

01-15-2016 LETTING ITEM 096

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FAI ROUTE 55 (I-55)
D-5 OVD SIN STR REPL 16-29
MCLEAN COUNTY
Sheet 1 of 16
Contract Number 46387

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

INDEX OF SHEETS

<u>NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3-4	SCHEDULE OF QUANTITIES
5	SIGNING DETAILS
6	SIGN TRUSS MOUNTING DETAIL
7-15	CANTILEVER SIGN STRUCTURE DETAILS
16	SOIL BORING LOGS

FAI ROUTE 55 (I-55)
D-5 OVD SIN STR REPL 16-29
MCLEAN COUNTY
C-60-029-16

STANDARDS

- 701101-04
- 701400-08
- 701406-09
- 701411-09
- 701456-03
- 701901-04
- 720001-01
- 720006-04
- 720021-02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED: Nov. 20 2015
PASSED

Az Elks ENGINEER OF OPERATIONS

Dec 4 2015
John D. Baranzelli, P.E. ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED: Dec 4 2015
Omer Osman, P.E. DIRECTOR DIVISION OF HIGHWAYS

CONTRACT NO. 46387

JOINT UTILITY LOCATING INFORMATION FOR
EXCAVATIONS PHONE: 800-892-0123

SUMMARY OF QUANTITIES

CODE NUMBER	PAY ITEM	UNIT	TOTAL QUANTITY	MCLEAN CO. RURAL 100% STATE 0040
67100100	MOBILIZATION	L SUM	1.00	1.00
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	2.00	2.00
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	L SUM	1.00	1.00
70100825	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	L SUM	1.00	1.00
72000300	SIGN PANEL - TYPE 3	SQFT	168.00	168.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	149.50	149.50
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	34.00	34.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	52.00	52.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	18.00	18.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	2.00	2.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	2.00	2.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	2.00	2.00
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.00	1.00

17

GENERAL DESCRIPTION OF FUND CODES:
0040 = SPECIAL BRIDGE - OVERHEAD SIGN STRUCTURES

SCHEDULE OF QUANTITIES

CODE NUMBER	PAY ITEM	UNIT	100% STATE TOTAL QUANTITY	5-01 SB	5-02 NB
				5C057 I055	5C057 I055
	General Location:			L149.30	R149.10
	Scope of Work:			C	C
				MCLEAN COUNTY	
67100100	MOBILIZATION	L SUM	1.00	0.50	0.50
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	2.00	1.00	1.00
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	L SUM	1.00	0.50	0.50
70100825	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	L SUM	1.00	0.50	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	168.00	84.00	84.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	149.50	74.75	74.75
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	34.00	17.00	17.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	52.00	26.00	26.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	18.00	9.00	9.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	2.00	1.00	1.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	2.00	1.00	1.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	2.00	1.00	1.00
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.00	0.50	0.50

C = Overhead Sign Structure Replacement w/ Cantilever

FILE NAME *	USER NAME * buckleej	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCHEDULE OF QUANTITIES	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
pu\11284EBID\TEG\Illinois.gov\1007\Documents\DOT Offices\District 5\Projects\0548\DRAWN\Drawn\Design\Plans.dgn	DRAWN	REVISED -	REVISED -			55	*	MCLEAN	16	3
PLOT SCALE * 40.0000 1/1 in.	CHECKED -	REVISED -	REVISED -			CONTRACT NO. 46387				
MODELNAME*	PLOT DATE * 9/2/2015	DATE -	REVISED -	SCALE:	SHEET OF SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT			

* D-5 OVD SIN STR REPL 2016-29

Location No.	5-01		
Structure No.	5 C 057 I055 L149.30		
County / Route	MCLEAN CO. - I-55 SB - Funks Grove Rest Area		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	L SUM	0.50
70100825	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	L SUM	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	84.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	74.75
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	17.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	26.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	9.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	1.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	1.00
Z0013798	CONSTRUCTION LAYOUT	L SUM	0.50

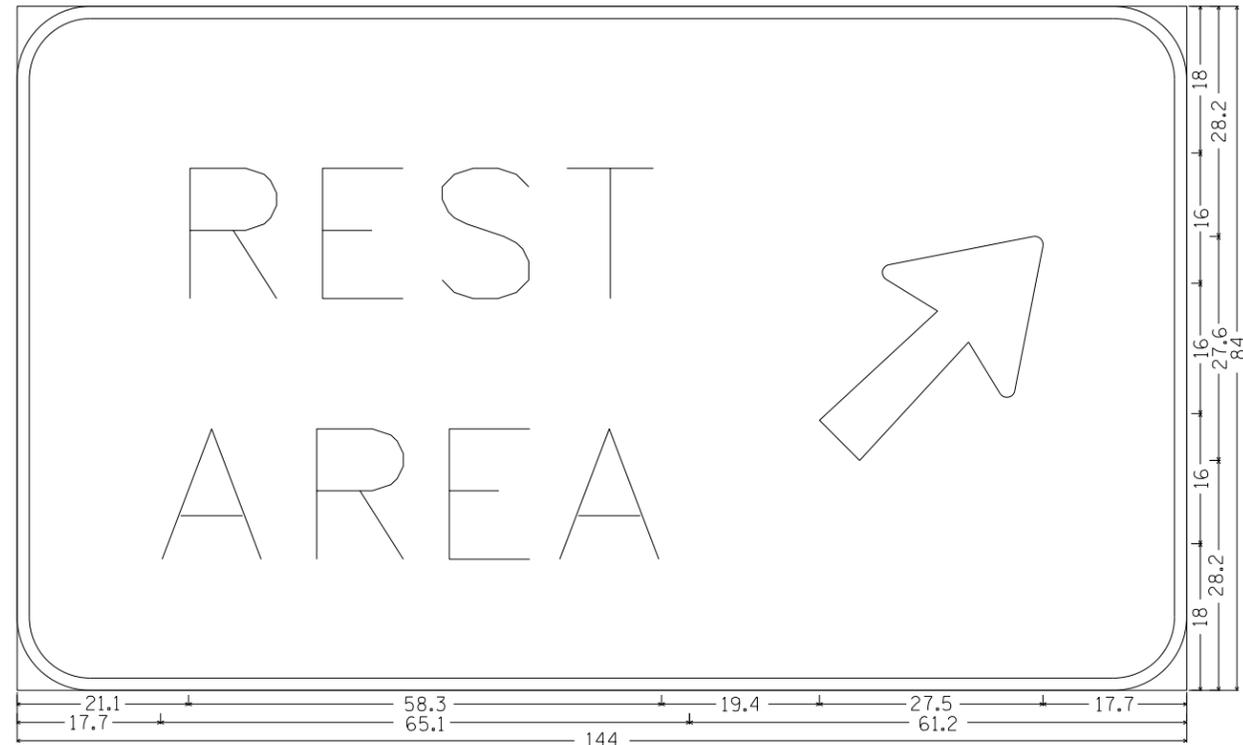
Moving all banded sign placards, including the 30 mph ramp speed limit sign, from the old support to the new support shall be included in the above pay items with no additional compensation allowed.
 TC&P Standard 701406 may or not be required. See Special Provision "Site Specific Traffic Control and Protection"

Location No.	5-02		
Structure No.	5 C 057 I055 R149.10		
County / Route	MCLEAN CO. - I-55 NB - Funks Grove Rest Area		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	L SUM	0.50
70100825	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	L SUM	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	84.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	74.75
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	17.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	26.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	9.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	1.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	1.00
Z0013798	CONSTRUCTION LAYOUT	L SUM	0.50

Moving all banded sign placards, including the 30 mph ramp speed limit sign, from the old support to the new support shall be included in the above pay items with no additional compensation allowed.
 TC&P Standard 701406 may or not be required. See Special Provision "Site Specific Traffic Control and Protection"

X8040310 - ELECTRIC SERVICE DISCONNECT				
LOCATION NO.	STRUCTURE NO.	UNIT	QUANTITY	DESCRIPTION
5-01	5 C 057 I055 L149.30	EACH	1.0	Lighting for Cantilever Truss # L149.30 is the end of run stubbed from nearby light pole # 55/23. Disconnect electrical connection as specified in special provision "ELECTRIC SERVICE DISCONNECT". Cables in the unit duct may become property of the Contractor for salvage.
5-02	5 C 057 I055 R149.10	EACH	1.0	Lighting for Cantilever Truss # R149.10 is the end of run stubbed from nearby light pole # 55/8. Disconnect electrical connection as specified in special provision "ELECTRIC SERVICE DISCONNECT". Cables in the unit duct may become property of the Contractor for salvage.

See Special Provision - "ELECTRIC SERVICE DISCONNECT" for additional details.
 The information provided in this chart and the electrical shown on the plan sheets is the best guess based on "As-Built" plans and by looking in each foundation for the number of unit ducts.
 Contractor shall verify the existing path of the electrical circuit and adjust work as needed.



9.0" Radius, 1.5" Border, White on Blue;
 [REST] E Mod 2K; [AREA] E Mod 2K; Arrow 160 - 35.0" 45L;
 Table of letter and object lefts.

R	E	S	T	↗
21.1	37.4	52.2	67.5	98.8
A	R	E	A	
17.7	36.7	53.0	66.6	

• D-5 OVD SIN STR REPL 2016-29

FILE NAME =	USER NAME = bucklesjj	DESIGNED -	REVISED -
p:\11\084EBIDINTEG.illinois.gov\PWIDOT\Documents\IDOT Offices\District 5\Projects\05463\DRAWING\Design\Plans.dgn		CHECKED -	REVISED -
\$MODELNAME\$	PLOT SCALE = 40.0000' / in.	DATE -	REVISED -
	PLOT DATE = 9/2/2015		

