Designation: C 1479M – 07

METRIC

Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations [Metric][1]

This standard is issued under the fixed designation C 1479M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the installation of precast concrete pipe intended to be used for the conveyance of sewage, industrial wastes, and storm water, and for the construction of culverts.

1.2 This specification is the metric counterpart of Specification C 1479.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

C 822 Terminology Relating to Concrete Pipe and Related Products

C 1417 Specification for Manufacture of Reinforced Concrete Sewer, Storm Drain, and Culvert Pipe for Direct Design

D 698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3(600 kN-m/m^3))

D 1557 Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))

D 2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D 2488 Practice for Description and Identification of Soils (Visual-Manual Procedure)

IEEE/ASTM SI 10 Standard for Use of the International System of Units (SI): The Modern Metric System

2.2 *AASHTO Standards:*[3]

Standard Specifications for Highway Bridges

M 145 Classification of Soils and Soil—Aggregate Mixtures for Highway Construction Purposes

T 99 The Moisture-Density Relations of Soils Using a 5.5-lb (2.5-kg) Rammer and a 12-in. (305-mm) Drop

T 180 The Moisture-Density Relations of Soils Using a 10-lb (4.54-kg) Rammer and an 18-in. (457-mm) Drop

T 310 In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

2.3 *ASCE Standard:*[4]

ASCE 15 Standard Practice for the Direct Design of Buried Precast Reinforced Concrete Pipe Using Standard Installations (SIDD)

3. Terminology

3.1 For definitions of terms relating to concrete pipe, see Terminology C 822.

3.2 For terminology related to soil classifications, see Practices D 2487 and D 2488.

3.3 For terminology and definitions of terms relating to structural design, see ASCE 15.

3.4 Fig. 1 illustrates the definitions and limits of the terms: foundation, subgrade, bedding, outer bedding, middle bedding, haunch, lower side, backfill or overfill, invert, crown, springline, top of pipe, and bottom of pipe as used in this practice.

4. Significance and Use

4.1 This practice is useful as a reference by an owner and the owner's engineer in preparing project specifications.

[1] This practice is under the jurisdiction of ASTM Committee C13 on Concrete Pipe and is the direct responsibility of Subcommittee C13.05 on Special Projects.
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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, http://www.transportation.org.

[4] Available from American Society of Civil Engineers (ASCE), 1801 Alexander Bell Dr., Reston, VA 20191, http://www.asce.org.

