STEEL CANTILEVER SIGN TRUSS STANDARDS
INDEX FOR STEEL CANTILEVER SIGN TRUSS STANDARDS
SCST-01-17 INDEX AND NOTES
SCST-02-17 SIGN SUPPORT DETAILS
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SCST-07-17 FOUNDATION DETAILS - DRILLED SHFT

ANCHOR-BOLT NUT TIGHTENING PROCEDURE:
1) THIS WORK SHALL BE PERFORMED ONLY ON DAYS WITH WINDS LESS THAN 15 MPH.
2) TRIPLE JAM WRENCHES DESIGNED FOR TIGHTENING NUTS AND WASHERS SHALL BE USED TO AVOID ROUNDING OR OTHER DAMAGE TO THE NUTS.
3) BASE PLATE, ANCHOR BOLTS AND NUTS ARE TO BE FREE OF ANY DIRT OR DEBRIS.
4) APPLY STICK WAX OR BEES WAX TO THE THREADS AND BEARING SURFACES OF THE ANCHOR BOLTS, NUTS AND WASHERS.
5) TIGHTEN TOP NUTS SO THAT THEY FULLY CONTACT THE BASE PLATE, THEN TIGHTEN THE LEVELING NUTS TO 200-250 Foot-Pounds (cm-kg). DO NOT ROTATE THE LEVELING NUT DURING THE TOP NUT TIGHTENING.
6) MATCHMARK THE TOP NUTS AND WASHERS USING PAINT, CRAYON OR OTHER APPROVED METHOD. THE PRECISE INSTALLATION AND ALIGNMENT OF ALL COMPONENTS OF THE CANTILEVER TRUSS MAY BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.
7) TIGHTEN THE HORIZONTAL LINES BETWEEN CHORDS SHALL BE LEVEL WITHIN 1/8 INCH PER FOOT OF HORIZONTAL, AND THE VERTICAL LINES BETWEEN CHORDS SHALL BE PLUMB WITHIN 1/2 INCH PER FOOT OF VERTICAL.
8) THE HORIZONTAL LINES BETWEEN CHORDS SHALL BE LEVEL WITHIN 1/8 INCH PER FOOT OF VERTICAL.
9) THE FOUNDATION SHALL BE ACCURATELY LOCATED, WITH THE CENTER OF THE FOUNDATION NOT MORE THAN 1 INCH FROM THE CENTER OF THE FOUNDATION SCREW HOLE.

GALVANIZED STEEL NOTES:
ALN, JAM NUTS, NUTS AND WASHERS SHALL BE ASTM A563 GRADE DH HEAVY HEX.

ANCHOR BOLT NOTES:
1) ANCHOR BOLT MATERIALS AND GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A123. PROVIDE VENT HOLES FOR GALVANIZING.
2) ULTRASONIC TESTING SHALL BE PERFORMED ON THE POST-TO-BASE-PLATE COMPLETE-JOINT-PENETRATION GROOVE WELD.
3) ALL ANCHOR BOLTS SHAL COMPLY WITH ASTM F1554 GRADE 105.
4) ALL STEEL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL.

U-BOLT NOTES:
1) ALL U-BOLTS MAY BE MADE OF GALVANIZED STEEL OR STAINLESS STEEL AND SHALL BE IN ACCORDANCE WITH ASTM A1085; API 5L GRADE X42; OR API 5L GRADE X52.
2) STEEL END POST SHALL COMPLY WITH API 5L GRADE X42 OR APL 5L GRADE X52.
3) ALL STEEL CHORDS SHALL COMPLY WITH ASTM A500 GRADE B, ASTM A500 GRADE C, ASTM A1085, API 5L GRADE X42, OR API 5L GRADE X52.

GENERAL NOTES:
ALL STEEL CANTILEVER SIGN SUPPORTS ARE DESIGNED FOR 50 LB/FT² LOADS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2015.

SPECIFICATIONS:
DETERMINATION LARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2015.

