**TYPICAL ARM TO UPRIGHT CONNECTION**

Details shown are similar to UPLS-1 Table 11.9.3.1-1
(5.6)Flat-Welded Gusseted Box Connections,
except Welded Arm Caps

**POLE BASE DETAIL** (Standard Base Shown)

- Anchor Bolt (Typ. of 6)
- See TC-21.21 for Anchor Bolt Dimensions
- Bolt Circle = 2" Design 6, 2.5" Design 10, 3" Design 12
- Nails 1/2" Over Nominal Bolt Dia.
- See SCD TC-21.21

**SECTION A-A**

Connection shall be UPLS-1 Table 11.9.3.1-1
- 4.4 CJP with Backing Ring (Standard Base)
- 6.2 Gusset-Reinforced Double-Fillet Socketed (Alternate Base)

**NOTES**

- For Notes and Table see Sheet TC-21.21
- Design Moment Arm
- Pole Cap 3 Set Screws (Min.)
- See Weld Notes
- Pol Indentification Tag per CMS 73.11
- May be relocated onto gussets or above if necessary

**TRUSS JOINTS, BUTTED AND WELDED**

- BUTTED AND WELDED TRUSS JOINTS,

- For inspection, see Weld Notes
- Standard Base Design
- Typ. Center Hole
- Standard Base Design
- 1"-12" Design 6, 1 1/4"-12" Design 10, 1 1/2"-12" Design 12
- Bolt Circle = 2" Design 6, 2.5" Design 10, 3" Design 12

**ELEVATION:**

- STANDARD BASE DESIGN
- ALTERNATE BASE DESIGN

- Recess ⅝" Thickness Varies:
- Des 6 = 2" Thick - Design 12
- Des 12 = 3" Thick - Design 10
- Des 10 = 3" Thick - Design 6
- Design Moment Arm

- Plate, Remove Sharp Edges
- 4" (min.) diameter, remove sharp edges
- Nominal Plate Dimensions:
- Width pole dia. + 6" length arm dia. = 6"

- Assure holes permit tool access and bearing of DTI washers.
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 (LRFD LTS-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. Dimensions marked as minimum must be met.

3. ODOT permits modifications to accommodate minor variations in manufacturing processes and tolerances between suppliers. Modifications shall not decrease the main tube section modulus as depicted in this drawing. Calculations are required for any modifications to the information shown on the drawings. Modifications shall meet the requirements of LRFD LTS-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 acceptance with the shop drawings.

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

5. For modification of the pole to support roadway lighting, see SCD TC-22.10 and TC-22.20.

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

7. Assure arm attachment bolts do not contact pole.

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

9. Structural steel plate shall meet the requirements of C&MS 630, 711.02, 730.02 and shall also meet the requirements of ASTM F 436.

10. Flat washers shall meet the requirements of C&MS 730.08 and shall also meet the requirements of ASTM A 563 Grade DH or A 194 Grade 2H.

11. Nuts shall meet the requirements of C&MS 730.08 and shall also meet the requirements of ASTM A 563 Grade DH or A 194 Grade 2H.

12. The design of the Cantilever Overhead Sign Support meets the requirements of LRFD LTS-1 10.4.2.1

13. Axle load shall meet the requirements of C&MS 730.08 and shall also meet the requirements of ASTM A 501 Grade B (50ksi) for the main tube section modulus as depicted in this drawing. Calculations are required for any modifications to the information shown on the drawings. Modifications shall meet the requirements of LRFD LTS-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 acceptance with the shop drawings.

14. Anchor bolt washers shall meet the requirements of ASTM A 307 Grade A (Not ASTM A325 or A490) or A 194 Grade 2H, according to ASTM A 153.

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

16. Anchor bolt washers shall meet the requirements of C&MS 5.3.15. Modifications to the holes must be approved by the Engineer. Enlarging or slotting holes to match mis-aligned anchor bolts are not permitted.

17. All welds shall be inspected according to the requirements of C&MS 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: 700-year MRI Basic Wind Speed Map, 115 mph Design Wind Speed
   Service Life: Infinite per LRFD LTS-1 11.9.3
   Service Wind Velocity: 76 mph per LRFD LTS-1 Table 3.4.1 and Figure 3.8-4b
   ADT: Greater than 10,000
   Service/Wind Parameters:
   Permanent Carrier: LV900 per LRFD LTS-1 10.3
   Force (Pole Tilt): 119.18° maximum (H = pole height)
   Horizontal Deflection at Top of Pole: maximum 1.5% of pole height
   Slope at Top of Pole: maximum 5.06 inches (1.77 degrees) per LRFD LTS-1 10.4.2.1

   Fatigue Parameters:
   Fatigue Category: II
   Natural Wind Gust: Include
   Truck-induced Gust: Include
   Galiup: Not Included

   Support shall be manufactured to accommodate the design sign area and moment arm given on the Table, or greater, even if the sign area and moment arm on the Plans are smaller.

   Multi-sided vertical main tube (12 sides, min.) may be provided.

   ALL DIMENSIONS IN INCHES, UNLESS OTHERWISE NOTED

<table>
<thead>
<tr>
<th>DESIGN NUMBER</th>
<th>POLE SIZE (Diameter and Wall are Minimums, Length = Maximum)</th>
<th>ARM SIZE (Diameter and Wall are Minimums, Length = Maximum)</th>
<th>DESIGN DUST (Dsq. ft.)</th>
<th>DESIGN MOMENT (ARM FT-Lb.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>15 x .375 WALL x 34'-9&quot;</td>
<td>5.95 x .322 WALL x 28'-0&quot;</td>
<td>150</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>19 x .300 WALL x 30'-4&quot;</td>
<td>10.95 x .365 WALL x 30'-6&quot;</td>
<td>220</td>
<td>20</td>
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<tr>
<td>12</td>
<td>20 x .300 WALL x 30'-4&quot;</td>
<td>12.16 x .375 WALL x 30'-6&quot;</td>
<td>300</td>
<td>24</td>
</tr>
</tbody>
</table>

NOTE: See TC-21.21 for anchor bolt dimensions.