

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

FAI Routes 55 & 72  
 D6 OVD SIN STR REPL 2009-11  
 Sangamon County  
 Sheet 1 of 32  
 Contract Number 46010

PLANS FOR PROPOSED  
 FEDERAL AID HIGHWAY

FAI ROUTES 55 & 72  
 D6 OVD SIN STR REPL 2009-11  
 SANGAMON COUNTY  
 C-60-012-09

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STANDARDS

701901  
 701101-01  
 701106-01  
 701401-04  
  
 701411-04  
 720021-01  
 701400-04

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED PASSED 9/19, 2008

Joe Hill  
 ENGINEER OF OPERATIONS

October 3, 2008

Interim Eric E. Harms  
 ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED October 3, 2008

Christine M. Reed  
 DIRECTOR DIVISION OF HIGHWAYS

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

CONTRACT NO. 46010

Rev.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

FAI Routes 55 & 72  
D6 OVD SIN STR REPL 2009-11  
Sangamon County  
Sheet 2 of 32  
Contract Number 46010

Summary of Quantities

CODE NUMBER	PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	RURAL
T9990710	REMOVE <sup>AND</sup> REINSTALL WALKWAY	FOOT	232.50	232.50
T9992530	REPLACE <sup>AND</sup> TIGHTEN <sup>SIGN MOUNTING</sup> CLIPS PER EACH SIGN	EACH	12.00	12.00
T9992700	REMOVE <sup>AND</sup> REINSTALL SIGN PANEL	SQ FT	2,064.00	2,064.00
T9996200	REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE	EACH	1.00	1.00
T9997700	FURNISH <sup>AND</sup> INSTALL SAFETY CHAIN	EACH	8.00	8.00
T9998600	TIGHTEN CANTILEVER CONNECTION	EACH	2.00	2.00
T9998815	REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	15.00	15.00
T9998995	DISCONNECT <sup>AND</sup> RECONNECT ELECTRIC SERVICE	EACH	5.00	5.00
X0324397	RELOCATE ELECTRIC SERVICE	EACH	6.00	6.00
Z0002005	ATTENUATOR BASE	SQ YD	51.60	51.60
Z0029999	IMPACT ATTENUATOR REMOVAL	EACH	1.00	1.00
Z0030150	IMPACT ATTENUATORS (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1.00	1.00
67100100	MOBILIZATION	L SUM	1.00	1.00
70101700	TRAFFIC CONTROL AND PROTECTION	L SUM	1.00	1.00
72000300	SIGN PANEL - TYPE 3	<i>SQ FT</i>	339.00	339.00
73300200	OVERHEAD SIGN STRUCTURE - SPAN, TYPE II-A (4' - 6" X 5' - 3")	FOOT	224.00	224.00
73300300	OVERHEAD SIGN STRUCTURE - SPAN, TYPE III-A (5' - 0" X 7' - 0")	FOOT	332.00	332.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36' X 5' - 6")	FOOT	30.00	30.00
73305100	OVERHEAD SIGN STRUCTURE WALKWAY (SPECIAL)	FOOT	15.00	15.00



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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Schedule of Overhead Sign Structure Replacement

Location No.:	6-01	State I.D. No.:	6C084I055L107.2				
County:	Sangamon	Route:	I-55	M.P.:	107.2	Direction:	SB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER	EACH	1.00					
OVERHEAD SIGN STRUCTURE-CANTILEVER TYPE II-C-A	FOOT	30.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	0.20					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	1.00					
REMOVE SIGN PANEL - TYPE 3	SQ FT	97.50					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
SIGN PANEL - TYPE 3	SQ FT	97.50					
OVERHEAD SIGN STRUCTURE WALKWAY (SPECIAL)	FOOT	15.00					
This structure is being completely replaced.							
This work will be completed during District 6 night time hours.							

Location No.:	6-02	State I.D. No.:	6S084I055R081.7				
County:	Sangamon	Route:	I-55	M.P.:	81.7	Direction:	NB
Description of Work	Unit	Quantity					
OVERHEAD SIGN STRUCTURE-SPAN TYPE II-A	FOOT	116.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	24.60					
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
SIGN PANEL - TYPE 3	SQ FT	241.50					
RE-ERECT OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	46.00					
This structure is being completely replaced.							
This work will be completed during District 6 night time hours.							

Location No.:	6-03	State I.D. No.:	6S084I055R090.1				
County:	Sangamon	Route:	I-55	M.P.:	90.1	Direction:	NB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN TYPE III-A	FOOT	110.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	22.00					
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	581.00					
REMOVE & REINSTALL WALKWAY	FOOT	64.00					
REPLACE / TIGHTEN CLIP PER SIGN	EACH	3.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	4.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
This structure is being completely replaced.							
This work will be completed during District 6 night time hours.							

Location No.:	6-04	State I.D. No.:	6S084I055L099.8				
County:	Sangamon	Route:	I-55	M.P.:	99.8	Direction:	SB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN TYPE III-A	FOOT	109.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	22.00					
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	609.00					
REMOVE & REINSTALL WALKWAY	FOOT	59.50					
REPLACE / TIGHTEN CLIP PER SIGN	EACH	3.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	4.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
This structure is being completely replaced.							
This work will be completed during District 6 night time hours.							

Location No.:	6-05	State I.D. No.:	6S084I055L090.5				
County:	Sangamon	Route:	I-55	M.P.:	90.5	Direction:	SB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN TYPE II-A	FOOT	108.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	26.50					
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	319.00					
REMOVE & REINSTALL WALKWAY	FOOT	51.00					
REPLACE / TIGHTEN CLIP PER SIGN	EACH	2.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
IMPACT ATTENUATOR REMOVAL	EACH	1.00					
IMPACT ATTN NRD TL3	EACH	1.00					
ATTENUATOR BASE	SQ YD	51.60					
This structure is being completely replaced.							
This work will be completed during District 6 night time hours.							

Location No.:	6-06	State I.D. No.:	6S084I072R097.0				
County:	Sangamon	Route:	I-72	M.P.:	97	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN TYPE III-A	FOOT	113.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	22.00					
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	555.00					
REMOVE & REINSTALL WALKWAY	FOOT	58.00					
REPLACE / TIGHTEN CLIP PER SIGN	EACH	3.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
This structure is being completely replaced.							
This work will be completed during District 6 night time hours.							

Location No.:	6-07	State I.D. No.:	6C084I072R103.6				
County:	Sangamon	Route:	I-72	M.P.:	103.6	Direction:	EB
Description of Work	Unit	Quantity					
REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE	EACH	1.00					
TIGHTEN CANTILEVER CONNECTION	EACH	2.00					
REPLACE / TIGHTEN CLIP PER SIGN	EACH	1.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	3.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					

**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

**WIND LOADING:** 30 p.s.f. normal to Sign Panel Area and truss elements not behind sign Loading Diagram.

**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 with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. 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 AASHTO M314 Gr. 36 or 55 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F.

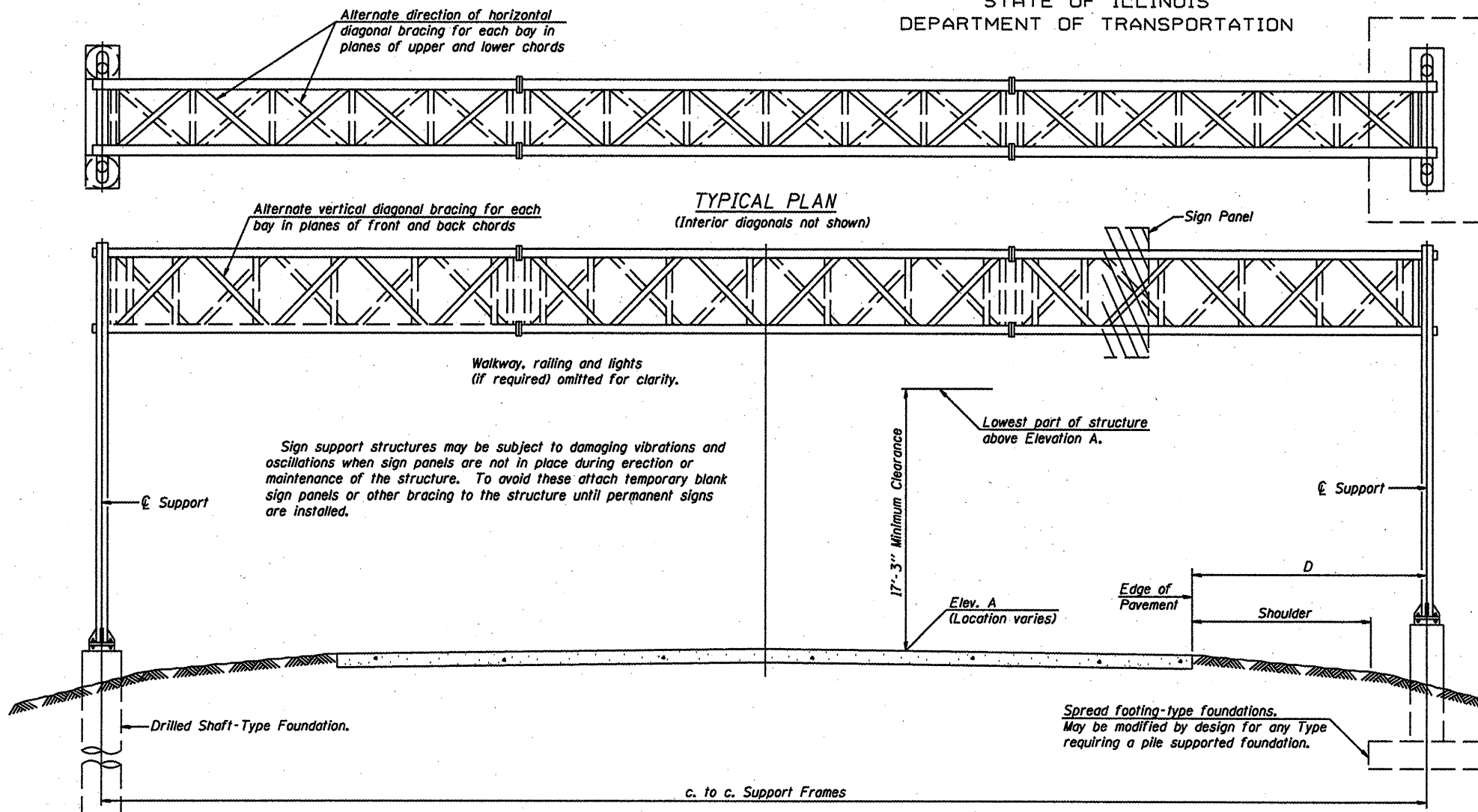
**CONCRETE SURFACES:** All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Bridge Seat Sealer in accordance with the Standard Specifications.

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

\* 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.

**OVERHEAD SIGN STRUCTURES  
GENERAL PLAN & ELEVATION  
ALUMINUM TRUSS & STEEL SUPPORTS**

District 6  
Overhead Sign Structure  
Replacement

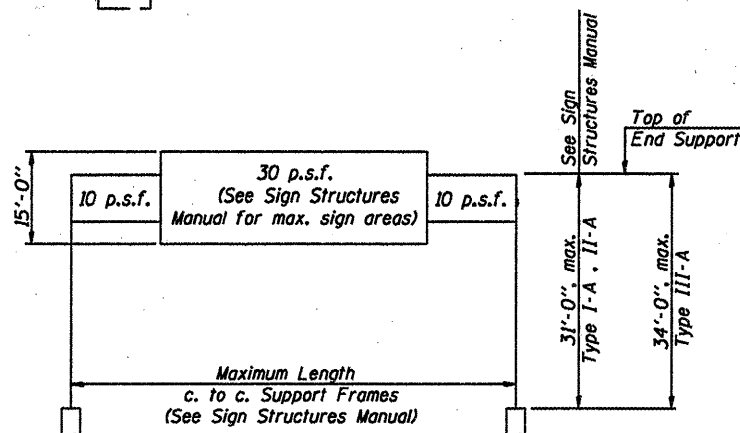


**TYPICAL ELEVATION**  
(Looking at Face of Signs\*\*)

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

Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign	Total Sign Area
6S0841055R081.7	513 + 30	II-A	116'-0"	637.70	32'-0"	11'-6"	241.50
6S0841055R090.1	233 + 00	III-A	110'-0"	100.00	32'-0"	11'-6"	581.00
6S0841055L099.8	597 + 50	III-A	109'-0"	100.00	32'-0"	14'-0"	609.00
6S0841055L090.5	203 + 00	II-A	107'-0"	100.00	32'-0"	11'-0"	319.00
6S0841072R097.0	657 + 00	III-A	113'-0"	601.65	32'-0"	12'-0"	555.00

\*\*Looking upstation for structures with signs both sides.



**DESIGN WIND LOADING DIAGRAM**

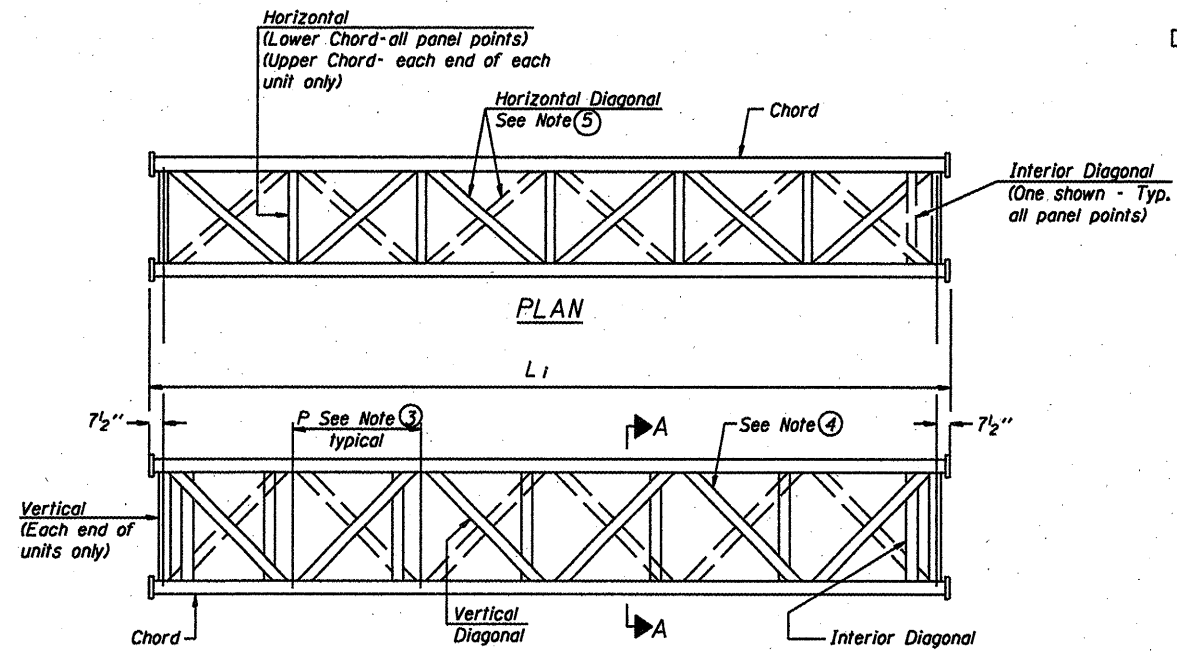
Parameters shown are basis for I.D.O.T. Standards and Sign Manual Tables. Installations not within dimensional limits shown require special analysis for all components.

DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

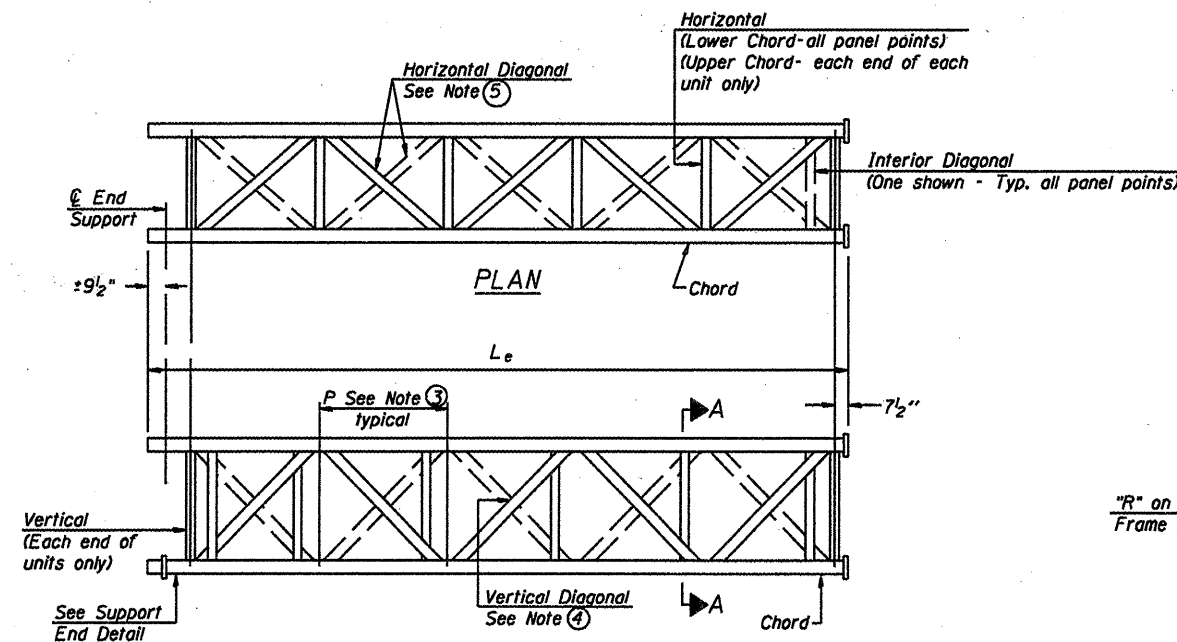
OS-A-1 5/16/08

NUMBER	REVISION	DATE

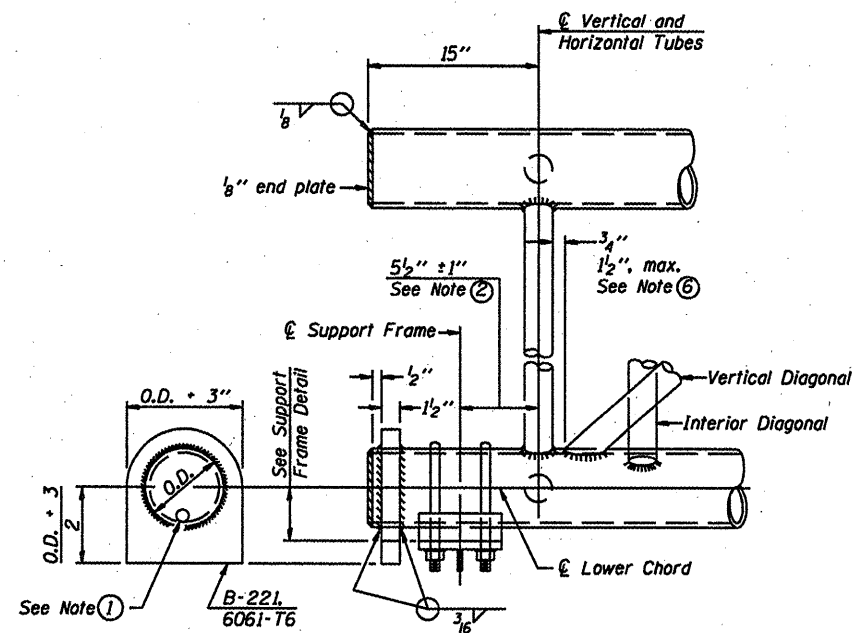
ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE SPAN TYPE I-A	Foot	
OVERHEAD SIGN STRUCTURE SPAN TYPE II-A	Foot	
OVERHEAD SIGN STRUCTURE SPAN TYPE III-A	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	



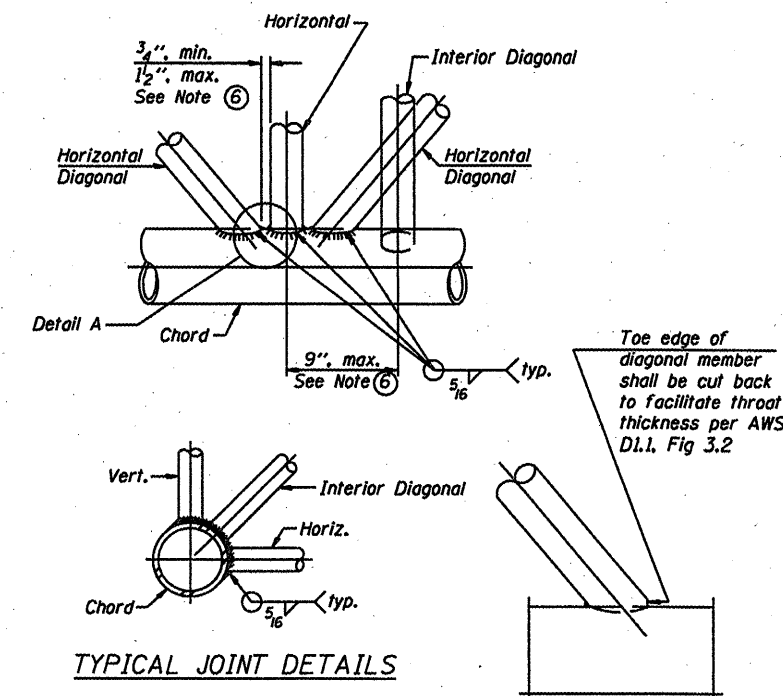
**ELEVATION  
TYPICAL INTERIOR UNIT**  
Even number of panels/interior unit required.



**ELEVATION  
TYPICAL EXTERIOR UNIT**  
Even or odd number of panels/exterior units allowed.



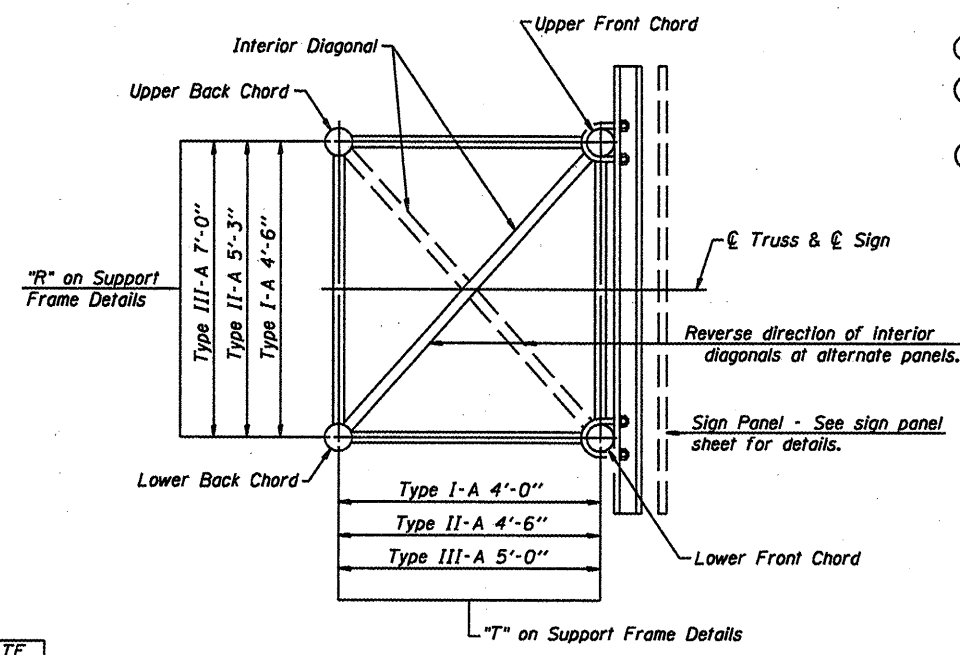
**SUPPORT END DETAIL FOR EXTERIOR UNIT**



**TYPICAL JOINT DETAILS**

**DETAIL A**

- NOTES**
- Contractor may alternatively use standard aluminum drive-fit cap to close end. 1/2" diameter drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
  - 5 1/2" end dimension may vary by ±1" to provide uniform panel spacing (P).
  - Panel spacing (P) shall be uniform for entire truss and between 4'-0" and 5'-0" for Type I-A or 4'-0" and 5'-6" for Types II-A and III-A.
  - Vertical Diagonals in front and back face shall alternate.
  - Hidden lines show wind bracing alternates direction between planes of top and bottom chords.
  - All diagonals shall be detailed for minimum offset from the panel point based on the following: Offset shall be such as to provide a 3/4" minimum to 1 1/2" maximum clearance between any diagonal and any horizontal or vertical member, and to provide clearance for U-bolt connections of signs or walkway brackets.