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

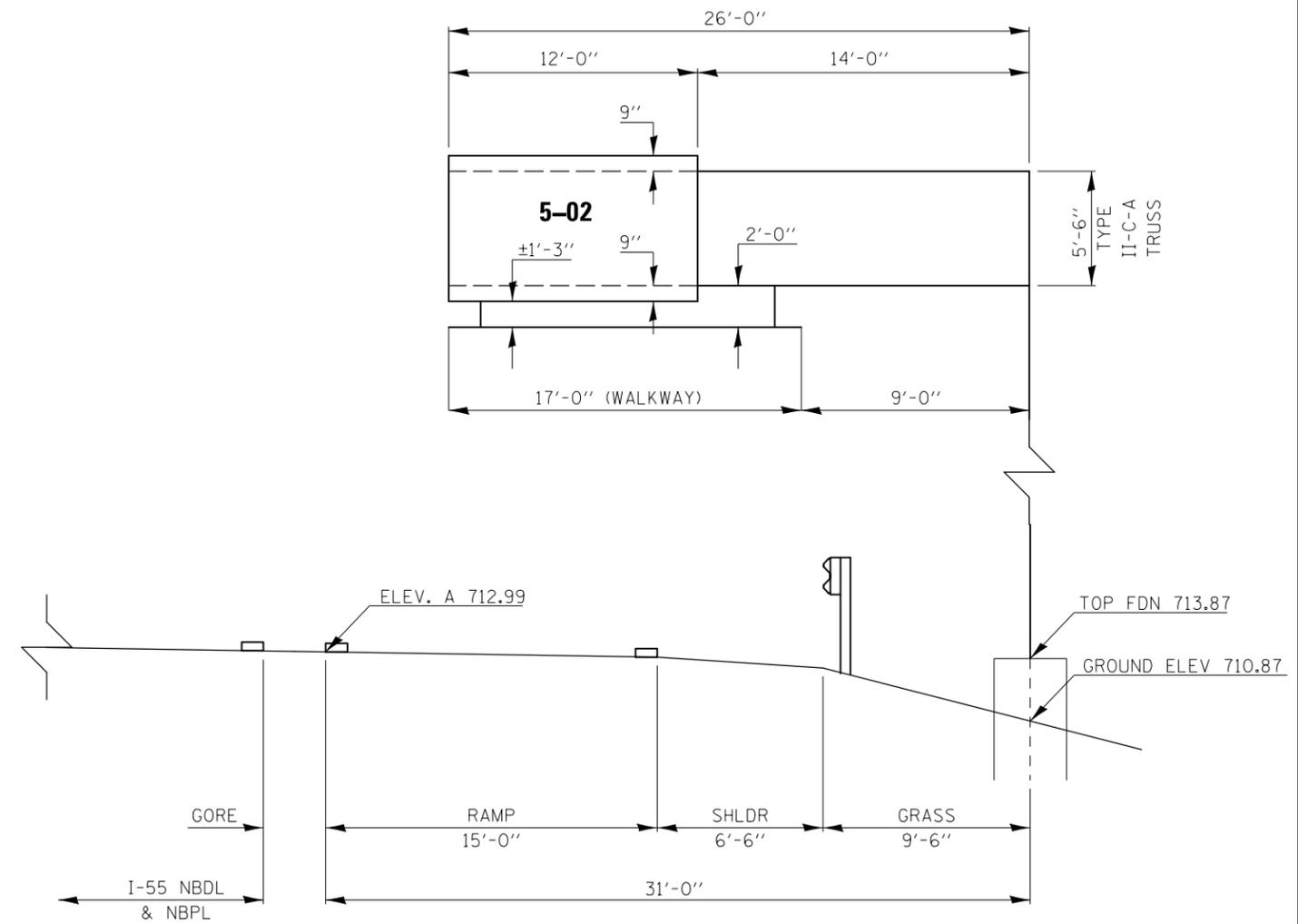
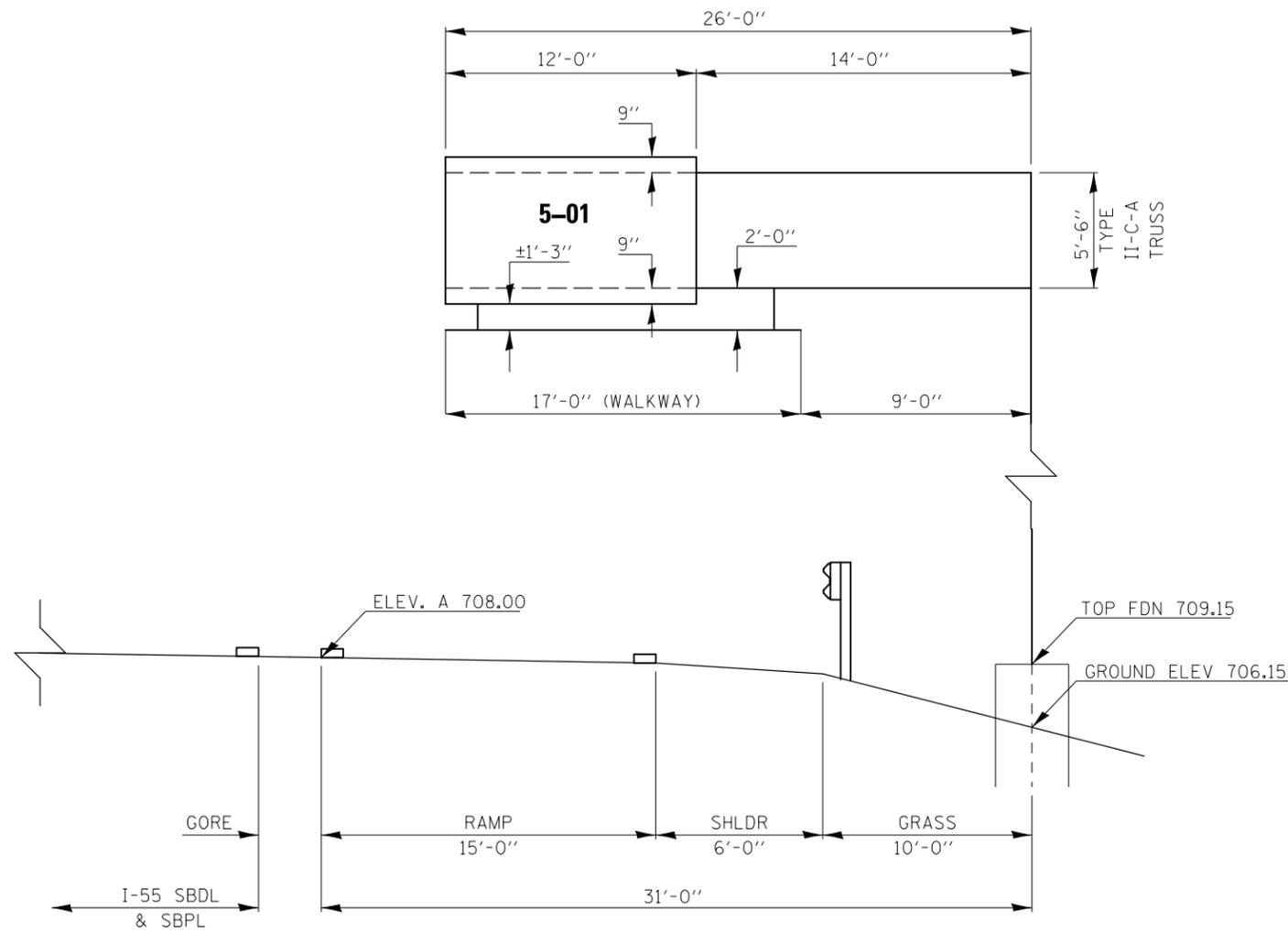
SIGN DETAIL			
SCALE:	SHEET	OF	SHEETS
		STA.	TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	•	MCLEAN	16	5
				CONTRACT NO. 46387
ILLINOIS FED. AID PROJECT				

SIGN TRUSS MOUNTING DETAILS

5 C 057 I055 L149.30

5 C 057 I055 R149.10



TEMP. BENCHMARK = TOP OF SE ANCHOR BOLT PAINTED ORANGE = 708.38 (FROM 1974 PLANS)

TEMP. BENCHMARK = TOP OF NW ANCHOR BOLT PAINTED ORANGE = 713.64 (FROM 1974 PLANS)

FILE NAME =	USER NAME = bucklesjj	DESIGNED -	REVISED -
p:\IL\084EBIDINTEG.illinois.gov\PIWIDOT\Documents\IDOT Offices\District 5\Projects\0543\DRAWING\Design\Plans.dgn		CHECKED -	REVISED -
\$MODELNAME\$	PLOT DATE = 9/2/2015	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SIGN TRUSS MOUNTING DETAILS

SCALE: SHEET OF SHEETS STA. TO STA.

• D-5 OVD SIN STR REPL 2016-29			
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS
55	•	MCLEAN	16
			SHEET NO. 6
CONTRACT NO. 46387			
ILLINOIS FED. AID PROJECT			

GENERAL NOTES

DESIGN: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications")

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

DESIGN STRESSES:

Field Units
 $f'_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i. (reinforcement)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 and D1.2 Structural Welding Codes (Steel and Aluminum) and the Standard Specifications.

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B or A500 Grade B or C. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53.

All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W*. Stainless steel for shims, sleeves and handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer.

The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

FASTENERS FOR ALUMINUM TRUSSES: All bolts noted as "high strength" must satisfy the requirements of AASHTO M164 (ASTM A325), or approved alternate, and must have matching lock nuts. Threaded studs for splices (if Members interfere) must satisfy the requirements of ASTM A449, ASTM A193, Grade B7, or approved alternate, and must have matching lock nuts. Bolts and lock nuts not required to be high strength must satisfy the requirements of ASTM A307. All bolts and lock nuts must be hot dip galvanized per AASHTO M232. The lock nuts must have nylon or steel inserts. A stainless steel flat washer conforming to ASTM A240 Type 302 or 304, is required under both head and nut or under both nuts where threaded studs are used. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the IDOT Standard Specifications for Road and Bridge Construction. Rotational capacity ("ROCAP") testing of bolts will not be required.

U-BOLTS AND EYEBOLTS: U-Bolts and Eyebolts must be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finished stainless steel, or an equivalent material acceptable to the Engineer. All nuts for U-Bolts and Eyebolts must be lock nuts equivalent to ASTM A307 with nylon or steel inserts and hot dip galvanized per AASHTO M232. A stainless steel flat washer conforming to ASTM A240, Type 302 or 304, is required under each U-Bolt and Eyebolt lock nut.

GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: Shall conform to ASTM F1554 Gr. 105.

CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Concrete Sealer in accordance with the Standard Specifications.

REINFORCEMENT BARS: Reinforcement Bars designated (E) shall be epoxy coated in accordance with the Standard Specifications.

FOUNDATIONS: The contract unit price for Drilled Shaft Concrete Foundations shall include reinforcement bars complete in place.

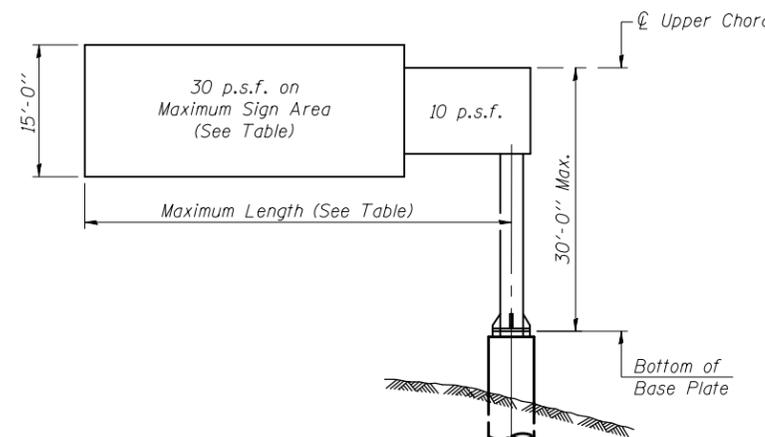
TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE I-C-A	Foot	
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE II-C-A	Foot	52.0
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE III-C-A	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	Foot	34.0
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	18.0

Structure Number	Station	Design Truss Type	Cantilever Length (L)	Elev. A	Dim. D	D _s	Total Sign Area
5-01	287+81	II-C-A	26'-0"	708.00	**	7'-0"	84.0
5-02	280+07	II-C-A	26'-0"	712.99	**	7'-0"	84.0

** SEE SIGN TRUSS MOUNTING DETAILS

Truss Type	Maximum Sign Area	Maximum Length
I-C-A	170 Sq. Ft.	25 Ft.
II-C-A	340 Sq. Ft.	30 Ft.
III-C-A	400 Sq. Ft.	40 Ft.



DESIGN WIND LOADING DIAGRAM

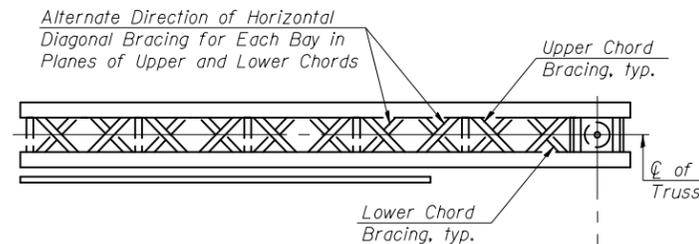
Parameters shown are basis for I.D.O.T. Standards. Installations not within dimensional limits shown require special analysis for all components.

Note:

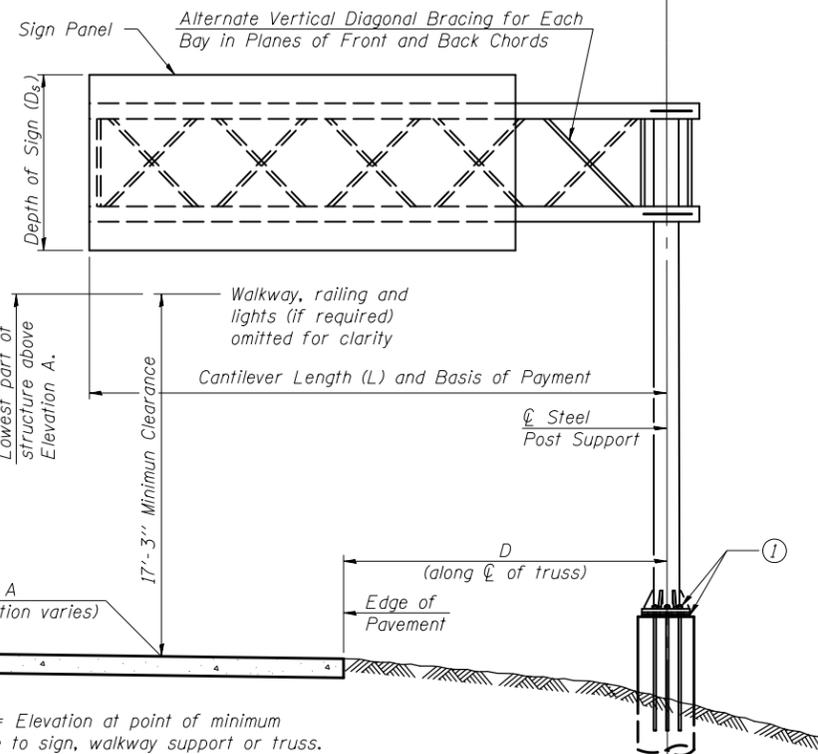
Trusses shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The contractor is responsible for maintaining the configuration and protection of the trusses.

