

CHAPTER 3.11 PVC PLASTIC PRESSURE PIPE

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3.11.005 SCOPE. This Chapter applies to the furnishing and installation of PVC AWWA C-900, class 200 plastic pressure pipe. Pipe shall be AWWA-C900-81, with material compound being 1245A, per ASTM D1784. Class 200 pipe shall meet DR-14.

3.11.010 JOINTS. The Elastomeric Seal (gasket) shall conform to ASTM F477. The gasketed joint assembly shall conform to ASTM D3139, and the installation of the C900 pipe shall conform with Uni-Bell-3, AWWA M23 installation guide.

3.11.015 FITTINGS. Fittings shall be short body cast iron or ductile iron, iron pipe size for PVC application, and in accordance with AWWA C-110. They shall be capable of withstanding, without bursting, hydrostatic tests of three times the rated water working pressure. The fittings shall be furnished with mechanical, bell and spigot, or flange joints and shall conform to the dimensions and weights given in AWWA C-110 and AWWA C-111.

3.11.020 SERVICE CONNECTIONS. Service connection to PVC plastic pressure pipe shall be by a Romac Style 202-N service saddle with two (2) Stainless Steel Straps.

3.11.025 PIPE LAYING. All PVC plastic pipe installation shall proceed on a stable foundation, with joints closely and accurately fitted. Joints shall be clean and dry, and a joint lubricant, as recommended by the pipe supplier, shall be applied uniformly to the mating joint surfaces to facilitate easy, positive joint closure.

A. Pipe shall be installed with uniform bearing under the full length of the barrel, with suitable excavations being made to receive pipe bells.

B. Select material shall be compacted around the pipe to firmly bed the pipe in position. If adjustment of position of a pipe length is required after being laid, it shall be removed and rejointed as for a new pipe. When laying is not in progress, the ends of the pipe shall be closed with a tight-fitting stopper to prevent the entrance of foreign material.

C. Service lines and laterals must be assembled so that no strain is placed on the pipe during or after backfill operations. After laying of the pipe is completed, it shall be center loaded with backfill and bedding to prevent arching and whipping under pressure. Center loading should be done carefully so that joints will be completely exposed for examination.

D. In addition to the above requirements, all pipe installation shall comply with the specific requirements of the pipe manufacturer.

3.11.030 GRAVEL FOUNDATION FOR PIPE. Wherever the subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, and where groundwater must be drained, the subgrade shall be excavated to such depth as may be necessary and replaced with crushed rock or gravel compacted into place.

A. Gravel for PVC pipe foundations shall be clean crushed rock or gravel with one hundred (100) percent passing a one-inch screen and five (5) percent passing a No. 4 sieve.

3.11.035 PIPE BEDDING. All pipes shall be protected from lateral displacement and possible damage resulting from impact or unbalanced loading during backfilling operations by being adequately bedded.

A. A groove shall be excavated in the bottom of the trench to receive the bottom quadrant of the pipe. Before preparing the groove, the trench bottom shall be excavated or filled and compacted to an elevation sufficiently above the grade of the pipe so that, when completed, the pipe will be true to line and grade. Bell holes shall be excavated so that only the barrel of the pipe receives bearing from the trench bottom.

B. Pipe bedding materials placed at any point below the midpoint of the pipe shall be deposited and compacted in layers not to exceed ten (10) inches in uncompacted depth. Deposition and compaction of bedding materials shall be done simultaneously and uniformly on both sides of the pipe. Compaction shall be accomplished with hand or mechanical compactors. All bedding materials shall be placed in the trench with hand tools or other approved method in such a manner that they will be scattered alongside the pipe and not dropped into the trench in compacted masses. Bedding materials shall be loose earth, free from lumps; sand or gravel, free from rocks larger than one (1) inch diameter; with all materials free from roots, sod, or other vegetable matter.

C. In the event trench materials are not satisfactory for pipe bedding, modified bedding will be required. Modified bedding shall consist of placing compacted granular material on each side of and to the level of twelve (12) inches above the top of the pipe.

D. Modified bedding material shall be graded as follows:

1. One hundred (100) percent passing a one (1) inch screen and five (5) percent passing a No. 4 sieve.

3.11.040 INSTALLATION OF LOCATOR TAPE AND COPPER WIRE. PVC pipelines shall be furnished with metallic locating tape laid along the centerline of the pipe trench at a depth of twenty four (24) inches below finish grade. The Contractor shall furnish manufacturer's literature, completely describing the tape proposed to be installed. No tape shall be installed prior to approval of the Engineer. The Contractor shall also install #14 plastic coated, solid copper wire in the trench with the pipeline. The ends of the wire shall be terminated inside valve boxes with four (4) feet of coiled wire.

3.11.045 PIPE SIZES. An eight (8) inch diameter pipe is the minimum permitted diameter. If the size of any piping is not clearly evident in the Drawings, the Contractor shall request instructions from the City Engineer as to the proper sizing. Any changes resulting from the Contractor's failure to request clarification shall be at this expense.

3.11.050 CLEANING AND FLUSHING. The Contractor shall take every precaution to remove dirt, grease, and all other foreign matter from each length of piping before making connections in the field. After each section of piping is installed, it shall be thoroughly cleaned to remove rocks, dirt, and other foreign matter by washing, sweeping, scraping, or other method that will not harm the lining or pipe.

A. Water required for flushing shall be furnished by the Contractor. All temporary connections for flushing and drainage shall be furnished, installed, and subsequently removed by the Contractor.

B. All open ends of pipes shall be bulkheaded or plugged when workmen are not on the job or in the immediate area to prevent rocks or other foreign matter from entering the pipe.