

STANDARD SPECIFICATION
SECTION 15081 WATER SERVICE ASSEMBLIES

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes materials, installation, and testing of water service assemblies. Assemblies shall be installed at the locations as shown on the Drawings or as established in the field by the District's Representative. Meter boxes shall not be located in paved roads, driveways, sidewalks, or walkways.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Standard Drawings.
- B. Record Drawings and Submittals: STD SPEC 01300.
- C. Trenching, Backfilling, and Compacting: STD SPEC 02223.
- D. General Concrete Construction: STD SPEC 03000.
- E. Miscellaneous Metalwork: STD SPEC 05121.
- F. Painting and Coating: STD SPEC 09900.
- G. Cold Applied Wax Tape Coating: STD SPEC 09952.
- H. Polyethylene Sheet and Tube Encasement: STD SPEC 09954.
- I. Corrosion Control for Buried Piping: STD SPEC 13110.
- J. Steel Transmission Pipe: STD SPEC 15061.
- K. Miscellaneous Piping Specialties: STD SPEC 15080.
- L. Resilient Seated Gate Valves: STD SPEC 15101.
- M. Disinfection of Piping: STD SPEC 15141.
- N. Pressure Testing of Piping: STD SPEC 15144.
- O. Copper Pipe and Tube: STD SPEC 15220.
- P. Ductile Iron Pipe: STD SPEC 15240.
- Q. Polyvinyl Chloride (PVC) Pressure Pipe (AWWA C900): STD SPEC 15292.
- R. Polyvinyl Chloride (PVC) Distribution Pipe (AWWA C905): STD SPEC 15293.

1.03 SUBMITTALS

- A. Submit submittal packages in accordance with Standard Specification Section 01300.
- B. Submit manufacturer's catalog data, descriptive literature, and assembly drawings. Show dimensions, materials of construction by specification reference and grade, and coatings.

1.04 MASONRY RETAINING WALLS

If the meter box or aboveground portion of the assembly is located within a cut slope or embankment fill, a masonry retaining wall shall be constructed on three sides around the box or assembly. Construct the concrete foundation and retaining wall similar to the requirements that San Diego Gas and Electric uses for their facilities. The face of wall shall be a minimum of one foot beyond the outside surfaces of the box or the dimensional values of the concrete pad to be poured for the assembly as shown on the Standard Drawings. Use tan colored slump block and grout each cell solid. Where a meter box has been installed, pour a concrete pad between the box and retaining wall on three sides and extend to the adjacent sidewalk or curb. The concrete pad to be poured around the aboveground assembly shall extend to the face of the three walls and also to the adjacent sidewalk or curb. The District's Representative will decide whether the requirements of this paragraph are being followed by the Contractor. If in the opinion of the District's Representative modifications or changes are necessary, the work shall be performed as directed.

PART 2 - MATERIALS

2.01 GENERAL

After the specified components have been installed by others, the District will furnish and install those items named on the Standard Drawings as part of the water service fee. In general, the District will provide a meter and ball valve. The customer can connect their service line to the ball valve after the District has completed their work. Use a non-metallic pipe nipple at the ball valve.

2.02 SERVICE SADDLES - BRONZE

See Standard Specification Sections 15240, 15292, or 15293 as indicated by the pipeline material shown on the Drawings. Use service saddles for outlets on ductile iron and PVC pressure pipe installations with working pressures of 200 psi or less. Use service saddles for outlets on PVC distribution pipe installations with working pressures of 150 psi or less.

2.03 WELD ON OUTLETS - STEEL

See Standard Specification Section 15061.

2.04 FLANGED OUTLETS

- A. See Standard Specification Sections 15061 and 15240. Use Class 300 flanged outlets for the 2-inch and smaller assemblies on steel pipe and ductile iron pipe installations with working pressures greater than 200 psi, but less than 300 psi. Install a Class 300 cast bronze reducing flange with iron pipe threads and insulating flange kit on the flanged outlet.