① After adjustments to level truss and insure adequate vertical clearance, all top and leveling nuts shall be tightened against the base plate with a minimum torque of 200 lb.-ft. Stainless steel mesh shall then be placed around the perimeter of the base plate. Secure to base plate with stainless steel banding.

* If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding.



TYPICAL PLAN
(Walkway not shown)



Elev. A = Elevation at point of minimum clearance to sign, walkway support or truss.

TYPICAL ELEVATION

Looking in Direction of Traffic

Sign support structures may be subject to damaging vibrations and oscillations when sign panels are not in place during erection or maintenance of the structure. To avoid these vibrations and oscillations, consideration should be given to attaching temporary blank sign panels to the structure.

OSC-A-1

8-21-13

FILE NAME =	USER NAME = bucklesjj	DESIGNED -	REVISED -
p:\11084EBIDINTEG\illinois.gov\PIWIDOT\Documents\IDOT Offices\District 5\Projects\05463\BROWNDATA\Design\Plans.dgn		REVISIONS -	
PLOT SCALE = 40.0000' / in.	CHECKED -	REVISIONS -	
\$MODELNAME\$	DATE -	REVISIONS -	

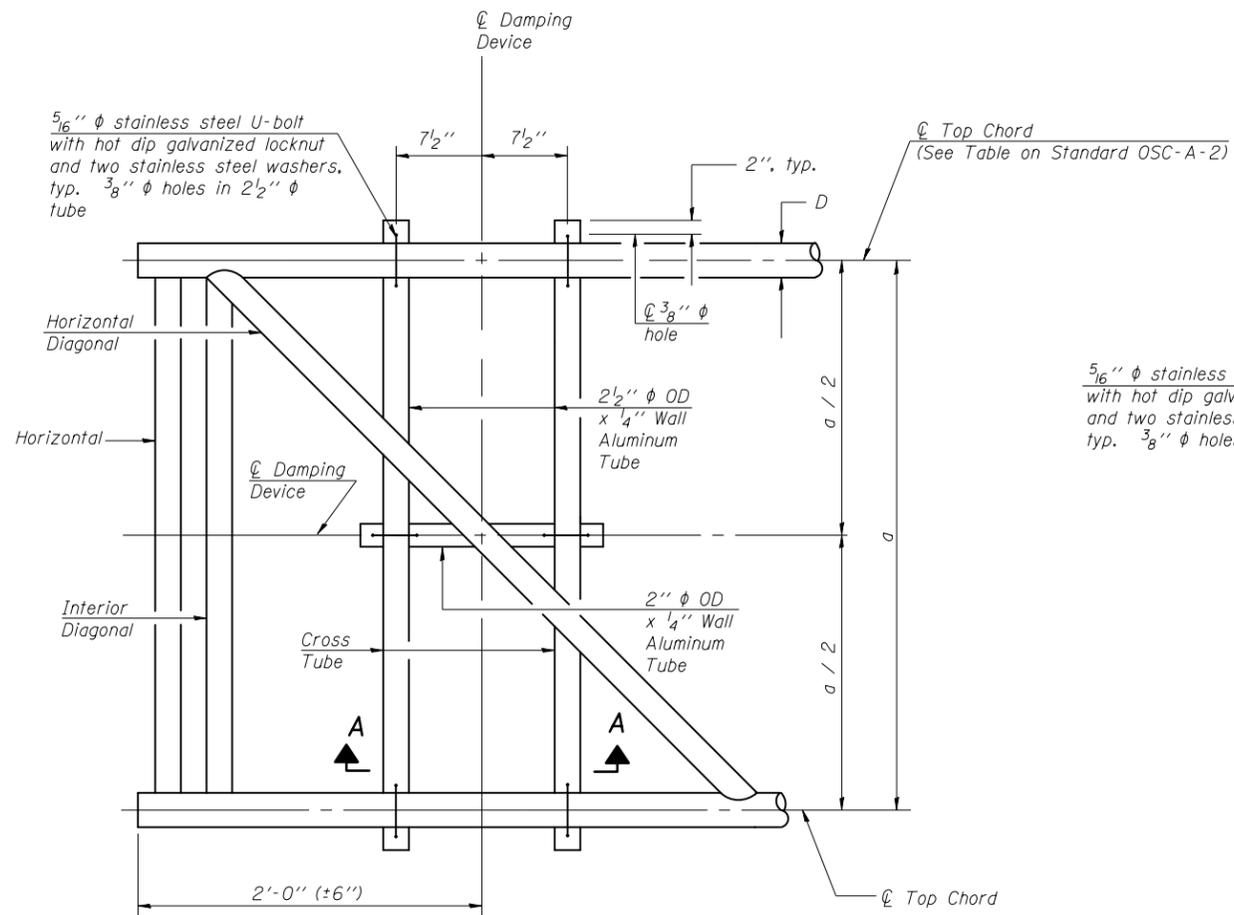
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - GENERAL PLAN & ELEVATION
ALUMINUM TRUSS & STEEL POST

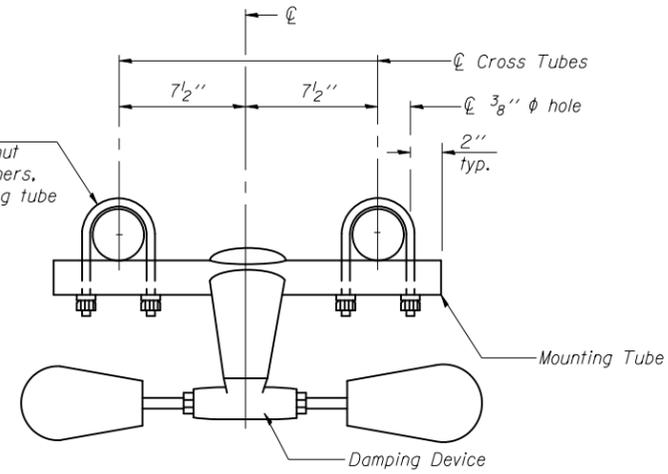
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	*	CLEAN	16	7
CONTRACT NO. 46387			ILLINOIS FED. AID PROJECT	

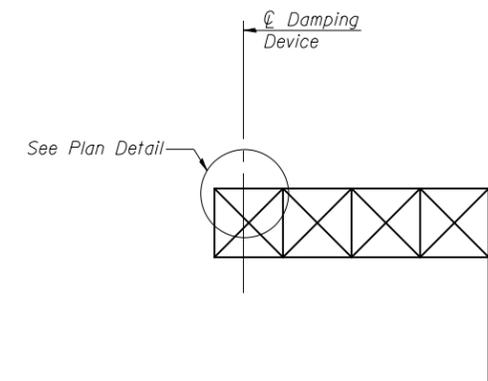
* D-5 OVD SIN STR REPL 2016-29



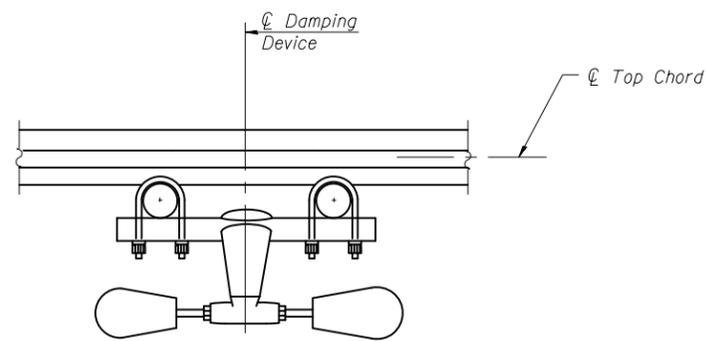
PLAN DETAIL



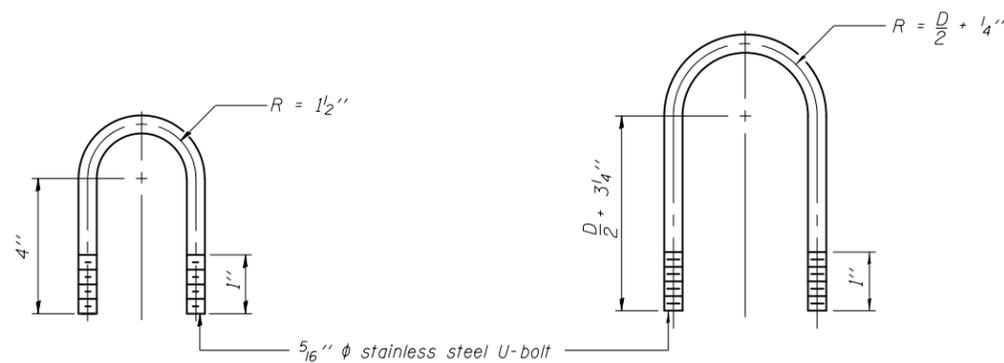
TRUSS DAMPING DEVICE CONNECTION DETAIL



ELEVATION
Aluminum Cantilever Sign Structure



SECTION A-A



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL
(Typical)

TOP CHORD TO CROSS TUBE U-BOLT DETAIL
(Typical)

GENERAL NOTES

- Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum-29" minimum between ends of weights)
- Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6

OSC-A-D

6-1-12

FILE NAME =	USER NAME = bucklesjj	DESIGNED -	REVISED -
pw:\IL\084EBIDINTEG\illinois.gov\PWIDOT\Documents\DOT Offices\District 5\Projects\05463\BROWND\Design\Plans.dgn		CHECKED -	REVISED -
		DATE -	REVISED -
MODELNAME	PLOT DATE = 9/2/2015		

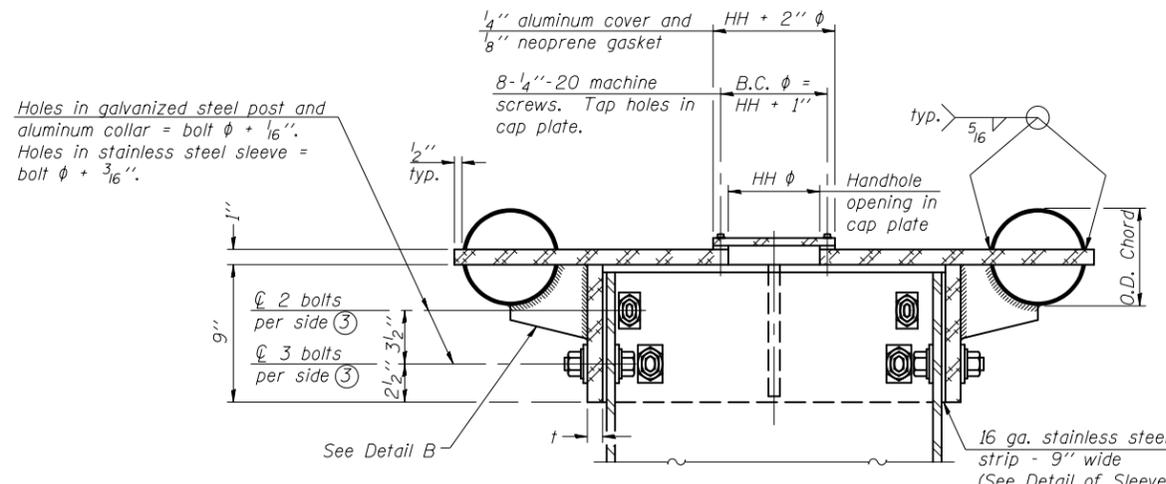
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**CANTILEVER SIGN STRUCTURE
DAMPING DEVICE**

SCALE: SHEET OF SHEETS STA. TO STA.