**SECTION A-A**

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

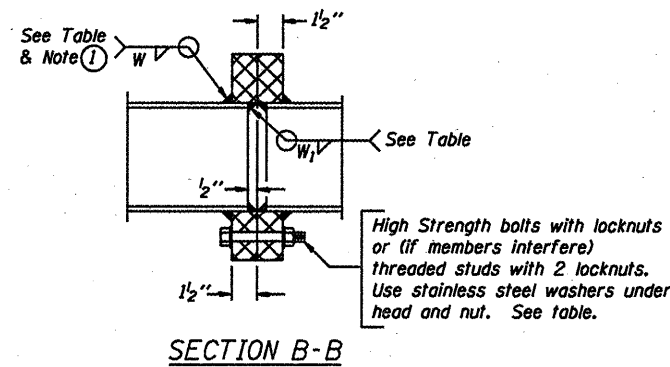
NUMBER	REVISION	DATE

**OVERHEAD SIGN STRUCTURES  
ALUMINUM TRUSS DETAILS  
FOR TRUSS TYPES I-A, II-A and III-A**

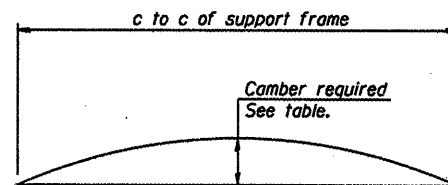
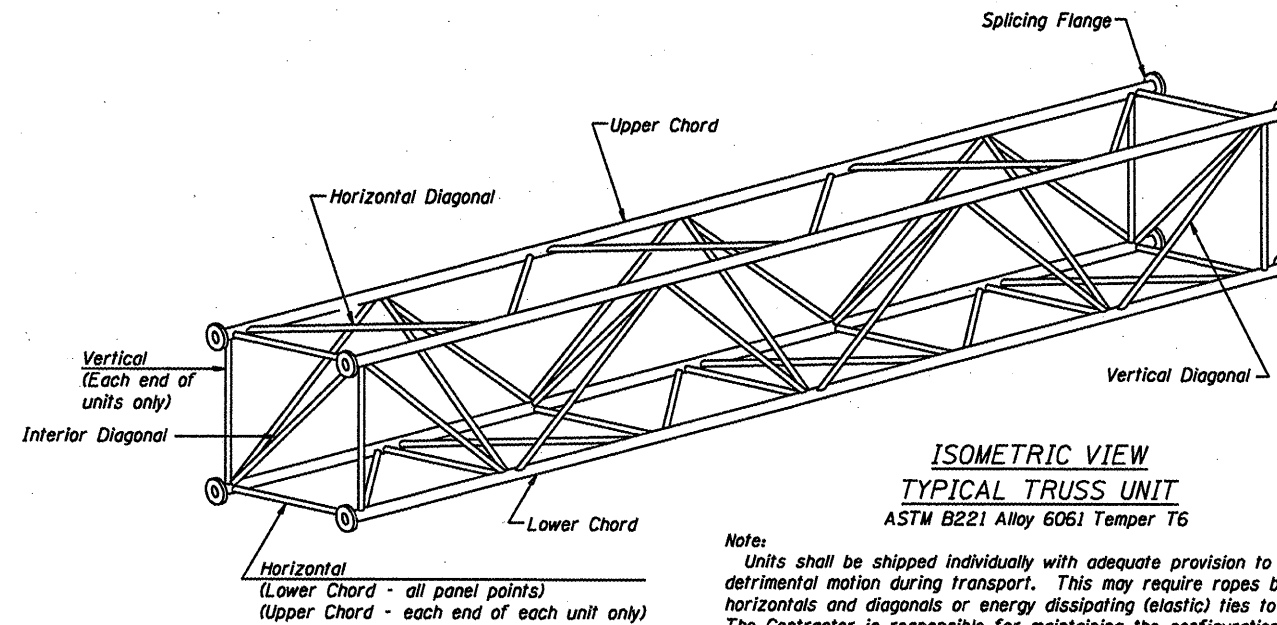
District 6  
Overhead Sign Structure  
Replacement

TRUSS UNIT TABLE

Structure Number	Station	Design Truss Type	Exterior Units (2)				Interior Unit				Upper & Lower Chord		Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals		Camber at Midspan	Splicing Flange					
			No. Panels per Unit	Unit Lgth.(L <sub>s</sub> )	Panel Lgth.(P)	No. Req'd.	No. Panels per Unit	Unit Lgth.(L <sub>i</sub> )	Panel Lgth.(P)	O.D.	Wall	O.D.	Wall	Bolts		Weld Sizes		A	B		
														No./Splice		Dia.	W			W <sub>1</sub>	
6S0841055R08L7	513 + 30	II-A	8	39'-4 1/2"	4'-8 1/4"	1	8	38'-9"	4'-8 1/4"	7"	5/16"	3"	5/16"	4"	6	1"	3/8"	1/4"	11 1/2"	15"	
6S0841055R090.1	233 + 00	III-A	7	39'-2 1/2"	5'-4"	1	6	33'-3"	5'-4"	7"	5/16"	3 1/4"	5/16"	2 3/4"	6	1"	7/16"	5/16"	11 1/2"	15"	
6S0841055L099.8	597 + 50	III-A	7	38'-9 1/4"	5'-3 1/4"	1	6	32'-10 1/2"	5'-3 1/4"	7"	5/16"	3 1/4"	5/16"	2 3/4"	6	1"	7/16"	5/16"	11 1/2"	15"	
6S0841055L090.5	203 + 00	II-A	7	38'-2 1/4"	5'-2 1/4"	1	6	32'-4 1/2"	5'-2 1/4"	6 1/2"	5/16"	3"	5/16"	3 1/2"	6	1"	3/8"	1/4"	11"	14 1/2"	
6S0841072R097.0	657 + 00	III-A	8	38'-4 1/2"	4'-6 3/4"	1	8	37'-9"	4'-6 3/4"	7"	5/16"	3 1/4"	5/16"	3"	6	1"	7/16"	5/16"	11 1/2"	15"	

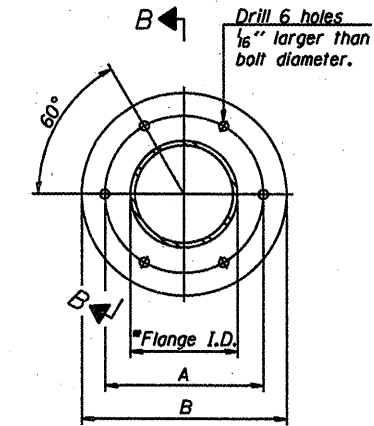
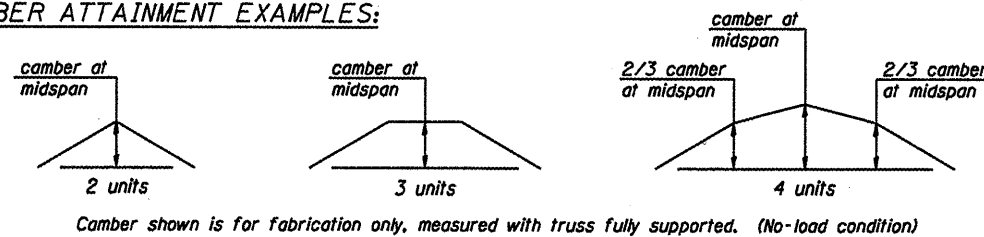


① Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining welds are made after disassembly. Adjacent flanges shall be "match marked" to insure proper field assembly.

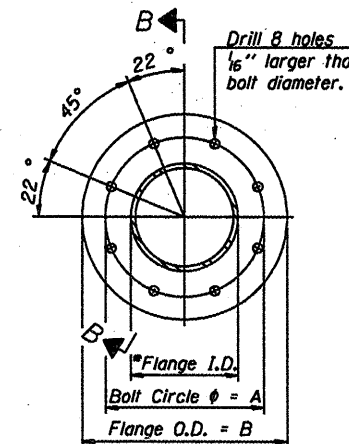


CAMBER DIAGRAM  
Camber curve shown is theoretical. Actual camber attained by slope changes at splices between units.

CAMBER ATTAINMENT EXAMPLES:



TRUSS TYPES I-A, II-A, & III-A



TRUSS TYPES II-A & III-A

SPLICING FLANGES  
ASTM B221, Alloy 6061-T6  
or ASTM B209, Alloy 6061-T651

\*To fit O.D. of Chord with maximum gap of 1/16".

OVERHEAD SIGN STRUCTURES  
ALUMINUM TRUSS DETAILS  
FOR TRUSS TYPES I-A, II-A and III-A

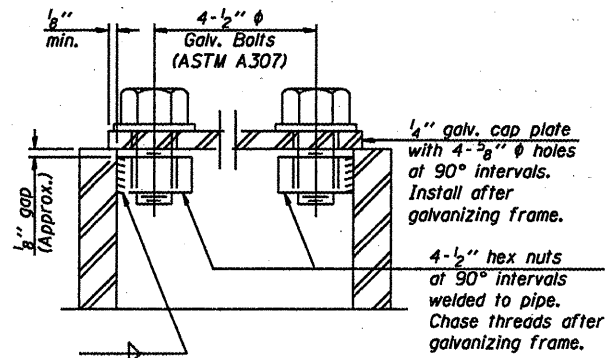
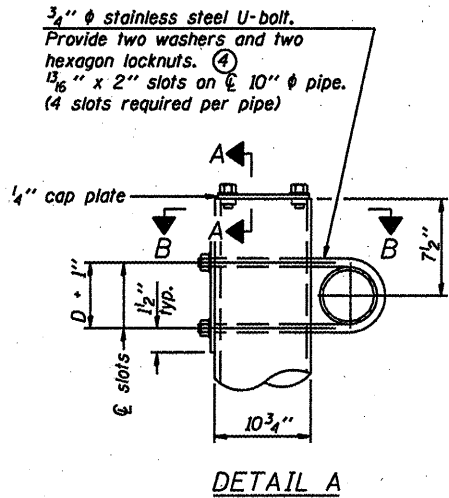
District 6  
Overhead Sign Structure  
Replacement

NUMBER	REVISION	DATE

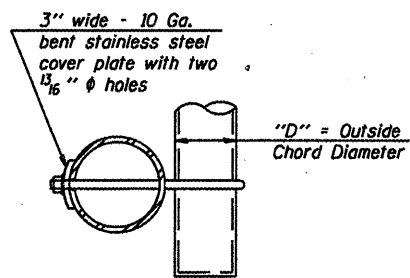
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

Support Design Loads: See Base Sheet OS-A-1 for design and loading criteria.  
Load combinations checked include deadload plus:  
a) 100% wind normal to sign, 20% parallel to sign  
b) 60% wind normal to sign, 30% parallel to sign

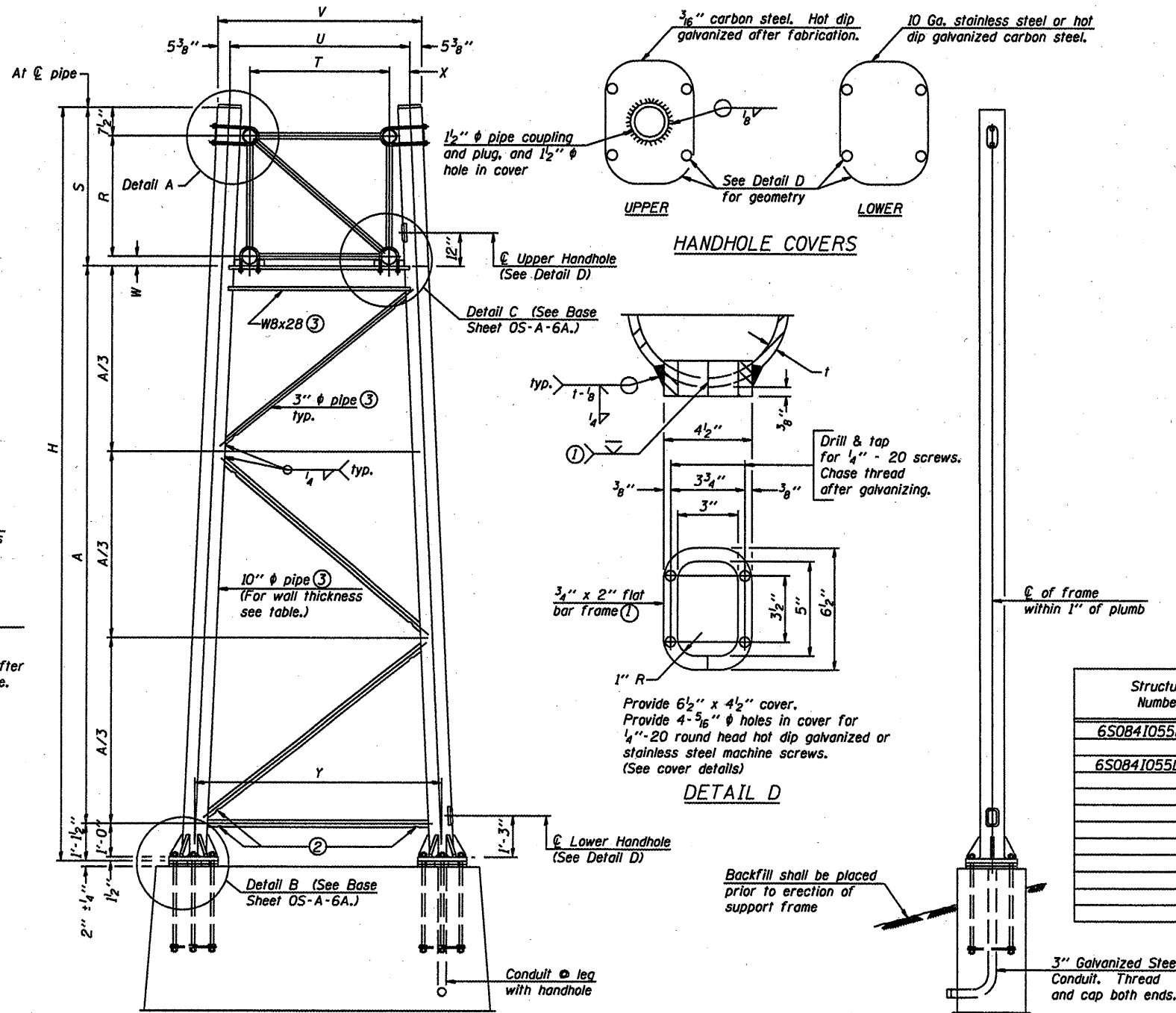
- ① In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.
- ② Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.
- ③ Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet OS-A-1.
- ④ See General Notes for fasteners.
- ⑤ Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.
- ⑥ "H" based on 15'-0" or actual sign height, whichever is greater.



SECTION A-A  
As an alternate to bolts, may use galvanized drive-fit caps installed after galvanizing frame.



SECTION B-B



For Foundation Details, see base sheet OS-F3 (Spread Footing) or OS4-F3 (Drilled Shaft).

SIDE ELEVATION

END ELEVATION

10" Ø PIPE TRUSS SUPPORT FRAME

Truss Type	Dimensions							
	R	S	T	U	V	W	X	Y
I-A	4'-6"	5'-5 1/2"	4'-0"	5'-6"	6'-4 3/4"	4"	9"	8'-3"
II-A ⑤	5'-3"	6'-3 1/4"	4'-6"	6'-1"	6'-11 3/4"	4 3/4"	9 1/2"	8'-3"

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H ⑥	A
		Left	Right				
6S0841055R081.7	513 + 30	X	X	II-A	0.365(Std)	28'-0 3/4"	20'-8"
6S0841055L090.5	203 + 00	X		II-A	0.365(Std)	28'-4"	22'-0 3/4"
			X			31'-1"	24'-9 3/4"

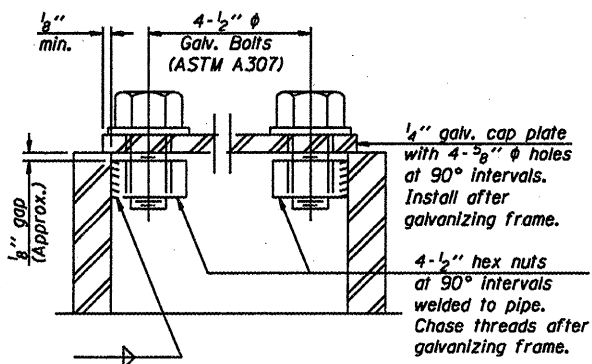
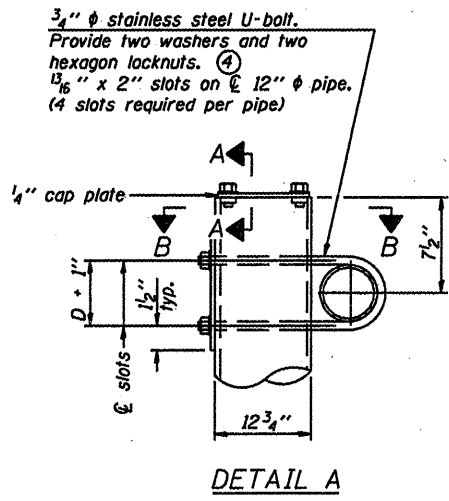
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for ALUMINUM TRUSS

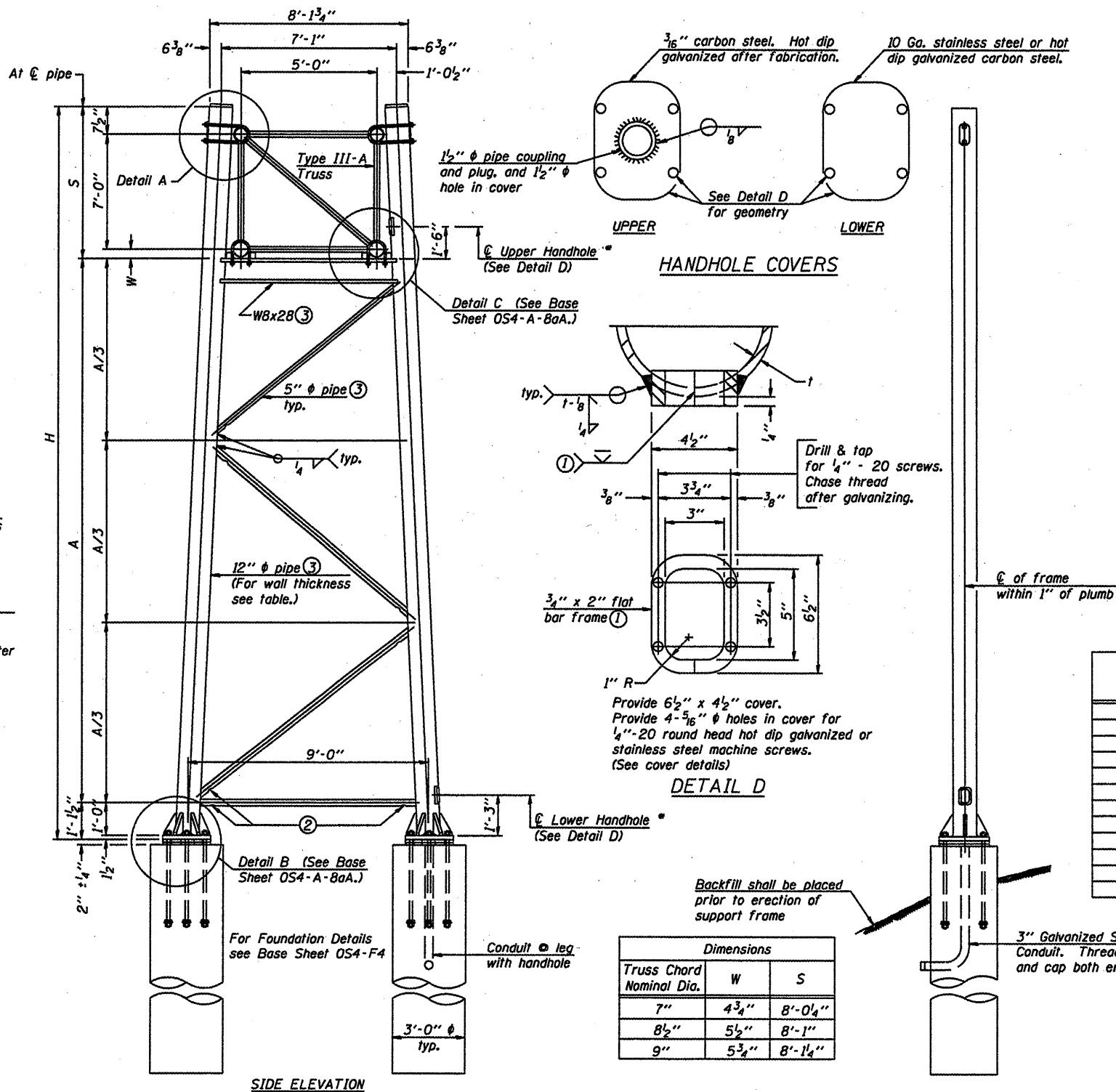
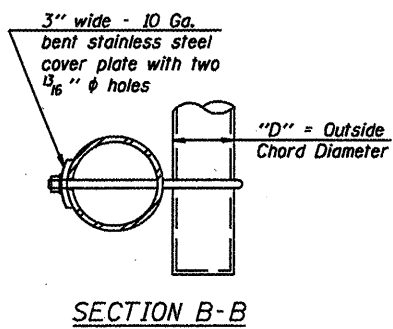
District 6  
Overhead Sign Structure  
Replacement







As an alternate to bolts, may use galvanized drive-fit caps installed after galvanizing frame.



Truss Chord Nominal Dia.	W	S
7"	4 3/4"	8'-0 1/4"
8 1/2"	5 1/2"	8'-1"
9"	5 3/4"	8'-1 1/4"

Support Design Loads: See Base Sheet OS-A-1 for design and loading criteria.  
Load combinations checked include deadload plus:  
a) 100% wind normal to sign, 20% parallel to sign  
b) 60% wind normal to sign, 30% parallel to sign

- In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500  $\mu$ in or less.
  - Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.
  - Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet OS-A-1.
  - See General Notes for fasteners.
  - Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.
  - "H" based on 15'-0" or actual sign height, whichever is greater.
- \* For dynamic message sign installations, provide upper and lower handholes in both legs of each support frame.

Structure Number	Station	Support		Pipe Wall Thickness	H $\text{\textcircled{C}}$	A
		Left	Right			
6S0841055R090.1	233 + 00	X	X	0.330	29'-9 3/4"	20'-3 1/4"
					27'-9 3/4"	18'-3 1/4"
6S0841055L099.8	597 + 50	X	X	0.330	29'-6"	21'-5 3/4"
					33'-9 3/4"	25'-9 1/2"
6S0841072R097.0	657 + 00	X	X	0.330	31'-3"	23'-2 3/4"

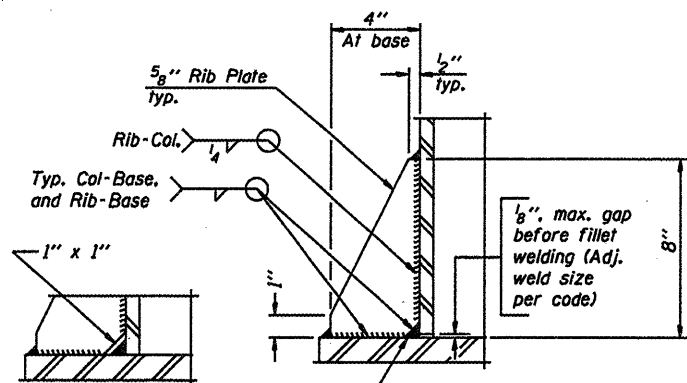
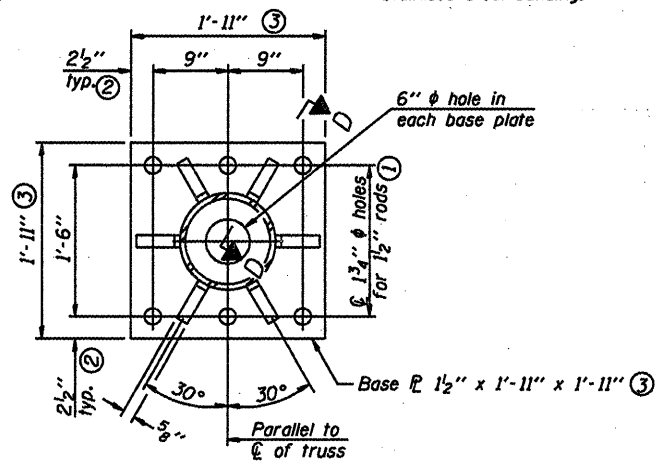
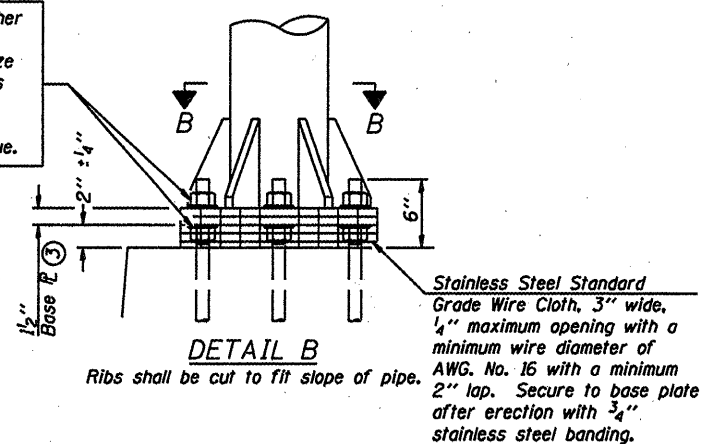
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE III-A ALUMINUM TRUSS

District 6  
Overhead Sign Structure  
Replacement

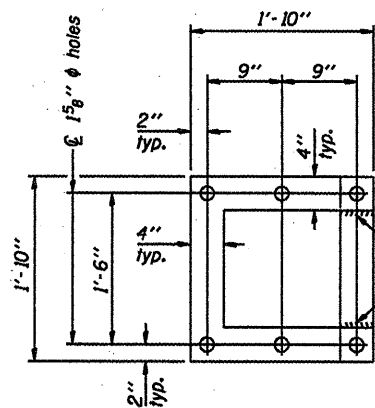
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

Hexagon locknut and washer (top), leveling nut and washer (bottom). Galvanize per AASHTO M232. Nuts shall each be tightened against base plate with 200 lb.-ft. minimum torque.

