

STANDARD SPECIFICATION
SECTION 15090 BLOW-OFF ASSEMBLIES

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes materials, installation, and testing of blow-off assemblies. Unless otherwise noted on the Drawings, use the 2-inch assembly for pipelines 12 inches and smaller; and, the 4-inch assembly for pipelines 14 inches and larger. Assemblies shall be installed at the locations as shown on the Drawings, behind curbs or sidewalks, at the end of capped pipes, or as established in the field by the District's Representative.

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 or 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. Steel Pipe for Minor Applications: STD SPEC 15253.
- R. Polyvinyl Chloride (PVC) Pressure Pipe (AWWA C900): STD SPEC 15292.

- S. 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, linings and coatings.

1.04 MASONRY

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 SERVICE SADDLES - BRONZE

See Standard Specification Sections 15240, 15292, or 15293 as indicated by the pipeline material shown on the Drawings. Use service saddles with 2-inch outlets on ductile iron and PVC pressure pipe installations with working pressures of 200 psi or less. Use service saddles for 2-inch outlets on PVC distribution pipe installations with working pressures of 150 psi or less.

2.02 WELD ON OUTLETS - STEEL

See Standard Specification Section 15061.

2.03 FLANGED OUTLETS

- A. See Standard Specification Section 15240. Use Class 300 flanged outlets for the 2-inch blow-off assemblies on 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 Section 15061. Use Class 300 flanged outlets for the 2-inch blow-off assemblies on steel 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. See Standard Specification Sections 15061, 15240, 15292, or 15293 as indicated by the pipeline material shown on the Drawings. Use flanged outlets for the 4-inch blow-off assemblies. Use Class 150 flanges for working pressures of 250 psi or less. Use Class 300 flanges for working pressures greater than 250 psi, but less than 300 psi.

2.04 INSULATING COUPLINGS

See Standard Specification Section 15080. Use insulating couplings on installations wherever dissimilar metals are connected. Use insulating couplings with 2-inch service saddles on ductile iron pipe installations with working pressures of 200 psi or less. Use insulating couplings with 2-inch 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.

2.05 CORPORATION STOPS - BRONZE

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

2.06 RESILIENT SEATED GATE VALVES

See Standard Specification Section 15101. Use 6-inch resilient seated gate valves for the 4-inch blow-off assemblies with working pressures of 200 psi or less, and with valve ends as shown in the Standard Drawings.

2.07 BALL VALVES

Use gear box driven flanged ball valves for the 4-inch blow-off assemblies with working pressures greater than 200 psi.

2.08 COPPER WATER TUBE AND FITTINGS

See Standard Specification Section 15220.

2.09 PVC PRESSURE PIPE (AWWA C900)

See Standard Specification Section 15292.

2.10 DUCTILE IRON PIPE

See Standard Specification Section 15240.

2.11 STEEL PIPE FOR MINOR APPLICATIONS

See Standard Specification Section 15253.

2.12 ANGLE VALVES - BRONZE

For 2-inch assemblies, see Standard Specification Section 15080. Valve inlets shall have a fitting to adapt from iron pipe threads to copper. Use solder joint fittings for working

pressures from zero to 300 psi. Valve outlets shall have a cast bronze reducing elbow with close nipple, and bronze extension nipple with male iron pipe threads by male hose threads. Provide plastic hose cap with chain ring and chain. Use James Jones J-341 and J-668, or District approved equal.

2.13 METER BOXES AND COVERS

In non-traffic areas, provide a meter box and cover for each 2-inch blow-off assembly consisting of a precast concrete meter box extension section, and a two-piece polymer concrete cover with a polymer concrete reading lid. Use J&R Concrete Products, Inc. No. W6B, or District approved equal. For potable water assemblies, use polymer covers with a natural concrete coloration. For recycled water assemblies, use polymer covers that have a purple color added to the polymer mix.

2.14 VALVE BOXES AND COVERS

In traffic areas, provide a valve box and cover for each 2-inch blow-off assembly consisting of a frame, lid, and pipe sleeve. Construct frame and lid of cast iron and design for traffic loading. Castings shall be smooth, clean, and free from blisters, blowholes, and shrinkage. Machine bearing surfaces of frame and lid to provide a close fit without rocking. Cast on the lid the words "OMWD" and "WATER" or "RW." Frame and lid shall be South Bay Foundry SBF 1243, or District approved equal. The pipe sleeve shall be 12-inch diameter PVC gravity sewer pipe conforming to ASTM D 3034, SDR 35.

2.15 ANGLE VALVES - BRONZE HYDRANT HEAD

See Standard Specification Section 15080.

2.16 BREAK-OFF RISERS

- A. For working pressures of 250 psi and less, provide pipe spools of the indicated length with flat faced flanged ends. Provide Class 53 ductile iron pipe with Class 150 threaded flanges conforming to Standard Specification Section 15240. Line interior of pipe with cement mortar and provide double thickness (1/8-inch minimum) per AWWA C104. Score one end of the spool 4 inches from the flange face. Cut a V-groove 1/4-inch wide and to a depth of 1/8-inch minimum to 3/16-inch maximum on the pipe exterior.
- B. For working pressures greater than 250 psi, but less than 300 psi, provide pipe spools of the indicated length with flat faced flanged ends. Provide Class 53 ductile iron pipe with Class 300 threaded flanges conforming to Standard Specification Section 15240. Line interior of pipe with cement mortar and provide double thickness (1/8-inch minimum) per AWWA C104. Score one end of the spool 5 inches from the flange face. Cut a V-groove 1/4-inch wide and to a depth of 1/8-inch minimum to 3/16-inch maximum on the pipe exterior.

