

SECTION 2260 - FIRE PROTECTION AND PRESSURE REDUCING VALVE PITS

PART 1 - GENERAL

1.1 SCOPE OF WORK:

Provide all labor, materials, equipment and services required to furnish and install fire protection pits and detector check-backflow preventers for fire protection service.

1.2 SUBMITTALS:

- A. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the ENGINEER for review before ordering. Comply with provisions of Section 1010.
- B. At the time of submission, the CONTRACTOR shall, in writing, call ENGINEER's attention to any deviations that the submittals may have from the requirements of the ENGINEER's Contract drawings and specifications.

PART 2 - PRODUCTS

The following are minimum requirements, where locations, soil conditions, groundwater, or similar conditions dictate. Pit walls are to be 8" thick reinforced concrete. Top slab shall be 8" thick reinforced concrete. Pit floor shall be 6" thick concrete.

Concrete: All concrete used for the pit walls, floor and top shall be ODOT Class C and shall be composed of one part cement, two parts sand and three parts aggregate by weight and a maximum water to cement ratio of 0.50. Concrete shall be protected from loss of moisture for a curing period of at least 7 days.

Reinforcing Steel: All reinforcing shall be a minimum #4 steel rod, free from dirt, oil, grease or avoidable rust. It shall be cleaned and free of loose rust.

Waterproofing: "Thoroseal", U.S. Chemical Tarmastic #102, Koppers Bitumastic Super Service Black, Damchex "Amercoat" #78, or approved equal. The annular void between pipes and chamber walls shall be sealed with "modular mechanical seals with rubber links, pressure plates and related hardware--equal to PSI-Thunderline/Link-Seal", or an approved equal.

Drain: The pit floor drain casting shall have a 4" outlet and a raised or beehive dome grate similar to the Wade #1634, East Jordan #6104-N, or approved equal.

2.1 CONSTRUCTION:

- A. **Concrete Construction:** Before concrete is placed, the forms, reinforcement, water stops, and anchor bolts, shall be rigidly secured in proper position.

All dirt, mud, water, debris, and other foreign matter shall be removed from the space to be occupied by the concrete. Concrete shall be deposited and compacted into the wall form space.

The top slab shall be installed on top of the pit walls and the joint sealed with bituminous mastic such as "Conseal" strips or other approved material. The slab and lid shall be set to the finished grade or higher.

- B. **Reinforcing Steel:** Reinforcing steel shall be securely held in place during the concrete installation and in no case shall reinforcing steel be driven or forced into the concrete after it has taken its initial set.

The reinforcing steel in the top slab shall be located two inches (2") from the bottom surface of the slab, at least 12" on center, both ways. Two feet (2') long rods shall be placed in the top and bottom of the slab diagonally at the corners of the lid opening.

- C. **Drain:** Each pit shall be drained by means of a 4" drain leading to a storm sewer, ditch, or a gravel filled sump well 3' x 3' x 3'. The pit floor shall be sloped toward the drain in the corner opposite the lid.
- D. **Waterproofing:** The exterior side of pit walls shall be waterproofed with two coats of one of the above referenced materials, applied in accordance with manufacturer's recommendations.

2.2 METER PIT LIDS AND ACCESSORIES:

- A. Meter pit lids shall be composed of 0.25-inch (1/4") thick aluminum rated at 150 pounds per square foot (rated for an H-20 loading in traffic bearing situations). Lids shall be affixed with stainless steel hinges and hardware and shall be a minimum of 4' x 4' centered over the meter and/or backflow device. A retractable handle constructed of stainless steel shall be furnished with each lid such that when the lid is closed, there shall be no protrusions above the lid level.
- B. The channel frame shall be 1/4-inch minimum aluminum with anchor flange around the perimeter with a drain into the meter pit.
- C. Factory finish shall be mill finish with bituminous coating applied to the exterior of the frame.
- D. Each lid shall be furnished with a stainless steel snap lock with gasketed, threaded cover plug and removable key wrench, and a stainless steel hold-open arm with release handle for securing the lid in a 90 degree open position. Also, compression-spring operators enclosed in telescopic tubes shall be provided for smooth, easy and controlled door operation throughout the entire arc of opening and closing.
- E. Each lid shall have a 2" diameter hole near the hinged side. One (1) hole if Fire Service only and two (2) holes if Domestic Meter is incorporated.
- F. Aluminum meter pit lids shall be Bilco model #J-4AL or Halliday model W1S3636, or approved equal.

2.3 PITS IN PARKING AREAS:

Wherever possible pits should not be located in a driveway or parking area. Pits constructed in parking areas shall have a guard post set in the ground at each corner of the roof slab, or have the roof slab raised more than six inches (6") above ground level to prevent parking on the pit. Pits subject to traffic loads shall be equipped with lids rated for an H-20 loading.

2.4 PIPE AND FITTINGS:

Pipe and fittings shall be in accordance with Sections 2110, 2410, 2420, 2450, and other applicable sections of these specifications. Valves, fittings and nipples for gauges, test tees and detector check assemblies shall be brass.

2.5 CONNECTION TO WATER MAIN:

A gate valve must be provided at the connection to the water main. Gate valve shall meet the requirements of Section 2220. Connection by wet tapping shall meet the requirements of Section 2250.

2.6 DOUBLE DETECTOR CHECK BACKFLOW PREVENTERS:

Backflow prevention device shall be Watts Model #709-DCDA, Ames model #3000 DCDA, or approved equal. The bypass line on the DCDA backflow device shall be 3/4" or 1" (as per manufacturer), with a meter (furnished by Butler County) and a Watts Model #709, or equal, backflow device the same size as the bypass

line. Backflow prevention shall be in accordance with Butler County Department of Environmental Services Backflow Prevention Regulations.

2.7 REMOVABLE METAL LADDER:

The removable metal ladder shall be an approved OSHA Type I industrial-heavy, 250 pound rating ladder that meets the American National Standards Institute safety code for portable metal ladders, ANSI A14.2 (latest revision). Ladder shall be Halliday model #L-1B with a series L1E safety post attachment, or approved equal. The ladder shall be bolted to the interior wall using stainless steel fasteners and extend from the pit floor to the bottom of the pit access opening.

PART 3 - BASIS OF PAYMENT

Payment for fire protection pits shall be made at the Contract unit price each, complete in place, which price shall include construction of the pit, furnishing and installing all material and equipment, all labor, backfilling, and all installation requirements for connection to the main.

END OF SECTION