CANTILEVER SIGN TRUSS
GENERAL NOTES

Specifications:
All references to the standard specifications are to the 2019 Edition of the Kentucky Transportation Cabinet Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals with Interims through 2022.

Design:
Designed in accordance with AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals with Interims through 2022 using the following parameters:
- 1700 year MRI, with 120 MPH Design Wind Speed
- Infinite Fatigue Life
- 10 year MRI 76 MPH Service Wind Speed
- Fatigue Design Loads: Natural Wind Gust, Truck-Induced Wind Gust

Superelevation of Roadway:
The contractor shall allow for differences in elevations across the full shoulder width as shown in the Roadway Plans in maintaining the required 18 foot minimum vertical clearance to the bottom, of the lowest part of the sign or support. Sign shall be centered over the lane or lanes to which it applies, or as specified in the Signing Plans.

Material Design Specifications:

For Class "A"Concrete	f'c = 3,500 psi
For Steel Reinforcement	fy= 60,000 psi
For Structural Steel	fy= 50,000 psi
For Steel Columns and Chords	fy= 42,000 psi
For Steel Diagonals	fy= 35,000 psi

Material Specifications:
AASHTO Specifications or ASTM, Current edition, as designated below shall govern the materials furnished:
Steel Shapes galvanized in accordance with ASTM A123:

Structural Steel:	ASTM A992 Grade 50, ASTM A572 Grade 50
Steel Diagonals:	ASTM A53 Grade B, ASTM A500 Grade B or C, ASTM A1085 Grade A
Steel Columns and Chords	ASTM A500 Grade B or C, ASTM A1085 Grade A

Steel Hardware galvanized in accordance with ASTM A153:

High Strength Bolts	ASTM F3125 Grade A325
U-bolts	ASTM A307 Grade A
Anchor Bolts	ASTM F1554 Grade 55
Heavy Hex Nuts	ASTM A194 2H
Flat Washers	ASTM F436

Concrete:
Class "A"Concrete shall be used throughout and shall be paid for at the unit bid price for Class "A" Concrete for Signs.

Beveled Edges:
All exposed concrete edges are to be beveled $\frac{3}{4}$"unless otherwise shown.

Reinforcement:
Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 2 inches unless otherwise noted. Any reinforcing bars designated by the suffix (e) in the plans shall be epoxy coated in accordance with section 811.10 of the Standard Specifications.
Any reinforcing bars designated by the suffix (s) in a Bill of Reinforcement shall be considered a stirrup bar for purposes of bend diameters.
Payment for reinforcement shall be paid for at the unit bid price for Steel Reinforcement for Signs.

Shop Drawings:
The contractor shall submit detailed shop drawings to the Division of Construction for review prior to fabrication in accordance with the specifications. The roadway cross section developed by the contractor is to accompany the shop drawings. The shop drawings and roadway cross section will also be forwarded to the engineer to review.

Fabricator Certification:
The fabricator shall be AISC certified for SBR (Certified Bridge Fabricator - Simple).

Fabrication:
The sign support shall be fabricated in accordance with the AASHTO Specifications.
Any damaged galvanization shall be repaired in accordance with ASTM A780.
Perform all welding according to requirements specified in ANSI/ASSHTO/AWS D1.5 Bridge Welding Code current edition with interims.

Mill Test Reports:
Submit Mill Test Reports in accordance with section 607.03.13 of the Standard Specifications.

Vent / Drain Holes for Galvanization:
Vent / drain holes shall be drilled in the column or chord member at each end of all closed diagonal members prior to welding. The holes shall be spaced as equally as possible across the chord/column surface where the diagonal member opening projects. Vent / drain holes shall be shown in the shop drawings for approval.
Total area of vent / drain holes at each end shall be equal to or less than the following:

30% of the diagonal inside cross sectional opening for members with inside diameters greater than or equal to 3 inches.
45% of the diagonal inside cross sectional opening for members with inside diameters less than 3 inches.