STRUCTURAL ALIGNMENT/TOLERANCE NOTES:
THE PRECISE INSTALLATION AND ALIGNMENT OF ALL COMPONENTS OF THE CANTILEVER SIGN TRUSS MAY BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

INDEX FOR SCST-01-17
IOWA DOT
Steel Cantilever Sign Truss

- **Truss Length**: 40'-0
- **Max. Sign Height**: 20'-0
- **Max. Sign Area**: 400 sq ft

**Chords**
- 3" x 0.625
- 3" x 0.500
- 3" x 0.432

**Post Wall Thickness**
- 4" x 0.500
- 3" x 0.432
- 3" x 0.625

**Camber**
- 6" x 0.625
- 3" x 0.500
- 3" x 0.432

**Elevation**
- Steel end post - see schedule for thickness.

**Plan**
- Indicates the connection of interior diagonals in vertical plane to the top chord members. See section F-F.

**Camber Diagram**
- **Vertical Line**
- **Horizontal Line**

**Schedule**
- High point of pavement below sign to bottom of sign support angles.

See standard sheet SCST-06-17 for post base detail.

See standard sheet SCST-05-17 for details A, B and C, Sections F-F and G-G.

See standard sheet SCST-04-17 for Section A-A.

**Note**
- Although these standards allow for a truss maximum cantilever length of 40', the designer should check material availability before selecting a truss length shorter than 39'-6. Truss chords are typically stocked in 42'-0 lengths. A truss length of 40'-0 requires a total chord length of 42'-6.

- HSS 6.625 x 0.432 may be substituted for HSS 6.625 x 0.375 for truss lengths from 39'-6 to 40'-0.

- HSS 6.625 x 0.500 may be substituted for HSS 6.625 x 0.375 for truss lengths from 30'-0 to 39'-6.

**Revision Dates**
- Revised 07-2017: Modified chord schedule to address material availability.
- Revised 03-2019: Clarified that 17'-6 minimum clearance is from high point of pavement below sign to bottom of sign support angles.
- Revised 12-2021: Changed designation of enclosed note 2 to enclosed note 2. Added new enclosed note 2 that allows substitution of HSS 6.625 x 0.500 for HSS 6.625 x 0.375 for truss lengths from 30'-0 to 36'-0.

**Latest Revision Date**
- July, 2017

**Approved by**
- Bridge Engineer

**Sign Support Views**
- SCST-02-17

**IOWA DOT**
- Standard Design

**Substitution of HSS 6.625 x 0.500 for HSS 6.625 x 0.375 for truss lengths from 30'-0 to 36'-0.

- Revised 12-2021: Changed designation of enclosed note 2 to enclosed note 2. Added new enclosed note 2 that allows substitution of HSS 6.625 x 0.500 for HSS 6.625 x 0.375 for truss lengths from 30'-0 to 36'-0.

**Steel CANTILEVER SIGN TRUSS**

**Highway | Bridge | Standards | Sign Trusses**

**SCST-17.dgn**

**SCST-02-17**

**11x17_pdf.pltcfg**

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TYPICAL TRUSS
ISOMETRIC VIEW
SCST-03-17

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**ANALYSIS:

**POST BASE DETAIL**

**SHOWN IN THE RODENT GUARD**

- **Rods:** The rodent guard shall be placed around the base plate.
- **Stainless Steel Standard Grade Wire Cloth:** The standard grade wire cloth is stainless steel standard grade wire cloth, with a maximum opening of 1/8" in wire with a minimum 2" in diameter.
- **Wire Cloth to Base Plate:** The wire cloth shall be attached to the base plate after installation of the stainless steel guard. The rodent guard shall not extend above the top of the base plate.

**SECTIONS H-H and J-J**

- **Anchor Bolt Assembly:** All anchor bolt materials and galvanizing shall be in accordance with Article 4187.01C of the Standard Specifications.
- **Anchor Bolt Material:** The weight of one anchor bolt assembly (excluding template, excludes galvanizing weight) is 2063 lbs.
- **Leveling Nut:** The leveling nut shall be one piece and made continuous by a complete joint penetration groove weld. Seal with light gray non-sag urethane caulk after galvanizing.
- **Continuous Weld:** The continuous weld shall be to the base plate.

