**SCD NUMBER**

**SHEET**

**DESIGN AGENCY**

**TOTAL**

**TC-12.31**

1

**CANTILEVER OVERHEAD SIGN SUPPORT**

2

**REVISIONS**

**ENGINEERING**

**ROADWAY**

**OFFICE OF**

**NEW**

**04-17-2020**

**STDS ENGINEER**

Duemmel

**TRANSPORTATION ADMINISTRATOR**

STATE OF OHIO DEPARTMENT OF

David L. Holstein

2 ½" Sch. 40 Pipe.

- H

¾" Holes in Chord

1" to 2 ½" Vent

**ELEVATION - STANDARD DESIGN**

**SECTION A-A**

**POLE BASE DETAIL**

**TRUSS JOINTS**

**LEGEND:**

* = Required dimension. See Note 2 on Sheet 3.

**NOTES:**

For Notes and Table see Sheet 3.
NOTES:

1. The design of the Cantilever Overhead Sign Support meets the requirements of the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signs, First Edition 2015 (LRFDLTS-1) and all interim releases prior to the bid date of the project.

2. Dimensions marked as required shall be as indicated on the drawing and shall not be altered.

3. Calculations are required for any modifications to the information shown on the drawings. Modifications shall meet the requirements of LRFDLTS-1 and the design criteria shown in Note 18. Calculations shall be stamped by a Professional Engineer registered in the State of Ohio and shall be submitted for review and approval with the shop drawings.

4. For sign attachment assemblies to be furnished with this support, construction details, and location of handholes, see Standard Construction Drawings (SCDs) TC-23.10 and TC-23.20.

5. For foundation details, see SCD TC-21.21.

6. For modification of the pole to support roadway lighting, see SCD H-10.12.

7. Assure arm attachment bolts do not contact pole.

8. The arm shall be cambered and the upright shall be tilted to provide a horizontal arm and a plumb upright upon erection.

9. Structural steel plates shall meet the requirements of CMS 630 and 711.01 with the following limitations:

   Structural steel plate - ASTM A 709 Grade 50 (AST52)
   (Not Grade 36, 50W or 70W)

10. All materials shall meet the requirements of CMS 730 with the following limitations:

   Steel tube and pipe - ASTM A 600 Grade B
   (Not ASTM A 500 Grade B and ASTM A 501)

   Steel hardware - Galvanizing - ASTM A 153 (Hot-dipped)
   (Not ASTM B 695 Class 50)

11. Nuts shall meet the requirements of CMS 730.09 and shall also meet the requirements of ASTM A 563 Grade DH or A 194 Grade 2H.

12. Flat washers shall meet the requirements of CMS 730.09 and shall also meet the requirements of ASTM A 495.

13. Anchor bolts shall meet the requirements of CMS 630, 711.02, 730.02 and 732.11 except that 732.11 except that 732.02 shall be modified to require the galvanizing limits to be the full length of the anchor bolts not at least 2 inches beyond the threads.

14. Anchor bolt nuts shall meet the requirements of ASTM A 563 Grade DH or A 194 Grade 2H.

15. Anchor bolt washers shall meet the requirements of ASTM F 436 Type 1 (hot-dip galvanized) according to ASTM A 153.

16. Nuts for high-strength bolts and stressing bolts shall meet the requirements of CMS 630.13. Modifications to the holes must be approved by the Engineer. Enlarging or slotting holes to match mis-aligned anchor bolts will not be permitted.

17. All welds shall be inspected according to the requirements of CMS 630.06 and AWS D1.1 Structural Welding Code - Steel. A report of the welding inspection shall be submitted to the ODOT Office of Material Management Structural Welding and Materials Engineer.

18. Design Criteria:

   Load Parameters:
   Wind Load: 1700-year MRI Basic Wind Speed, 120mph Design Wind Speed
   Service Life: Infinite per LRFDLTS-1 11.9.3
   Service 1 Wind Velocity: 76 mph per LRFDLTS-1 Table 3.4.1 and Figure 3.8-4b
   ADT: Greater than 10,000

   Serviceability Parameters:
   Permanent Camber: L/1000 per LRFDLTS-1 10.5
   Rake (Pole 70): H/180 maximum (H = pole height)
   Horizontal Deflection at Top of Pole: maximum 1.5% of pole height
   Slope at Top of Pole: maximum of 0.39 inch/foot (1.87 degrees) per LRFDLTS-1 10.4.2.1

   Fatigue Parameters:
   Fatigue Category: 1
   Natural Wind Gust: Include
   Truck-induced Gust: Include
   Galloping: Include

   Load Parameters:

   Design Criteria:

   Welding and Materials Engineer.

   shall be submitted to the ODOT Office of Material Management Structural Welding and Materials Engineer.

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