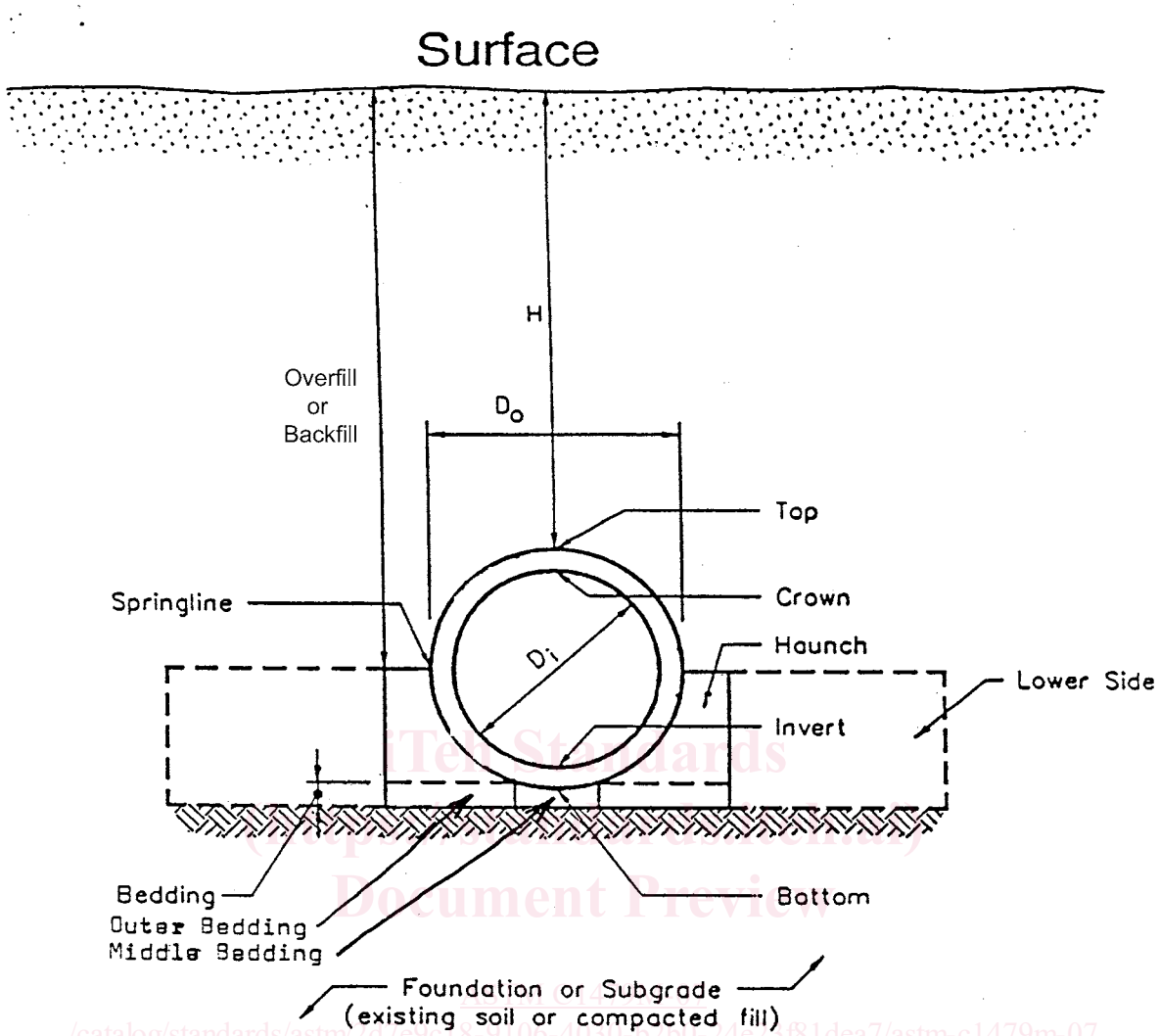

FIG. 1 Pipe/Installation Terminology

5. Notations

D_i = inside diameter of pipe, mm
D_o = outside diameter of pipe, mm
H = design height of earth above top of pipe, m
w = unit weight of soil, N/m^3

6. Standard Installations

6.1 The precast concrete pipe/soil system shall be constructed to conform to the requirements of Figs. 2 and 3 and Tables 1 and 2 as designated on the plans.

7. Excavation

7.1 When rock or other unyielding foundation material is encountered, it shall be removed at least to the requirements shown in Figs. 2 and 3 and Tables 1 and 2. Overexcavated areas shall be backfilled with approved materials and compacted to at least the standard proctor density specified for the bedding.

7.2 Where surface water or groundwater conditions exist, the site and trench shall be dewatered.

8. Foundation

8.1 The foundation shall be moderately firm to hard in situ soil, stabilized soil, or compacted fill material.

8.2 When unsuitable or unstable material is encountered, the foundation shall be stabilized.

8.3 Methods to prevent migration of soil fines shall be provided when groundwater or existing soil conditions are conducive to particle migration. Gravelly soils, with little or no fines, could migrate under certain conditions, causing lack of support.

8.4 Pipe installed over an unyielding foundation shall be cushioned so as to prevent blasting shock when future blasting is anticipated in the area.

9. Bedding

9.1 The bedding shall be constructed uniformly over the full length of the pipe barrel, as required for the designated standard installation, to distribute the load-bearing reaction uniformly on the pipe barrel over its full length, and to maintain the required pipe grade. See Fig. 4. If placed in layers,