Bolted Connections:
All bolted connections shall include lock washers. After bolted connections are complete, threads shall be scored to prevent nut loosening. Care shall be taken not to damage the nut and threads engaged by the nut. Damaged nuts shall be replaced at the Contractor's expense.

Design Limits:
This standard drawing is applicable to all cantilever sign supports that meet the following criteria:

Max. Total Sign Area:	400 SF (See Member Size Table)
Min. Vertical Clearance of Sign Above Roadway:	18 FT
Max. Height of Sign Above Roadway:	44 FT
Max. "X" Dimension:	33 FT (See Member Size Table)
Max. Sign Panel Height:	16 FT
Max. Exit Panel Height:	2.5 FT
Max./Min. Column Height (H):	27 FT / 18 FT
Max./Min. Pedestal Height (F):	14 FT/ 5 FT
Min. Offset behind Guardrail:	6 FT
Min. Pedestal Projection above soil:	2 FT
Min. Fill above Base of Footing:	3 FT

Design Chart:
A registered professional engineer licensed to practice in the Commonwealth of Kentucky shall fill out the Design Chart based on the design cross section at the location where the truss is to be erected, the actual signs to be used, and the instructions herein. The Engineer's name shall appear in the "Checked By:" Box of the title block of this sheet. The Engineer is responsible for verifying the information based on the contractor's submitted cross sections and reviewing the fabricators shop drawings in detail.

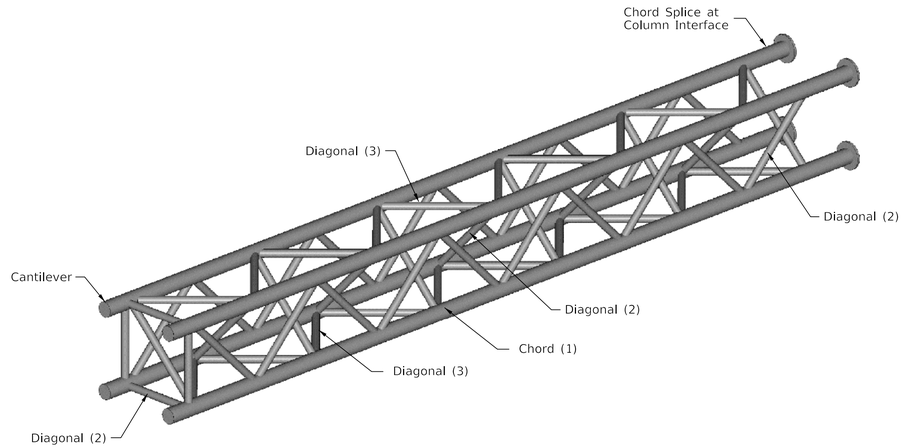
Roadway Cross Section:
The contractor shall take field measurements at each sign location and develop a cross section showing the following:

Pedestal heights
Pedestal offset distance behind guardrail
Column Heights
Minimum Vertical Clearance to each sign

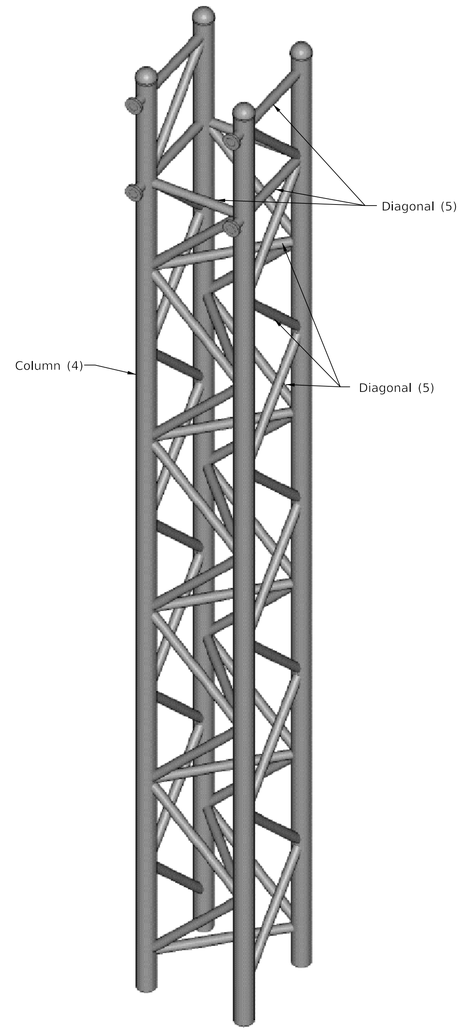
All work associated with developing and furnishing the Roadway Cross Section shall be incidental to OSS Sign Truss.

