Section 12

Aerial Crossings

Section 12

Aerial Crossings - New and/or Replacement

12.01 General

A. There are two industry-accepted methods of constructing aerial crossings: ductile iron and welded steel. Joints are usually constructed using flanges or push-on pipe. In the case of ductile iron, flanges are screwed onto the pipe. For steel pipe, all flanges are to be factory welded. No field welding is allowed.

B. Where there is a new or existing utility bridge shelf, the aerial crossing shall be constructed of flanged or push-on Ductile Iron Pipe (D.I.P). The crossing shall be constructed in place on concrete cradles. Pre-assembly of ductile iron pipe and then lifting into place will not be allowed. DIP shall be saw cut only; no torch cutting is allowed.

C. Where there is a bridge hanger installed for the aerial crossing, steel pipe with factory welded flanges shall be used. All flanges are to be joined using 316 stainless steel bolts, nuts and washers. The steel pipe crossing will be preassembled and then lifted into place onto the hangers. If the total span length is such that it cannot be shipped without special conditions, the span shall be constructed in two or more sections having factory-welded flanges on both ends.

12.02 Pipe

A. DIP specifications for ductile iron utility pipe are given in Sections 1 and 4 of the standards.

B. Steel pipe for aerial crossings shall be the size as shown on construction plans and shall be in shop-finished lengths. No field cutting and fitting will be allowed. If no plans are available, it will be specified by the design engineer. If an existing aerial pipe is to be replaced and exact finished length cannot be determined without lifting the steel section into place for measurement, the flanged steel section length will be estimated and assembled leaving it about 3 feet short of the total span length. A 5 to 10 feet section of flanged DIP shall be secured to the end of the steel flange for measurement and cut to fit. The plain end of the DIP will be secured to a mechanical joint fitting using a gasket and mega lug restraint.

C. Pipe shall be seamless carbon steel pipe ASTM A53, Grade B, Schedule 80 with a circumferential weld meeting the requirements of AWWA Standard C200 “Steel Water Pipe 6” and Larger”. Steel Pipe and Flanges (welded to the pipe by the

manufacturer) are to be welded by a certified welder. Flanges are to be AWWA C207-07, 150# E-Ring Plate, FF-SO. In all cases, the minimum wall thickness of pipe shall be ½ inch.

12.03 Lining and Coating

A. All coatings and linings shall be factory installed.

B. Lining: All DIP water pipe shall be cement mortar lined as described in Section 1 and sewer pipe shall be epoxy lined as described in Section 4. All linings shall be factory installed. Steel pipe shall be prepared for linings/coatings per the manufacturers' recommendations. Lining shall be Tnemec Pota-Pox N140 or V140 or approved equal.

C. DIP shall be coated according to specifications described in Sections 1 and 4. Steel pipe shall be polyurethane coating, or approved equal, per AWWA C222 and paint manufacturers' recommendations. Coating repairs shall be per AWWA C222 and paint manufacturers' recommendations.

D. Ferrous, Nonferrous Metals, and Galvanized Metals; Exterior Non-submerged:

1. Surface Preparation: Outside surface of pipe to be cleaned and/or blasted per the paint manufacturers' recommendation.

2. Product and Manufacturer-Provide one of the following:

a. Tnemec:

1) Shop Primer: 66-1211 Epoxy – 1 or 2 coats, 3.0-5.0 dry mils per coat.

2) Shop Primer: 90-97 & H90-97 – 1 or 2 coats zinc-rich "lead free" primer 2.5-3.5 dry mils per coat.

3) Shop Primer or Field Touch-Up (Top Coat): 66-1211 Epoxy - 1 coat, 3.0-5.0 dry miles per coat.

4) Shop Finish or Field Touch-Up (Top Coat): 66 H.B. Epoxoline - 2 coats, 3.0-4.0 dry mils per coat.

5) Shop Finish (Top Coat): Endura-Shield II 1074 & 1074U 2 coats 2 to 5 dry mils.

b. KOP-COAT:

1) Shop Primer:

a) Ferrous Metals: 340 Gold Epoxy – 1.5-2.0 dry mils per coat.

b) Nonferrous and Galvanized: None.

2) Intermediate: Hi-Gard - 1 coat, 4.0-5.0 dry mils.

3) Shop Finish or Field Touch-Up: 1122BRS Polyester Polyurethane - 1 coat, 1.5-2.5 dry mils per coat, 360-540 square feet per gallon.

c. MAB Paint:

1) Shop Primer: Ply-Tile 520-W-45 - 1 coat, 2.0-3.0 dry mils per coat.

2) Field Primer or Touch-up (Top Coat): Ply-Tile 520-W-45 - 1 coat, 2.0-3.0 dry mils per coat

3) Shop Finish or Field Touch-Up (Top Coat): Series 031 Ply-Tile 520 HB Epoxy - 2 coats, 6.0-8.0 dry mils per coat.

d. Or approved equal.

3. Color of Pipe Lines:

a. All pipelines and equipment shall be painted in conformity with the requirements of this section. Final coats of paint shall be color-coded.

b. General Color Code

Pipe Line	Color
Finished or Potable	Blue
Sewer (Sanitary or Other)	Black or Green
Reclaim	Purple
Brine	Brown

END OF SECTION