

SECTION 2240 - FIRE HYDRANTS

PART 1 - GENERAL

1.1 SCOPE OF WORK:

Provide all labor, materials, equipment and services required to furnish and install all fire hydrants and appurtenances shown on the drawings and/or specified herein.

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.
- 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.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

- A. Gate Valves: Section 2220

PART 2 - PRODUCTS

2.1 FIRE HYDRANTS:

- A. The CONTRACTOR shall furnish and install fire hydrants and auxiliary gate valves where shown on the Drawings or as directed by the ENGINEER. Hydrants shall conform in all respects to the most recent requirements of AWWA C502. Hydrant barrel shall have safety breakage feature above the ground line. All hydrants shall have 6-inch mechanical joint shoe connection, two (2) 2-1/2-inch discharge nozzles, and one (1) 4 1/2-inch pumper nozzle with rubber gasketed caps fitted with cap chains. Cap nuts are to be standard 1 1/2-inch pentagon. Connection threads shall be National Standard Thread. Main valve shall have 5-1/4-inch full opening and be of the compression type opening against water pressure so that valve remains closed should barrel be broken off.
- B. Hydrants shall be fully bronze mounted. Main valve shall have a threaded bronze seat ring assembly of such design that it is easily removable by unscrewing from a threaded bronze drain ring. Bronze drain ring shall have multiple ports providing positive automatic drainage as the main valve is opened or closed. Drainage waterways shall be completely Buna-N rubber or bronze to prevent rust and corrosion.
- C. The operating nut shall be standard 1 1/2-inch pentagon, bronze or bronze with a ductile iron cap, and mounted so that a counter clockwise motion will open the valve. There must be cast on top an arrow and the word "Open" indicating the direction of turn to open the hydrant.
- D. Operating stem shall be equipped with anti-friction thrust bearing to reduce operating torque and assure easy opening. Stop shall be provided to limit stem travel. Stem threads shall be enclosed in a permanently sealed lubricant reservoir protected from weather and the waterway with O-ring seals.
- E. Hydrants shall be shop tested to 400-psi pressure with main valve both opened and closed. Under test, the valve shall not leak, the automatic drain shall function and there shall be no leakage into the bonnet.
- F. Type of shoe connection shall be mechanical joint and size shall be six inches (6").

- G. Hydrants shall be factory painted with at least two (2) coats of High-Visibility Yellow enamel paint (DuPont 96-Y-23663 or approved equal). ENGINEER shall approve hydrant color prior to installation. Field-painted hydrants will not be accepted; however, minor touch-ups with the specified paint will be acceptable.
- H. Hydrants shall be U.S. Pipe Metropolitan 250, Kennedy Model K81-D, Mueller Super Centurion 250, or American Flow Control Model B-62-B.

2.2 SETTING OF FIRE HYDRANTS

A. Location:

1. Hydrants shall be located as shown or as directed so as to provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians.
2. When placed behind the curb, the hydrant barrel shall be set in accordance with the Butler County standard street section.
3. When set in the lawn space between the curb and the sidewalk or between the sidewalk and the property line, no portion of the hydrant or nozzle cap shall be within six inches (6") of the sidewalk.

B. Position:

All hydrants shall be set plumb with not less than two (2) cubic feet of crushed stone and shall have their nozzles parallel with the roadway, with the pumper nozzle facing toward the roadway. Hydrants shall be set to the established grade, with nozzles at least eighteen inches (18") above the ground, as shown or as directed by the ENGINEER.

C. Installation:

Fire hydrants shall be lifted with cloth slings or by other means that will prevent scratching, chipping, or otherwise damaging the paint. Bedding, backfill, and other materials shall be carefully placed around fire hydrants without dumping materials directly onto the hydrants. Hydrants may be adjusted to grade using risers but adjustments will be limited to a maximum of two feet.

D. Connection to Main:

Each hydrant shall be connected to the main with a six-inch (6") restrained joint ductile iron branch controlled by an independent six -inch (6") gate valve, unless otherwise specified.

E. Hydrant Drainage in Pervious Soil:

1. Whenever a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing uncrushed course aggregate (AASHTO M-43) No. 57 from the bottom of the trench to at least six inches (6") above the drain opening in the hydrant and to a distance of one foot (1') around the elbow. No drainage system shall be connected to a sewer.

F. Hydrant Drainage in Impervious Soil:

Whenever a hydrant is set in clay or impervious soil, a drainage pit two feet (2') in diameter and three feet (3') deep shall be excavated below each hydrant and filled compactly with uncrushed course aggregate (AASHTO M-43) No. 57 under and around the elbow of the hydrant and to a level of six inches (6") above the drain opening. No drainage pit shall be connected to a sewer (see Standard Details).

2.3 ANCHORAGE:

A. Anchorage for Hydrants

The bowl of each hydrant shall be tied to the pipe with suitable anchor couplings, as shown or directed by the ENGINEER (see Standard Details).

2.4 HYDRANT WRENCHES:

One (1) hydrant wrench shall be furnished for each ten (10) hydrants or less. When the number of hydrants furnished and installed exceeds twenty-five (25), one (1) hydrant repair kit shall be supplied at no additional cost to the OWNER.

PART 3 - BASIS OF PAYMENT

Payment for furnishing and installing the fire hydrant, including concrete blocking and crushed stone drain, will be made at the Contract unit price each, complete in place. Auxiliary gate valves for fire hydrants will be paid for separately under the bid item for 6" Gate Valves. Payment will not be made under this item for fire hydrants to be relocated. Payment for fire hydrant relocations shall be included in the cost of the pipe unless a separate bid item is included on the proposal forms.

END OF SECTION