**NOTES:**

1. The design of the Strain Poles presented on this drawing meets the requirements of the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Final Edition 2015 (LRFD LTS-1) and all interim releases prior to the bid date of the project.

2. Dimensions noted as required shall be as indicated on the drawing and shall not be altered. Calculations are required for any modifications to the information shown on this drawing. Modifications shall meet the requirements of LRFD LTS-1 and the design criteria shown in Note 13. 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.

3. Calculations are required for any modifications to the information shown on this drawing. Modifications shall meet the requirements of LRFD LTS-1 and the design criteria shown in Note 13. 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. Service wire entrance shall be a 1 ½" blind half coupling provided in each pole.

5. Service wire entrance shall be a 1 ½" blind half coupling, when required by the plans. Orientation and height shall be as required by the plans.

6. Span wire clamp shall be galvanized steel, capable of resisting a load of 12,500 pounds minimum without permanent distortion. Alternate messenger wire assembly (wrapping) as shown on Standard Construction Drawing (SCD) TC-17.11 or TC-84.20 may be used in lieu of the span wire clamp if specified in the plans.

7. For foundation details, including anchor bolt details, see SCD TC-21.21.

8. Alternate messenger wire assembly (wrapping) as shown on Standard Construction Drawing (SCD) TC-17.11 or TC-84.20 may be used in lieu of the span wire clamp if specified in the plans.

9. The pole attachment to the base plate shall be welded using a full penetration weld.

10. A minimum of one full bolt thread shall remain above the anchor nut.

11. All unused couplings shall be provided with a removable galvanized cast iron plug.

12. For construction details and location of handholes, see SCD TC-22.10.

13. For pole and base plate dimensions, see sheet 2.

14. For foundation details, including anchor bolt details, see SCD TC-21.21.

15. Alternate messenger wire assembly (wrapping) as shown on Standard Construction Drawing (SCD) TC-17.11 or TC-84.20 may be used in lieu of the span wire clamp if specified in the plans.

16. The pole attachment to the base plate shall be welded using a full penetration weld.

17. A minimum of one full bolt thread shall remain above the anchor nut.

18. All unused couplings shall be provided with a removable galvanized cast iron plug.

19. For construction details and location of handholes, see SCD TC-22.10.

20. For pole and base plate dimensions, see sheet 2.


22. Alternate messenger wire assembly (wrapping) as shown on Standard Construction Drawing (SCD) TC-17.11 or TC-84.20 may be used in lieu of the span wire clamp if specified in the plans.

23. The pole attachment to the base plate shall be welded using a full penetration weld.

24. A minimum of one full bolt thread shall remain above the anchor nut.

25. All unused couplings shall be provided with a removable galvanized cast iron plug.

26. For construction details and location of handholes, see SCD TC-22.10.

27. For pole and base plate dimensions, see sheet 2.


29. Alternate messenger wire assembly (wrapping) as shown on Standard Construction Drawing (SCD) TC-17.11 or TC-84.20 may be used in lieu of the span wire clamp if specified in the plans.

30. The pole attachment to the base plate shall be welded using a full penetration weld.

31. A minimum of one full bolt thread shall remain above the anchor nut.

32. All unused couplings shall be provided with a removable galvanized cast iron plug.

33. For construction details and location of handholes, see SCD TC-22.10.

34. For pole and base plate dimensions, see sheet 2.

35. See SCD TC-21.21.

36. Alternate messenger wire assembly (wrapping) as shown on Standard Construction Drawing (SCD) TC-17.11 or TC-84.20 may be used in lieu of the span wire clamp if specified in the plans.

37. The pole attachment to the base plate shall be welded using a full penetration weld.

38. A minimum of one full bolt thread shall remain above the anchor nut.

39. All unused couplings shall be provided with a removable galvanized cast iron plug.

40. For construction details and location of handholes, see SCD TC-22.10.

41. For pole and base plate dimensions, see sheet 2.

42. See SCD TC-21.21.
### Notes:

14. Tapered poles shall be one piece assemblies conforming to ASTM A585, Grade A minimum Yield Strength of 55,000 psi with a constant wall taper of 0.14 inches/ft.

15. All material shall meet the requirements of C&MS 710 with the following limitations:
   - Steel hardware - Galvanizing: ASTM A 153 (Hot-dip-galvanized) (Not ASTM B116 Class 50).

16. Nuts shall meet the requirements of C&MS 750.08 and shall also meet the requirements of ASTM A 563 Grade DH or A 194 Grade 2H.

17. Flat washers shall meet the requirements of C&MS 750.08 and shall also meet the requirements of ASTM F 436.

18. Anchor bolts shall meet the requirements of C&MS 635, 711.02, 730.03 and 732.11 except that 730.03 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.

19. Anchor bolt nuts shall meet the requirements of ASTM A 563 Grade DH or A 194 Grade 3H.

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

21. Holes for high-strength bolts and bearing bolts shall meet the requirements of C&MS 513.19. Modifications to the holes must be approved by the Engineer. Drilling or slotting holes to match mis-aligned anchor bolts will not be permitted.

22. All sheets 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.

23. Design Criteria:

   - Load Parameters:
     - Wind Load: 750-year MII Basic Wind Speed Map, 115 mph Design Wind Speed
     - Service Life: Infinite per LRFD/LTS-1 11.9.3
     - Service I Wind Velocity: 76 mph per LRFD/LTS-1 Table 3.4.1 and Figure 3.9-4B
     - ADT: Greater than 10,000

   - Serviceability Parameters:
     - Ratio (Pole Tip): H/180 (H = pole height)
     - Horizontal Deflection at Top of Pole: maximum 1.5% of pole height
     - Slope at Tip of Pole: maximum of 0.35 inch/foot (1.67 degrees) per LRFD/LTS-1 10.4.2.1

### Strain Pole Details

#### Notes (cont’d from sheet 1)

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<th>DESIGN NO.</th>
<th>POLE HEIGHT (FT)</th>
<th>MAXIMUM FACTORED FLEXURAL RESISTANCE AT BASE (FT KIPS)</th>
<th>MINIMUM WALL THICKNESS</th>
<th>ANCHOR BASE</th>
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* = Required dimension, See Note 2