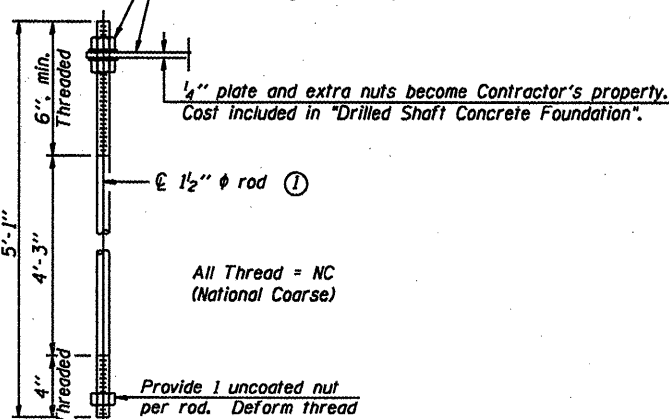


Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



**POSITIONING PLATE(S)**

At each location, provide 1/4" thick positioning plate(s) and six (6) additional nuts to be used with leveling nuts to maintain anchor bolts position during concrete placement.



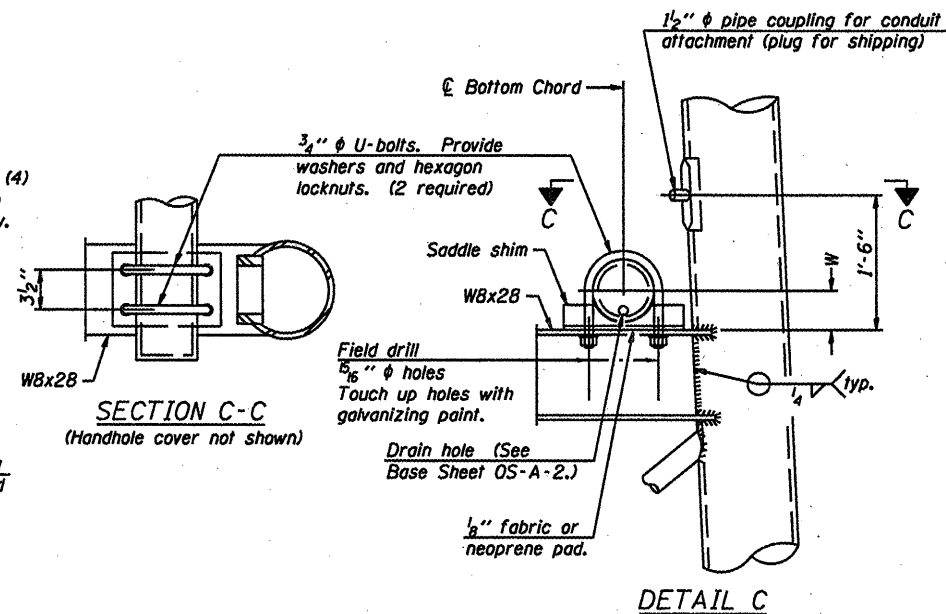
**ANCHOR ROD DETAIL**

Anchor rods shall conform to AASHTO M314 Grade 36 or 55 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. Galvanize upper 12" per AASHTO M232. No welding shall be permitted on rods.

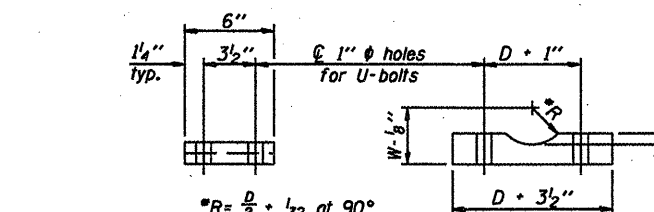
**TYPE III-A TRUSS  
12"  $\phi$  PIPE SUPPORT FRAME DETAILS**

Notes:  
For Type III-A Truss spans greater than 150 ft. and up to 160 ft.:

- ① 1 3/4"  $\phi$  rod, 2"  $\phi$  holes
- ② 2 3/4" edge distance
- ③ Base P 1 5/8" x 1'-11 1/2" x 1'-11 1/2"



**SECTION C-C**  
(Handhole cover not shown)



Truss Chord Nominal Dia.	a
7"	1"
8 1/2"	1 1/4"
9"	1 3/8"

**SADDLE SHIM DETAIL**  
ASTM B26 Alloy 356-F  
or  
ASTM B209 Alloy 6061-T651  
(4 required per sign truss)

**OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE III-A ALUMINUM TRUSS**

District 6  
Overhead Sign Structure  
Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

NUMBER	REVISION	DATE

For anchor rod size and placement,  
see Support Frame Detail Sheet.

Anchor rod shall be ground or  
filed to bright metal at clamp  
and cable connection location.

BAR LIST - EACH FOUNDATION

Bar	Number	Size	Length	Shape
v4(E)	24	#9	F less 5"	—
#4 bar spiral (E) - see Side Elevation				

NOTES:

The foundation dimensions shown are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Qu) 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 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.

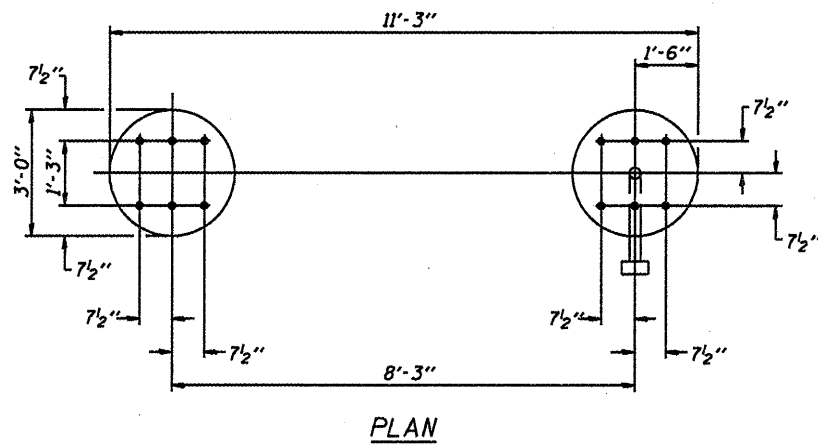
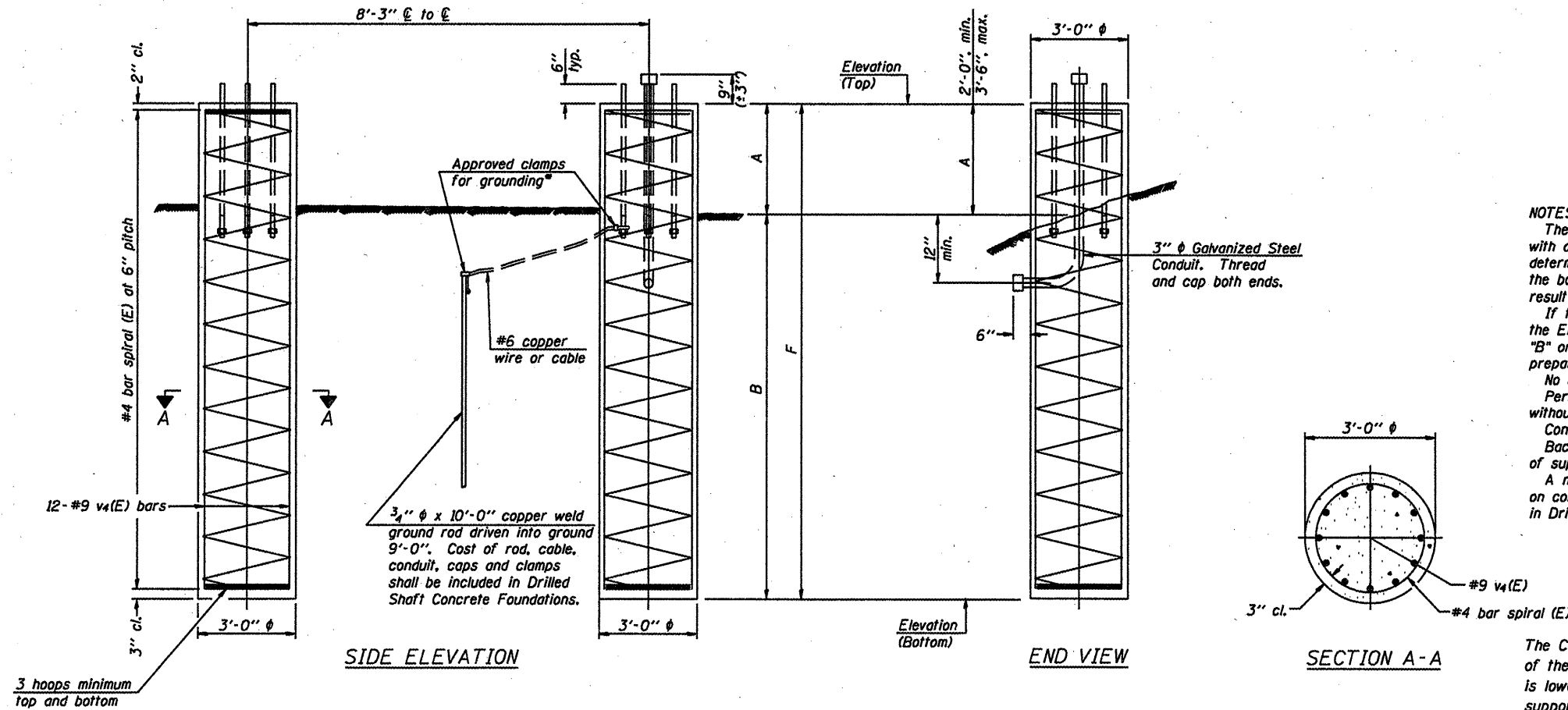
No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

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 Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.

The Contractor and the Engineer shall field verify the height of the new foundations. If the height of the new foundations is lower than the existing foundations, the height of the end supports may need to be increased to maintain the proper height of the sign structure above the roadway.



Structure Number	Station	Left Foundation			Right Foundation			Class DS Concrete (Cu. Yds.)				
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top		Elevation Bottom	A	B	F
6S0841055R081.7	513 + 30	636.30	N/A	3'-0"	20'-6"	23'-6"	636.30	N/A	3'-0"	20'-6"	23'-6"	24.60
*6S0841055L090.5	203 + 00						98.025	N/A	3'-0"	17'-6"	20'-6"	10.70

\* Structure No. 6S0841055L090.5: Left Foundation Details see Standard OS4-F Median Support Foundation Details. Elevations were taken from existing sign structure details.

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

OS4-F3 5/16/08

NUMBER	REVISION	DATE

DETAILS FOR 10" φ SUPPORT FRAME  
TYPE I-A or II-A TRUSS

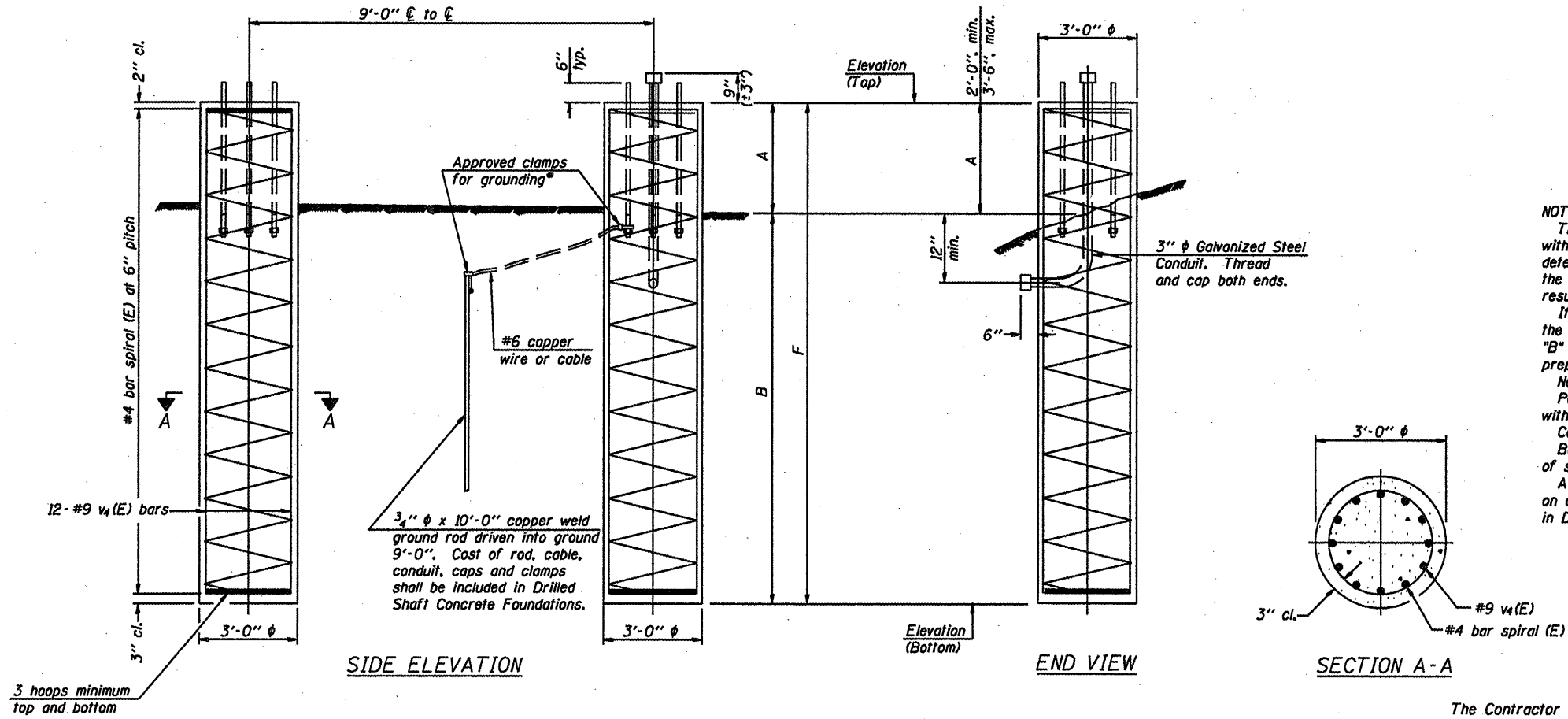
OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 6  
Overhead Sign Structure  
Replacement



For anchor rod size and placement, see Support Frame Detail Sheet.

\* Anchor rod shall be ground or filed to bright metal at clamp and cable connection location.



BAR LIST - EACH FOUNDATION

Bar	Number	Size	Length	Shape
v <sub>4</sub> (E)	24	#9	F less 5"	—
#4 bar spiral (E) - see Side Elevation				

NOTES:

The foundation dimensions shown 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 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.

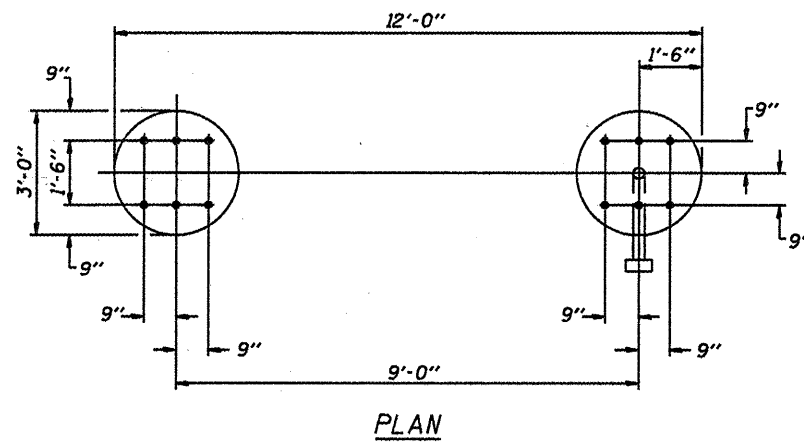
No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

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 Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.

The Contractor and the Engineer shall field verify the height of the new foundations. If the height of the new foundations is lower than the existing foundations, the height of the end supports may need to be increased to maintain the proper height of the sign structure above the roadway.



Structure Number	Station	Left Foundation			Right Foundation			Class DS Concrete (Cu. Yds.)				
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top		Elevation Bottom	A	B	F
6S0841055R090.1	233 + 00	99.00	N/A	3'-0"	18'-0"	21'-0"	101.00	N/A	3'-0"	18'-0"	21'-0"	22.00
6S0841055L099.8	597 + 50	99.52	N/A	3'-0"	18'-0"	21'-0"	95.52	N/A	3'-0"	18'-0"	21'-0"	22.00
6S0841072R097.0	657 + 00	599.15	N/A	3'-0"	18'-0"	21'-0"	599.15	N/A	3'-0"	18'-0"	21'-0"	22.00

\* Elevations were taken from existing sign structure details.

OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 6  
Overhead Sign Structure  
Replacement

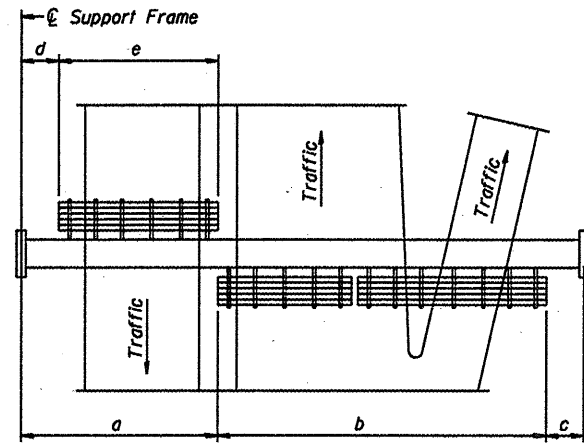
DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

EXAMINED	20
PASSED	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

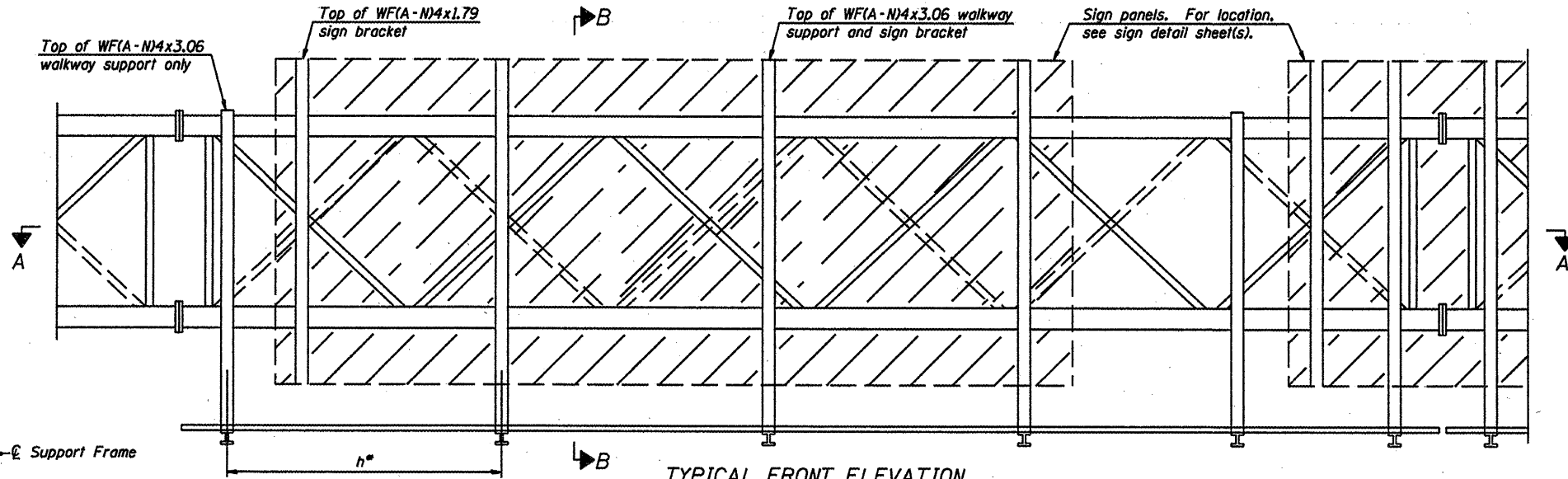
NUMBER	REVISION	DATE

DETAILS FOR 12" φ SUPPORT FRAME  
TYPE III-A TRUSS

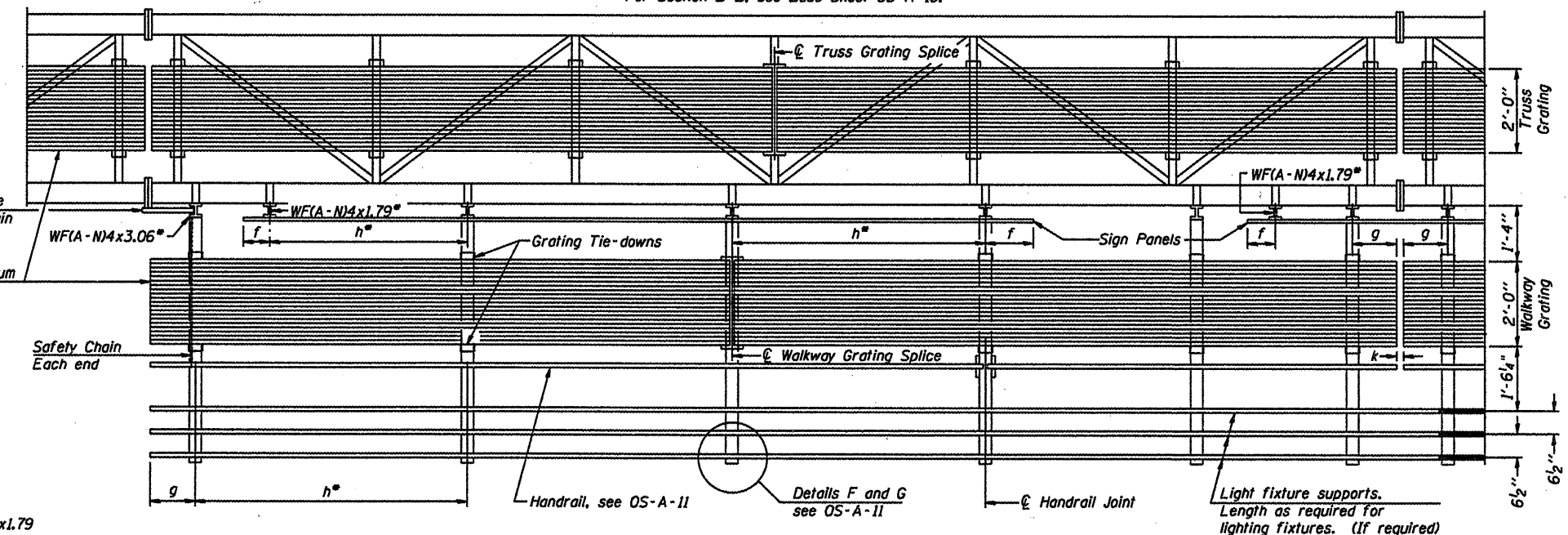
NUMBER	REVISION	DATE



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



TYPICAL FRONT ELEVATION  
With lights and handrail omitted for clarity.  
For Section B-B, see Base Sheet OS-A-10.