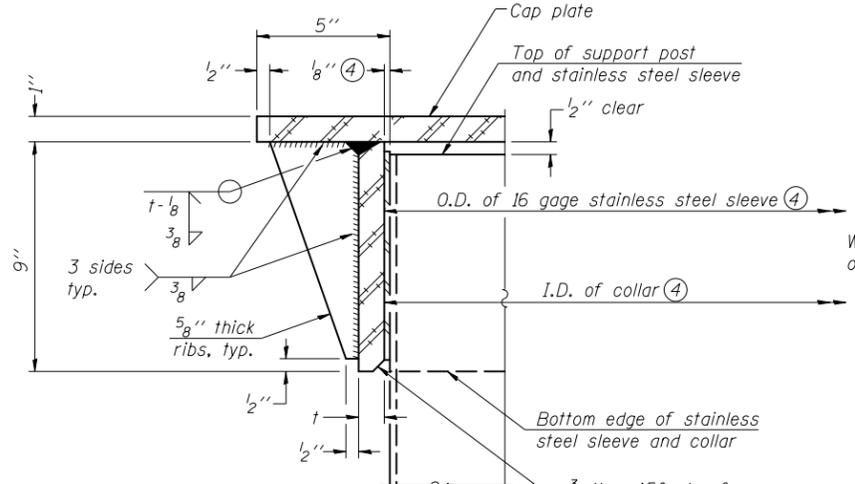
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55		MCLEAN	16	9
			CONTRACT NO. 46387	
ILLINOIS FED. AID PROJECT				

* D-5 OVD SIN STR REPL 2016-29

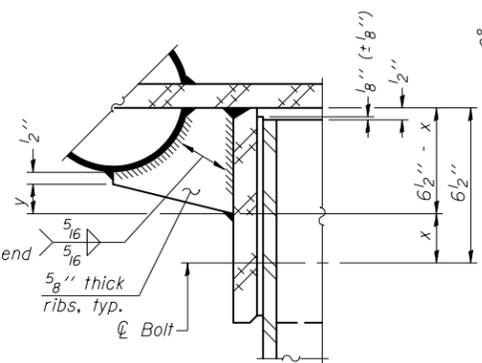


④ Collar I.D. shall be manufactured to correspond to O.D. of actual galvanized post and stainless steel sleeve plus 1/8" (± 1/16"). Maximum gap between post and collar at any location equals 1/8" before tightening bolts.

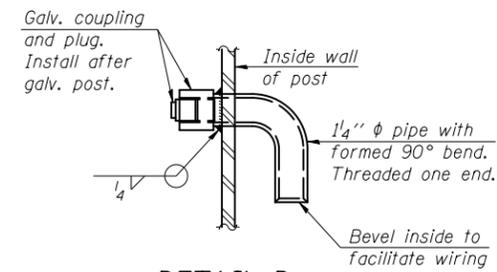
SECTION B-B
Bolts, washers (including contoured washers), and locknuts shall be stainless steel.



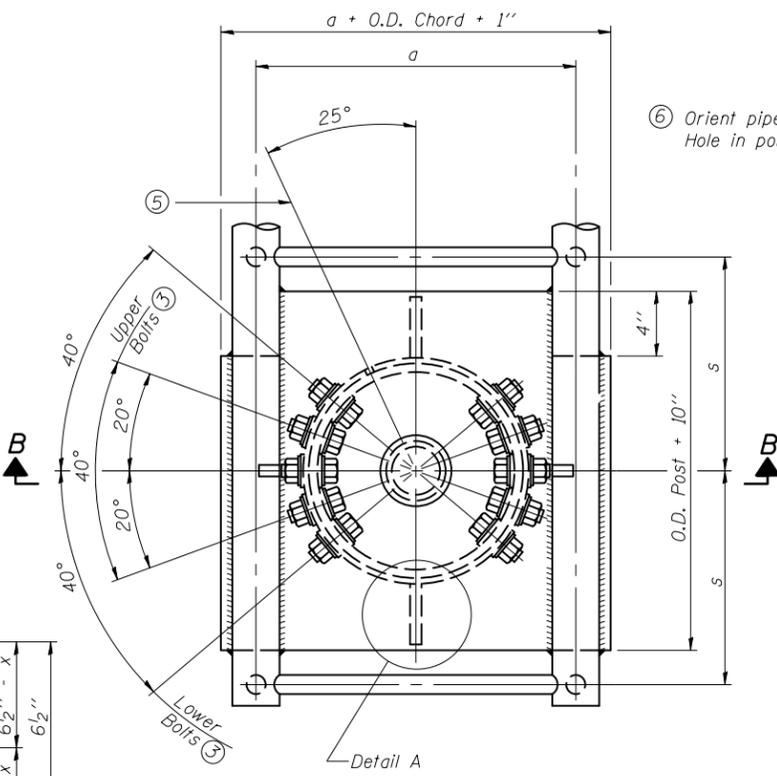
DETAIL A
(Two locations)
3/16" - 45° chamfer on inside of collar to facilitate field assembly



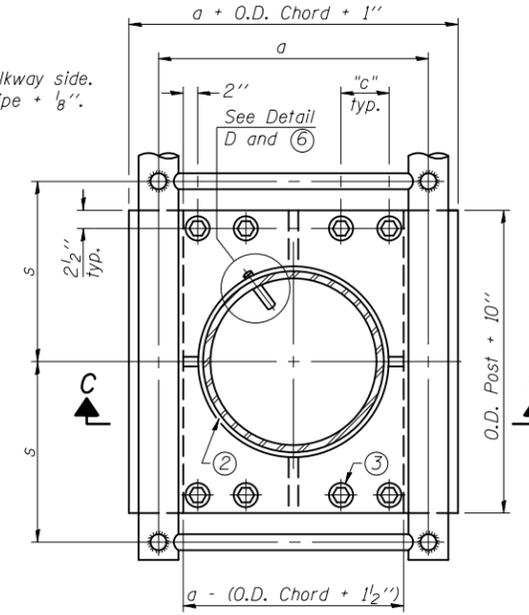
DETAIL B
Two locations
(For details not shown, see Detail C)



DETAIL D

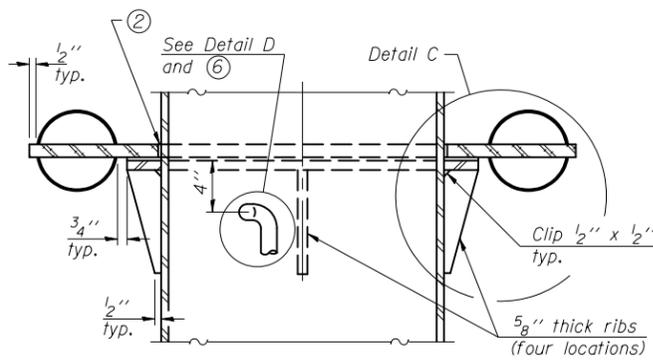


PLAN VIEW - TOP OF COLUMN
⑤ Optional full penetration weld in collar. (Two locations maximum....(180° apart)....X-ray or UT 100%)

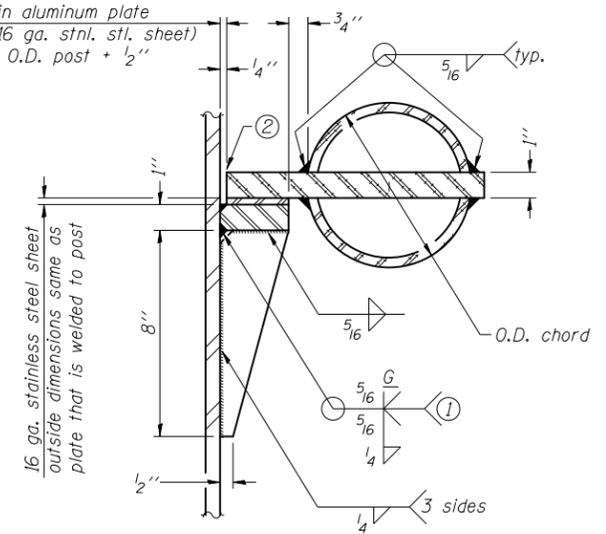


SECTION THRU POST ABOVE LOWER CHORDS

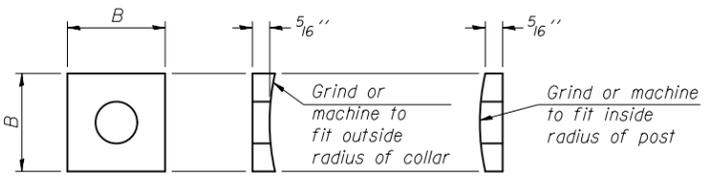
Hole in aluminum plate (and 16 ga. stnl. stl. sheet) to be O.D. post + 1/2"



SECTION C-C



DETAIL C



CONTOURED WASHERS

Bolt Size	Contoured Washers	
	Hole Dia.	B
7/8"	1"	2 1/2"
1"	1 1/8"	3"
1 1/4"	1 3/8"	3 1/4"

DETAIL OF STAINLESS STEEL SLEEVE

Weld to post after galvanizing. (Prepare post surface to insure tight, uniform fit and allow welding.) Welds to be 1/2" long at 6" cts. along top edge and at 1/4" opening.

Truss Type	Post Size	Upper & Lower Connection Bolt Diameter ③	Lower Juncture Bolt Spacing Dimension "c" ③	Opening in Cap Plate "HH"	Collar Thickness (t)	Side Ribs	
						x	y
I-C-A	16" φ (83#/')	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-A	24" φ (125#/')	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-A (35' max.)	24" φ (125#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"
III-C-A (>35' to 40')	24" φ (171#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"

- ① Grind top if required to fully seat aluminum plate and stainless steel sheet.
- ② After tightening lower connection bolts, fill gap with non-hardening, silicone caulk suitable for exterior exposure and acceptable to the Engineer. Cost is included in Overhead Sign Structure Cantilever.
- ③ Upper and lower connection bolts in collar and bolts at lower chord connection shall be high strength with matching locknuts. Connection bolts shall have 2 stainless steel flat washers each.

OSC-A-3

6-1-12

FILE NAME =	USER NAME = bucklesj	DESIGNED -	REVISED -
pw:\IL084EBIDINTEG\Illinois.gov\PIWIDOT\Documents\DOT Offices\District 5\Projects\05463\BROWND\Design\Plans.dgn		REVISIONS -	
PLOT SCALE = 40.0000' / in.	CHECKED -	REVISIONS -	
MODELNAME =	DATE -	REVISIONS -	

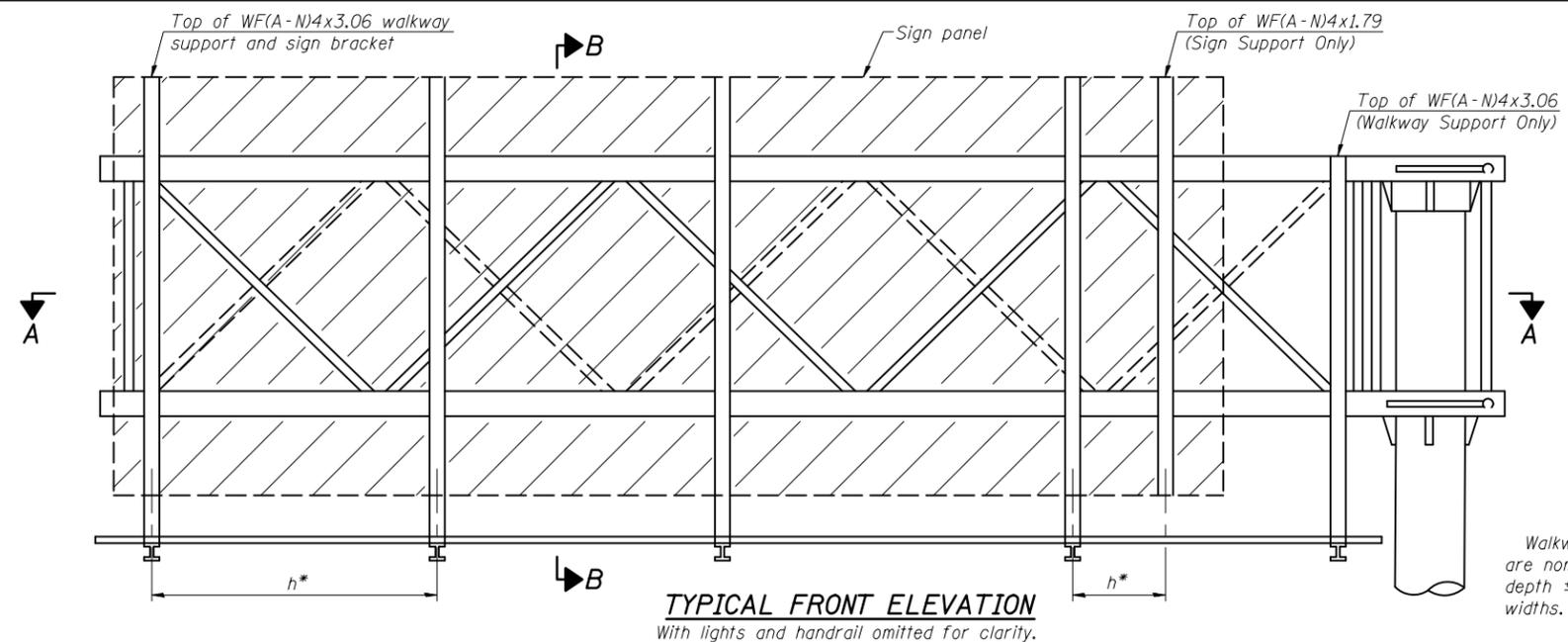
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - JUNCTURE DETAILS
ALUMINUM TRUSS & STEEL POST

SCALE: SHEET OF SHEETS STA. TO STA.