**NOTES:**

- See foundation detail for drilled shaft foundation details.
- See foundation detail for spread footing foundation details.
- See foundation detail for location of post base detail.
STEEL CANTILEVER SIGN TRUSS

PART SIGN TRUSS PLAN

SECTION K-K

SECTION L-L

SIGN SUPPORT ANGLE

U-BOLT DETAIL

SIGN ATTACHMENT DETAILS

IOWA DOT

STEEL CANTILEVER SIGN TRUSS

JULY, 2017

DIMENSION RESTRICTIONS APPLY TO MAIN SIGN PANEL AND ANY SUPPLEMENTAL SIGN PANELS THAT MAY BE PRESENT.

CENTER THE MAIN SIGN PANEL VERTICALLY ON THE TRUSS.

IF THE SUPPLEMENTAL SIGN PANEL LENGTH IS LESS THAN THE LENGTH OF THE MAIN SIGN PANEL, CENTER THE COMBINED HEIGHT OF THE MAIN SIGN PANEL AND SUPPLEMENTAL SIGN PANEL VERTICALLY ON THE TRUSS.

USE L3 x 3 x 1/2 x 6 FOR SIGN HEIGHT GREATER THAN 6'-7, AND/OR SIGN SUPPORT ANGLE-HORIZONTAL SPACING GREATER THAN 2'-6 REQUIRED APPROVAL BY THE BRIDGES AND STRUCTURES BUREAU.

SIGN PANEL

2'-6 MAX.
5'-0 MAX. SPACING
5'-0 MAX.
2'-6 MAX.

MATING ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN SUPPORT ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN PANEL

2'-6 MAX.
5'-0 MAX. SPACING
5'-0 MAX.
2'-6 MAX.

MATING ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN SUPPORT ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN PANEL

2'-6 MAX.
5'-0 MAX. SPACING
5'-0 MAX.
2'-6 MAX.

MATING ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN SUPPORT ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN PANEL

2'-6 MAX.
5'-0 MAX. SPACING
5'-0 MAX.
2'-6 MAX.

MATING ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN SUPPORT ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN PANEL

2'-6 MAX.
5'-0 MAX. SPACING
5'-0 MAX.
2'-6 MAX.

MATING ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.

SIGN SUPPORT ANGLE

ALTERNATE ORIENTATION SHOWN L,
ALTERNATE ORIENTATION OF ANGLE LEG AT SUCCESSIVE SUPPORT LOCATIONS.
**GENERAL NOTES:**

STRUCTURAL CONCRETE, CLASS C, SHALL BE USED FOR THE DRILLED SHAFT.

ALL EXPOSED CONCRETE, JOINT OR SPACER, SHALL BE FILLED WITH A Lymb-pressed.

REINFORCING STEEL IS TO BE NO. 6 BARS WITH A 4'-6" OUTSIDE DIAMETER AND 8" PITCH WITH A 6" SPACING.

SPRAI L REINFORCING MAY BE PLACED WITH A MAXIMUM 1.25" OFFSET BETWEEN ALL SPIRAI L REINFORCING.

SPIRAL REINFORCING MUST BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 16.3.1.3 OF THE STANDARD SPECIFICATIONS.

THE FOUNDATION DETAILS SHOWN ARE BASED ON COMMON COHESIVE SOIL CONDITIONS.

12" BY THE CONTRACTOR, "AS-BUILT" PLANS SHALL BE PREPARED AND SUBMITTED.

ALL ANCHOR BOLT MATERIALS AND GALVANIZING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATION OF THIS FOUNDATION EMBEDMENT WILL BE THE RESULT OF SITE SPECIFIC DESIGN.

IF THE CONDITIONS ENCOUNTERED ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE IF THE FOUNDATION EMBEDMENT NEEDS TO BE MODIFIED.

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