SECTION A-A

Handrail and walkway shall span a minimum of three brackets between splices and/or gap joints.  
Place all sign and walkway brackets as close to panel points as practical.  
Handrail joints, grating, and light support splices placed as needed.

Truss grating to facilitate inspection shall run full length (center to center of support frames) ±12" on overhead trusses.  
Cost of truss grating is included in "Overhead Sign Structure".

Walkway and Truss Grating width dimensions are nominal and may vary ±1/2" based on available standard widths.

BRACKET TABLE

Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
8'-0"	14'-0"	2
14'-0"	20'-0"	3
20'-0"	26'-0"	4
26'-0"	32'-0"	5
		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 grating to center of nearest support 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)
  - k = 2" maximum gap between adjacent walkway sections and handrail ends

- If walkway bracket at safety chain location is behind sign, add angle to bracket, see Alternate Safety Chain Attachment on Base Sheet OS-A-11.
- For Details T and W, Section B-B and Grating Splice Details see Base Sheet OS-A-10.
- For Handrail Details see Base Sheet OS-A-11.

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths *
6S0841055R081.7	513 + 30	N/A	N/A	N/A	N/A	N/A	117'-6"
6S0841055R090.1	233 + 00	N/A	N/A	N/A	N/A	N/A	112'-0"
6S0841055L099.8	597 + 50	N/A	N/A	N/A	N/A	N/A	110'-6"
6S0841055L090.5	203 + 00	N/A	N/A	N/A	N/A	N/A	109'-0"
6S0841072R097.0	657 + 00	N/A	N/A	N/A	N/A	N/A	114'-6"

\* Length shown is for internal truss grating to be installed.

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

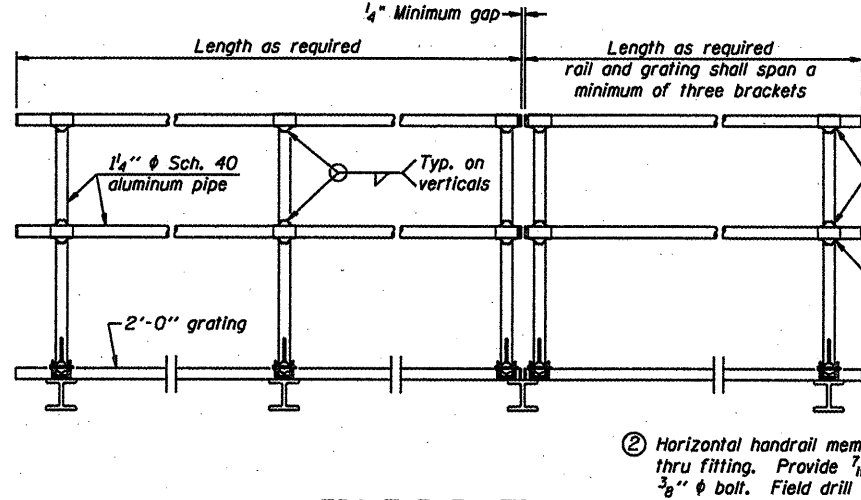
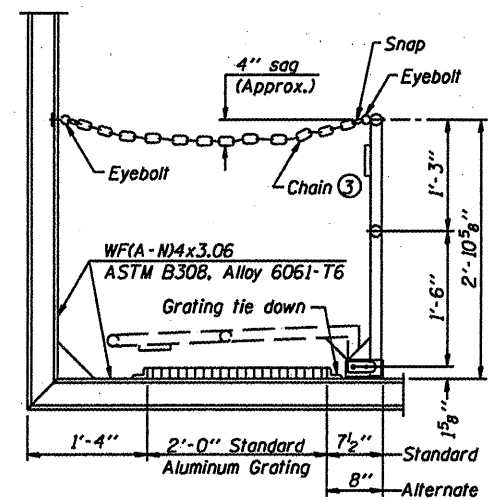
OS-A-9 5/16/08

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

District 6  
Overhead Sign Structure  
Replacement

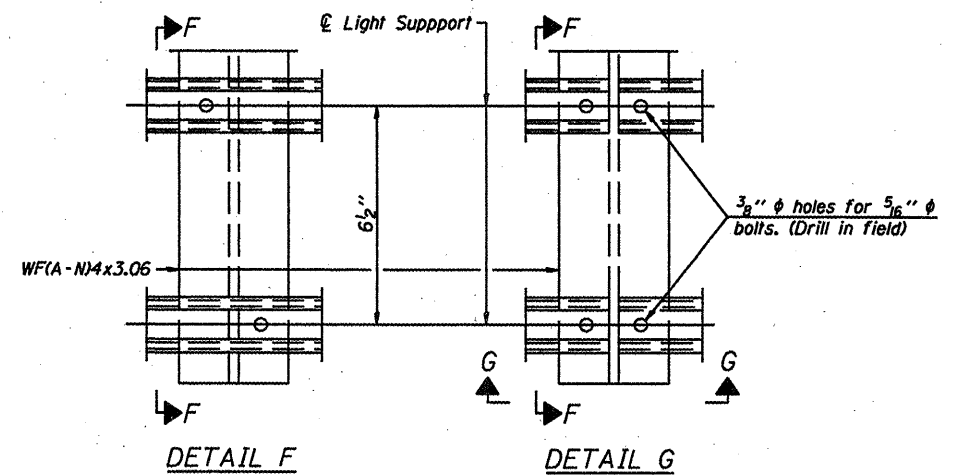




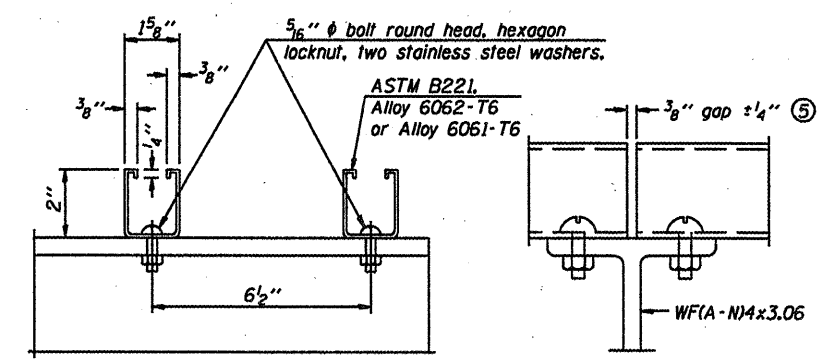
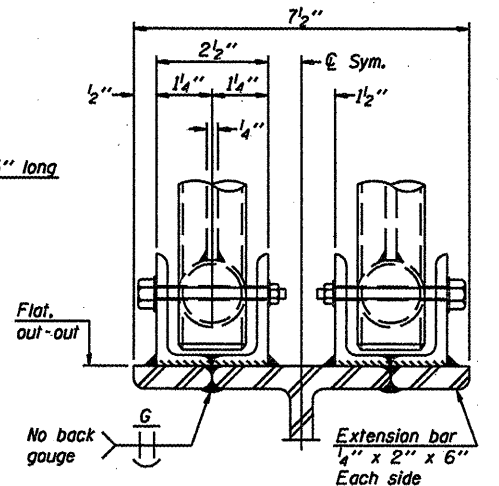
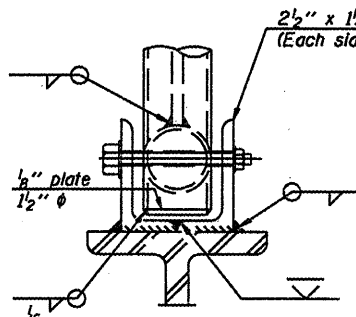
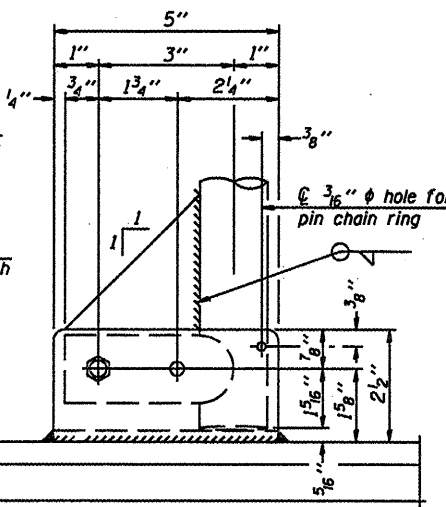
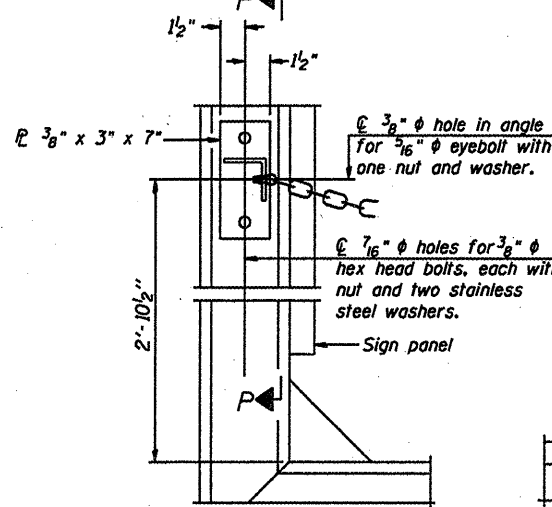


① Install standard force-fit end caps or weld 1/2" end plates with 1/8" c.f.w. and grind smooth. (All rail ends)

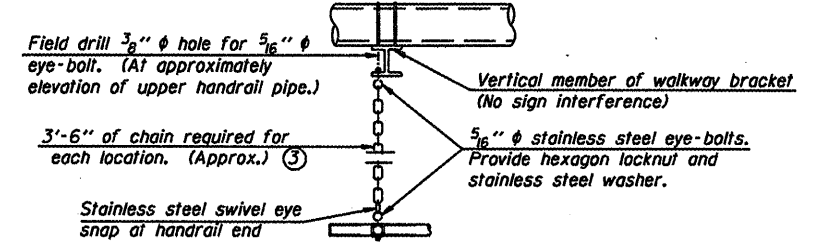
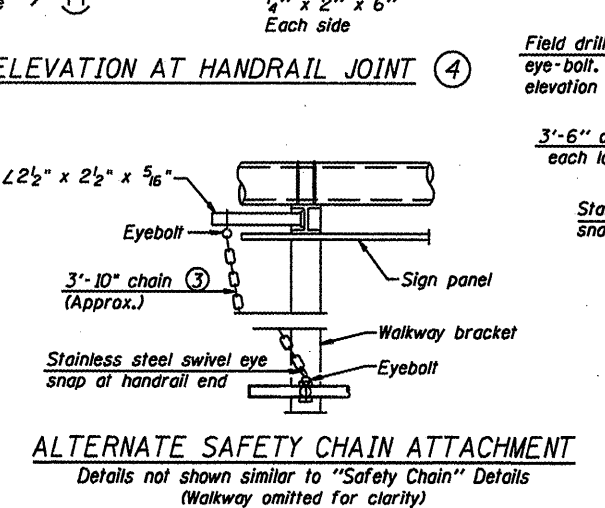
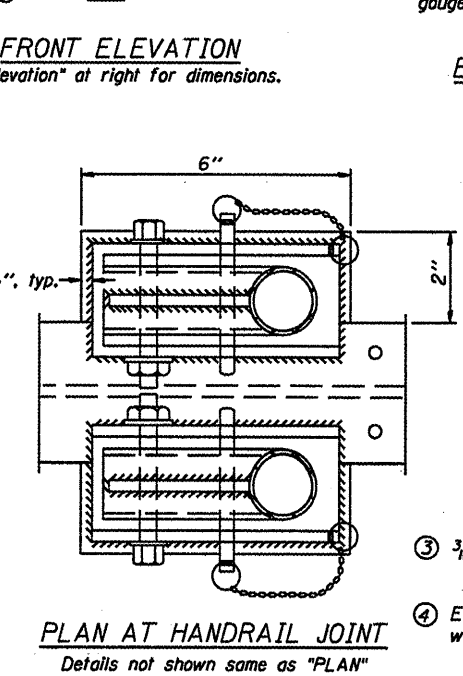
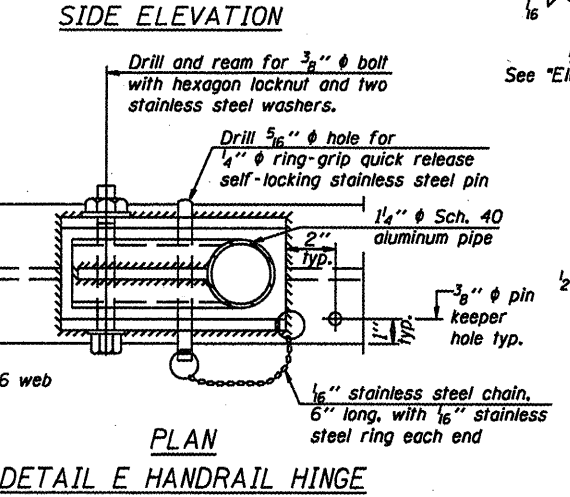
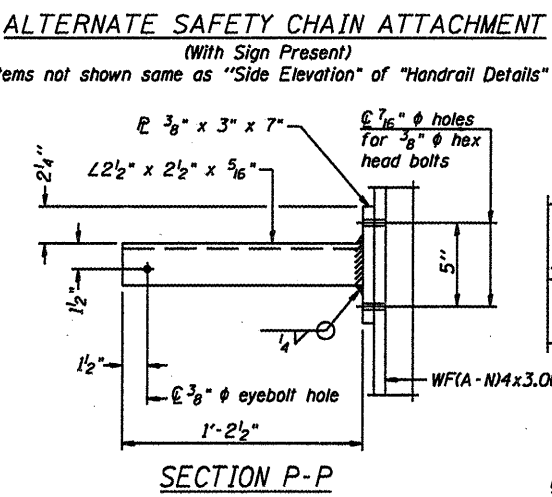
② Horizontal handrail member shall be continuous thru fitting. Provide 1/16" hole in fitting for 3/8" bolt. Field drill 1/16" hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 1/16" holes on top rail at ends only.)



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



**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.



**SAFETY CHAIN**  
One required for each end of each walkway.  
**This Sheet For Information Only**

DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	

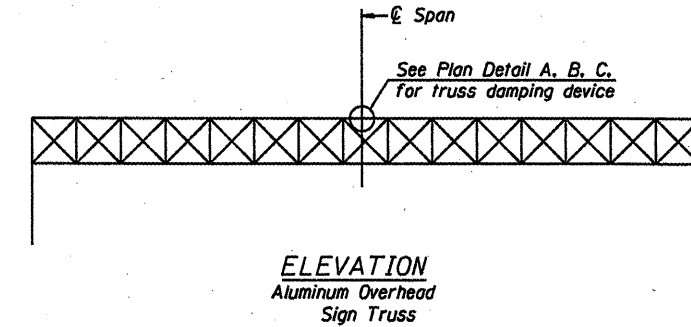
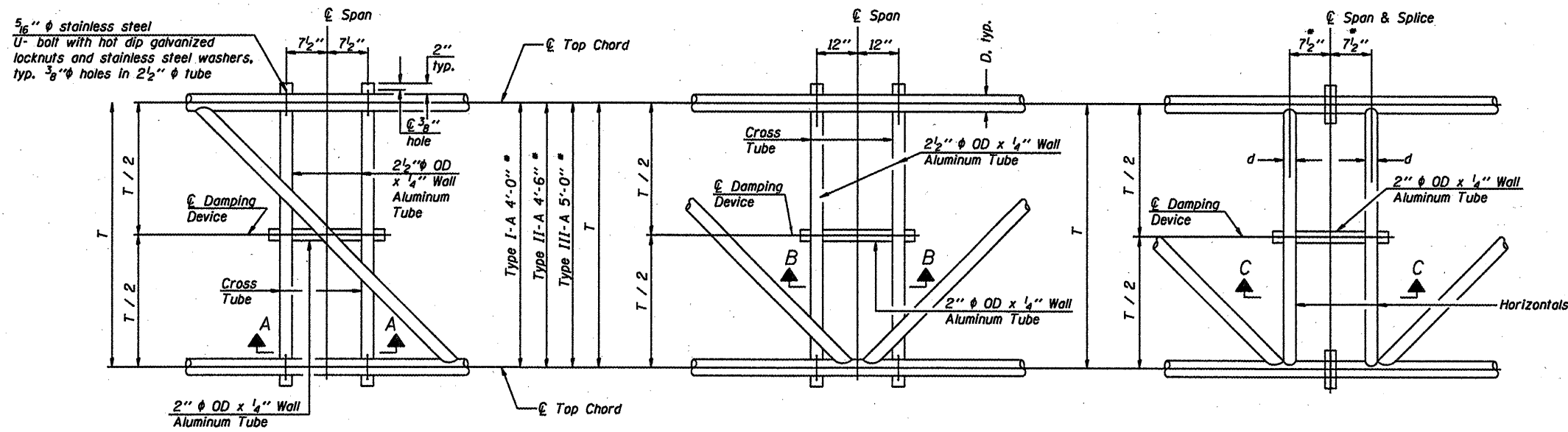
OS-A-11 5/16/08

NUMBER	REVISION	DATE

**PLAN AT HANDRAIL JOINT**  
Details not shown same as "PLAN"  
③ 3/16" 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.

OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS  
District 6  
Overhead Sign Structure  
Replacement

Center of horizontal to center of splice dimension may vary. Verify before drilling holes in mounting tube.



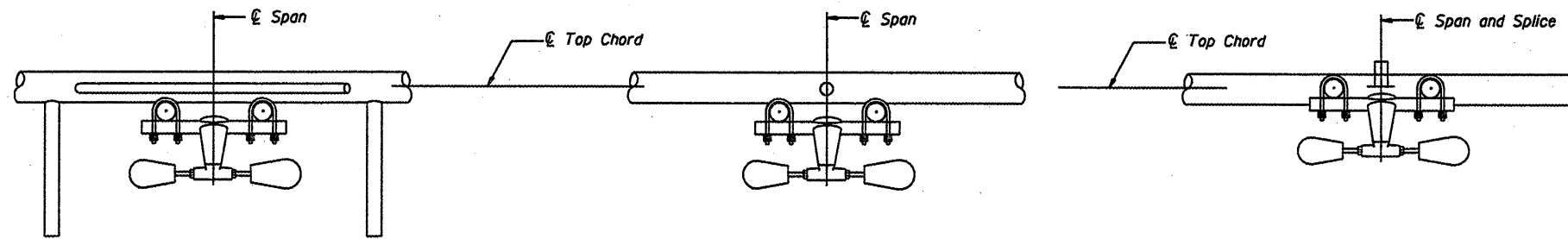
PLAN DETAIL "A"  
Span between Panel Points

PLAN DETAIL "B"  
Span at Panel Point

PLAN DETAIL "C"  
Span at Chord Splice

**NOTES**  
Damper: One damper per truss.  
(31 lbs. Stockbridge-Type Aluminum)  
Cost Included in Overhead Sign Structure...

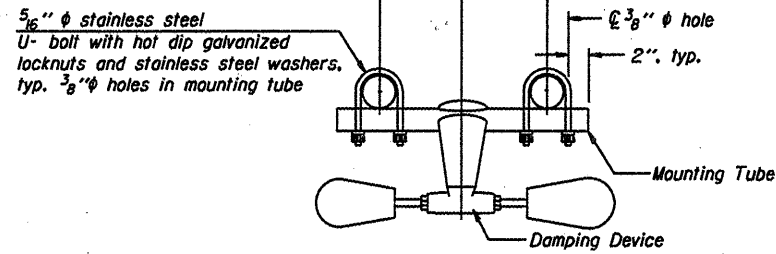
Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...



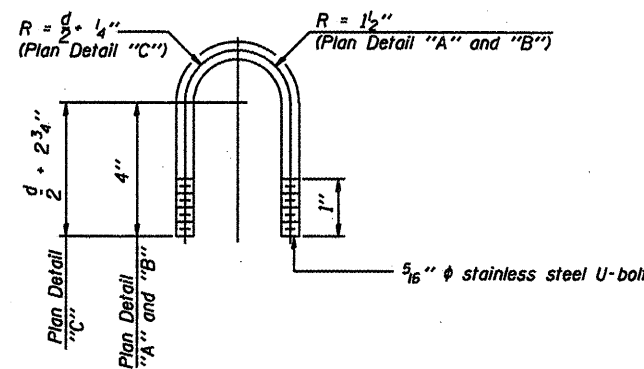
SECTION A-A

SECTION B-B

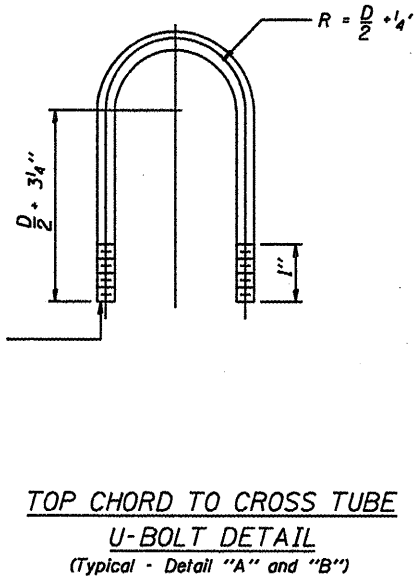
SECTION C-C



TRUSS DAMPING  
DEVICE CONNECTION DETAIL  
(Typical)



DAMPING DEVICE MOUNTING  
TUBE U-BOLT DETAIL  
(Typical)



TOP CHORD TO CROSS TUBE  
U-BOLT DETAIL  
(Typical - Detail "A" and "B")

OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE

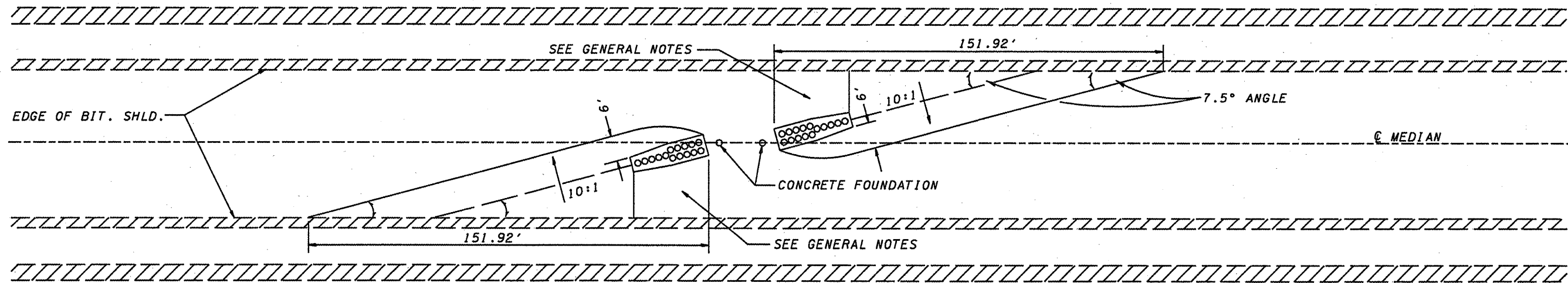
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District 6  
Overhead Sign Structure  
Replacement

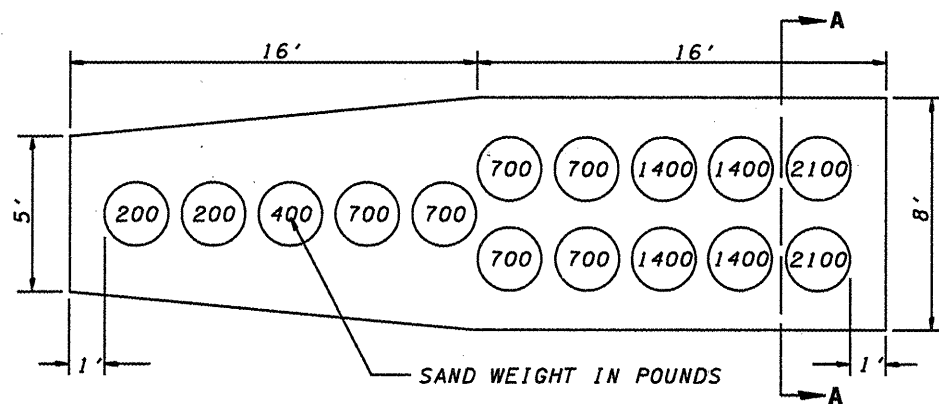
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

GENERAL NOTES

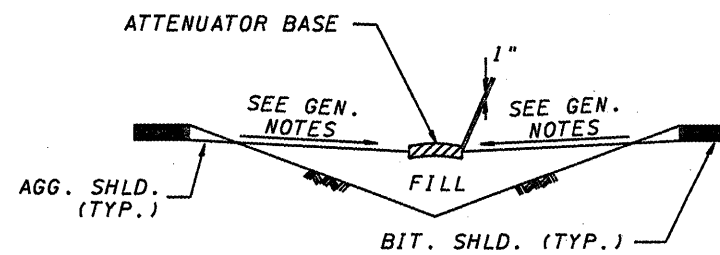
1. THE 10:1 SLOPE CONTROLS NOSE OF ATTENUATOR BASE ELEVATION.
2. ATTENUATOR BASE GRADE PARALLEL'S EDGE OF PAVEMENT GRADE.
3. SLOPE ADJACENT TO ATTENUATOR BASE SHALL BE 10:1 OR FLATTER.
4. ANY EARTHWORK, INCLUDING GRADING, COMPACTION, AND SEEDING ASSOCIATED WITH THE INSTALLATION OF THE ATTENUATOR BASE IS CONSIDERED INCLUDED IN THE PRICE OF THE ATTENUATOR BASE.
5. ANY EXISTING DRAINAGE STRUCTURES LOCATED WITHIN THE WORKING AREA SHALL BE MODIFIED OR LEFT IN PLACE, WHERE THE EXISTING DRAINAGE STRUCTURES ARE TO REMAIN IN PLACE, THE SLOPES ARE TO BE CONSTRUCTED AS DIRECTED BY THE ENGINEER.
6. ATTENUATOR BASE THICKNESS SHALL BE ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.