Footings:
All footings shall be poured against undisturbed earth. The maximum allowable service bearing pressure is 3 kips per square foot.

Payment:
All engineering, materials, labor, equipment, and any other incidentals necessary to furnish and install the sign truss as detailed in these standards and the shop drawings shall be paid for at the unit bid price for COSS Sign Truss.

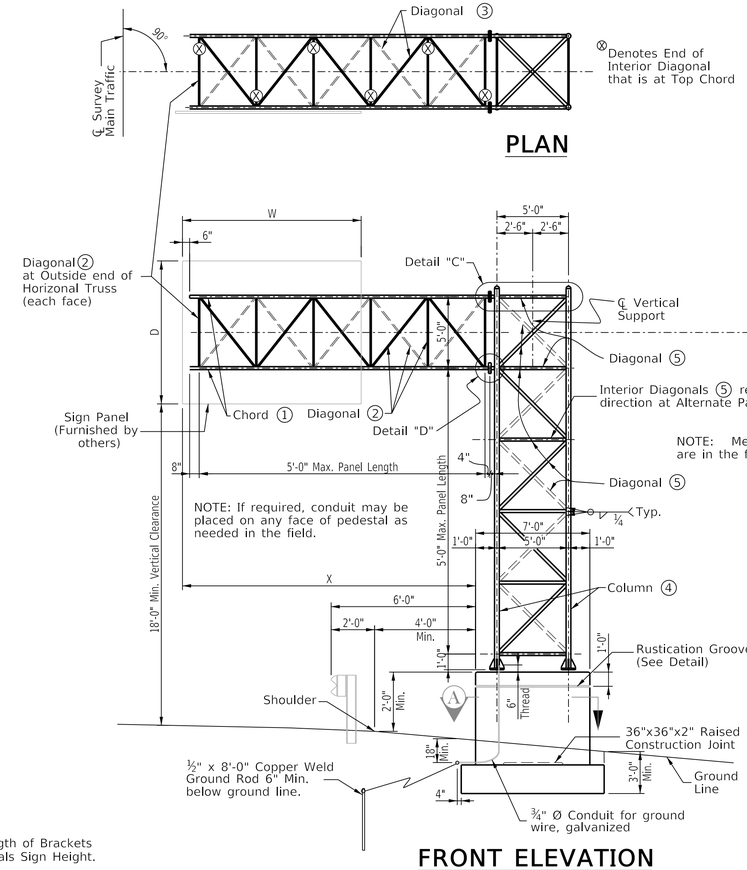


ISOMETRIC VIEW OF CANTILEVER TRUSS ARM
(for information only)



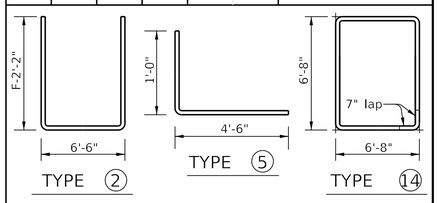
ISOMETRIC VIEW OF CANTILEVER COLUMN
(for information only)

COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS	REVISION	DATE	PREPARED BY	DATE:	CHECKED BY	GENERAL NOTES	ROUTE	ITEM NO.	COUNTY OF
KENTUCKY TRANSPORTATION CABINET				DESIGNED BY:		CROSSING		SHEET NO.	
				DETAILED BY:					