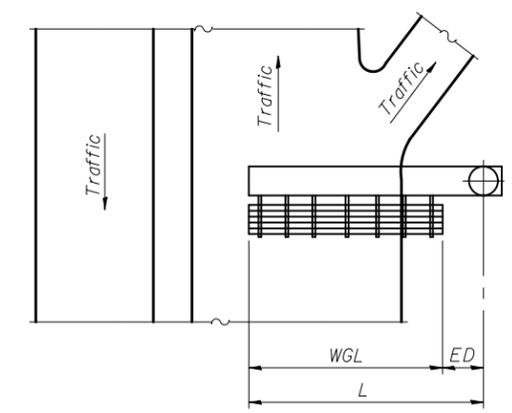
F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55		MCLEAN	16	10
CONTRACT NO. 46387			ILLINOIS FED. AID PROJECT	

D-5 OVD SIN STR REPL 2016-29

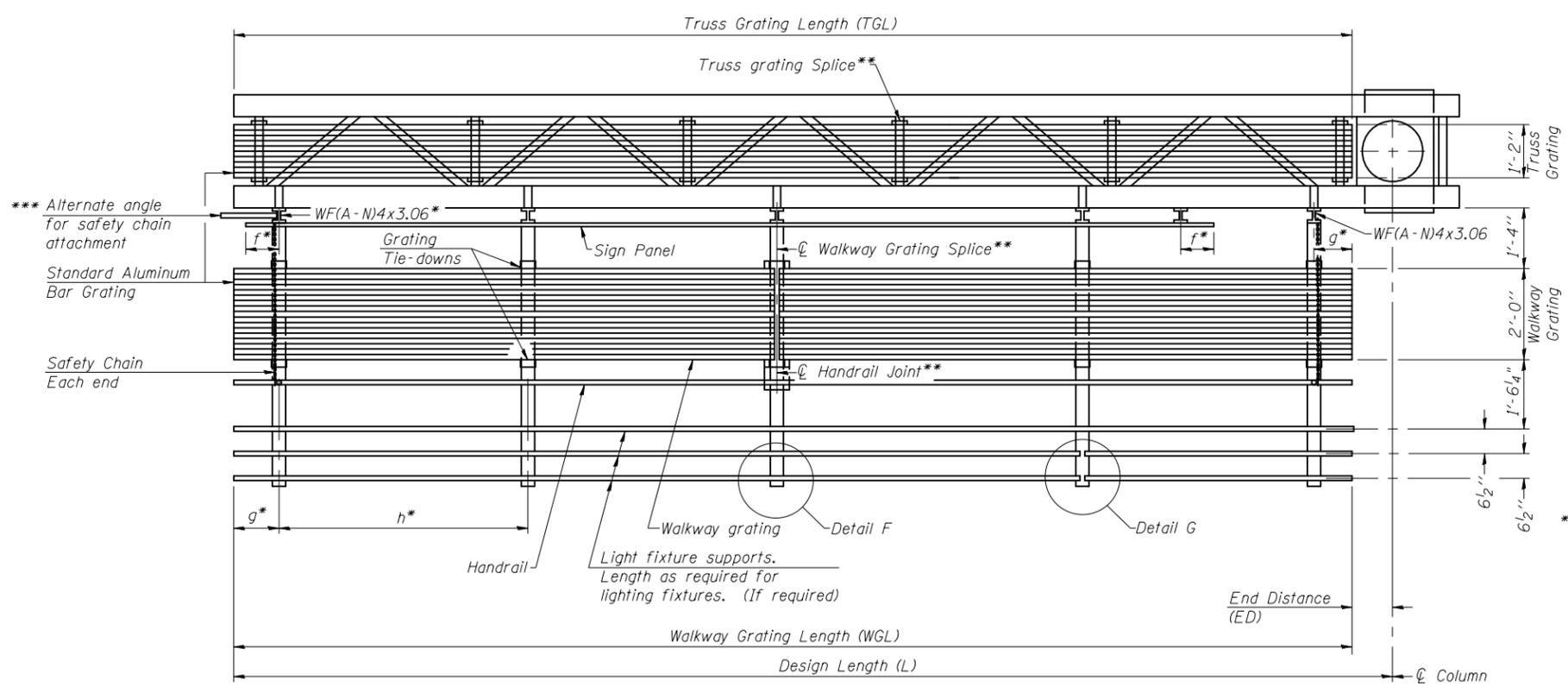


TYPICAL FRONT ELEVATION
With lights and handrail omitted for clarity.

Walkway and truss grating dimensions are nominal and may vary (width ± 1/2", depth ± 1/2") based on available standard widths.



PLAN WALKWAY AND HANDRAIL SKETCH
(Road plan beneath truss varies)



SECTION A-A

Truss grating to facilitate inspection shall run full length of cantilevers. Cost of truss grating is included in Overhead Sign Structure Cantilever.

Handrail and walkway grating shall span a minimum of three brackets between splices.
** Use and location of handrail joints or grating splices are optional, based on lengths needed and material availability.

$$TGL = L - \left(\frac{\text{Post O.D.}}{2} + 6'' \right)$$

Structure Number	Station	WGL	ED	TGL	
5-01	5 C 057 1055 L149, 30 SB	287+81	17'-0"	9'-0"	24'-6"
5-02	5 C 057 1055 R149, 10 NB	280+07	17'-0"	9'-0"	24'-6"

Notes:
* Space walkway brackets WF(A-N)4x3.06 and sign brackets WF(A-N)4x1.79 for efficiency and within limits shown:

f = 12" maximum, 4" minimum (End of sign to center of nearest bracket)
g = 12" maximum, 4" minimum (End of walkway to center of nearest bracket)
h = 6'-0" maximum (center to center sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)
*** If walkway bracket at safety chain location is behind sign, add angle to bracket. See alternate safety chain attachment on base sheet OSC-A-8.

For details of sign placement, sign/walkway brackets, truss and walkway gratings, grating splices and Section B-B, see Base Sheet OSC-A-7.
For details of handrail, handrail joint, safety chain and Details F and G, see Base Sheet OSC-A-8.

BRACKET TABLE

WF(A-N)4x1.79 or WF(A-N)4x3.06 ASTM B308, Alloy 6061-T6		
Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
	8'-0"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

OSC-A-6

6-1-12

FILE NAME =	USER NAME = bucklesjj	DESIGNED -	REVISED -
pw:\IL\084EBIDINTEG\illinois.gov\PWIDOT\Documents\DOT Offices\District 5\Projects\05463\BROWND\Design\Plans.dgn		REVISIONS	
	PLOT SCALE = 40.0000' / in.	CHECKED -	REVISED -
\$MODELNAME\$	PLOT DATE = 9/2/2015	DATE -	REVISED -

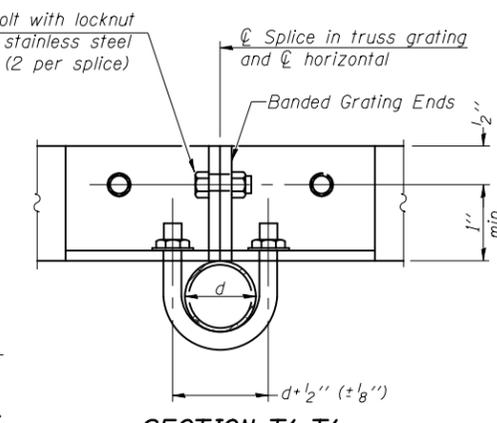
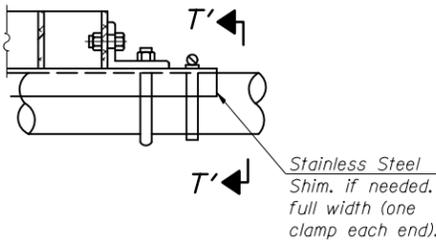
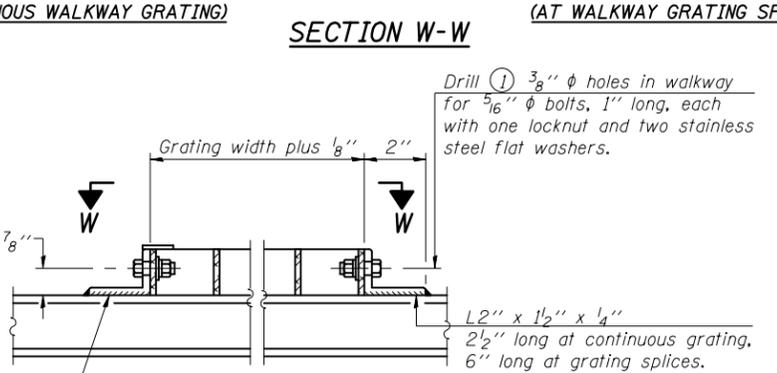
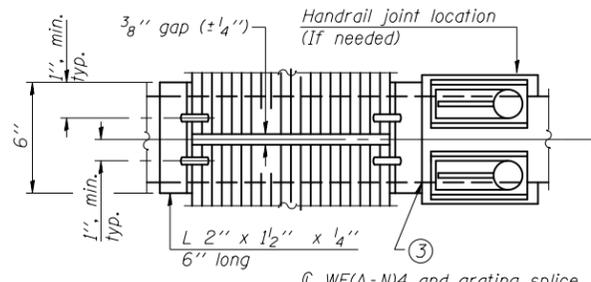
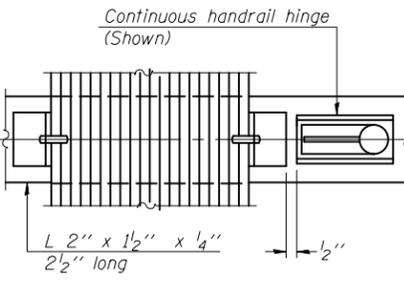
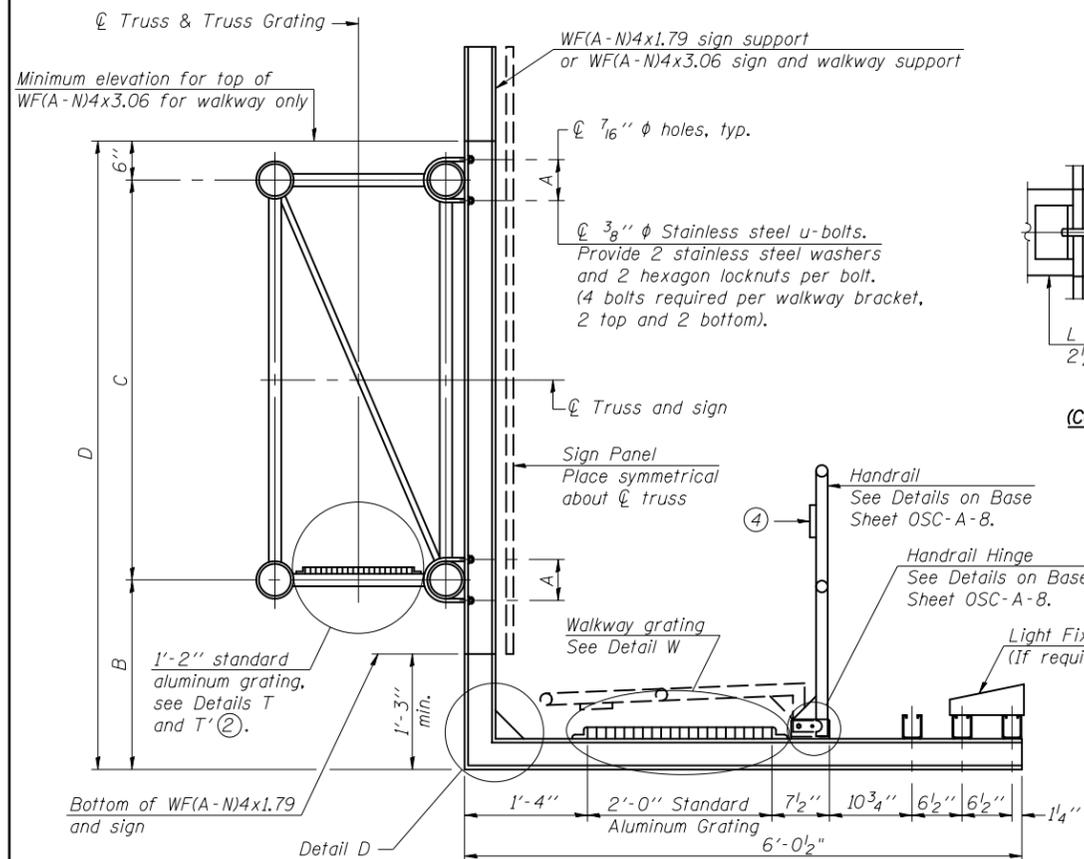
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**CANTILEVER SIGN STRUCTURES - ALUMINUM WALKWAY
DETAILS - ALUMINUM TRUSS & STEEL POST**

SCALE: SHEET OF SHEETS STA. TO STA.