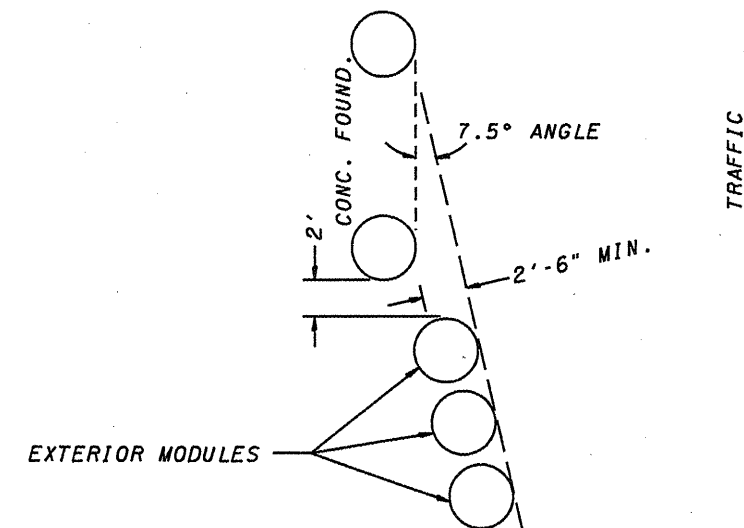
INERTIAL BARRIER LAYOUT AND GRADING PLAN



INERTIAL BARRIER MODULE ARRAY AND ATTENUATOR BASE PLAN



SECTION A - A



EXTERIOR MODULE LAYOUT

This detail applies to structure No. 6S0841055L090.5 only.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

INERTIAL BARRIER  
INSTALLATION DETAILS

SCALE: VERT.  
HORIZ.  
DATE

DRAWN BY  
CHECKED BY

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

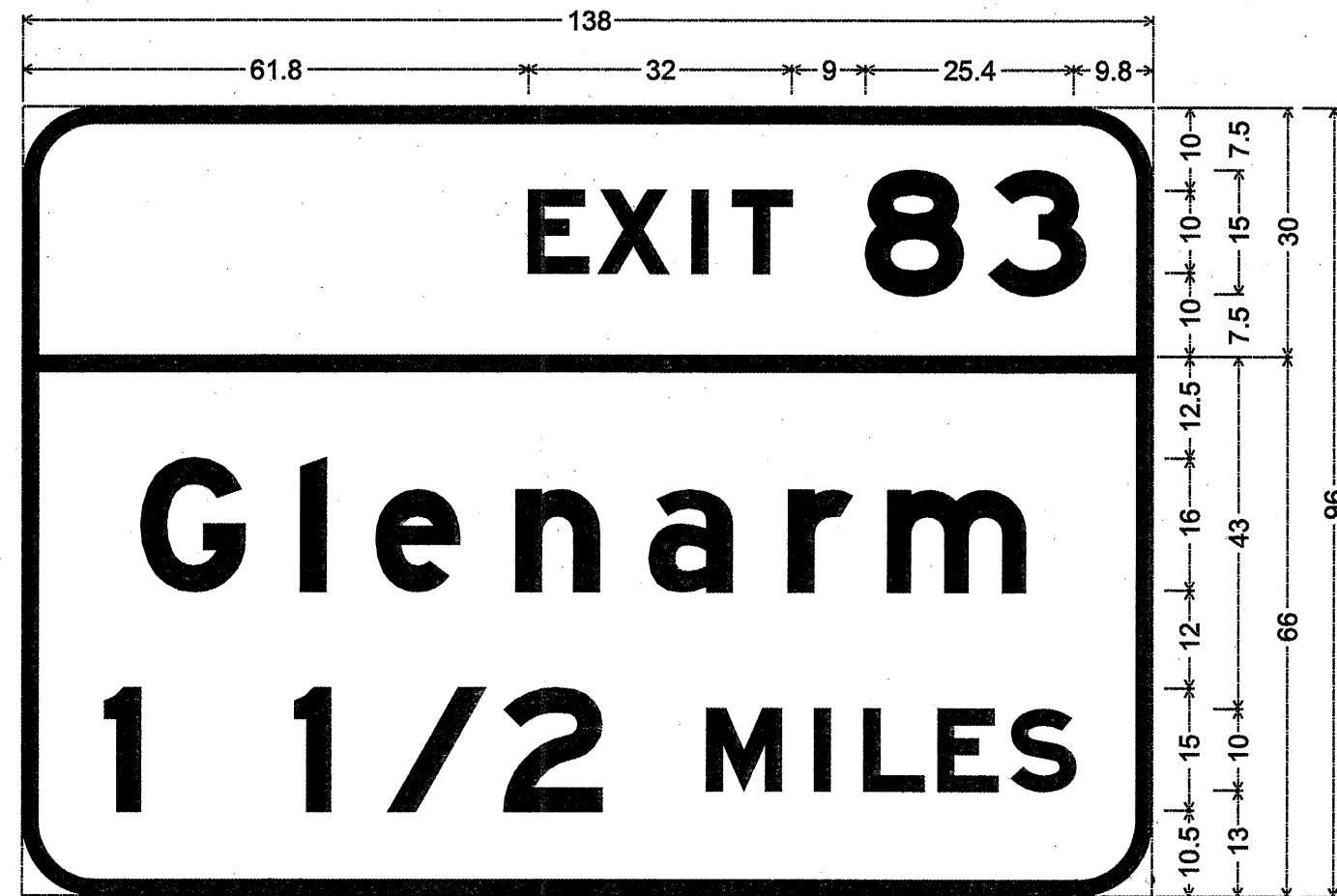
	20
EXAMINED	
PASSED	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

QUANTITIES

ITEM	UNIT	TOTAL
IMPACT ATTENUATOR (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1
ATTENUATOR BASE	SQ. YD.	51.6



Incorporated sign details for structure No. 6S084I055R081.7



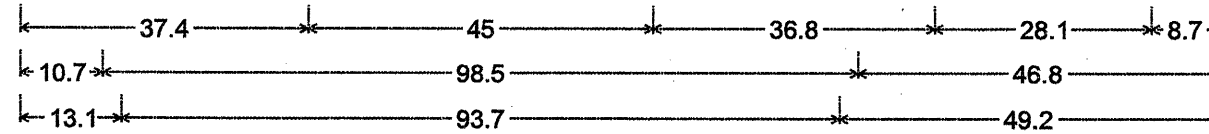
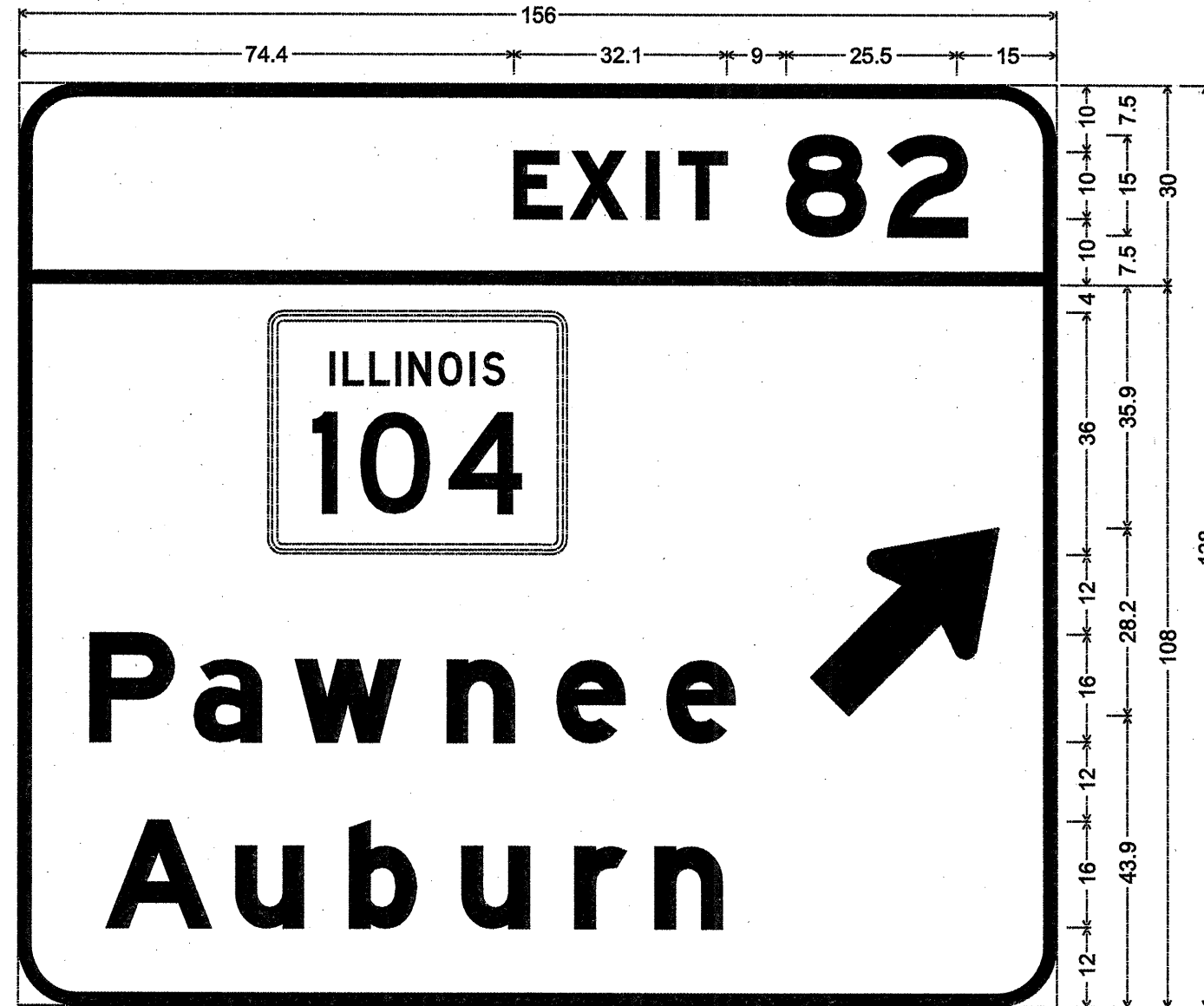
Structure 6S0984I055R081.7;

9.0" Radius, 2.0" Border, White on Green;

[EXIT 83] ClearviewHwy-5-W;

9.0" Radius, 2.0" Border, White on Green;

[Glenarm] ClearviewHwy-5-W; [1 1/2 MILES] ClearviewHwy-5-W;



9.0" Radius, 2.0" Border, White on Green;

[EXIT 82] ClearviewHwy-5-W;

9.0" Radius, 2.0" Border, White on Green;

[Pawnee] ClearviewHwy-5-W; [Auburn] ClearviewHwy-5-W;

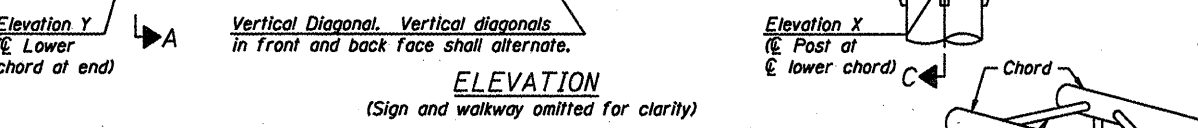
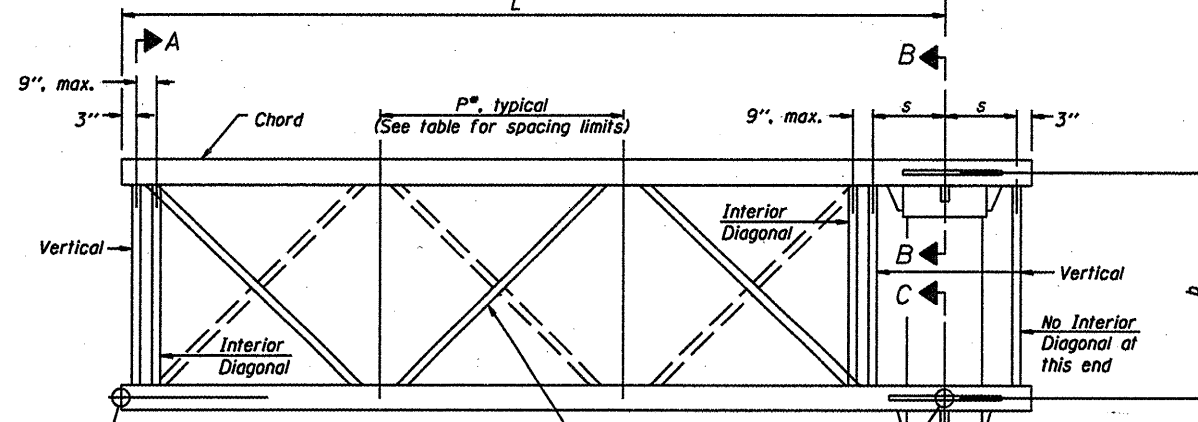
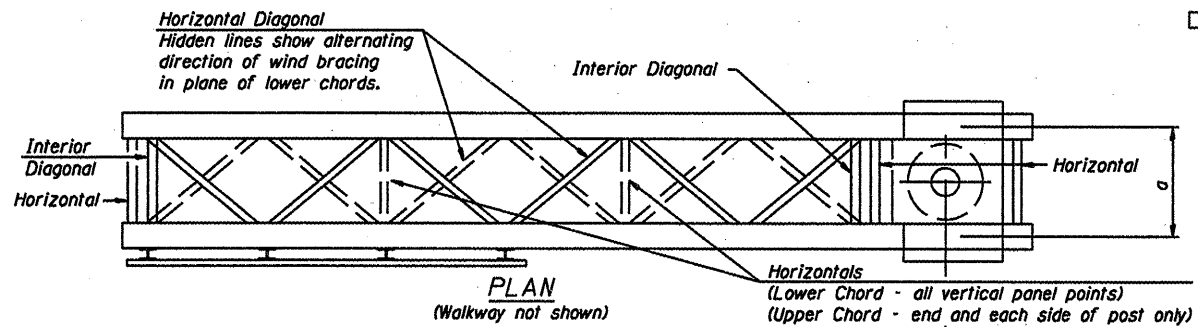
Standard Arrow Custom 35.8" X 21.6" 45°;

DESIGNED	-	20
CHECKED	-	EXAMINED
DRAWN	-	PASSED
CHECKED	-	ENGINEER OF BRIDGE DESIGN
		ENGINEER OF BRIDGES AND STRUCTURES



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

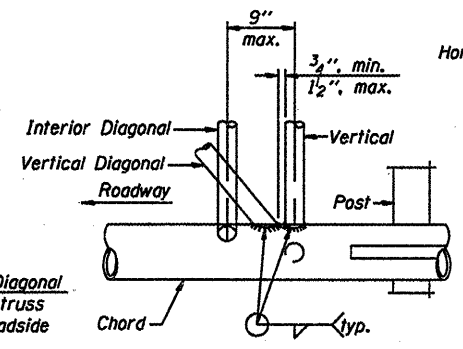
FAI Routes 55 & 72  
D6 OVD SIN STR REPL 2009-11  
Sangamon County  
Sheet 23 of 32  
Contract Number 46010



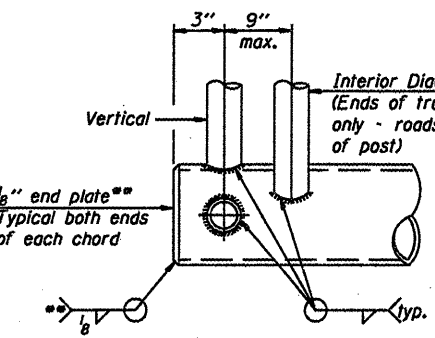
TYPICAL TRUSS UNIT

For Section B-B and Section C-C, see Base Sheet OSC-A-3.

Note: There are twice as many horizontal diagonals as there are vertical diagonals.



POST END JOINT DETAIL



CANTILEVER END JOINT DETAIL

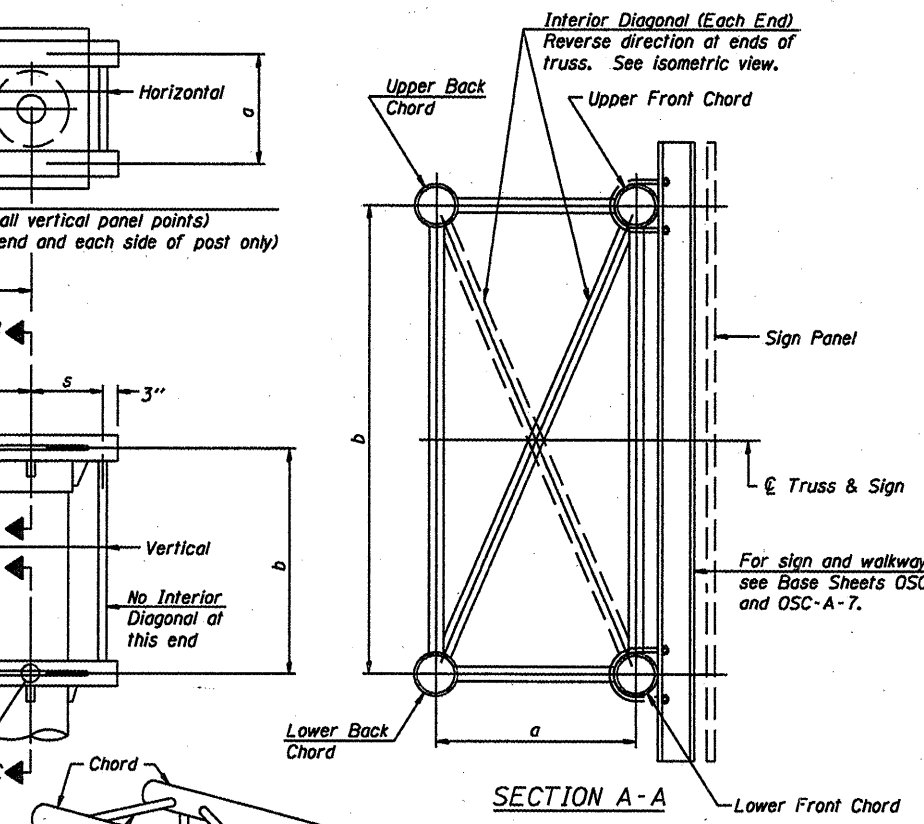
Contractor may alternatively use standard aluminum drive-fit cap to close ends.

DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

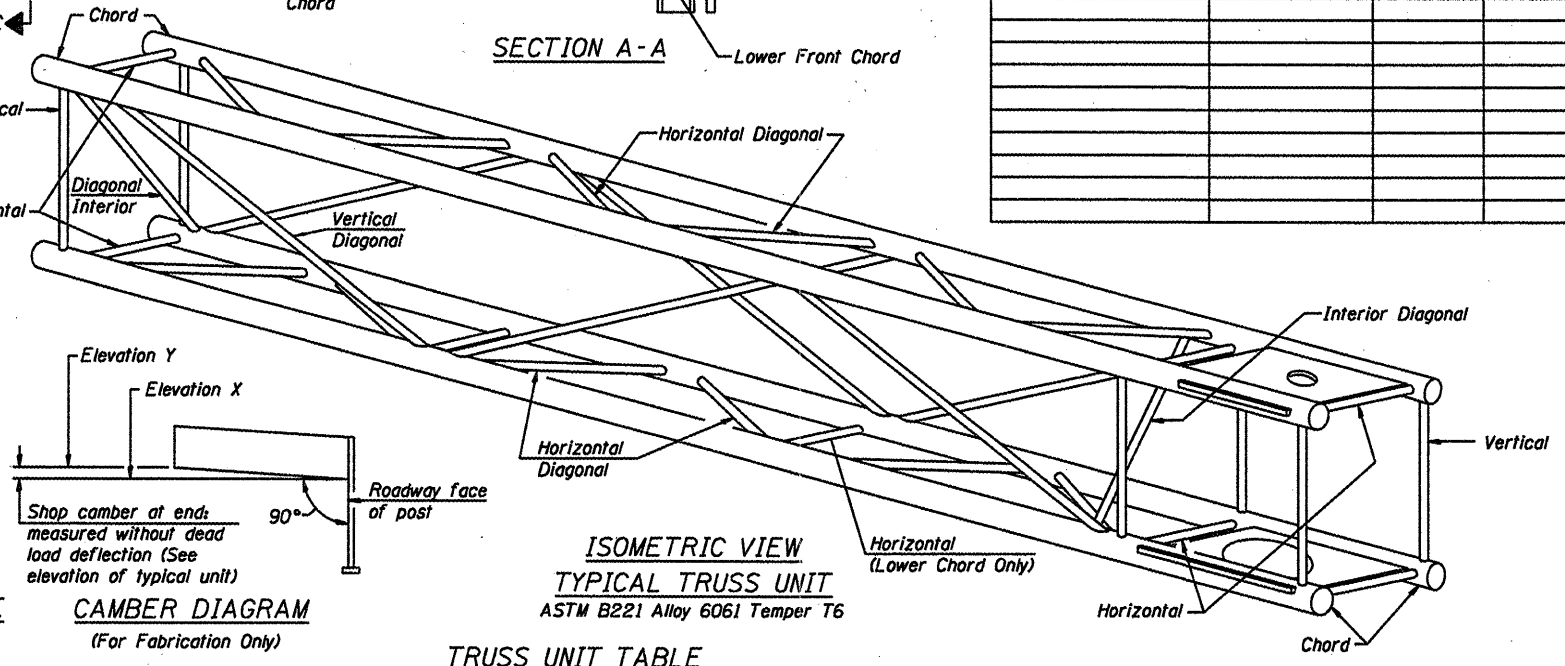
OSC-A-2 5/16/08

SHOP CAMBER TABLE

Unit Length (L)	Shop Camber at End
15'	1 1/2"
16'-17'	1 3/4"
18'-20'	2"
21'-22'	2 1/4"
23'-25'	2 1/2"
26'-27'	2 3/4"
28'-30'	3"
31'-32'	3 1/4"
33'-35'	3 1/2"
36'-37'	4"
38'-40'	4 1/2"



SECTION A-A

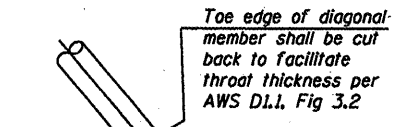


ISOMETRIC VIEW  
TYPICAL TRUSS UNIT  
ASTM B221 Alloy 6061 Temper T6

TRUSS UNIT TABLE

Truss Type	Dimension "a"	Dimension "b"	Dimension "s"	Limits for Panel Spacing (P)*	Up. & Low. Chord			
					O.D. Wall	O.D.	Vertical, Horizontal, and Interior Diagonals Wall	
I-C-A	24"	54"	16"	36" min. to 48" max.	5"	5/16"	2 1/2"	5/16"
II-C-A	36"	66"	21"	42" min. to 54" max.	6 1/2"	5/16"	3 1/4"	5/16"
III-C-A (35' Max.)	36"	84"	21"	48" min. to 66" max.	7"	3/8"	3 1/2"	3/8"
III-C-A (35' to 40')	36"	84"	21"	48" min. to 66" max.	8"	3/8"	3 1/2"	3/8"

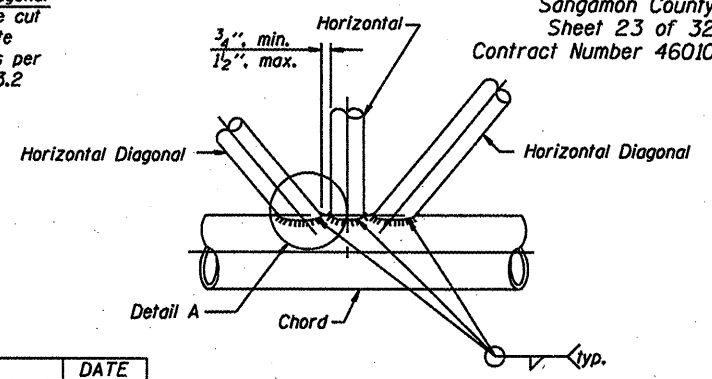
\*P = (L - 5 - 3) / # Panels



DETAIL A

NUMBER	REVISION	DATE

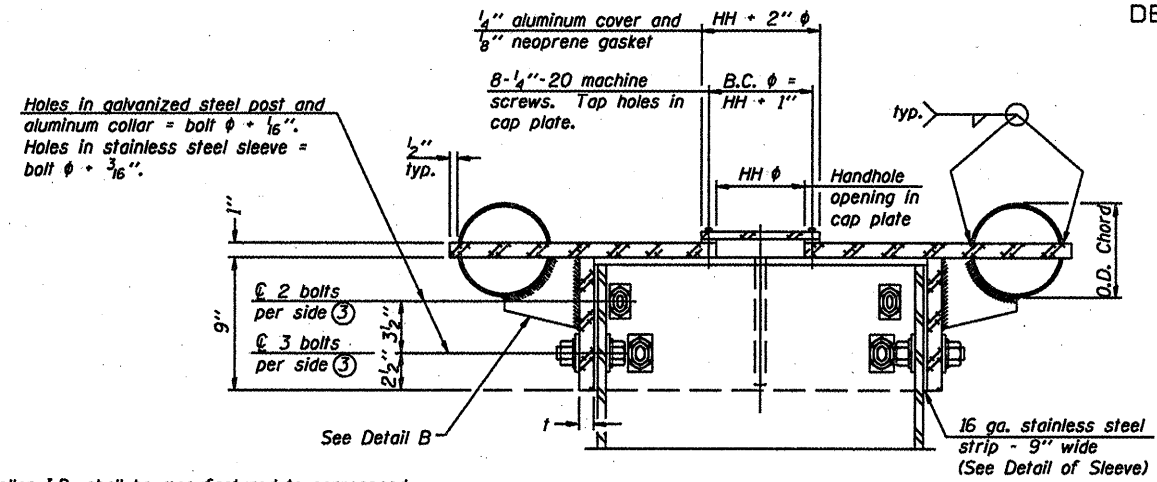
For sign and walkway brackets, see Base Sheets OSC-A-6 and OSC-A-7.