- B. See Standard Specification Sections 15061, 15240, 15292, or 15293 as indicated by the pipeline material shown on the Drawings. Use flanged outlets for the 3-inch and larger assemblies. Use Class 150 flanges for working pressures of 250 psi or less. Use Class 300 flanges for working pressure greater than 250 psi, but less than 300 psi.

2.05 INSULATING COUPLINGS

See Standard Specification Section 15080. Use insulating couplings on installations wherever dissimilar metals are connected. Use insulating couplings with service saddles on ductile iron pipe installations with working pressures of 200 psi or less. Use insulating couplings at steel weld on outlets with working pressure of 200 psi or less. Install the insulating coupling to the service saddle with a close brass nipple. Install the insulating coupling to the steel weld on outlet with a close nipple of Type 316 stainless steel.

2.06 CORPORATION STOPS - BRONZE

See Standard Specification Section 15080. Use corporation stops on installations with working pressures of 300 psi or less.

2.07 RESILIENT SEATED GATE VALVES

See Standard Specification Section 15101. Use resilient seated gate valves for the 3-inch and larger assemblies with working pressures of 250 psi or less, and with valve ends as shown in the Standard Drawings.

2.08 INSULATING FLANGE KITS

See Standard Specification Section 13110. Use insulating flange kits on installation wherever ferrous and non-ferrous flanges are connected and will be buried.

2.09 COPPER WATER TUBE AND FITTINGS

See Standard Specification Section 15220. Use copper water tube and brass pipe with the appropriate fittings as shown in the Standard Drawings.

2.10 PVC PRESSURE PIPE (AWWA C900)

See Standard Specification Section 15292.

2.11 DUCTILE IRON PIPE

See Standard Specification Section 15240.

2.12 ANGLE BALL VALVES - BRONZE

- A. For 1-inch services with working pressures from zero to 300 psi, use Ford Angle Ball Meter Valve BA43-444W-Q or District approved equal. Valves shall be bronze (ASTM B 62) with lockwing, inlet quick joint for copper water tube, and meter swivel nut outlet with nut drilled for wire seal.
- B. For 1-1/2-inch or 2-inch services with working pressures from zero to 300 psi, use Ford Angle Ball Meter Valve BFA43-666W-Q and BFA43-777W-Q respectively or District

approved equal. Valves shall be bronze (ASTM B 62) with lockwing, inlet quick joint for copper water tube, and meter flange outlet.

- C. Valve inlets shall have a quick joint for copper water tube. Quick joint shall consist of a threaded nut, an external nut stop, stainless steel gripper ring, and gasket. Gripper rings can only be used once. If the threaded nut of the quick joint is loosen and the angle ball valve is removed from the copper water tube, a new gripper ring shall be used in the reinstallation of the angle ball valve on the copper water tube. Compression or pack joints will not be allowed.

2.13 METER BOXES AND COVERS

- A. Provide a meter box and cover for each water service assembly as shown on the Standard Drawings. In non-traffic areas, provide a precast concrete meter box and a two-piece concrete polymer cover with polymer concrete meter reading lid unless shown otherwise. In traffic areas, provide a precast concrete meter box with a galvanized steel cover designed for traffic loading. For potable water service assemblies, use polymer covers with a natural concrete coloration. For recycled water service assemblies, use polymer covers that have a purple color added to the polymer mix.
- B. For 1-inch services with working pressures from zero to 300 psi, use J&R Concrete Products, Inc. No. W51/2, or District approved equal.
- C. For 1-inch services with dual meters and working pressures from zero to 300 psi, use J&R Concrete Products, Inc. No. W7, or District approved equal.
- D. For 1-1/2-inch services with working pressures from zero to 300 psi, use J&R Concrete Products, Inc. No. W7, or District approved equal.
- E. For 2-inch services with working pressures from zero to 300 psi, use J&R Concrete Products, Inc. No. W7, or District approved equal.

2.14 WAX TAPE COATING

See Standard Specification Section 09952.

2.15 POLYETHYLENE ENCASEMENT

See Standard Specification Section 09954.

2.16 CORROSION CONTROL COMPONENTS

See Standard Specification Section 13110.