BILL OF REINFORCEMENT FOR FOOTING

MARK	TYPE	NO.	SIZE	LENGTH FT.	LENGTH IN.	LOCATION
A1	5	28	#6	5	6	Footing & Pedestal
A2(s)	2	16	#6	Varies		Pedestal
A3(s)	14	Var.	#5	27	10	Pedestal
A4						See Footing Detail Table
A5						See Footing Detail Table

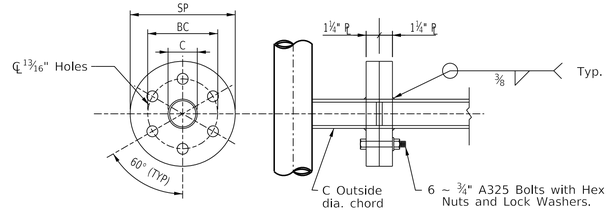


Approximate estimate is for information only. Tabulated F value shall be verified by the Engineer in the field.

Footing Detail Table

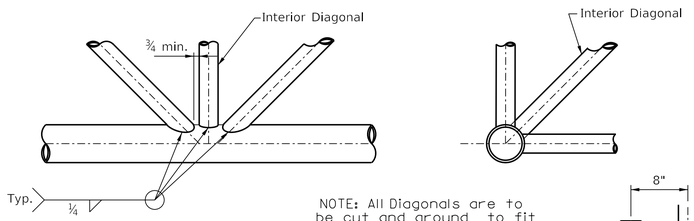
Sign Type	K	J	Footing Bar Dimensions: A4 Type	A4 No. "A"	A4 Size	A4 Length	A5 Type	A5 No. "A"	A5 Size	A5 Length	Estimate of Quantities: Footing Class "A"	Footing Steel	Pedestal (F=5') Class "A"	Pedestal (F=5') Steel	Pedestal (per ft.) Class "A"	Pedestal (per ft.) Steel
1	17'	13'	Str.	13	#8	16'-6"	Str.	17	#5	12'-6"	14.3	1589	5.9	652	1.8	77
2	17'	12'	Str.	12	#8	16'-6"	Str.	17	#5	11'-6"	13.2	1465	5.9	652	1.8	77
3	17'	11'	Str.	11	#8	16'-6"	Str.	17	#5	10'-6"	12.1	1342	5.9	652	1.8	77
4	18'	13'	Str.	13	#8	17'-6"	Str.	18	#5	12'-6"	15.2	1684	5.9	652	1.8	77
5	18'	12'	Str.	12	#8	17'-6"	Str.	18	#5	11'-6"	14.0	1553	5.9	652	1.8	77

Quantities shown are Cubic Yards for Class "A" Concrete and Lbs. for Steel



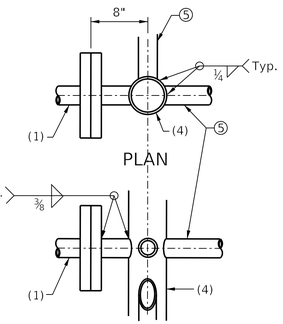
CHORD SPLICE

Connection Detail Table				
Sign Type	C (in)	BC (in)	SP (in)	CDH (in)
1	6.625	9.125	11.125	4.75
2	6.625	9.125	11.125	4.1875
3	5.563	8.063	10.063	4.375
4	6.625	9.125	11.125	4.75
5	6.625	9.125	11.125	4.1875

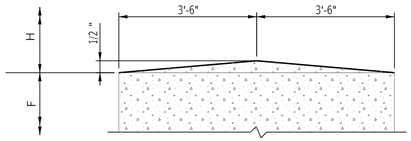


NOTE: All Diagonals are to be cut and ground to fit snugly before welding.

