

02510 - WATER DISTRIBUTION

(Last revised X/XX/XX)

This division contains 56 pages!

SELECTED LINKS TO SECTIONS WITHIN THIS SPECIFICATION

Part 1- General	Hydrant Bagging	Ram-Nek plastic joint sealant
Part 2 – Products	Fire Hydrant-Spec	Steel Encas't Pipe-Install
Part 3 - Execution	Fire Hydrants-Setting	Steel Encasement Pipe-Spec
Air Release Valve-Spec	Gate Valves-Spec	Sterilization
Backflow Preventers	1 ½" & 2" Service-Spec	Small Service Connections-Spec
Butterfly Valve-Spec	Meter Boxes, Small-Spec	Tunneling Method
Check Valve-Spec	Meters	Tunnel Liner - Spec
Ductile Iron Pipe - Spec	Parallel Pipe-Clearances	Tapping Sleeve & Valve-Spec
DIP-Installation	Pipe Crossing Clearances	Vault Access Frames-Spec
DIP Fittings	Pipe Separation Req'ts	Valve Boxes-Spec
DIP Joints	Pressure Test & Leakage	Valves-Settings
Fire Hydrant Painting	PVC Pipe Spec	

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General Requirements and Supplementary Conditions apply to this specification.
- B. Section 02275 – TRENCHING, BACKFILLING AND COMPACTION OF UTILITIES.

1.2 SUMMARY

This section includes all equipment, labor, material, and services required for complete installation of water distribution piping and specialties for municipal water and fire-service mains and services.

1.3 DEFINITIONS

For the purposes of this specification, the following definitions refer to water distribution systems that come under the authority of the City of Jacksonville as specified within this and other sections of this manual.

- A. **Fire Service:** Exterior fire fighting/suppression water piping.
- B. **The City's Engineer:** The Project Engineer or his or her authorized representative.
- C. **The City Engineer:** The City Engineer or his or her authorized representative

- D. **Water Main:** Exterior water systems for both domestic water and fire suppression needs.
- E. **Water Service:** Exterior water piping used to provide water for domestic purposes.

The following are industry abbreviation for various pipe materials:

- A. **AC:** Asbestos Cement Pipe
- B. **CI:** Cast Iron Pipe
- C. **DIP:** Ductile Iron Pipe
- D. **HDPE:** High Density Polyethylene Pipe
- E. **RCP:** Reinforced Concrete Pipe
- F. **PVC:** Poly Vinyl Chloride Plastic Pipe

1.4 SUBMITTALS

- A. Submit product data for the following:
 - 1) Pipe and Fittings
 - 2) Valves and accessories.
 - 3) Water meters and accessories.
 - 4) Detector Check Valves
 - 5) Backflow preventers and assemblies.
 - 6) Fire Hydrants.
 - 7) Fire Department Connections.
- B. Submit shop drawings for:
 - 1) Precast concrete vaults including frames and covers, drains, access hatches, wall sleeves, valve support stands, prefabricated above ground vaults, and backflow prevention devices.
 - 2) Upon request, valve manufacturers shall furnish certified copies of test reports.
 - 3) Any product submitted as an "or approved equal" that is not specifically specified in this specification.

1.5 QUALITY ASSURANCE

- A. Materials and operations shall comply with the latest revision of all applicable Codes and Standards.
- B. Piping materials shall be marked clearly and legibly.
 - 1) Ductile Iron Pipe shall show identification marks on or near bell as follows:
 - a. Weight,
 - b. Class or nominal thickness,
 - c. The letters "DI" or "Ductile,"
 - d. Manufacturer's identifying mark,
 - e. Year in which pipe was made,

- f. Casting period.

PART 2 – PRODUCTS

2.1 PIPE AND FITTINGS

2.1.1 DUCTILE IRON PIPE

Ductile iron pipe shall be manufactured in accordance with all applicable requirements of AWWA C151/ ANSI A21.51 for 4-inch and larger diameter pipe, pressure class rated, Class 350, minimum (See Design Section) and shall be in 18 or 20-foot lengths. The thickness of Ductile Iron Pipe shall be determined by considering trench load and internal pressure (*the pressure zone and variances in which the pipe will be used*) separately in accordance with AWWA C150/ANSI A21.50.

The interior of the ductile iron pipe shall be cement mortar lined in accordance with AWWA C104/ANSI 21.4. The outside coat shall be a minimum of 1-mil coal tar varnish according to AWWA C151/ANSI A21.51 Section 51-8.1. Pipe shall be stamped as required by AWWA C151.

Each joint of ductile iron pipe shall be hydrostatically tested before the outside coating and inside lining are applied at the point of manufacturer to 500 psi. Testing may be performed prior to machining bell and spigot. Failure of ductile iron pipe shall be defined as any rupture or leakage of the pipe wall.

All materials used in production of the pipe are to be tested in accordance with AWWA C151 for their adequacy within the design of the pipe, and certified test results are to be provided to the City of Jacksonville upon request. All certified tests, hydrostatic and material are to be performed by an independent testing laboratory at the expense of the pipe manufacturer.

Push-on and mechanical joint pipe shall be as manufactured by the American Cast Iron Pipe Company, United States Pipe and Foundry Company, or Griffin Pipe Products Company.

Pipe shall be furnished complete with accessories per AWWA C111/ANSI A21.11.

C. Ductile Iron Joints

Pipe joints may be either mechanical joint or push-on pipe sizes 6 inches through 48 inches. Acceptable types of pipe joints are as follows:

- 1) **Push-on Joint, Ductile Iron Pipe** shall conform to AWWA C151/ANSI A21.51 (such as "Fastite," "Tyton," or "Bell-Tite."). The dimensions of the bell, socket, and plain end shall be in accordance with the manufacturer's standard design dimensions and tolerances. The gasket shall be of such size and shape to provide an adequate compressive force against the plain end and socket after assembly to