicable Federal, state and local requirements.

   Excavation and backfill
   Excavate soils for tank and sewer installation. Provide dewatering as required; brace excavation walls as required. Place bedding/leveling course for tank. Backfill excavation with compacted material. Grade site to match finished grade surface.

   Tank installation
   Set tank in excavation, vertically plumb. Install alarm sensing equipment and top hatch unit.

   Sanitary lateral pipe installation
   Install sanitary sewer with a minimum 2% slope at the control elevations shown on the contract plans. Sanitary sewer lateral to be placed in trench with bedding and backfill to 300mm over top of pipe and shall be visually inspected prior to backfilling. No leakage testing is required. For connection to the holding tank, provide flexible pipe-to-manhole connectors. Electrical alarm conduit wall openings to be sealed with non-shrink epoxy grout per manufacturer's recommendations.

   Test tank
   Test tank for watertightness twice. After installation and backfilling, turn off dewatering system and monitor whether water seeps into the empty tank from outside over a minimum 12 hour period. No

seepage is permitted. Tank will be inspected inside before and after this period for evidence of seepage.

A second test will be provided: the tank will be filled with water to a depth of over 2.035 m (above the level of the wall openings for the alarm signal equipment entry and incoming sewer drain). Water surface will be recorded and re-measured after 24 hours. No change in water surface will be permitted. Any leakage will require locating the source of the leak and providing a seal as per the manufacturer's recommendations, followed by retesting until the unit is determined to be free of leakage.

Abandon existing sanitary disposal structure
Completely pump out liquid and waste solids from the existing structure. Excavate, remove and dispose offsite the structure top and walls within 915 mm of the finished grade surface at a landfill permitted to accept it. The cavity is to be filled with select granular fill (NYSDOT Item 203.07) and compacted in minimum 300 mm lifts. The MCDOH is to be contacted prior to this work to allow them to witness this work. The dimensions and materials of this structure are unknown.

METHOD OF MEASUREMENT

The work of this item will be measured as a lump sum unit of work.

BASIS OF PAYMENT

The lump sum price bid shall include the cost of all labor, materials and equipment required to complete the work of this item.