2.17 GUARD POSTS

See Standard Specification Section 05121. Provide guard posts around the assembly when directed by the District's Representative to protect the installation.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. See Standard Specification Section 02223 for earthwork requirements. Use imported sand in the pipe base, pipe zone, and under the meter boxes.
- B. Install piping and valves per the instructions contained in the appropriate Standard Specification for the material used.
- C. Piping from the main to the water service assembly shall be placed on a continuous upward grade to avoid pocketing air.

3.02 INSTALLING INSULATING COUPLINGS

Install insulating couplings where dissimilar metals are to be joined. Apply Teflon tape to the outside threads of the close brass or stainless steel nipple before installing the threaded nipple into the 2-inch coupling and service saddle or weld on outlet. Joints shall be watertight.

3.03 INSTALLING WAX TAPE COATING

Wrap insulating couplings where installed on ductile iron pipe steel weld on outlet, and flanged outlets having insulating flange kits with wax tape coating per Standard Specification Section 09952. Wrap the anode lead with pipe clamp where it attaches to the copper tube with wax tape coating to encapsulate the clamp and protect it from the soil.

3.04 INSTALLING POLYETHYLENE ENCASEMENT

Where a service saddle, steel weld on outlet, or flanged outlet is used at the main, the entire saddle or fitting with valve shall be double wrapped with polyethylene material. Wrap ferrous pipe risers including base bends per Standard Specification Section 09954. Complete the wrap prior to placing concrete thrust blocks on base bends. Repair polyethylene material damaged during construction.

3.05 INSTALLING CORROSION CONTROL COMPONENTS

Install insulating flange kits, zinc anodes, and pipe clamps with wax tape coating per Standard Specification Section 13110.

3.06 INSTALLING METER BOXES

- A. Locate all water service assemblies behind the adjacent concrete curb or sidewalk. The District requires the concrete meter boxes and covers to be installed in non-traffic areas.
- B. Place and compact trench backfill and sand cushion under meter box to 90% relative compaction. Set the precast concrete box over the meter valve and place in the alignment shown. Top of box shall be flush with finish grade, top of curb, or sidewalk.

3.07 PLACING CONCRETE

Place concrete anchor blocks around the elbow of the pipe riser. Where a thrust block is required, place concrete against the base bends and undisturbed ground. Allow concrete to set and be hard enough to be self-supporting. Place and compact trench backfill up to the subgrade of the concrete pad on grade. After the District has completed their work and the customer has installed their service line, complete the assembly by pouring a concrete pad on grade around the pipe risers. This pad shall extend for the width specified and for a length that encompasses the entire assembly. Concrete shall be Class C per Standard Specification Section 03000.

3.08 SETTING GUARD POSTS

Position guard posts to protect the aboveground water service assembly. Locate posts as directed by the District's Representative. Excavate a hole 16 inches in diameter by 3-1/2 feet deep for each post. Set posts plumb, fill holes with concrete to 2 inches above finish grade, and crown to slope away from post. Posts shall be embedded a minimum of 3 feet in concrete. Fill posts with grout and crown top. Concrete shall be Class C per Standard Specification Section 03000.

3.09 PAINTING AND COATING

- A. For potable water service assemblies in traffic areas, do not paint the precast concrete meter box cover galvanized steel cover. For recycled water service assemblies in traffic areas, paint the meter box galvanized steel cover per Standard Specification Section 09900, System No. 60. Color of finish coat shall be purple.
- B. Paint aboveground ferrous surfaces of the pipe risers, elbows or bends, valves, and adjustable pipe supports per Standard Specification Section 09900, System No. 20. Color of finish coat shall be OSHA Blue for potable water and purple for reclaimed water.
- C. Paint aboveground surfaces of the guard posts per Standard Specification Section 09900, System No. 20. Color of finish coat shall be OSHA Yellow.

3.10 PRESSURE TESTING

Test water service assemblies at the same time that the connecting pipelines are pressure tested. See Standard Specification Section 15144 for pressure testing requirements. Repair leaks in piping and retest.

3.11 DISINFECTION

See Standard Specification Section 15141 for chlorination requirements.

END OF SECTION