

## Section 1032

1 (c) The year of manufacture. This marking shall be in the following format: State  
2 plant number - diameter - year (CP99-24-06).

3 When concrete pipe, pipe end sections, tees and elbows have been inspected and accepted  
4 they will be stamped with the Department seal of approval. Do not use pipe sections,  
5 pipe end sections, tees, or elbows which do not have this seal of approval. Failure of as  
6 much as 20% of any lot of pipe due to cracks, fractures, variation in alignment  
7 or other manufacturing defects will be cause for the rejection of the entire lot.  
8 The lots shall be as designated by the manufacturer before inspection.  
9 Individual lengths of pipe within the lot which were not specifically rejected but which  
10 are considered acceptable by the manufacturer may be removed from the rejected lot and  
11 resubmitted for inspection as a separate lot.

### 12 (F) Joint Materials

13 Cement shall meet Article 1024-1. Sand shall meet Article 1014-1 for fine aggregate or  
14 Article 1040-7 for mortar sand. Hydrated lime shall meet Article 1040-6.

15 Flexible plastic joint material shall meet AASHTO M 198 for Type B flexible plastic  
16 gaskets, except as follows:

17 (1) The flash point, Cleveland Open Cup (C.O.C.) shall be at least 325°F.

18 (2) The fire point, C.O.C. shall be at least 350°F.

## 19 1032-7 CORRUGATED POLYETHYLENE (HDPE) CULVERT PIPE

### 20 (A) General

21 Use corrugated polyethylene pipe from sources participating in the Department's HDPE  
22 Pipe QC/QA Program. A list of participating sources is available from the Materials and  
23 Tests Unit. The Department will remove a manufacturer of polyethylene pipe from this  
24 program if the monitoring efforts indicated that non-specification material is being  
25 provided or test procedures are not being followed.

26 Use corrugated polyethylene culvert pipe that meets AASHTO M 294 for Type S or  
27 Type D and has been evaluated by NTPEP.

### 28 (B) End Treatments, Pipe Tees and Elbows

29 End treatments, pipe tees and elbows shall meet AASHTO M 294, Section 7.8.

### 30 (C) Marking

31 Clearly mark each section of pipe, end section, tee and elbow and other accessories  
32 according to the Department's HDPE Pipe QC/QA Program:

33 (1) AASHTO Designation

34 (2) The date of manufacture

35 (3) Name or trademark of the manufacturer

36 When polyethylene pipe, end sections, tees and elbows have been inspected and accepted  
37 they will be stamped with the Department seal of approval. Do not use pipe sections,  
38 flared end sections, tees or elbows which do not have this seal of approval.

## 39 1032-8 PVC PROFILE WALL DRAIN PIPE

40 PVC pipe shall conform to AASHTO M 304. When rubber gaskets are to be installed in the  
41 pipe joint, the gasket shall be the sole element relied on to maintain a tight joint. Watertight  
42 joints shall be watertight in accordance with AASHTO M 304, unless a higher pressure rating  
43 is specified in the plans.

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## SECTION 1034 SANITARY SEWER PIPE AND FITTINGS

### 1034-1 CLAY PIPE

Use extra strength vitrified clay sewer pipe conforming to ASTM C700. Manufacture all joints and seals in accordance with ASTM C425.

### 1034-2 PLASTIC PIPE

#### (A) PVC Gravity Flow Sewer Pipe

Use PVC pipe that conforms to ASTM D3034 with a minimum SDR of 35. Use pipe with push-on type joints having bells made as an integral part of the pipe conforming to ASTM D3212.

#### (B) PVC Force Main Sewer Pipe

##### (1) Pressure Rated Pipe

Use PVC pipe conforming to ASTM D2241 or to ANSI/AWWA C905 with a minimum SDR of 21 and minimum pressure rating of 200 psi. Use pipe with push-on type joints having bells made as an integral part of the pipe conforming to ASTM D3139 or pipe with butt fused joints made from ASTM D1784 Class 12454B plastic formulated for fusing.

Use PVCO pipe conforming to ASTM F1483 or to ANSI/AWWA C909 for molecularly oriented pipe with a minimum pressure rating of 200 psi. Use pipe with push-on type joints having bells made as an integral part of the pipe conforming to ASTM D3139.

##### (2) Pressure Class Pipe

Use PVC pipe conforming to ANSI/AWWA C900 with a minimum DR of 18 and a minimum pressure class of 235 psi. Use pipe with push-on type joints having bells made as an integral part of the pipe conforming to ASTM D3139 or pipe with butt fused joints made from ASTM D1784 Class 12454B plastic formulated for fusing.

#### (C) Polyethylene (PE) Pipe Force Main Sewer Pipe

Use PE pipe and tubing that conforms to AWWA C901 or AWWA C906 with a minimum pressure class of 200 psi.

### 1034-3 CONCRETE SEWER PIPE

Use reinforced concrete sewer pipe conforming to ASTM C76 or AASHTO M 170 with a Class III minimum rating. Use pipe with gasket joints conforming to ASTM C443 or AASHTO M 198 Type A or B.

### 1034-4 DUCTILE IRON PIPE

#### (A) Gravity Flow Sewer Pipe

Use ductile iron pipe that conforms to ASTM A746 or ANSI/AWWA C151/A21.51.

Use ductile iron pipe fittings and specials conforming to ANSI/AWWA C110/A21.10 for standard size fittings or ANSI/AWWA C153/A21.53 for compact fittings.

Use pipe and fittings with push-on joints conforming to ANSI/AWWA C111/A21.11.

#### (B) Force Main Sewer Pipe

Use ductile iron pipe that conforms to ANSI/AWWA C151/A21.51.

Use ductile iron pipe fittings and specials conforming to ANSI/AWWA C110/A21.10 for standard size fittings or ANSI/AWWA C153/A21.53 for compact fittings. Manufacture