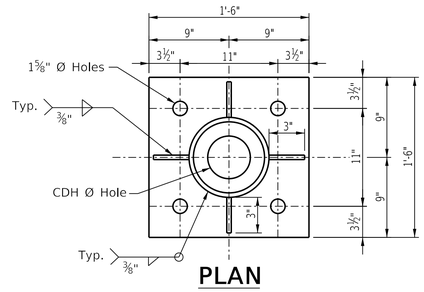
TYPICAL PANEL POINT DETAIL



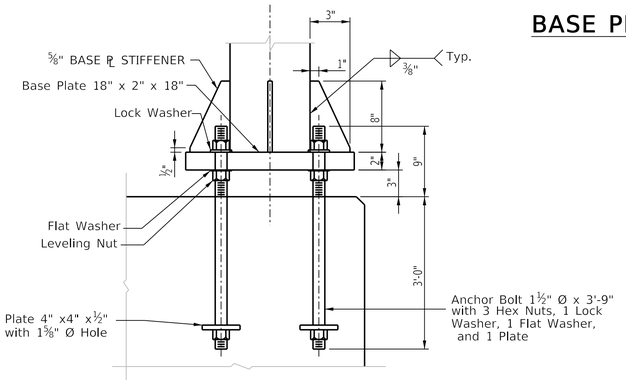
DETAIL - D



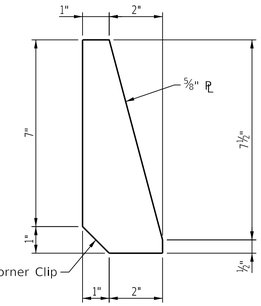
TOP OF PEDESTAL SLOPE DETAIL



PLAN



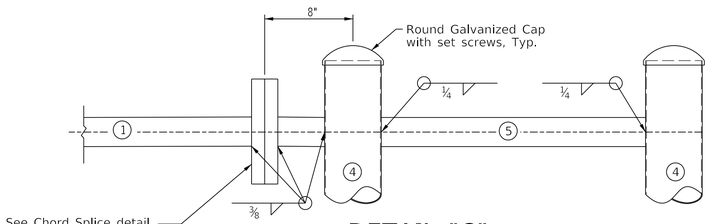
ELEVATION
BASE PLATE DETAIL



BASE PLATE STIFFENER DETAIL

Sign Type	X (ft)	Y (in)
1	33	0.5
2	28	0.4375
3	22	0.375
4	29	0.3125
5	25	0.25

CAMBER DIAGRAM



DETAIL "C"

CHORD END DETAIL

✳ Total Area includes Exit Number Signs that are not shown and shall not exceed values shown in Member Size Table

SUPPORT NO.	STATION	H	F	SIGN				
				SIGN NO.	X	HORIZ. W	VERT. D	AREA* DxW

MEMBER SIZE TABLE								
SIGN TYPE	MAX ✳ SIGN AREA	X<=	CHORD ①	DIAGONAL ②	DIAGONAL ③	Column ④	DIAGONAL ⑤	K
1	300 Sq. Ft.	33	HSS6.625x0.280	HSS2.875x0.203	HSS4.000x0.226	HSS9.625x0.500	HSS7.000x0.500	17
2		28	HSS6.625x0.280	HSS2.875x0.203	HSS3.500x0.216	HSS8.625x0.500	HSS6.625x0.432	17
3		22	HSS5.563x0.258	HSS2.375x0.154	HSS2.875x0.203	HSS8.625x0.500	HSS5.563x0.375	17
4	400 Sq. Ft.	29	HSS6.625x0.280	HSS3.500x0.216	HSS2.875x0.203	HSS9.625x0.500	HSS7.000x0.500	18
5		25	HSS6.625x0.280	HSS3.500x0.216	HSS2.875x0.203	HSS8.625x0.500	HSS6.625x0.432	18

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

PREPARED BY

DATE:	CHECKED BY
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TRUSS DETAILS
CROSSING

ROUTE

ITEM NO.
SHEET NO.

COUNTY OF