SECTION 10529

FIRE SUPPRESSION TANKS

10529.01 GENERAL

A. Description

Fire suppression tank installation shall include, but not necessarily be limited to, furnishing and installing tanks, concrete anchors, tank bedding material, piping, hose connections, and pipe guard rail at the locations shown on the Plans and in accordance with the Contract Documents.

B. Related Work Included Elsewhere

1. Trench excavation, backfill, and compaction; Section 02250.

2. Cast-in-place concrete; Section 03300.

C. Quality Assurance

1. Materials

   The Engineer will inspect all materials before and after installation to ensure compliance with the Contract Documents.

2. Field Tests

   a. After installation, but before the tank is backfilled, the tank and suction pipe shall be air tested by the Contractor. The Contractor shall furnish all labor, tools, materials, and equipment (except gauges and timers which will be furnished by the County) necessary to perform the specified test.

   b. The Contractor shall cap or plug all tank connections and shall pressurize the tank and suction pipe and fittings to 5 psi. This pressure shall be held without introduction of additional air for at least 20 minutes during which time the Engineer will check for leaks using a solution of detergent and water. Any component found to be leaking shall be repaired by the Contractor.

D. Submittals

Shop drawings shall be submitted as specified in the "General Provisions" for the tank and shall include product information, dimensions, location and size of outlets, material, and handling and installation recommendations.

10529.02 MATERIALS

A. Materials Furnished by the County

The County will not furnish any materials for fire suppression tank installation.

B. Contractor's Options

The Contractor may furnish steel or fiberglass reinforced plastic tanks.

C. Detailed Material Requirements

1. Portland cement concrete for tank anchorage shall be Mix No. 3, and shall be Mix No. 1 for piping slab and pipe rail anchors, as specified in Section 03310.

2. Granular bedding beneath the tank shall meet the gradation requirements of AASHTO M 6, as specified in Section 02651.02.

3. Galvanized pipe and fittings shall be as specified in Section 02552.02.

4. Fill Connection

   Brass hose reducer with cap and chain shall be 3 inch diameter iron pipe thread by 2-1/2 inch diameter national standard threads with rough brass finish. Hose reducer shall be Allenco No. 93, or equal.

5. Suction Connection

   Brass double male hose nipple with pin lug cap and chain shall be 5 inch diameter iron pipe thread by 4-1/2 inch diameter Baltimore City Standard threads with rough brass finish. Male hose nipple shall be Allenco No. 3938, or equal.

6. Tanks

   a. General

      Tanks shall be either 5,000 or 10,000 gallon capacity as indicated in the Contract Documents, and designed for direct burial. Tanks shall be furnished with inlet, outlet, and vent pipe connections as shown on the Standard Details. Tanks shall be designed and constructed to meet the following conditions:

      1) Internal air test pressure of 5 psi for a minimum of 20 minutes, without external support.

      2) External earth loads at 120 pounds per cubic foot from buried installation plus an AASHTO H 20 live load plus 50% impact with

the tank full, partially full, or empty, whichever results in the most severe stresses on the tank.

b. Steel tanks shall be manufactured of minimum 3 gage steel, continuously electric-arc welded, and shop painted with two coats of black asphaltum paint.

c. Fiberglass reinforced plastic (FRP) tanks shall be manufactured in accordance with the appropriate requirements of Voluntary Product Standard PS-15-69 as published by the United States Department of Commerce and shall have an inner resin layer that, when cured, shall not be toxic nor impart any taste or odor to potable water.

10529.03 EXECUTION

A. General

Tanks shall be handled and installed in accordance with the tank manufacturer's recommendations and as specified herein. Should there be a discrepancy between the manufacture's recommendations and these specifications, the more restrictive method shall govern.

B. Tank Installation

1. Excavation and foundation preparation shall be as specified in Section 02250.03.

2. Cast-in-place concrete anchor shall be installed as specified in Section 03300 and as shown on the Standard Details.

3. Tanks shall be installed on a compacted bed of granular material in accordance with the Standard Details. Tanks shall not be filled with water until after they have been completely backfilled.

4. Tanks shall be backfilled with clean earth, free from stones larger than 2 inches in the largest dimension or ashes or other corrosive substances. Backfilling and compaction shall be in accordance with the tank manufacturer's instructions and as follows:

   a. Place backfill material around the tank to a maximum loose depth of 8 inches. While the first layer is being placed, the Contractor shall carefully and thoroughly push the material completely beneath the tank and between ribs and hold-down straps to provide continuous support.

   b. The Contractor shall compact each layer with at least four passes by a vibratory sled-type compactor weighing not less than 150 pounds.

c. Backfill shall be brought up evenly on all sides of the tank until the top of the tank is reached. The remaining backfill and compaction shall be in accordance with Section 02250.03. Compaction density in the vicinity of the pipe connections shall be 95% when measured in accordance with AASHTO T 99. Moisture shall be within 2% of optimum.

5. Piping shall be installed as shown on the Standard Details and in accordance with good plumbing practice. After installation, the suction, vent, and fill pipe and non-brass fittings shall be painted with two coats of rust preventative orange paint as manufactured by Rustoleum, or equal.

10529.04 METHOD OF MEASUREMENT

Measurement for furnishing and installing fire suppression tanks will be made for the number and size satisfactorily installed as shown on the Plans or directed by the Engineer.

10529.05 BASIS OF PAYMENT

A. General

1. Payment will be made at the unit price bid. The price bid shall include furnishing all labor, tools, equipment, and materials necessary to satisfactorily complete the work as shown and specified in strict accordance with the Contract Documents, and accepted by the Engineer.

2. The price bid for furnishing and installing fire suppression tanks shall include the following:

   a. Excavation and backfill as specified in Section 02250.

   b. Furnishing and installing granular bedding material, tie down straps and concrete anchors as shown on the Standard Details or elsewhere in the Contract Documents.

3. Payment will be made for contingent items when ordered by the Engineer. Payment will be as specified in Sections 02951, 02952, 02953, 02954, 02955, 02956, and 02957.

B. Fire Suppression Tanks

Payment for furnishing and installing fire suppression tanks complete and operational will be made per tank for the total number placed. The price bid shall include the handling of the tank to and into the excavation; furnishing and installing suction, vent, and fill pipe, and 2 inch pipe rail; the testing and painting of the complete installation; and all items necessary to satisfactorily complete the work.