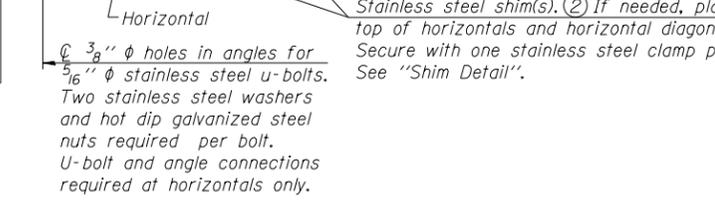
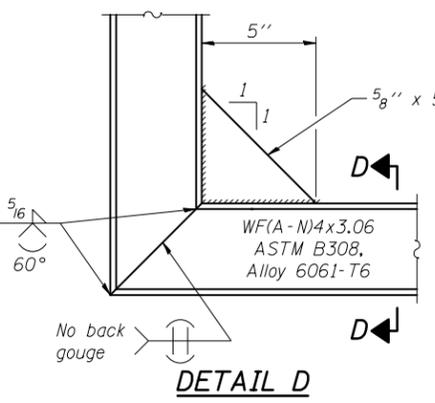
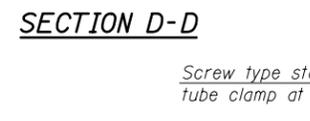
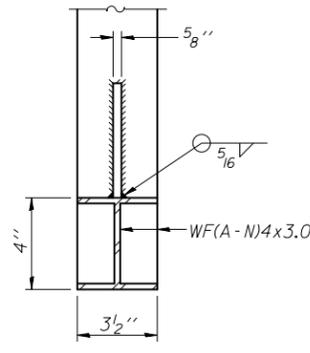
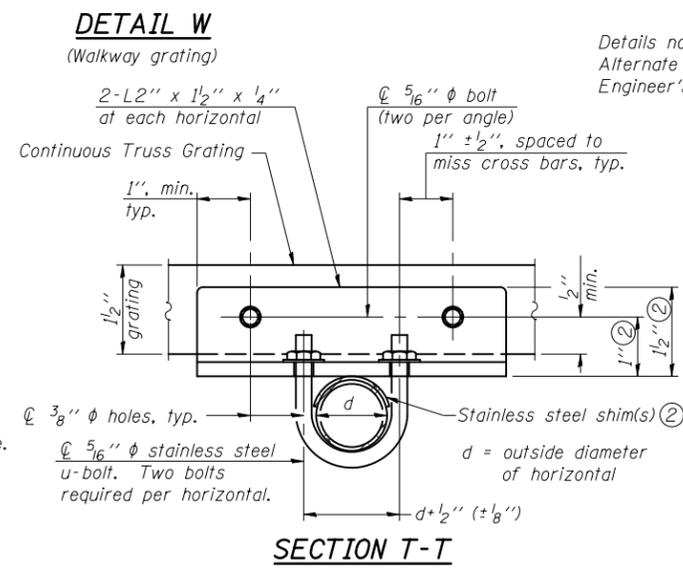
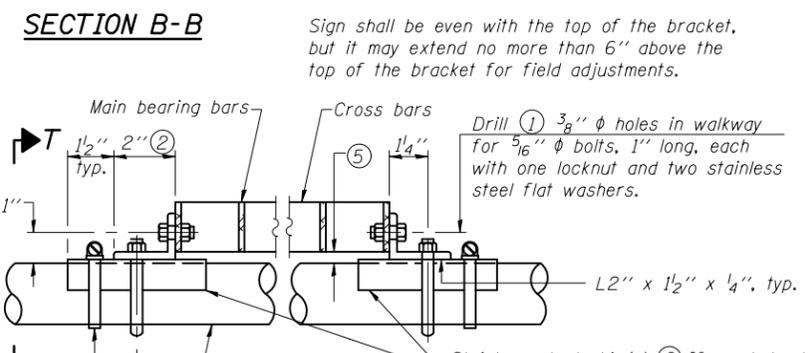
F.A.I. RTE. 55	SECTION *	COUNTY MCLEAN	TOTAL SHEETS 16	SHEET NO. 12
CONTRACT NO. 46387			ILLINOIS FED. AID PROJECT	

* D-5 OVD SIN STR REPL 2016-29



SPECIFICATIONS FOR STANDARD ALUMINUM GRATING
 Main Bearing Bars (MBB) shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B211 Alloy 6061-T6.
 Cross bars (CB) shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR
 Aluminum Grating with modified "t" sections for main bearing bars shall meet the following requirements:
 Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.³ per bar, a depth of 1 1/2", spaced on 1 3/16" centers.
 Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.



- ① Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- ② Stainless steel shims shall be placed as shown in Detail T if needed to compensate for alignment variations between horizontal and diagonal pipes beyond adjustment provided by angles. Thicker shims may be used subject to shims performing properly.
- ③ If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OSC-A-8.)
- ④ 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- ⑤ Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.
- ⑥ Based on actual sign height, D_s, given on OSC-A-1.

Structure Number	Station	A	⑥ B	C	⑥ D *	
5-01	5 C 057 1055 L149, 30 SB	287+81	11-C-A	2'-0"	5'-6"	8'-0"
5-02	5 C 057 1055 R149, 10 NB	280+07	11-C-A	2'-0"	5'-6"	8'-0"
						& VAR.
						& VAR.

*See also "Sign Truss Mounting Details" Sheet 6 for the information needed to determine the variable walkway support and sign support lengths.

OSC-A-7

6-1-12

FILE NAME =	USER NAME = bucklesj	DESIGNED -	REVISED -
pw\11084EBIDINTEG\illinois.gov\PIWIDOT\Documents\DOT Offices\District 5\Projects\05463\BROWND\Design\Plans.dgn		REVISIONS -	
PLOT SCALE = 40.0000' / in.	CHECKED -	REVISIONS -	
DATE = 9/2/2015	DATE -	REVISIONS -	

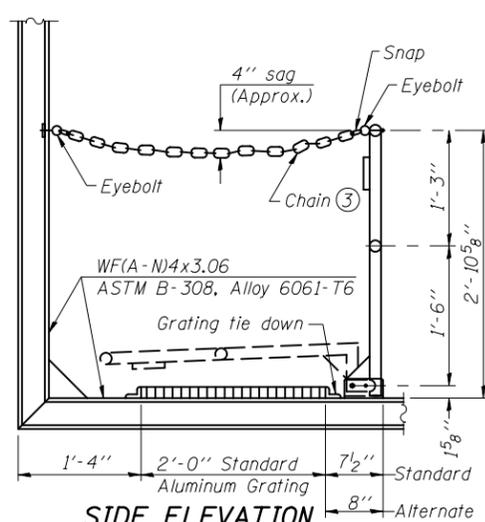
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - WALKWAY DETAILS
 ALUMINUM TRUSS & STEEL POST

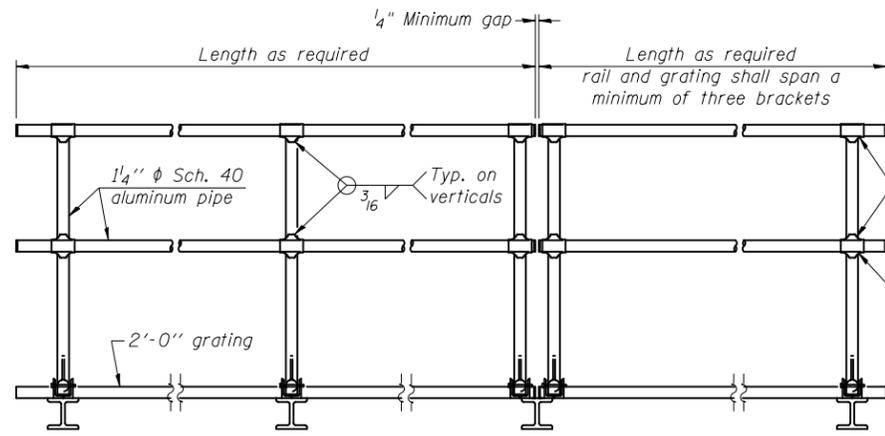
F.A.I. RTE. = 55	SECTION =	COUNTY = MCLEAN	TOTAL SHEETS = 16	SHEET NO. = 13
CONTRACT NO. 46387			ILLINOIS FED. AID PROJECT	

D-5 OVD SIN STR REPL 2016-29

SCALE: SHEET OF SHEETS STA. TO STA.



SIDE ELEVATION
(Showing Safety Chain W/O Sign)

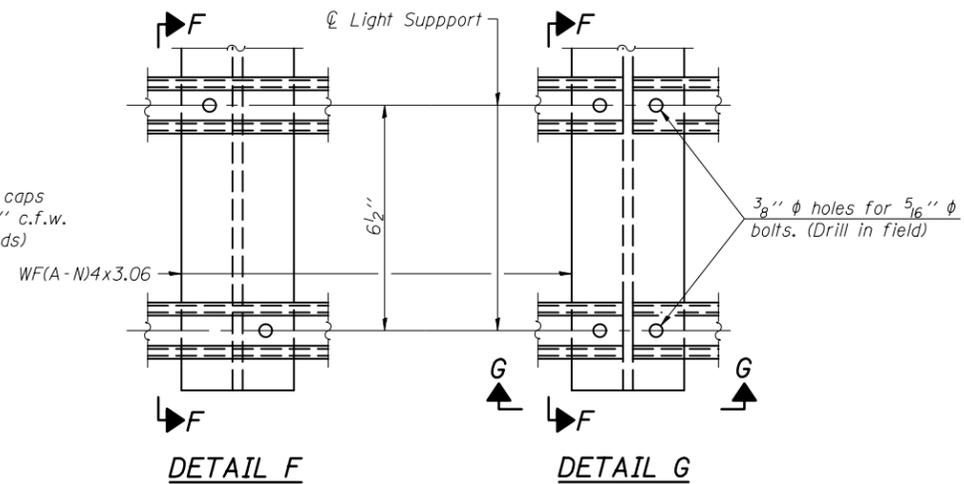


FRONT ELEVATION

HANDRAIL DETAILS

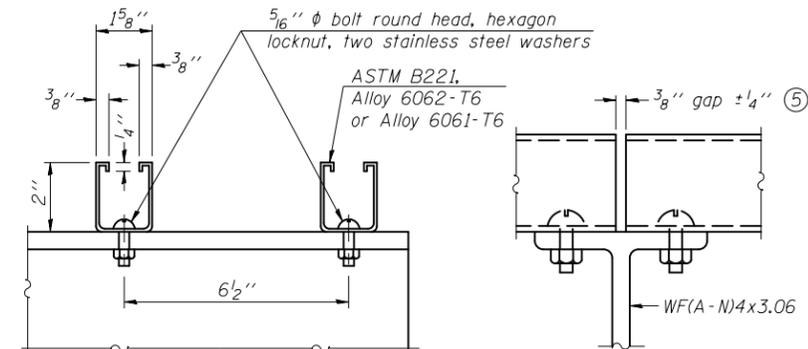
Handrail pipe shall be ASTM B241 or B429, Alloy 6063-T6 or Alloy 6061-T6.

