

SECTION 02510
WATER DISTRIBUTION AND PIPING

PART 1 - GENERAL

RELATED SECTIONS

- A Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section.

DESCRIPTION OF WORK

- A Extent of water service piping work is shown on the drawings.
- B Exterior water service distribution includes, but is not limited to, the following.
 - Water main and service piping
 - Control valves
 - Fire hydrants
 - Water meters
 - Backflow preventers
 - Emergency water distribution system
- C Comply with requirements of Division 2, Section 02310 – Earthwork, for excavation and backfilling required in connection with exterior water service piping.
- D Comply with requirements of applicable Division 3 sections for concrete work required in connection with exterior water service piping.
- E. Comply with all City of Melbourne requirements.

lined in accordance with AWWA C-104, with flanged fittings complying with AWWA C-110 and AWWA C-115, and rubber gaskets complying with AWWA C-111.

B Lining: All ductile iron pipe and fittings shall be cement-mortar lined and seal coated in conformance with ANSI A-21.4.

C Joints: Pipe joints shall be mechanical or push-on joints, except where specifically shown or detailed otherwise.

D Pipe Fittings: All fittings 4" in diameter and larger shall be ductile iron with mechanical or push-on joints and shall conform to ANSI A-21.10 (AWWA C-110) for short body fittings with a 250 psi pressure rating for fittings up to 12" in diameter.

E Mechanical Joint Fittings: Mechanical joint ductile iron fittings shall conform to ANSI/AWWA C-110/A-21.10 and ANSI/341(up to 12")-5.04469(i)-4.60948(78.26.34967(I)0.891

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PRESSURE PIPE (UNDER 4")

- A Polyvinyl chloride (PVC) pressure pipe shall be Schedule 40 conforming to ASTM D-1785 or SDR 26 conforming to ASTM D-2241 with cement-solvent welded joints or push on elastomeric joints. Mark pipe with "NSF-PW" according to NSF14.

CONTROL VALVES

- A General: Provide valves and flow control devices as indicated. All valves shall be furnished with mechanical joint ends.
- B Minimum working pressure, 200 psi unless otherwise indicated.
- C Gate Valves (4" and larger): Resilient seat type with non-rising stem, cast iron body and bronze fittings conforming to AWWA C-500. Gate valves located on fire protection mains must be FM approved.
- D Valve Boxes: Shall be of cast iron with adjustable top. The size shall be large enough for operation of the valve on which it is used with a minimum shaft diameter of 5-1/4". The cover shall have the word "water" cast on it.
- E Gate Valves (Smaller than 4"): Shall be non-rising stem, handwheel operated, wedge discs, all bronze with flanged ends, conforming to Fed. Spec. WW-V-54, Class B, Type 1. For below ground installation, valves shall be furnished with mechanical joint ends or iron pipe thread and 2" square operating nut.
- F Thrust Blocks: Thrust blocking or mechanical pipe joint restraints shall be provided as necessary to prevent movement of pipe or piping system appurtenances in response to thrust exerted by water under pressure. The size and shape of the thrust blocking or the number and details of pipe joint restraints shall be as shown on the drawings and standard details. All mechanical restraints shall be galvanized or otherwise rustproofed as approved by the Engineer.
- G Meter: Water meter and backflow preventer assemblies shall be in accordance with the **City of Melbourne Engineering Standards**.

Air release valves shall be cast iron body and cover, stainless float with brass seats conforming to AWWA C-512.

- EMERGENCY WATER DISTRIBUTION SYSTEM (WHEN REQUIRED)

- A Provide a 10,000-gallon black steel ASME approved tank. Minimum inlet and outlet piping

- A General: Install water piping system in compliance with local governing regulations.
- B Water Service Piping: Extend water service piping of size and in locations indicated to water service entrance at buildings. Provide sleeve in foundation wall for water service entry; make entry watertight.
- C Polyvinyl Chloride (PVC) Pipe and Fittings: Install in accordance with Uni-bell Handbook of PVC Pipe.
- D Ductile Iron Pipe: Install in accordance with AWWA C-600.
- E Control Valves: Install in accordance with manufacturer's instructions.
- F Fire Hydrant Assemblies, Meters and Reduced Pressure Backflow Preventers: Install in accordance with the City of Melbourne Utilities Department Construction Standards and Details requirements.
- G Interior Inspection: Inspect conduit to determine whether line placement or other damage has occurred.

If the inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects to satisfaction of Architect/Engineer.

Cleaning Conduit: Clear interior of conduit of dirt and other superfluous material as work progresses. Cleaning shall be accomplished by flushing and pigging with polyurethane foam pig. Each section of pipeline shall be thoroughly cleaned twice with one pig in the presence of the engineer. Flush lines after pigging until water runs clear. Place plugs in end of uncompleted conduit at end of day or whenever work stops.

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Disinfection: At completion of water service line installation, flush and disinfect in conformance with AWWA C-651, to the satisfaction of local authorities having jurisdiction.

TESTING

- A Hydrostatic and Leakage Test: All site water distribution piping shall be tested after installation. Ductile iron pipe shall be tested in accordance with the applicable portions of AWWA Standard C-600, and PVC pipe shall be tested in accordance with the applicable portions of AWWA Standard C 603. Acceptable leakage must be less than the number of gallons per hour as determined by the formulas in AWWA C-600 and C-603.
- B The potable water lines shall be tested to 150 psi test pressure and the fire line shall be tested to 200 psi test pressure, both for two (2) hours duration. All gauges and appurtenances necessary shall be furnished by the Contractor. All leaks shall be repaired by removing and replacing defective pipe and joints with pipe and joints free of defects, after which the lines shall be retested. Such repair and retesting shall be done until the lines pass the specified test.
- C All valves shall be hydrostatically tested with the line in which they are installed.

