

MATERIAL SPECIFICATIONS

SECTION 736 NON-REINFORCEMENT CONCRETE PIPE

736.1 GENERAL:

This section covers size and classes of the non-reinforced concrete pipe to be furnished which shall be as shown on the plans, or as specified under the appropriate item of work for the project.

Strength classes of non-reinforced concrete shall be as identified in ASTM C-14, Class 1 non-reinforced concrete pipe, Class 2 non-reinforced concrete pipe, or Class 3 non-reinforced concrete pipe.

Class 3 non-reinforced concrete pipe shall be used unless plans and specifications reflect a different product.

736.2 MATERIALS:

Materials used in manufacturing the pipe shall be as specified in ASTM C-14, with the following conditions:

Cement shall conform to ASTM C-150, Type II, low alkali. Samples and testing shall conform to the methods designated therein. The pipe manufacturer shall supply a cement mill certificate, in triplicate, for each load of cement delivered, showing the specification, type, chemical analysis, and quantity. On stockpiled pipe the manufacturer shall certify that the type of cement used meets this specification. Satisfactory facilities shall be provided for identifying, inspecting, and sampling cement at the mill, the warehouse, and the site of the work. The Public Works Department shall have the right to inspect the cement and obtain samples for testing at any of these points. The cement shall be stored in a weathertight, dry, well ventilated structure. Cement

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salvaged by cleaning cement sacks shall not be used in the work. Cement containing lumps shall be rejected and shall be removed from the site of the work. If the temperature of the cement exceeds 150°F., the concrete shall be stored until cooled to 150°.

736.3 PIPE JOINTS:

The joints shall be either tongue and groove mortared joints or O-ring rubber gaskets joints. Tongue and groove, non-centering joints, shall be mortared inside and grouted outside. Grouting of the outside joints shall be by the diapering method. Mortaring and grouting of joints shall be required on O-ring rubber gasket joints. Self-centering joints shall be mortared in accordance with Subsection 736.3.1.

736.3.1 Cement Mortar Joints: (A) The mortar, or grout, shall consist of 1 part portland cement and 2 parts sand, by volume. The quantity of water in the mixture shall be sufficient to produce a soft workable mortar, but shall not exceed a water-cement weight ratio of 0.53. When outside joints are made by the diaper method, the grout shall be composed of 1 part cement to 3 parts sand and shall be mixed to the consistency of thick cream. The sand shall conform to Section 701, and the cement shall conform to Section 725.

(B) The pipe ends shall be thoroughly cleaned and wetted with water before the mortar or grout is placed. No backfilling around the joints shall be done until the joints have been fully inspected and approved.

(C) Mortar joints shall be cured by keeping them wet for 3 days or by using a curing compound.

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736.3.2 Rubber Gasket Joints: Rubber gaskets shall comply with Section 765.

736.4 CURVES, BENDS AND CLOSURES:

Horizontal and vertical long-radius curves shall be formed by slight deflection at the joints, provided that the maximum joint opening caused by such deflection shall not exceed 3/4 inch. Short radius curves shall be formed by straight pipe in which the joints are beveled. The bevel of the pipe shall not exceed 5 degrees, and the total angular deflection for beveled pipe shall not exceed 10 degrees at any joint.

736.5 CARE OF PIPE AND MATERIALS:

All pipe and materials shall be manufactured, handled, loaded, shipped and unloaded undamaged and in sound condition. Care shall be exercised to protect the ends of pipe. Damaged pipe and materials shall not be used in the work and shall be replaced with an equal pipe. Rubber gaskets shall be stored in a cool, dark place until ready for use.

736.6. TESTS:

Before pipe is delivered to the job site test pipes shall meet the requirements of the hydrostatic pressure test and the loading test described in ASTM C-14. The test shall be made at the point of manufacture and certified submittals shall be issued to the Public Works Department.