① Install standard force-fit end caps or weld 1/8 inch end plates with 1/8 inch c.f.w. and grind smooth. (All rail ends)
Fittings-ASTM B26, Alloy 356-T7 or 1 1/2 inch diameter aluminum pipe
② Horizontal handrail member shall be continuous thru fitting. Provide 7/16 inch diameter hole in fitting for 3/8 inch diameter bolt. Field drill 7/16 inch diameter hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16 inch diameter eyebolts in 7/16 inch diameter holes on top rail at ends only.)



DETAIL F

DETAIL G

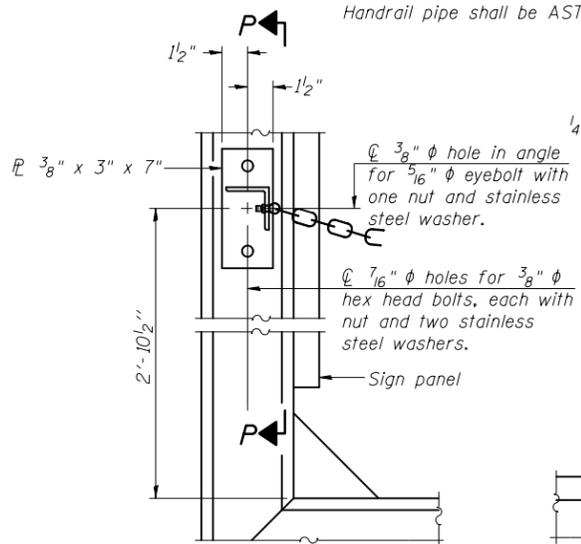


SECTION F-F

SECTION G-G

LIGHTING FIXTURE MOUNTS (IF REQUIRED)

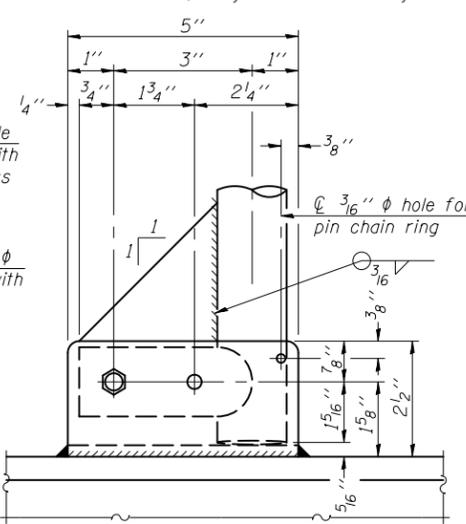
⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



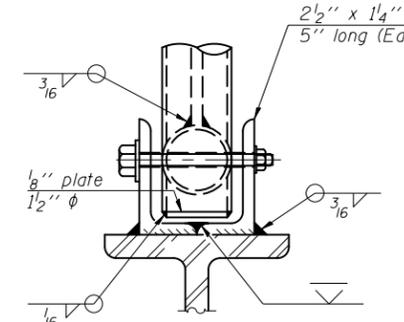
ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

Items not shown same as "Side Elevation" of "Handrail Details"



SIDE ELEVATION

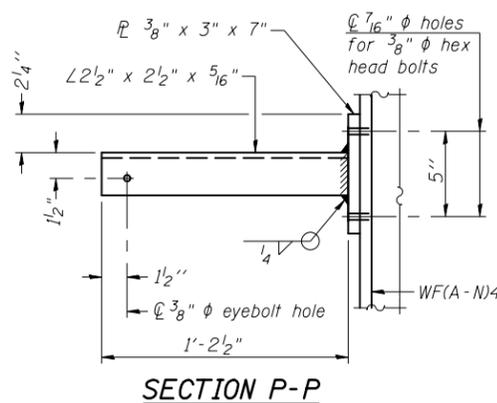


FRONT ELEVATION

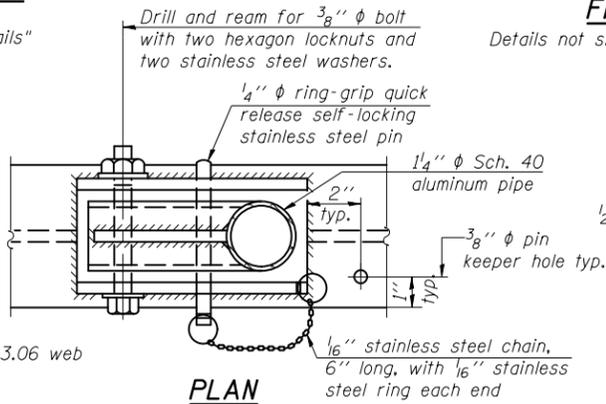
Details not shown same as "ELEVATION" at right.

ELEVATION AT HANDRAIL JOINT

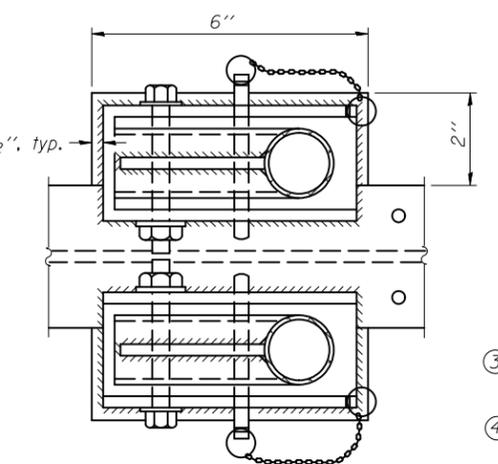
Details not shown same as "FRONT ELEVATION"



SECTION P-P

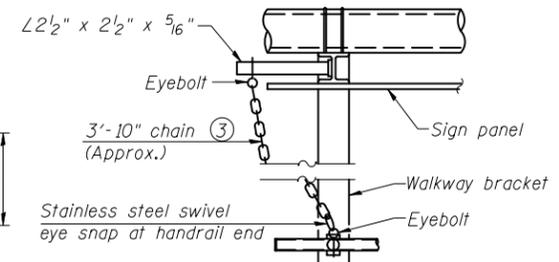


PLAN
DETAIL E HANDRAIL HINGE



PLAN AT HANDRAIL JOINT

Details not shown same as "PLAN"

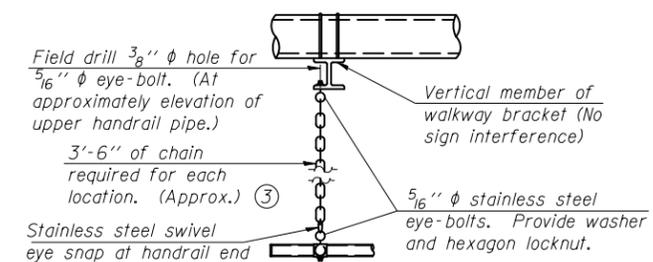


ALTERNATE SAFETY CHAIN ATTACHMENT

Details not shown similar to "Safety Chain" Details (Walkway omitted for clarity)

③ 3/16 inch Type 304L stainless steel chain, approximately 12 links per foot.

④ Extrusions may be used in lieu of the details shown, with approval of the Engineer.



SAFETY CHAIN

One required for each end of each walkway.

OSC-A-8

6-1-12

FILE NAME =	USER NAME = bucklesj	DESIGNED -	REVISED -
p:\11\084EBIDINTEG\Illinois.gov\PIWIDT\Documents\DOT Offices\District 5\Projects\0546\BROWNDATA\Design\Plans.dgn		REVISED -	REVISED -
MODELNAME =	PLOT SCALE = 40.0000 / in.	CHECKED -	REVISED -
	PLOT DATE = 9/2/2015	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

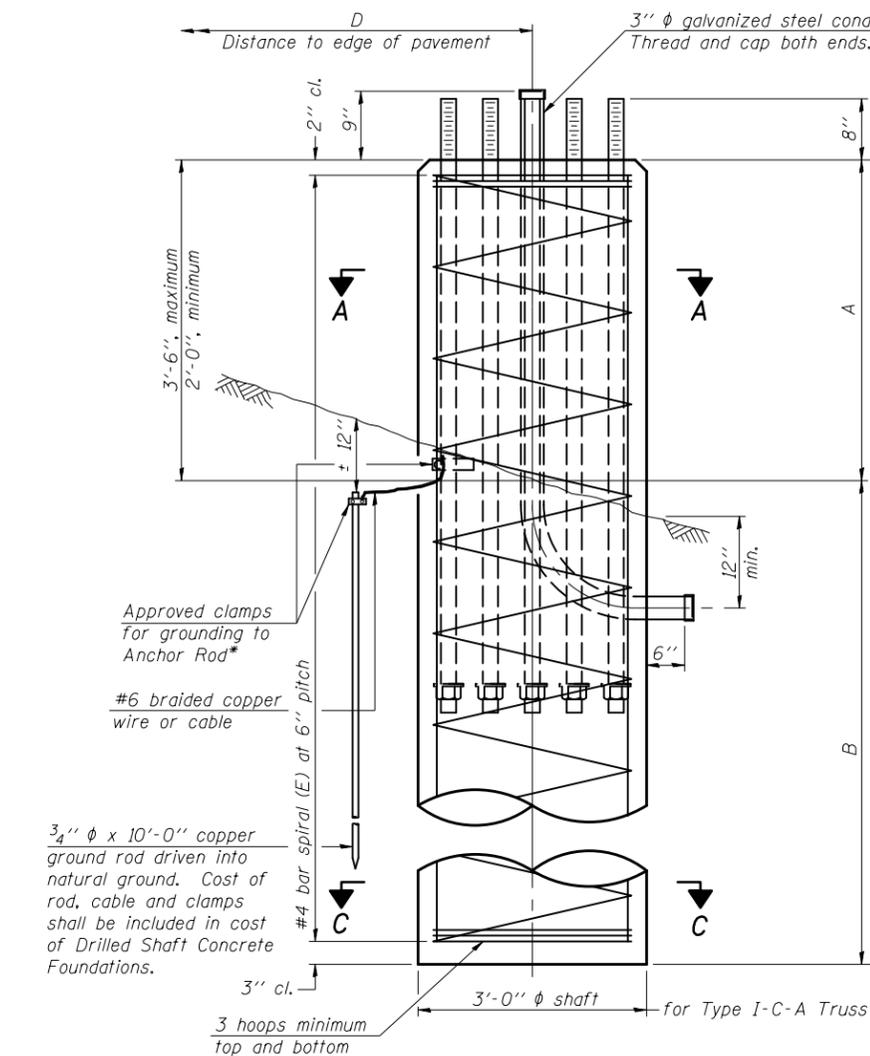
CANTILEVER SIGN STRUCTURES - HANDRAIL DETAILS
ALUMINUM TRUSS & STEEL POST

SCALE: SHEET OF SHEETS STA. TO STA.

