

## DIVISION 42

### PIPING, VALVES & FITTINGS

**42.01 SCOPE:** The work in this section includes the furnishing of all labor, materials, equipment and other incidentals to provide the piping, valves and fittings for the pumping station in accordance with the Contract Documents.

**42.02 MATERIALS:**

A. Pipe and Fittings:

1. Ductile iron pipe shall conform to the requirements of Section 33.02A, except as noted below:
  - a. All pipe to be flanged in accordance with AWWA C115. All flanges to be ductile iron.
  - b. Non-submerged, interior piping shall be prime coated in accordance with Division 41. Submerged interior pipe and all buried exterior pipe shall be either asphaltic or epoxy coated on the outside.
  - c. Fittings shall be flanged in accordance with AWWA C115.
  - d. Gaskets shall be one-eighth (1/8") inch thick and similar to Durable Garlock.
  - e. Interior coating on all pipes shall be asphaltic with no cement lining.
2. Copper Pipe:
  - a. Exterior shall conform to the requirements of Division 33.04 A.3.A.
  - b. Interior shall be Type-L Hard conforming to ASTM 8-88. Fitting shall be sweat-type, unless otherwise noted.
3. Plastic pipe shall conform to the requirements of AWWA C-901 and shall be straight.
4. Galvanized pipe shall be of the hot-dipped type in accordance with ASTM A-53.

B. Valves:

1. Gate valves shall conform to the requirements of Section 34.02, except as noted below:
  - a. All interior valves shall be wheel-operated.
  - b. Interior valves with operating nuts more than 48 inches below finished grade (gravity sewer influent valve) shall be equipped with extensions fastened to the operating nut and shall have an operating nut on top of the extension not more than 18 inches below grade.
  - c. All interior non-submerged valves shall be prime coated in accordance with Division 41.
  - d. All interior submerged valves and all exterior valves shall receive the manufacturer's standard coating.
2. Check valves shall be horizontal swing, full-opening iron body bronze mounted, weighted lever check. Valves with flanged ends as manufactured by Darling, or approved equal. The lever counterweight shall be adjustable and shall cause positive closing at pump shutoff.

C. Pipe Sleeves: Provide cast or ductile iron wall sleeves as shown on the plans or whenever a pipe passes through the floor, roof slab or walls. Sleeves shall be of sufficient size to allow free passage of the pipe. Ends of sleeves are to be flush with slab and wall surfaces. All paint shall be removed before installation to insure watertight seal on exterior of sleeve. Sleeve shall be caulked around pipe to prevent leakage.

D. Wall Pipe: Provide wall pipe as shown on the plans wherever ductile iron pipe passes through the floor, walls or ceiling of the station. Wall pipe shall conform to the requirements of AWWA C-110. All paint to be removed from exterior prior to installation so as to prevent leakage.

E. Pipe Hangers, Inserts and Supports: Heavy adjustable wrought iron or malleable iron pipe hangers shall be provided. Hanger rods shall be of wrought iron, sized as noted:

<u>Pipe Diameter</u>	<u>Rod Diameter</u>
≤ 2 inch	$\frac{3}{8}$ "
2½ to 4 inch	$\frac{1}{2}$ "
6 inch	$\frac{5}{8}$ "
≥ 8 inch	$\frac{3}{4}$ "

- F. Hose Bib: Shall be Crane #438 valve or approved equal with male hose threads for 3/4" hose connection.
- G. Backflow Preventer:
  - 1. Pressure type vacuum breaker shall be Watts No. 800 or approved equal;
  - 2. Hose bib vacuum breaker shall be Watts No. 8 or 8A or approved equal.
- H. Shop Drawings: Shall be submitted for all materials provided under this section.

**42.03 INSTALLATION:**

- A. Horizontal Overhead Runs of Pipe shall be hung with pipe hangers not more than six feet apart. Use hook hangers fastened with expansion screws to walls to support piping running adjacent to walls. Hanger rods to be provided with adjustable swivel pipe rolls. Vertical run supports shall not be spaced more than 10 feet apart.
- B. Valves shall be installed plumb unless otherwise shown on the plans.
- C. All Joints shall be firmly bolted with flanges aligned.

**42.04 MEASUREMENT AND PAYMENT:** Piping, valves, fittings and appurtenances will not be measured but are included in the lump sum bid price for the pumping station.