TRUSS INTERIOR JOINT DETAIL

CANTILEVER SIGN STRUCTURES  
TRUSS DETAILS  
ALUMINUM TRUSS & STEEL POST

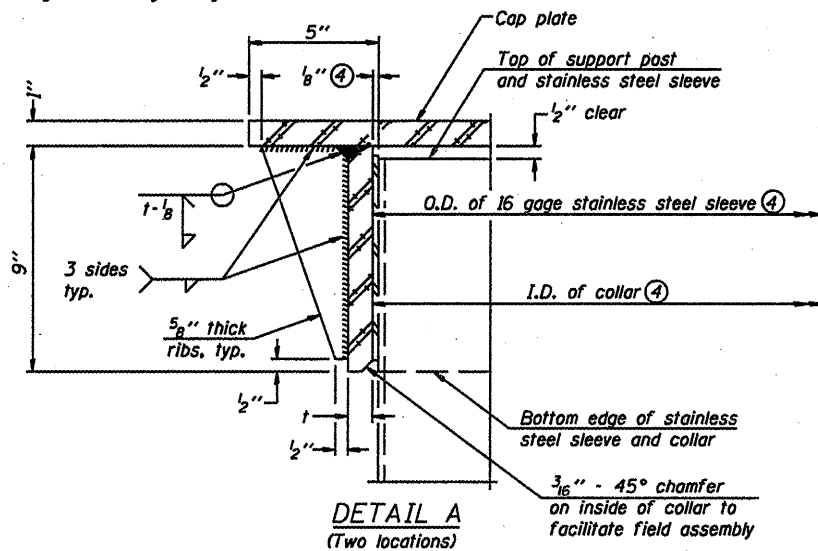
District 6  
Overhead Sign Structure  
Replacement



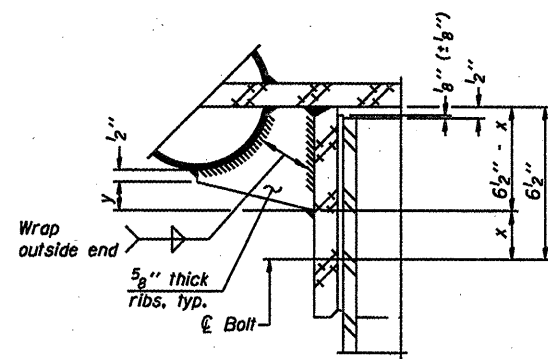
④ Collar I.D. shall be manufactured to correspond to O.D. of actual galvanized post and stainless steel sleeve plus 1/8" (± 1/16"). Maximum gap between post and collar at any location equals 1/8" before tightening bolts.

SECTION B-B

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

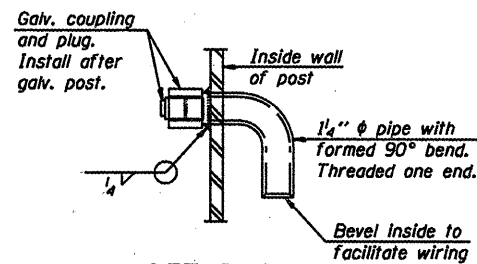


DETAIL A  
(Two locations)

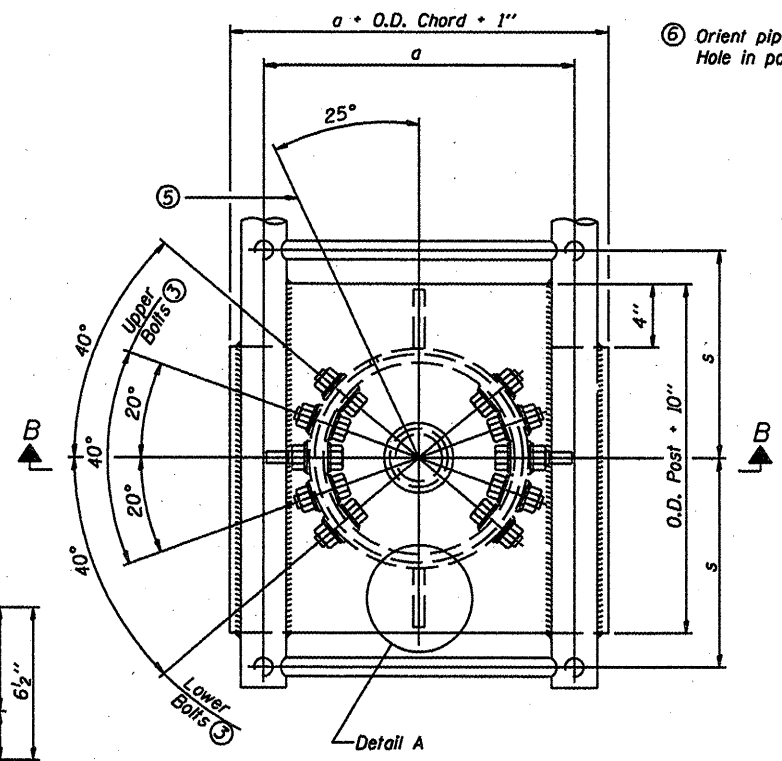


DETAIL B

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

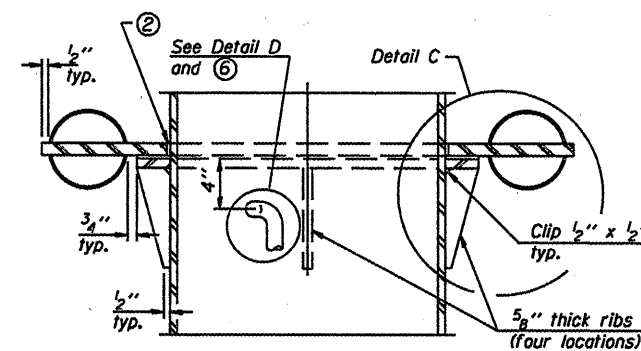


DETAIL D



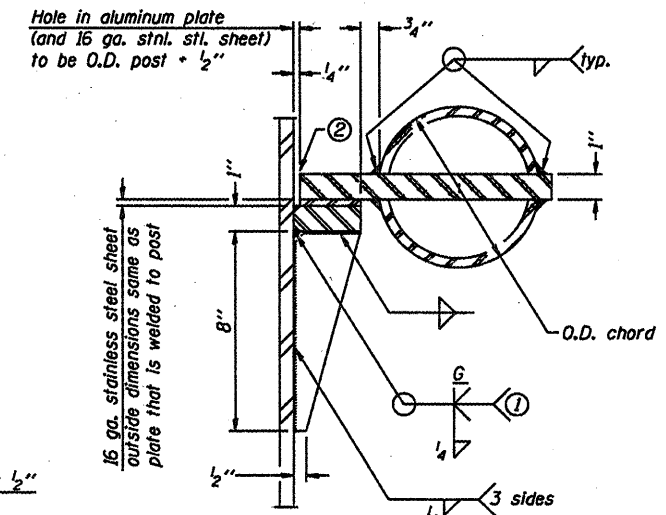
PLAN VIEW - TOP OF COLUMN

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



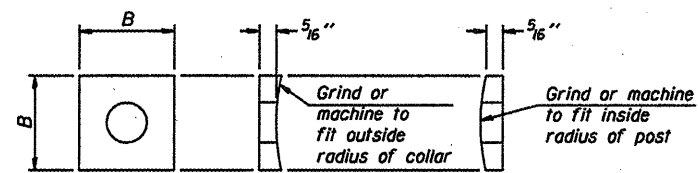
SECTION C-C

SECTION THRU POST ABOVE LOWER CHORDS



DETAIL C

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.



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.

NUMBER	REVISION	DATE

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 (B3#/'')	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-A	24" φ (I25#/'')	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-A (35' max.)	24" φ (I25#/'')	1 1/4"	3 1/2"	12"	7/8"	2"	1"
III-C-A (>35' to 40')	24" φ (I71#/'')	1 1/4"	3 1/2"	12"	7/8"	2"	1"

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.

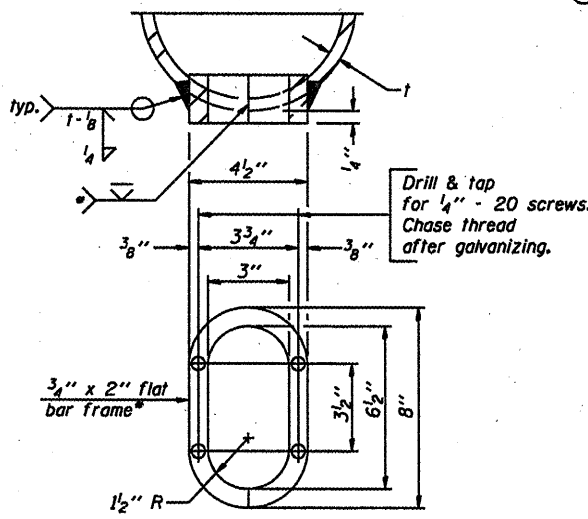
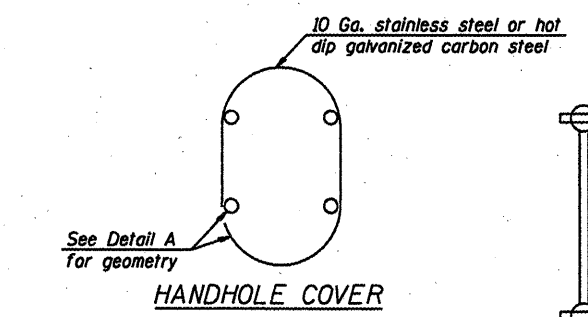
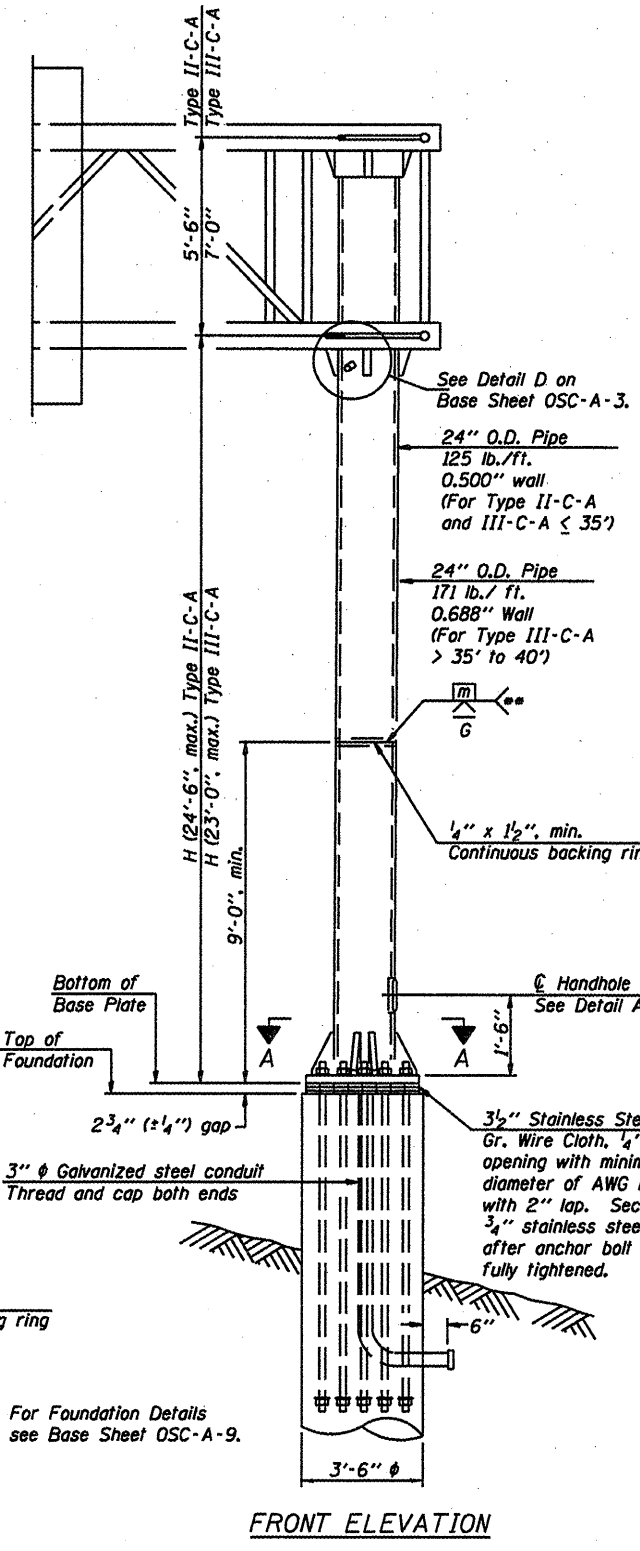
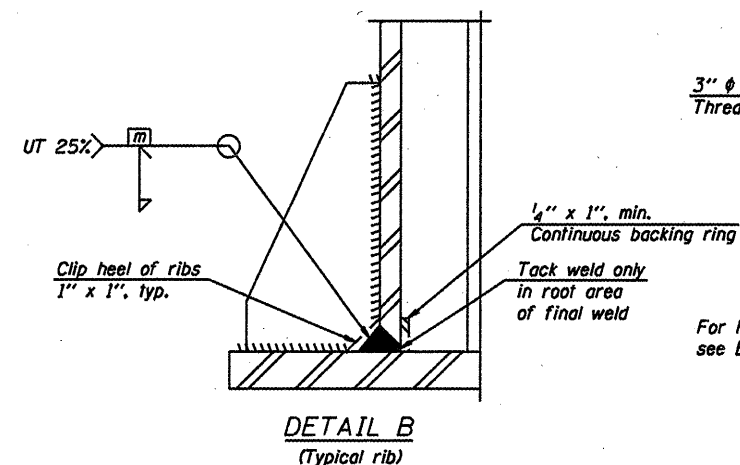
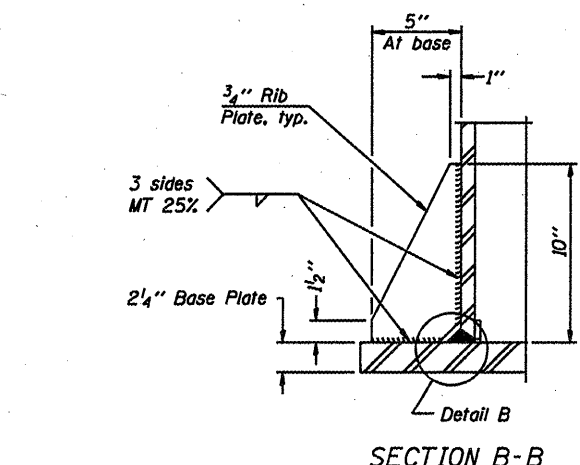
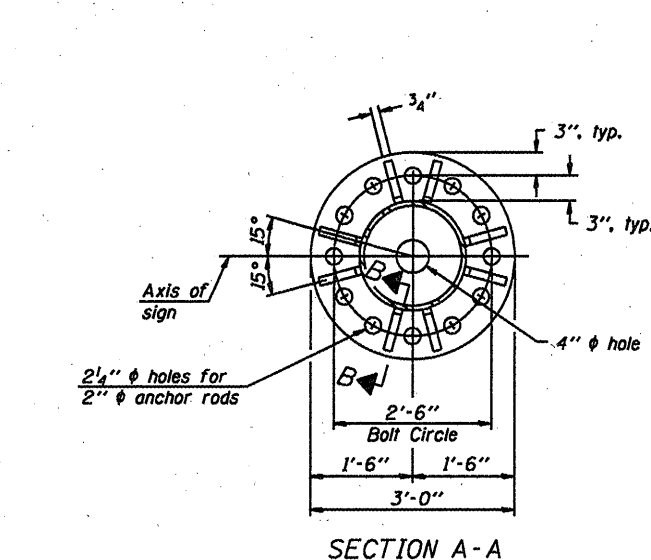
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

OSC-A-3 5/16/08

CANTILEVER SIGN STRUCTURES  
JUNCTURE DETAILS  
ALUMINUM TRUSS & STEEL POST

District 6  
Overhead Sign Structure  
Replacement





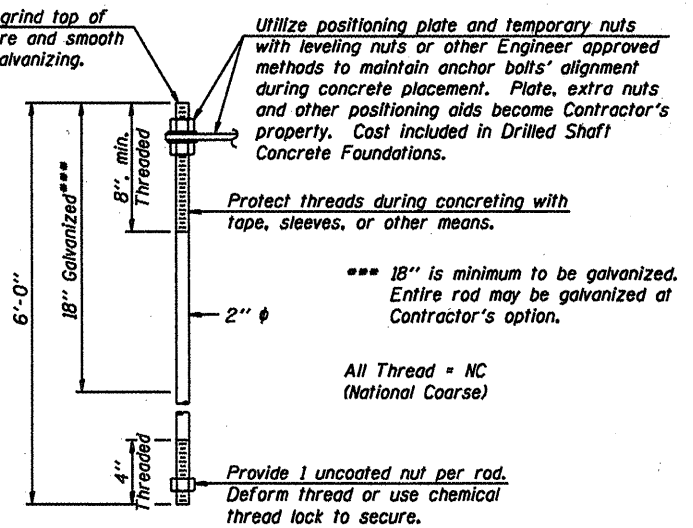
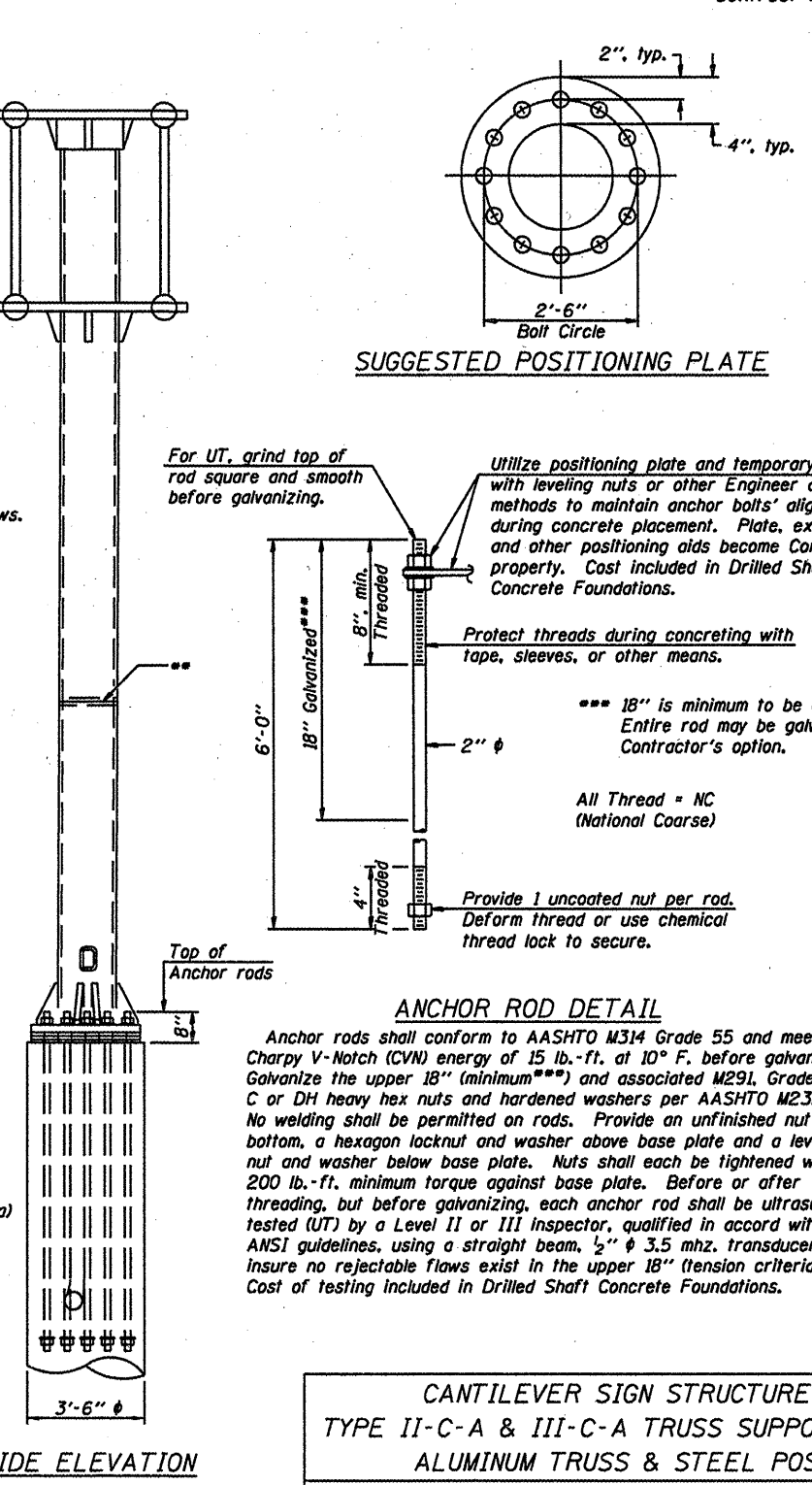
Provide 8" x 4 1/2" cover. Outside corners = 2 1/4" radius. Provide 4-5/16" holes in cover for 1/4" - 20 round head hot dip galvanized or stainless steel machine screws. (See cover details.)