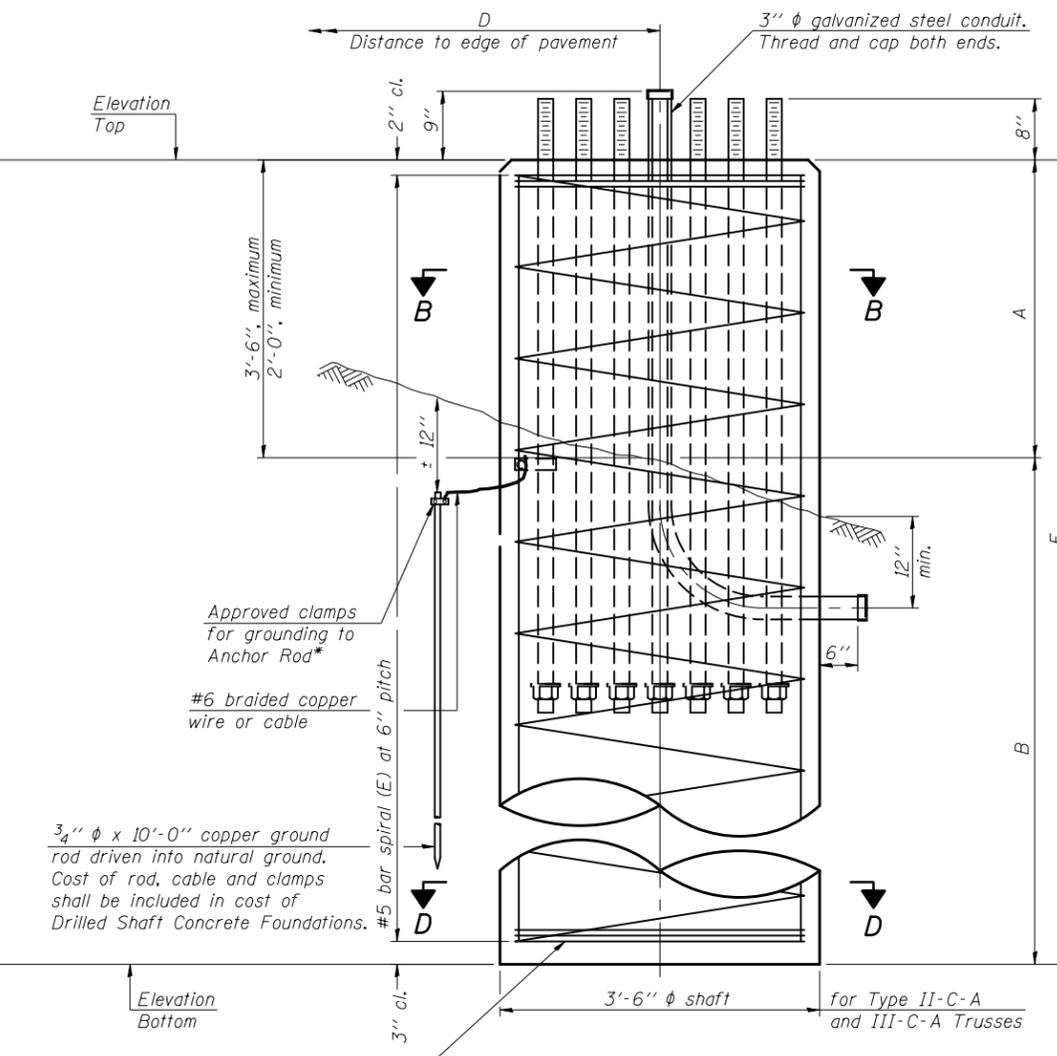
F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55		MCLEAN	16	14
			CONTRACT NO. 46387	
ILLINOIS FED. AID PROJECT				

D-5 OVD SIN STR REPL 2016-29

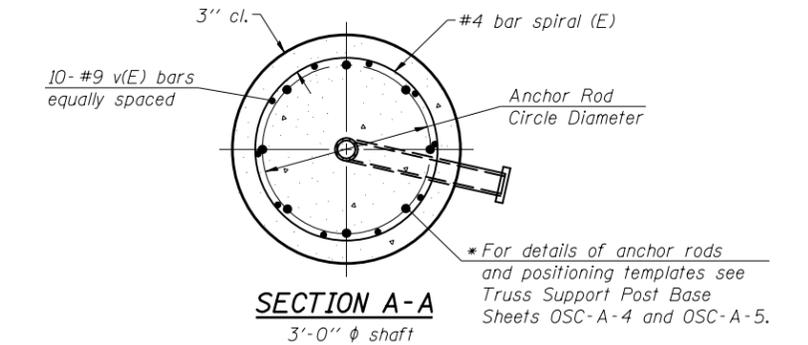
* Grind anchor rod to bright finish at ground clamp location before installing clamp.



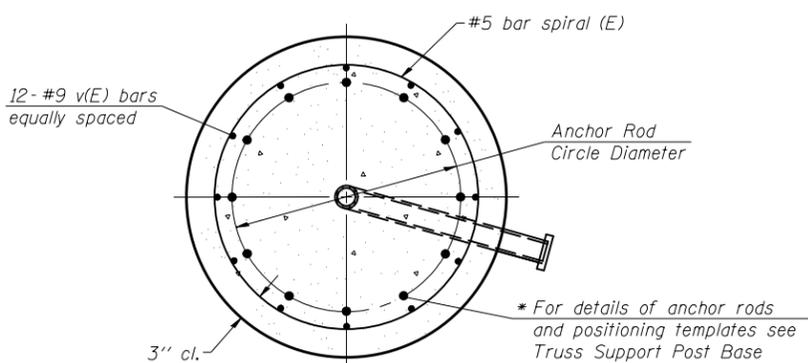
ELEVATION



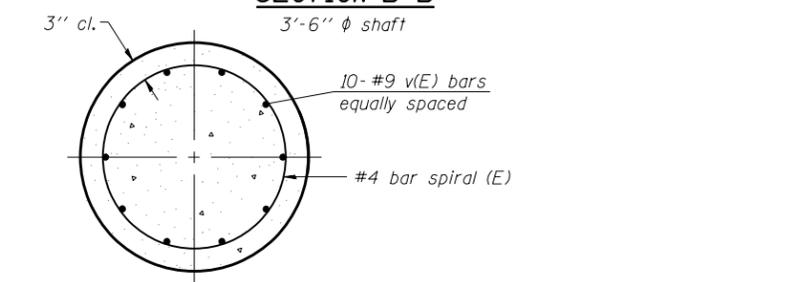
ELEVATION



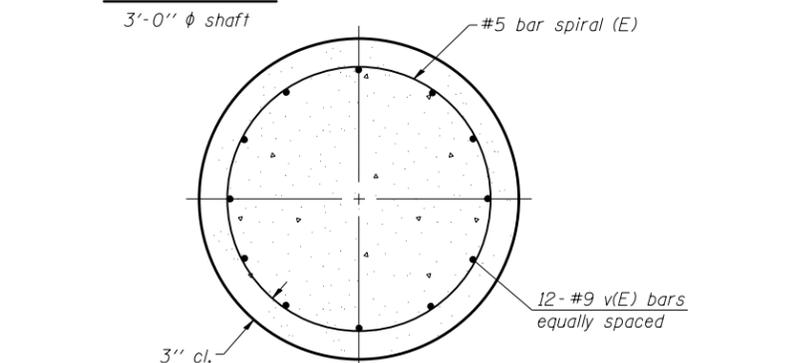
SECTION A-A
3'-0" ϕ shaft



SECTION B-B
3'-6" ϕ shaft



SECTION C-C
3'-0" ϕ shaft



SECTION D-D
3'-6" ϕ shaft

NOTES:
 The foundation dimensions shown in the Foundation Design Table are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Q_u) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown in the Foundation Data Table will be the result of site specific designs.
 If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.
 No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.
 Concrete shall be placed monolithically, without construction joints.
 Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.
 A normal surface finish followed by a Concrete Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in "Drilled Shaft Concrete Foundation".

Truss Type	Post Base Sheet	Maximum Cantilever Length (ft)	Maximum Total Sign Area (sq ft)	Shaft Diameter (in)	"B" Depth (ft)	Anchor Rods		Anchor Rod Circle Diameter (in)
						No.	Diameter (in)	
I-C-A	OSC-A-4	25	170	3.0	16.0	8	2	22
II-C-A	OSC-A-5	30	170	3.5	17.0	12	2	30
II-C-A	OSC-A-5	30	340	3.5	21.5	12	2	30
III-C-A	OSC-A-5	35	170	3.5	19.0	12	2	30
III-C-A	OSC-A-5	35	250	3.5	22.5	12	2	30
III-C-A	OSC-A-5	35	400	3.5	26.5	12	2	30
III-C-A	OSC-A-5	40	400	3.5	32.0	12	2	30

Structure Number	Station	Truss Type	Shaft Diameter	Elevation Top	Elevation Bottom	Q_u	A	B	F	Class DS Concrete Cubic Yards
5-01	5 C 057 1055 L149.30 SB	II-C-A	3'-6"	709.15	684.15		3'-0"	22'-0"	25'-0"	9.0
5-02	5 C 057 1055 R149.10 NB	II-C-A	3'-6"	713.87	688.87		3'-0"	22'-0"	25'-0"	9.0

OSC-A-9

8-21-13

FILE NAME =	USER NAME = bucklesjj	DESIGNED -	REVISED -
pw:\IL084EBIDINTEG\Illinois.gov\PIW001\Documents\DOT Offices\District 5\Projects\0546\BROWNS\Design\Plans.dgn		REVISOR -	REVISOR -
PLOT SCALE = 40.0000' / in.	CHECKED -	REVISOR -	REVISOR -
MODEL NAME =	DATE -	REVISOR -	REVISOR -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - DRILLED SHAFT
ALUMINUM TRUSS & STEEL POST

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55		MCLEAN	16	15
CONTRACT NO. 46387			ILLINOIS FED. AID PROJECT	

* D-5 OVD SIN STR REPL 2016-29



SOIL BORING LOG

ROUTE FAI Rt 55 DESCRIPTION Southbound Entrance Ramp to Funks Grove Rest Area LOGGED BY CNA

SECTION Sign Structure LOCATION SW, SEC. 16, TWP. 22N, RNG. 1E, 3rd PM

COUNTY McLean DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 057 1055
Station L149.30
288+00

BORING NO. 1 Mast Arm
Station 287+93
Offset 37.00ft W of SBCL
Ground Surface Elev. 708.2 ft

D E P T H N Qu S T (ft) (/12") (tsf) (%)

Surface Water Elev. _____ ft
Stream Bed Elev. _____ ft

Groundwater Elev.:
First Encounter _____ ft
Upon Completion _____ ft
After _____ Hrs. _____ ft

D E P T H N Qu S T (ft) (/12") (tsf) (%)

Asphalt Shoulder	708.20				Brown Clay Loam Till (continued)				
	707.20								
Brown Sand						686.20			
Brown/Gray Mixed Clay Loam (Embankment)	706.20				Gray Clay Loam Till				
		5					3		
		5	2.3	15	(GPS Coordinate: 40.360635N, 89.107278W)		4	1.9	13
		-5	8	B		683.20	-25	7	B
					End of Boring				
		4							
		7	3.3	14					
		8	B						
		4							
		7	1.9	15					
		-10	10	B			-30		
	697.20								
Black Silty Clay		4							
		6	2.9	24					
		7	B						
	694.70								
Brown/Gray Mottled Silty Clay Loam		4							
		5	3.1	23					
		-15	7	B			-35		
	692.70								
Brown Clay Loam Till		3							
		3	1.7	14					
		4	B						
		4							
		5	2.1	11					
		-20	8	B			-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

ROUTE FAI Rt 55 DESCRIPTION Northbound Entrance Ramp to Funks Grove Rest Area LOGGED BY CNA

SECTION Sign Structure LOCATION SW, SEC. 16, TWP. 22N, RNG. 1E, 3rd PM

COUNTY McLean DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 057 1055 R149.1
Station 280+00

BORING NO. 2 Mast Arm
Station 280+08
Offset 34.00ft E of NBCL
Ground Surface Elev. 712.1 ft

D E P T H N Qu S T (ft) (/12") (tsf) (%)

Surface Water Elev. _____ ft
Stream Bed Elev. _____ ft

Groundwater Elev.:
First Encounter _____ ft
Upon Completion _____ ft
After _____ Hrs. _____ ft

D E P T H N Qu S T (ft) (/12") (tsf) (%)

Asphalt Shoulder	712.10				Gray Clay Loam Till (continued)				
	711.10								
Brown Sand									
	710.10								
Gray/Brown Clay Loam (Embankment)									
							689.10		
	708.10	7			Gray Silt with Trace Free Water			7	
		9			(GPS Coordinate: 40.358536N, 89.108062W)			7	1.2
		-5	12				687.10	-25	8
					End of Boring				
		4							
	705.10	5	2.1	22					
Brown Clay Loam Till		6	B						
		3							
		4	1.6	16					
		-10	7	B				-30	
		2							
		3	2.1	15	(Silt Seam - Trace Free Water)				
		6	B						
		2							
		3	2.1	15	(Silt Seam)				
		-15	5	B				-35	
	696.10								
Gray Clay Loam Till		2							
		5	1.4	14					
		6	B						
		3							
		4	2.1	13					
		-20	7	B				-40	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)