2.17 WAX TAPE COATING

See Standard Specification Section 09952.

2.18 POLYETHYLENE ENCASEMENT

See Standard Specification Section 09954.

2.19 CORROSION CONTROL COMPONENTS

See Standard Specification Section 13110.

2.20 MARKER POSTS

Provide a marker post for each 2-inch blow-off assembly when located in areas where the meter box or valve box would not be clearly visible such as open terrain or cross country. Use construction heart garden grade redwood per Standard Specifications for Grades of California Redwood Lumber issued by the Redwood Inspection Service. Provide seasoned redwood, 4 inches by 4 inches, and surfaced on four sides.

2.21 GUARD POSTS

See Standard Specification Section 05121. Provide two guard posts for each 4-inch blow-off assembly except where assembly is located adjacent to a paved street with concrete curbs.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. See Standard Specification Section 02223 for earthwork requirements. Use imported sand in the pipe base and pipe zone.
- B. Install piping per the instructions contained in the appropriate Standard Specification for the material used.
- C. Piping from the main to the blow-off valve 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 coupling and service saddle or weld on outlet. Joints shall be watertight.

3.03 INSTALLING WAX TAPE COATING

Wrap service saddles including 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.

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 corporation stop or valve shall be double wrapped with polyethylene material. Wrap ferrous pipe, risers, and 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, bond wires, zinc anodes, and pipe clamps with wax tape coating per Standard Specification Section 13110.

3.06 INSTALLING METER BOXES AND COVERS

- A. Where possible, locate all 2-inch blow-off assemblies behind the adjacent concrete curb or sidewalk. The District requires the concrete meter boxes and covers be installed in a non-traffic area, unless otherwise shown or other conditions prevail.
- B. In non-traffic areas, place and compact trench backfill under meter box to 90% relative compaction. Place a 6-inch thick layer of 3/4-inch crushed rock under the meter box. Set the precast concrete box over the angle valve and on the crushed rock bed. Place the box in the alignment shown. Top of box shall be flush with finish grade, top of curb, or sidewalk.

3.07 INSTALLING VALVE BOXES AND COVERS

In traffic area, place and compact trench backfill approximately up to the height of the pipe clamp on the copper water tube. Do not bury the clamp or wire connection. Set the pipe sleeve over the valve assembly and center in place. Maintain the pipe sleeve in a vertical position during backfilling. Slip the valve box frame over the pipe sleeve and adjust both to finish grade. Pour a concrete ring around the valve box frame. Concrete shall be Class C per Standard Specification Section 03000. In paved areas, top of concrete ring shall be 1-inch below finish grade of adjacent surfaces. In non-paved areas, top of valve box frame and concrete ring shall be flush with the natural or finish grade. Where paved, overlay the concrete ring with 1-inch compacted thickness of asphalt concrete pavement. Valve box frame and lid shall be flush with the finish surface of the pavement.

3.08 PLACING CONCRETE

Place concrete anchor block around the elbow of the riser. Where a thrust block is required, place concrete against the elbow and undisturbed ground with the bearing area as shown on the Standard Drawings. Allow concrete to set and be hard enough to be self-supporting. Place and compact trench backfill up to the subgrade of the concrete anchor block. Pour a concrete anchor block below grade around the riser section to force the aboveground grooved spool to break on an impact. Cover the anchor block with backfill material and compact up to the subgrade of the concrete pad on grade. Pour a concrete pad on grade around the break-off riser. Concrete shall be Class C per Standard Specification Section 03000.

3.09 SETTING MARKER POSTS

Locate marker post adjacent to the meter box or valve box or as directed by the District's Representative. Cut redwood post to a 5-foot length and chamfer the top. Paint post per Standard Specification Section 09900, System No. 60. Use white paint for the finish coats and blue or purple paint for the top 4 inches of the chamfered end. Excavate a hole 16 inches in diameter by 2 feet deep. Set the redwood post plumb, fill hole with concrete to 2 inches above finish grade, and crown to slope away from post. On the side facing the meter box or valve box, stencil on the post in 2-inch-high blue or purple letters the word "WATER"

or the abbreviation "RW" and the distance in feet from the marker post to the meter box or valve box. Concrete shall be Class C per Standard Specification Section 03000.

3.10 SETTING GUARD POSTS

Position guard posts to protect the riser pipe and hydrant head in the 4-inch blow-off assemblies. Locate posts 2-1/2 feet to each side and 2 feet in front of the riser pipe. 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.

3.11 PAINTING AND COATING

- A. In traffic areas, paint top side of valve box cover in the 2-inch blow-off assemblies per Standard Specification Section 09900, System No. 20. Color of finish coat shall be OSHA Blue for potable water and purple for reclaimed water.
- B. Paint aboveground surface of the riser pipe, hydrant head, and guard posts in the 4-inch blow-off assemblies per Standard Specification Section 09900, System No. 20. Color of finish coat shall be OSHA Yellow for potable water and purple for reclaimed water except for the guard posts.

3.12 PRESSURE TESTING

Test blow-off 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.

3.13 DISINFECTION

See Standard Specification Section 15141 for chlorination requirements.

END OF SECTION