\* Bent bars may be butt welded top and bottom or bottom only. In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.

\*\* Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.

Structure Number	Station	H
6C0841055L107.2	220 + 00	23'-9 3/4"

Note: "H" based on 15'-0" or actual sign height, whichever is greater.



Anchor rods shall conform to AASHTO M314 Grade 55 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F. before galvanizing. Galvanize the upper 18" (minimum) and associated M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide an unfinished nut at bottom, a hexagon locknut and washer above base plate and a leveling nut and washer below base plate. Nuts shall each be tightened with 200 lb.-ft. minimum torque against base plate. Before or after threading, but before galvanizing, each anchor rod shall be ultrasonically tested (UT) by a Level II or III Inspector, qualified in accord with ANSI guidelines, using a straight beam, 1/2" φ 3.5 mhz. transducer, to insure no rejectable flaws exist in the upper 18" (tension criteria). Cost of testing included in Drilled Shaft Concrete Foundations.

\*\*\* 18" is minimum to be galvanized. Entire rod may be galvanized at Contractor's option.

All Thread = NC (National Coarse)

Provide 1 uncoated nut per rod. Deform thread or use chemical thread lock to secure.

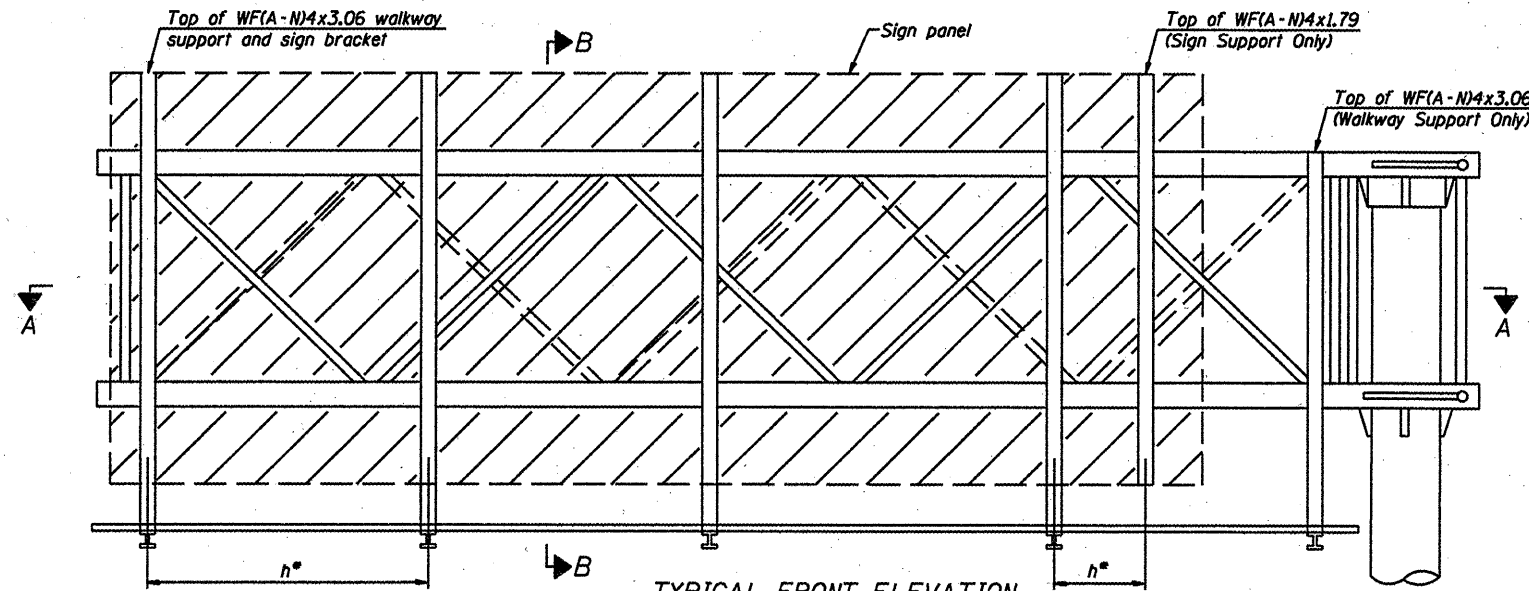
CANTILEVER SIGN STRUCTURES  
TYPE II-C-A & III-C-A TRUSS SUPPORT POST  
ALUMINUM TRUSS & STEEL POST

District 6  
Overhead Sign Structure  
Replacement

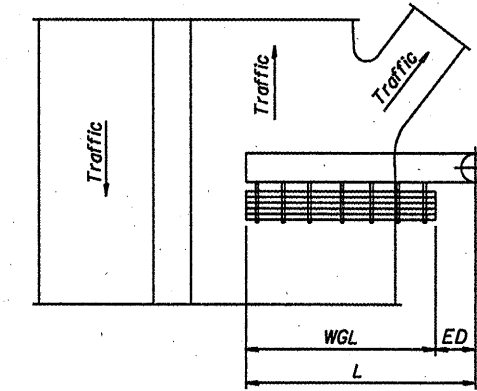
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OSC-A-5 5/16/08

NUMBER	REVISION	DATE



TYPICAL FRONT ELEVATION  
With lights and handrail omitted for clarity.

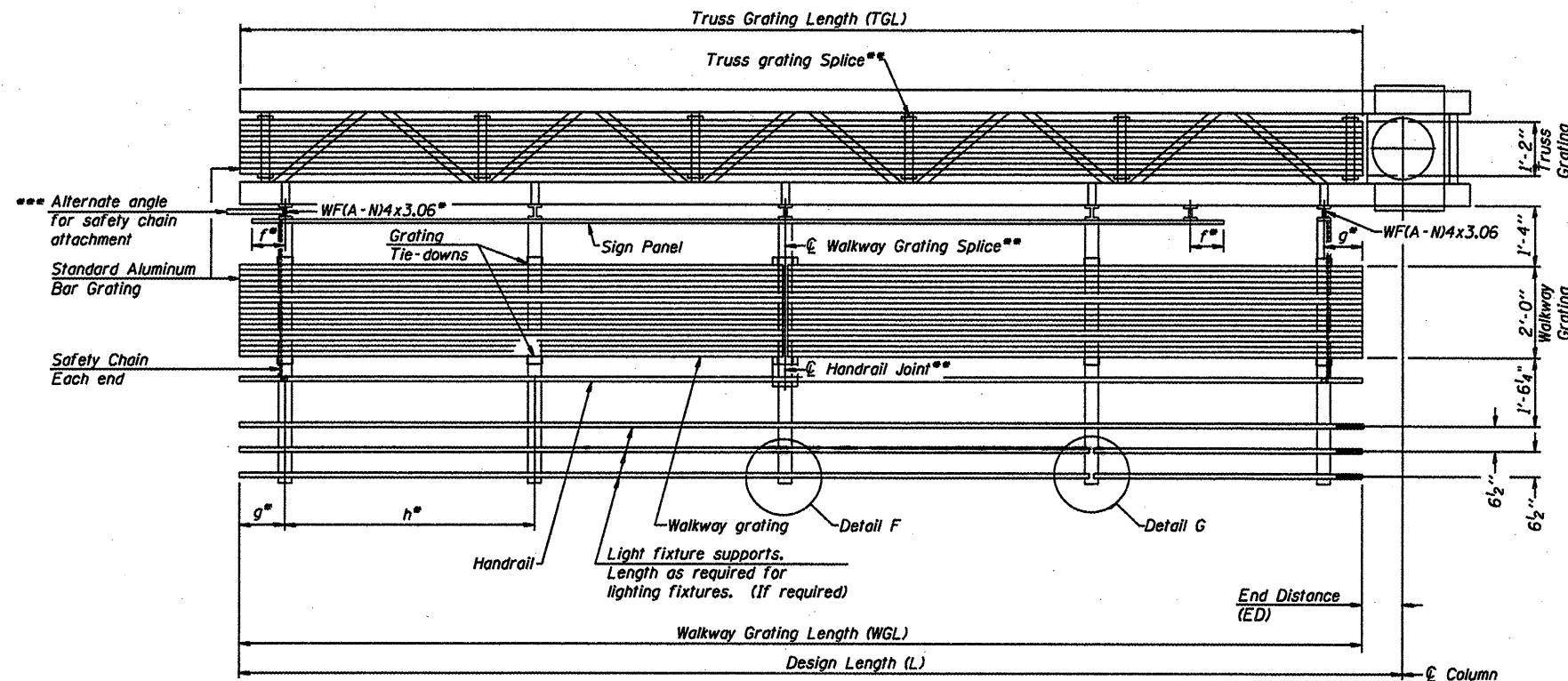


PLAN  
WALKWAY AND HANDRAIL SKETCH  
(Road plan beneath truss varies)

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

Structure Number	Station	WGL	ED	TGL
6C0841055L107.2	220 + 00	15'-0"	15'-0"	28'-3"

The Contractor and the Engineer shall field verify the walkway grating length to assure the walkway is accessible from the shoulder.



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.

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

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

OSC-A-6 5/16/08

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		Number Brackets Required
Sign Width Greater Than	Less Than or Equal To	
8'-0"	8'-0"	2
14'-0"	14'-0"	3
20'-0"	20'-0"	4
26'-0"	26'-0"	5
32'-0"	32'-0"	6

CANTILEVER SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS  
ALUMINUM TRUSS & STEEL POST

District 6  
Overhead Sign Structure  
Replacement

**SPECIFICATIONS FOR STANDARD ALUMINUM GRATING**

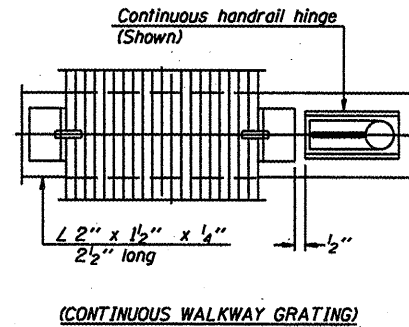
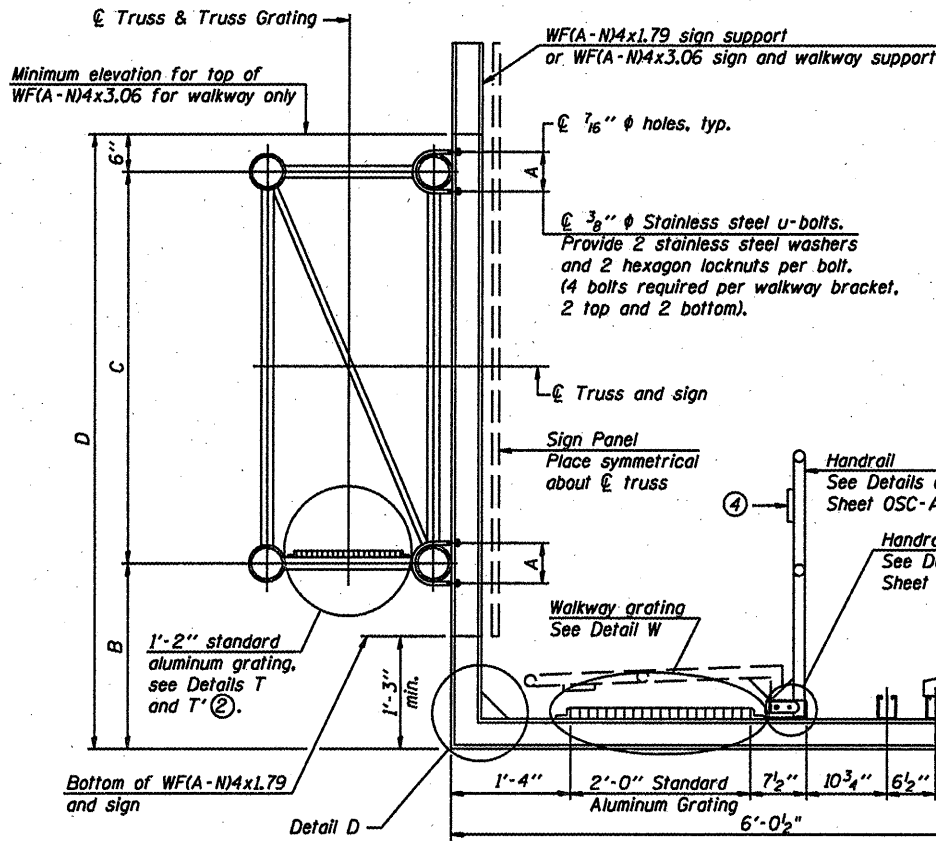
Main Bearing Bars (MBB) shall be  $\frac{3}{16}$ " x  $1\frac{1}{2}$ " on  $1\frac{3}{16}$ " centers and conform to ASTM B211 Alloy 6061-T6.  
Cross bars (CB) shall be  $\frac{3}{16}$ " x  $1\frac{1}{2}$ " on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

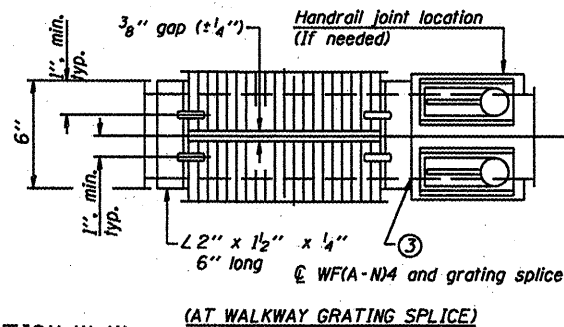
Aluminum Grating with modified "T" sections for main bearing bars shall meet the following requirements:

Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.<sup>3</sup> per bar, a depth of  $1\frac{1}{2}$ ", spaced on  $1\frac{3}{16}$ " centers.

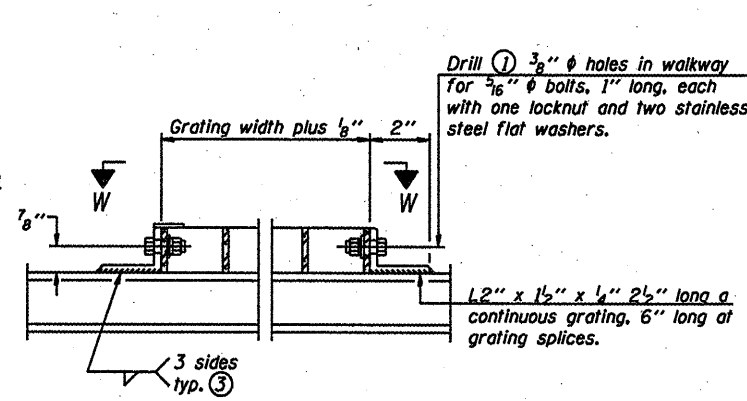
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.



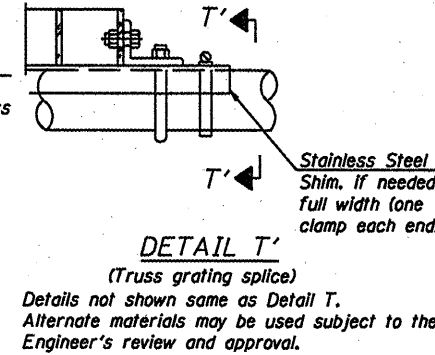
SECTION W-W



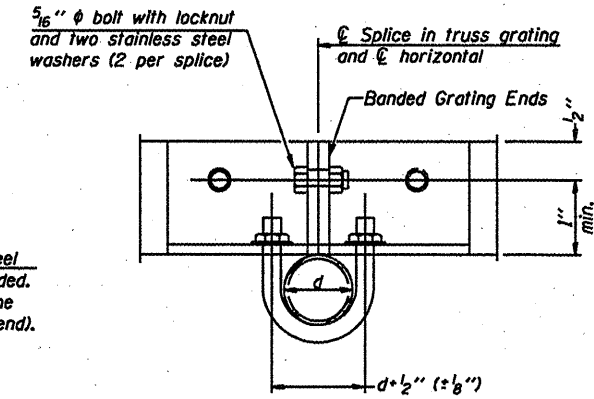
(AT WALKWAY GRATING SPLICE)



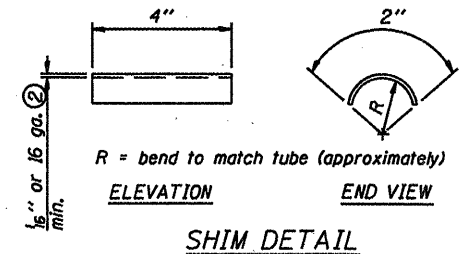
DETAIL W  
(Walkway grating)



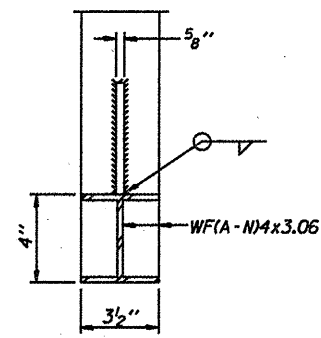
DETAIL T'  
(Truss grating splice)



SECTION T'-T'

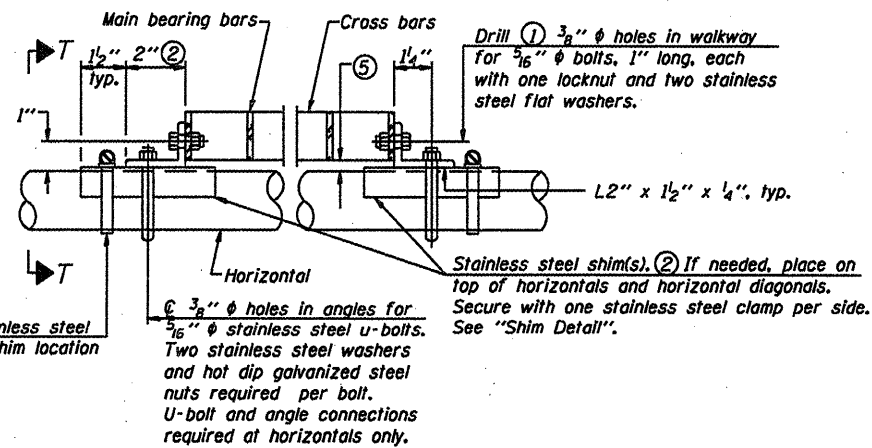


SHIM DETAIL



SECTION D-D

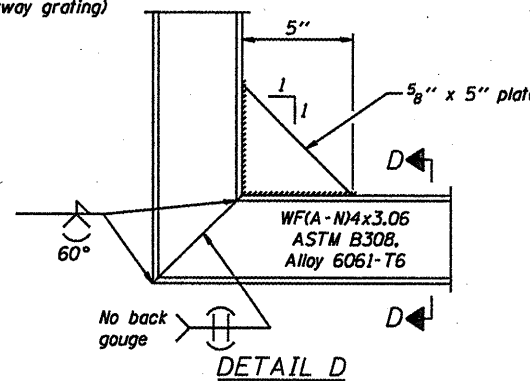
Screw type stainless steel tube clamp at shim location



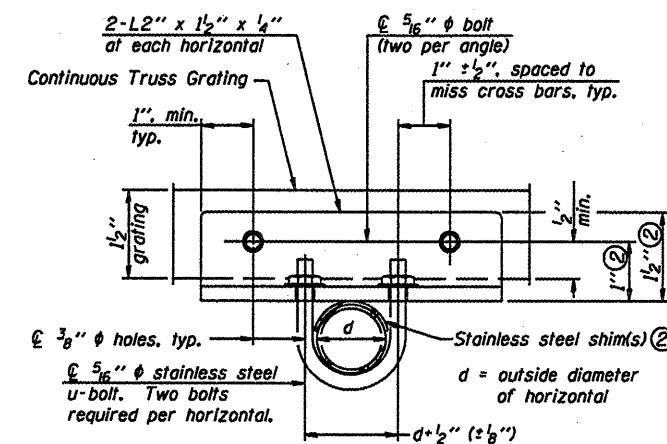
DETAIL T

(Continuous Truss grating)

- 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  $\frac{1}{4}$ " extension bars. (See Base Sheet OSC-A-8.)
- ④  $\frac{1}{8}$ " x  $\frac{1}{2}$ " x 2" welded to handrail posts to protect locations that contact grating.
- ⑤ Tube to grating gap may vary from 0 to  $\frac{1}{2}$ ", max. to align walkway, allow for camber, etc.



DETAIL D



SECTION T-T

Structure Number	Station	A	B	C	D
6C0841055L107.2	220 + 00	7"	1'-9"	5'-6"	7'-9" *

The Contractor and the Engineer shall field verify the dimensions for all walkway support brackets.

CANTILEVER SIGN STRUCTURES  
WALKWAY DETAILS  
ALUMINUM TRUSS & STEEL POST

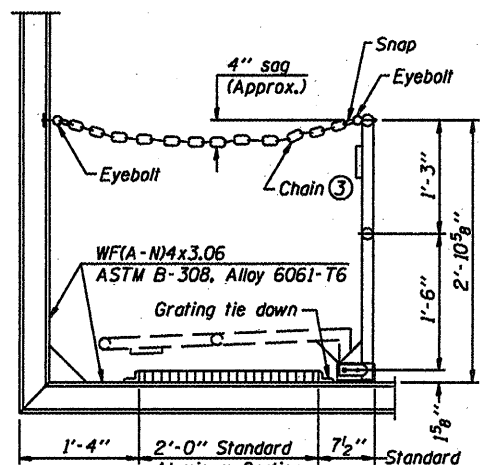
District 6  
Overhead Sign Structure  
Replacement

NUMBER	REVISION	DATE

DESIGNED -		20
CHECKED -	EXAMINED	
DRAWN -	PASSED	ENGINEER OF BRIDGE DESIGN
CHECKED -		ENGINEER OF BRIDGES AND STRUCTURES

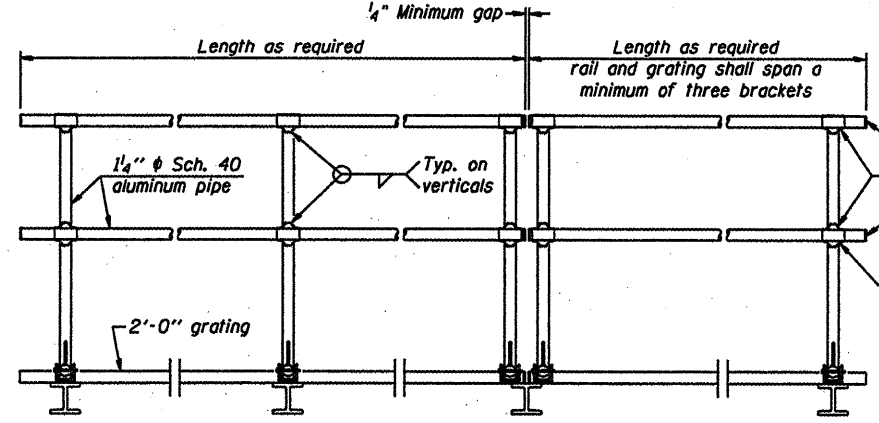
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

FAI Routes 55 & 72  
D6 OVD SIN STR REPL 2009-11  
Sangamon County  
Sheet 28 of 32  
Contract Number 46010



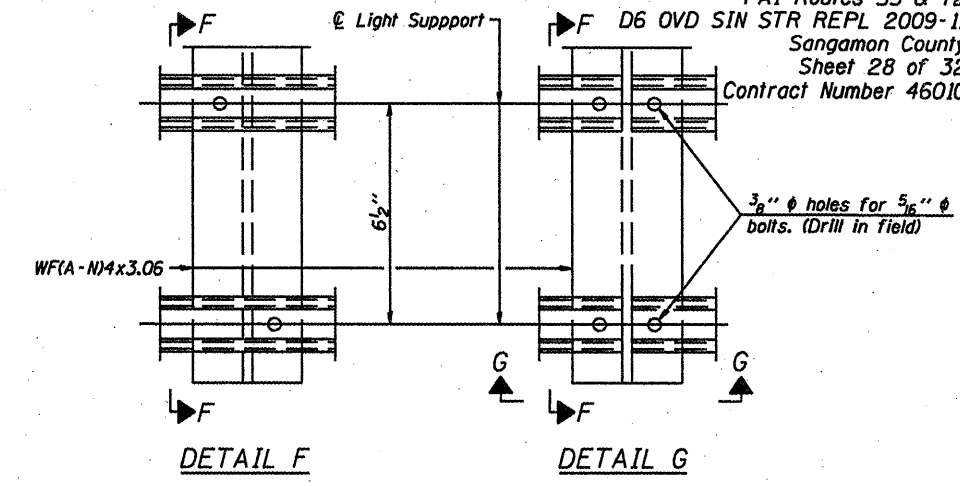
**SIDE ELEVATION**

(Showing Safety Chain W/O Sign)



