

Section 1034

1 Individual lengths of pipe within the lot which were not specifically rejected but which
2 are considered acceptable by the manufacturer may be removed from the rejected lot and
3 resubmitted for inspection as a separate lot.

4 (F) Joint Materials

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

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

- 9 (1) The flash point, Cleveland Open Cup (C.O.C.) shall be at least 325°F.
10 (2) The fire point, C.O.C. shall be at least 350°F.

11 1032-7 CORRUGATED POLYETHYLENE (HDPE) CULVERT PIPE

12 (A) General

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

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

20 (B) End Treatments, Pipe Tees and Elbows

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

22 (C) Marking

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

- 25 (1) AASHTO Designation
26 (2) The date of manufacture
27 (3) Name or trademark of the manufacturer

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

31 1032-8 PVC PROFILE WALL DRAIN PIPE

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

36 SECTION 1034

37 SANITARY SEWER PIPE AND FITTINGS

38 1034-1 CLAY PIPE

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

1 **1034-2 PLASTIC PIPE**2 **(A) PVC Gravity Flow Sewer Pipe**

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

6 **(B) PVC Force Main Sewer Pipe**

7 (1) Pressure Rated Pipe

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

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

17 (2) Pressure Class Pipe

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

22 **(C) Polyethylene (PE) Pipe Force Main Sewer Pipe**

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

25 **1034-3 CONCRETE SEWER PIPE**

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

29 **1034-4 DUCTILE IRON PIPE**30 **(A) Gravity Flow Sewer Pipe**

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

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

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

35 **(B) Force Main Sewer Pipe**

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

37 Use ductile iron pipe fittings and specials conforming to ANSI/AWWA C110/A21.10 for
38 standard size fittings or ANSI/AWWA C153/A21.53 for compact fittings. Manufacture
39 fittings with a cement mortar lining and a seal coat in accordance with
40 ANSI/AWWA C104/A21.4.

41 Use pipe and fittings with either mechanical joints or push-on joints conforming to
42 ANSI/AWWA C111/A21.11. When required or necessary, use approved type joint
43 restraint devices with a minimum working pressure rating of 200 psi and a factor of
44 safety of 2.