Designation: A807/A807M – 19 (Reapproved 2025)

Standard Practice for Installing Corrugated Steel Structural Plate Pipe for Sewers and Other Applications[1]

This standard is issued under the fixed designation A807/A807M; 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 primarily covers procedures, soils, and soil placement for the proper installation of corrugated steel structural plate pipe, pipe-arches, arches, and underpasses produced to Specification A761/A761M, in either trench or embankment installations. This practice also covers installation of structural plate for alternative uses that do not involve backfilling or soil-structure interaction.

1.2 A typical trench installation and a typical embankment (projection) installation are shown in Figs. 1 and 2, respectively. Structural plate structures as described herein are those structures factory fabricated in plate form and bolted together on site to provide the required shape, size, and length of structure. This practice applies to structures designed in accordance with Practice A796/A796M.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.3.1 SI units are shown in brackets in the text for clarity, but they are the applicable values when the installation is to be performed using SI units.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A761/A761M Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches

A796/A796M Practice for Structural Design of Corrugated Steel Pipe, Pipe-Arches, and Arches for Storm and Sanitary Sewers and Other Buried Applications

A902 Terminology Relating to Metallic Coated Steel Products

D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))

D1556 Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method

D1557 Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))

D2167 Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method (Withdrawn 2024)[3]

D2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D6938 Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

D2937 Test Method for Density of Soil in Place by the Drive-Cylinder Method

2.2 *AASHTO Standard:*[4]

AASHTO LRFD Construction Specifications

3. Terminology

3.1 *Definitions*—For definitions of general terms used in this practice, refer to Terminology A902.

[1] This practice is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.17 on Corrugated Steel Pipe Specifications.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] 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.

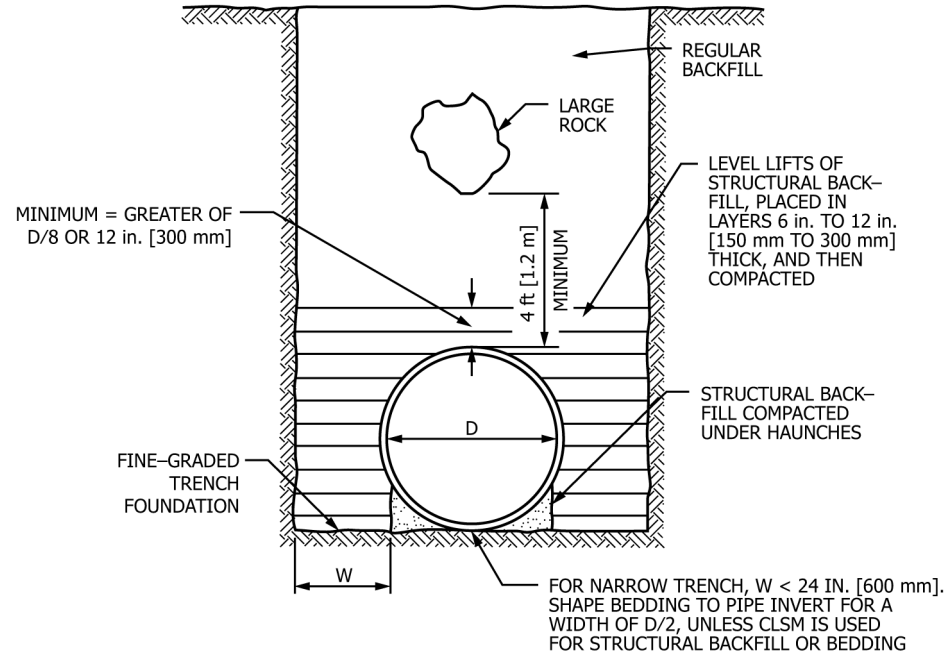

FIG. 1 Typical Trench Installation

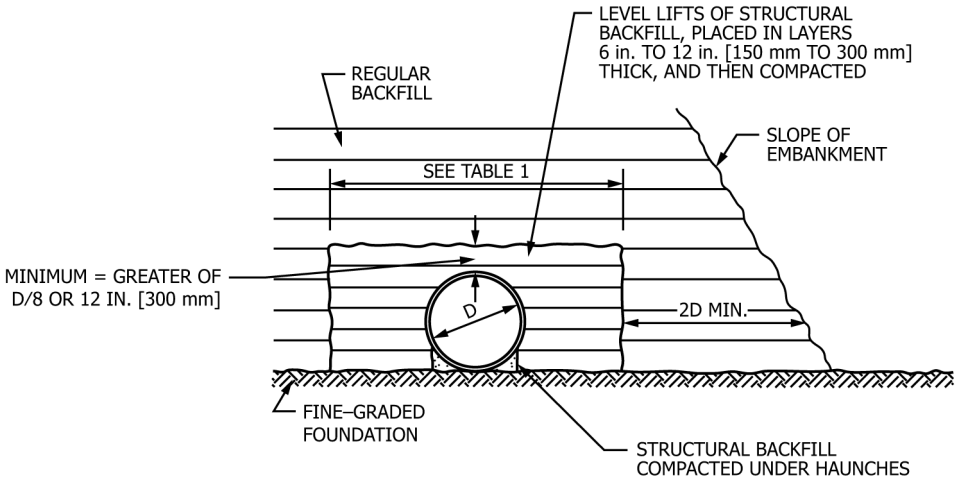

FIG. 2 Typical Embankment (Projection) Installation

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *arch, n*—a part circle shape spanning an open invert between the footings on which it rests.

3.2.2 *bedding, n*—the earth or other material on which a pipe is supported.

3.2.3 *haunch, n*—the portion of the pipe cross section between the maximum horizontal dimension and the top of the bedding.

3.2.4 *invert, n*—the lowest point on the pipe cross section; also, the bottom portion of a pipe.

3.2.5 *pipe, n*—a conduit having full circular shape; also, in a general context, all structure shapes covered by this practice.

3.2.6 *pipe-arch, n*—an arch shape with an approximate semicircular crown, small-radius corners, and large-radius invert.

3.2.7 *underpass, n*—a high arch shape with an approximate semicircular crown, large-radius sides, small-radius corners between sides and invert, and large-radius invert.

4. Significance and Use

4.1 Structural plate structures function structurally as a flexible ring that is supported by and interacts with the compacted surrounding soil. The soil placed around the structure is thus an integral part of the structural system. It is therefore important to ensure that the soil structure is made up of acceptable material and is well constructed. Field verification of soil structure acceptability using Test Methods D1556, D2167, D6938, or D2937, as applicable, and comparing the results with either Test Methods D698 or D1557, in accordance with the specifications for each project, is the most common basis for installation of an acceptable structure. Depending on