SPECIFICATION FOR CORRUGATED METAL PIPE

SLOTTED DRAIN™ - VARIABLE HEIGHT OR GREATER THAN 6 INCH GRATE – ALUMINIZED STEEL TYPE 2

1.0 GENERAL

1.1 This specification covers the manufacture and installation of Aluminized Type 2 corrugated steel pipe (CSP) with Slotted Drain used for the removal of surface water as detailed in the project plans.

2.0 DESIGN STANDARDS

2.1 The CSP meets the design parameters of the American Association of State Highway and Transportation Officials (AASHTO) Standard Specification for Highway Bridges, AASHTO LRFD Bridge Design, and/or the American Iron and Steel Institute (AISI).

3.0 MATERIAL

3.1 The Aluminized Steel Type 2 coils shall conform to the applicable requirements of AASHTO M 218 or ASTM A929.
3.2 The grate and extender plates (when utilized) shall be galvanized in accordance with ASTM A123, except with a 2 oz. galvanized coating, total both sides.

4.0 PIPE

4.1 The CSP shall be manufactured in accordance with the applicable requirements of AASHTO M 36 or ASTM A760. The pipe sizes, diameters, gauges, corrugations shall be as shown on the project plans.

4.2 All fabrication of the product shall occur within the United States.

5.0 GRATES

5.1 The grates shall be manufactured from ASTM A1011, Grade 36 steel. The spacers and bearing bars (sides) shall be 3/16" material ± 0.008".
5.2 The spacers shall be on 6" centers and welded on both sides to each bearing bar (sides) with four (4) 1-1/4" long 3/16" fillet welds on each side of the bearing bar.
5.3 Vertical (straight sides) grate with a 1-3/4" opening in the top and vertical spacers unless shown otherwise on the plans. The grate shall be 2-1/2" or 6" high as shown on the plans.
5.4 The engineer may call for tensile strength tests on the grate if the grate is not in compliance with Section 5.2. If tensile strength tests are called for, minimum results for an in-place spacer pulled perpendicular to the bearing bar shall be:
T = 12,000 pounds for 2-1/2" grate
T = 15,000 pounds for 6" grate
5.5 The grate shall be fillet welded with a minimum weld 1" long to the CSP on each side of the grate at every other corrugation.
5.6 Variable height grates shall be used to achieve the slope shown on the plans.
5.7 When side plate extender are utilized, they shall be 7 gage steel meeting ASTM A761 with minimum yield / tensile strengths of 28,000 and 42,000 respectively.

6.0 COUPLING BANDS

6.1 Modified HUGGER (7-5/8” wide) bands for the CSP shall be made of the same base metal and coatings as the CSP to a minimum of 18 gauge.
6.2 When the Slotted Drain is banded together, the adjacent grates shall have a typical gap of 2” - 3".
6.3 Ends of the CSP are rerolled with annular corrugations for proper indexing.
6.4 Connection fasteners will be provided.

7.0 TOLERANCES FOR FINISHED SLOTTED DRAIN OF 20' LENGTHS

7.1 Vertical Bow: ± 3/8"; Horizontal Bow: ± 5/8"; Twist: ± 1/2"

8.0 HANDLING, ASSEMBLY, & INSTALLATION

8.1 Refer to the recommendations of the National Corrugated Steel Pipe Association’s (NCSPA).
8.2 The installation shall be in conformance with the project plans and specifications or the manufacturer’s recommendations. If there are any inconsistencies or conflicts, the contractor must bring them to the attention of the project engineer.
8.3 It is always the contractor’s responsibility to follow OSHA guidelines for safe practices.

9.0 CONSTRUCTION LOADS

9.1 Construction loads may be greater than design loads. The contractor shall follow the of the manufacturer's guidelines.