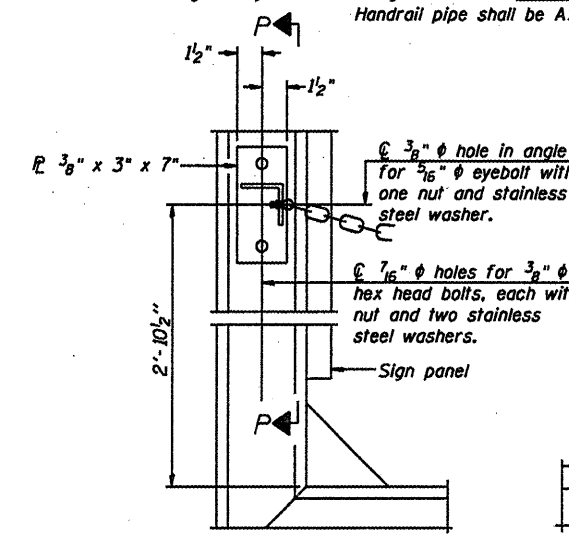
**FRONT ELEVATION**

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



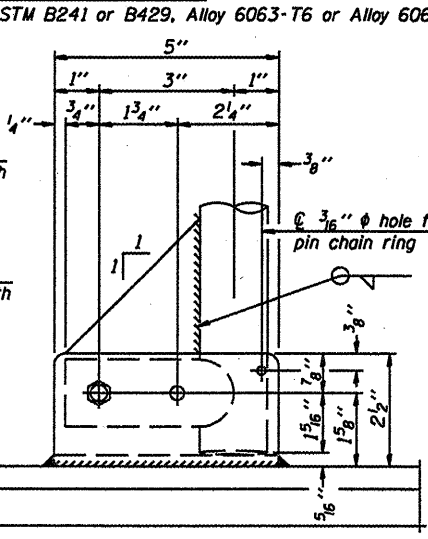
**DETAIL F**

**DETAIL G**

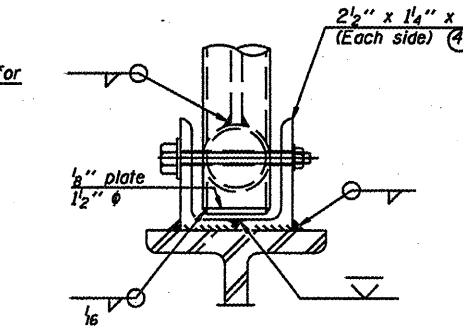


**ALTERNATE SAFETY CHAIN ATTACHMENT**

(With Sign Present)  
Items not shown same as "Side Elevation" of "Handrail Details"

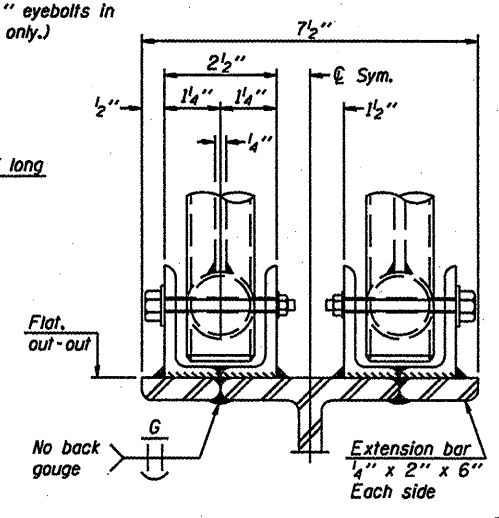


**SIDE ELEVATION**



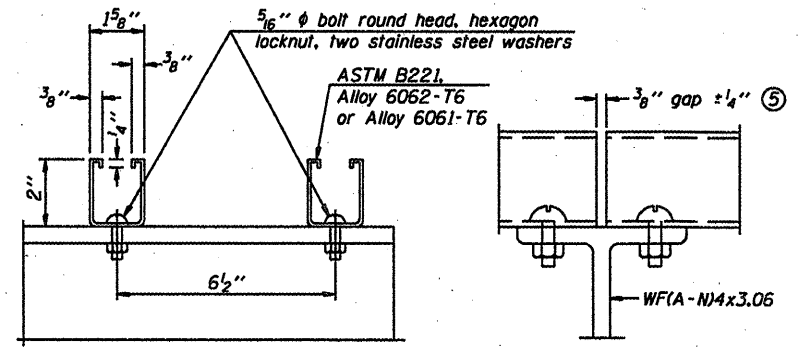
**FRONT ELEVATION**

Details not shown same as "ELEVATION" at right.



**ELEVATION AT HANDRAIL JOINT**

Details not shown same as "FRONT ELEVATION"

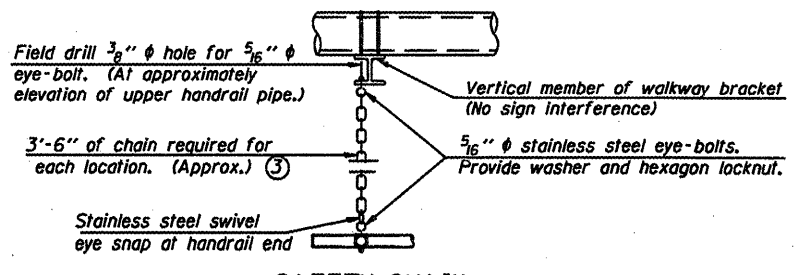


**SECTION F-F**

**SECTION G-G**

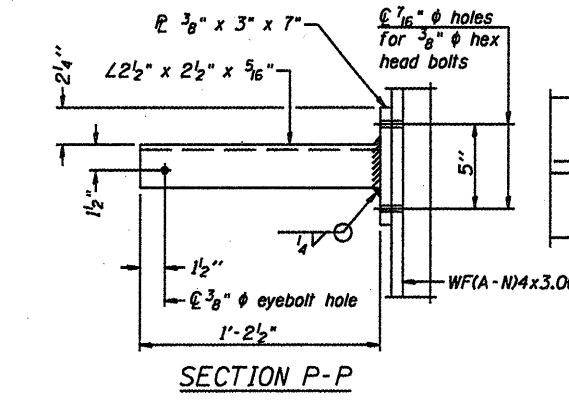
**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

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

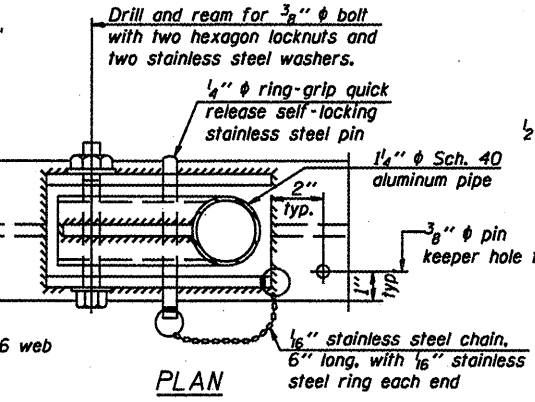


**SAFETY CHAIN**

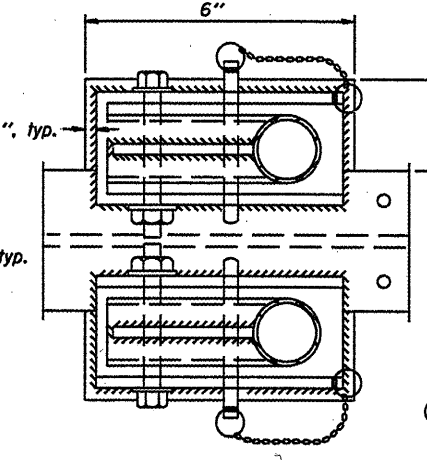
One required for each end of each walkway.



**SECTION P-P**



**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" 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.

DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

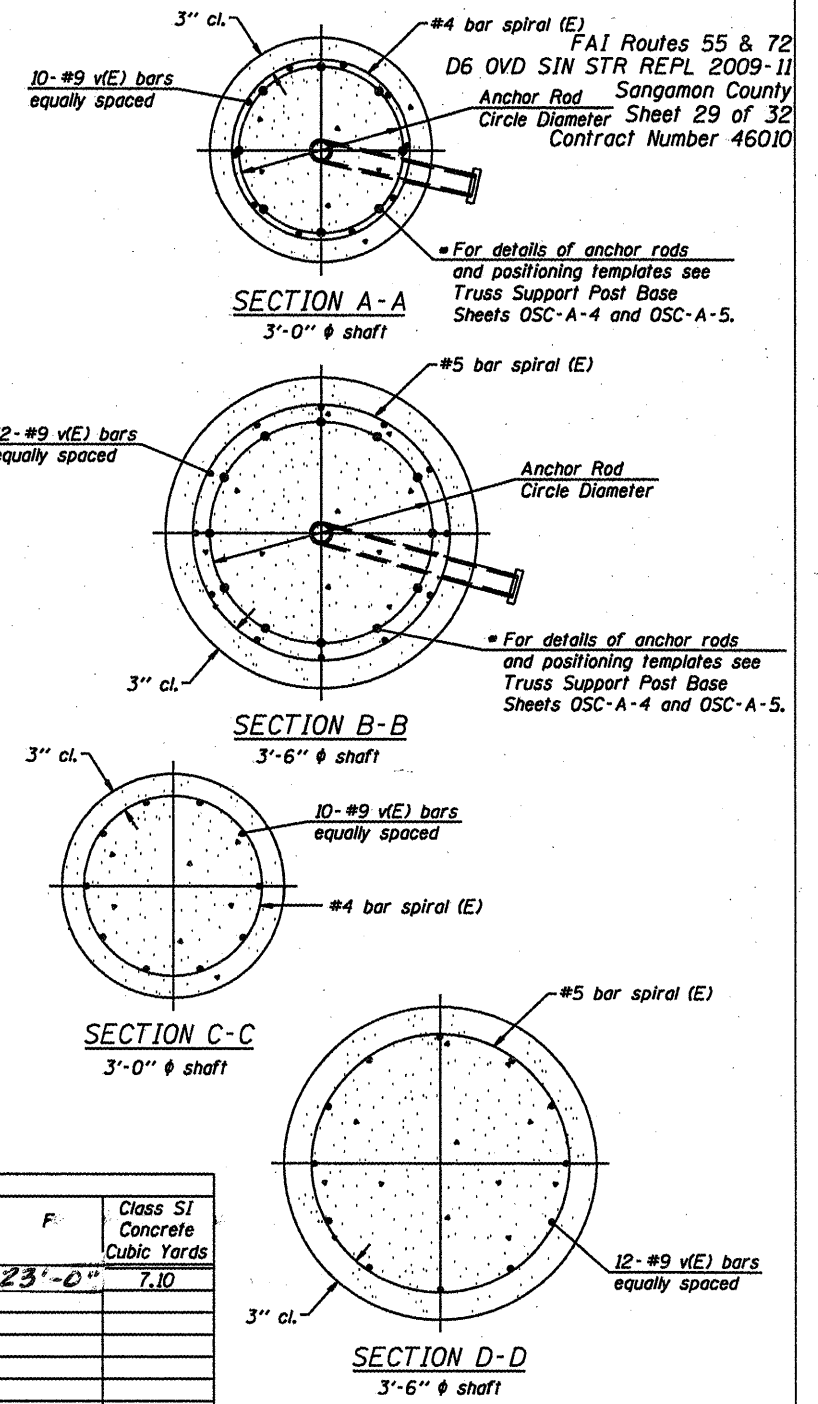
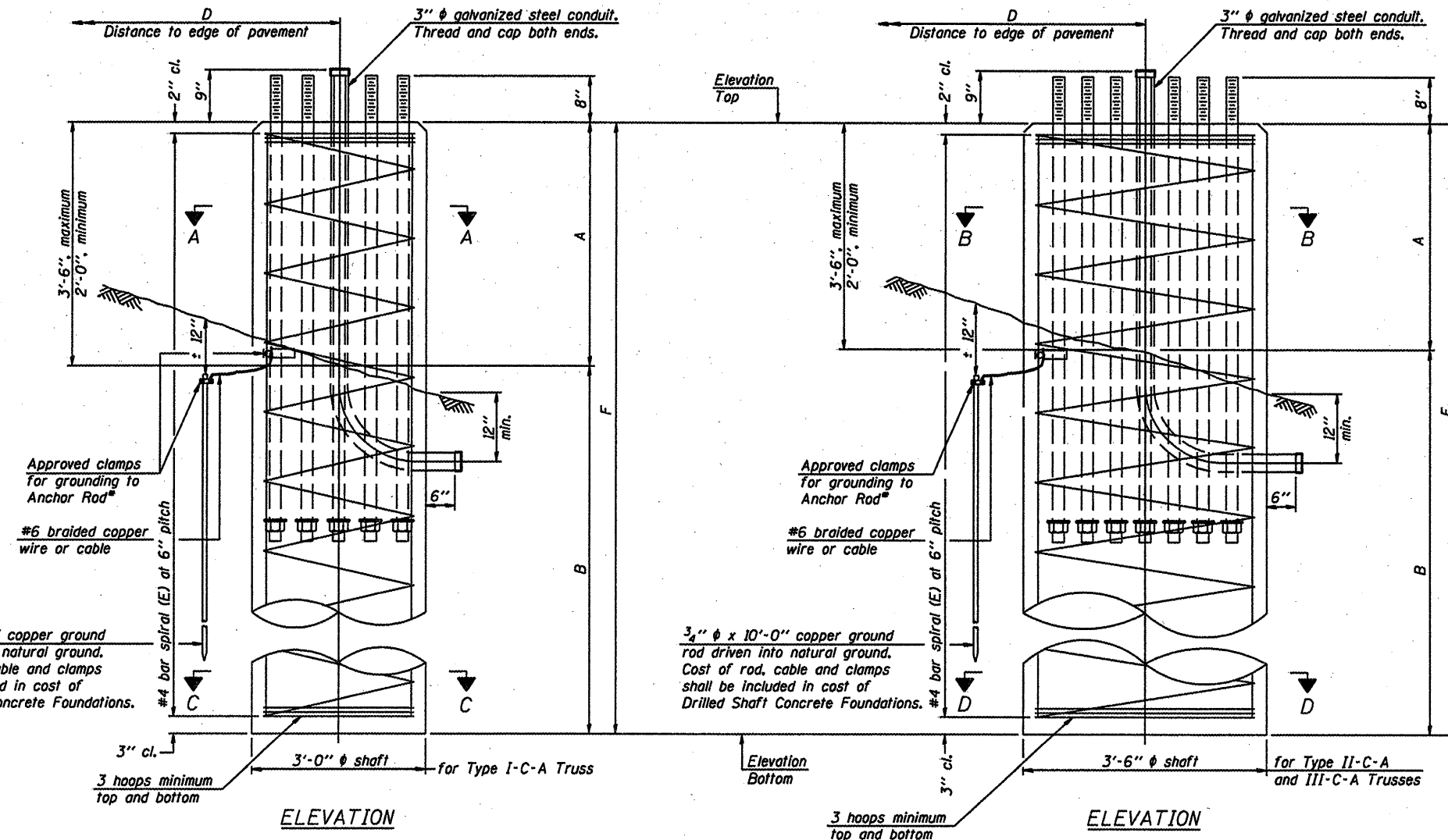
NUMBER	REVISION	DATE

CANTILEVER SIGN STRUCTURES  
HANDRAIL DETAILS  
ALUMINUM TRUSS & STEEL POST

District 6  
Overhead Sign Structure  
Replacement

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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



**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 job site. 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 Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in "Drilled Shaft Concrete Foundation".

Structure Number	Station	Truss Type	Shaft Diameter	Elevation Top	Elevation Bottom	$Q_u$	A	B	F	Class SI Concrete Cubic Yards
6C0841055L107.2	220 + 00	II-C-A	3'-6"	590.84	N/A	*	3'-0"	20'-0"	23'-0"	7.10

\* See Soil Boring Log.

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

CANTILEVER SIGN STRUCTURES  
DRILLED SHAFT  
ALUMINUM TRUSS & STEEL POST

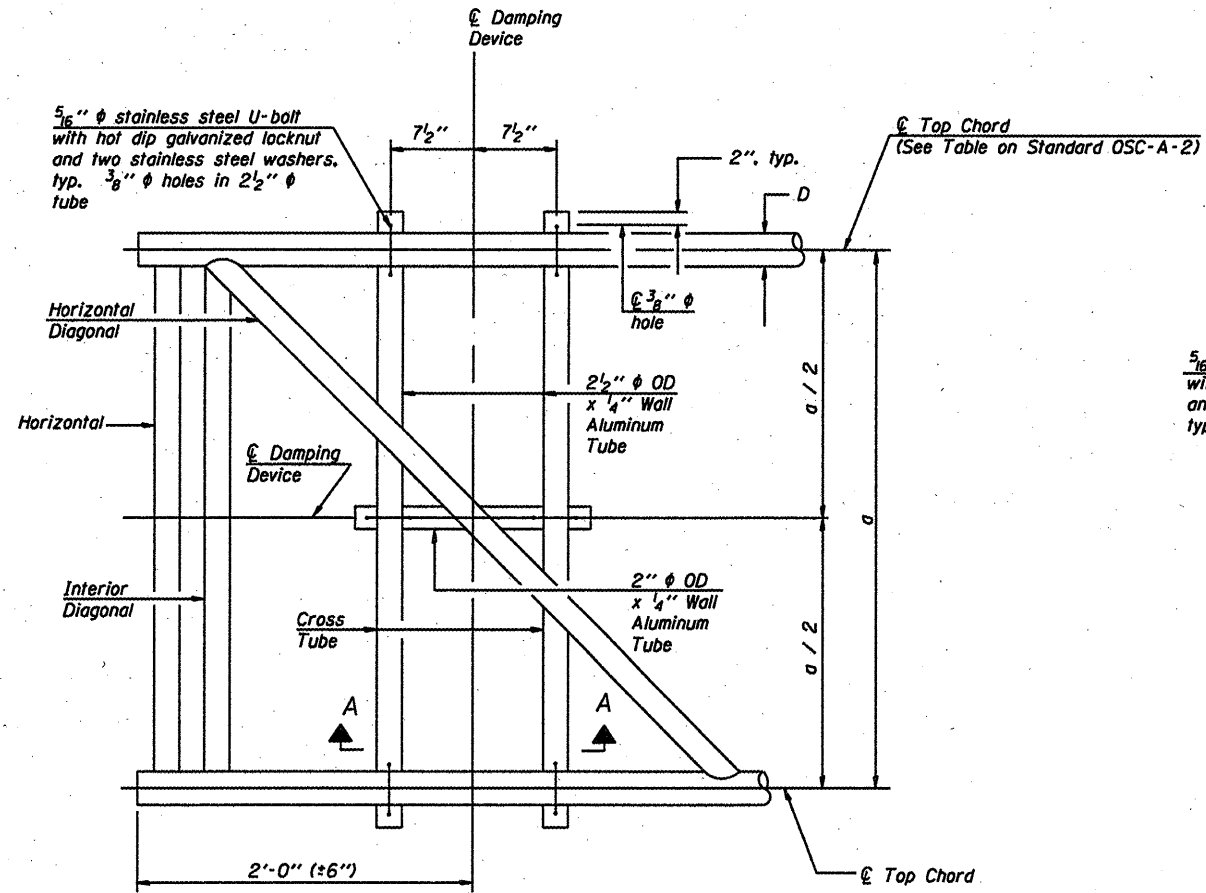
District 6  
Overhead Sign Structure  
Replacement

Rev.

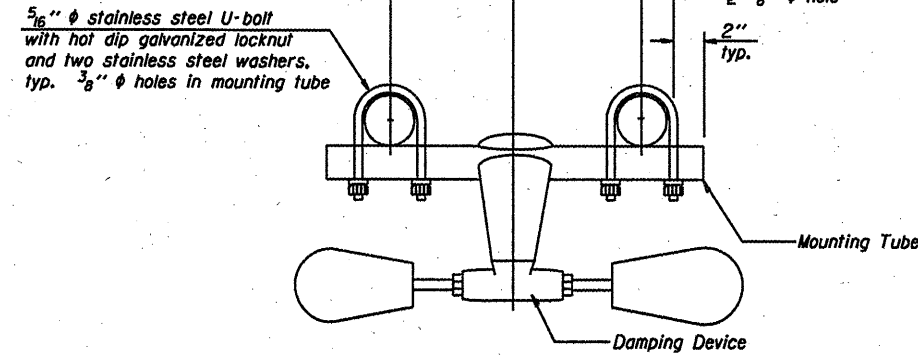
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OSC-A-9      5/16/08

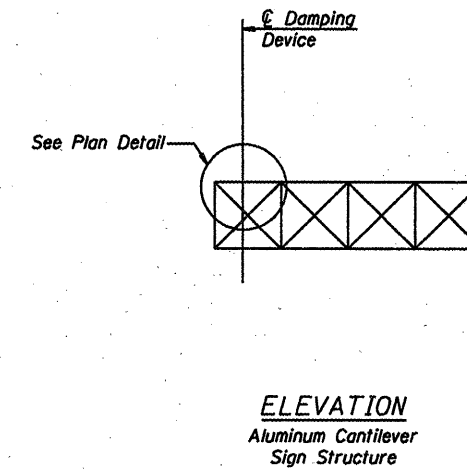
NUMBER	REVISION	DATE



PLAN DETAIL



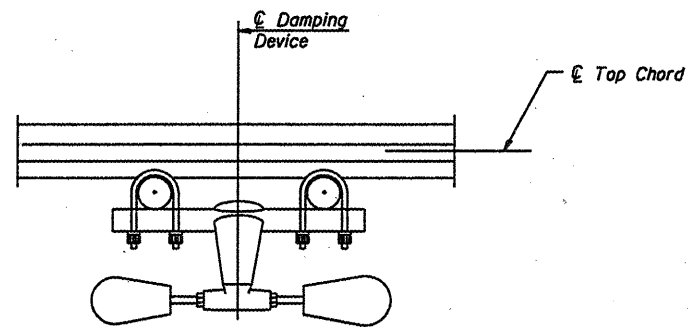
TRUSS DAMPING  
DEVICE CONNECTION DETAIL



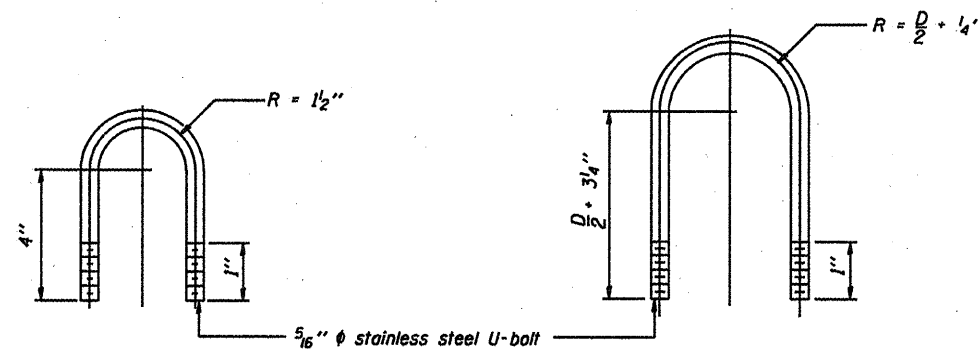
ELEVATION  
Aluminum Cantilever  
Sign Structure

GENERAL NOTES

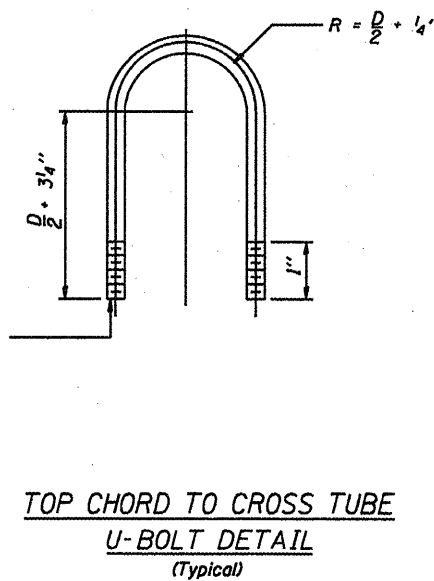
- Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum)
- Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6



SECTION A-A



DAMPING DEVICE MOUNTING  
TUBE U-BOLT DETAIL  
(Typical)



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

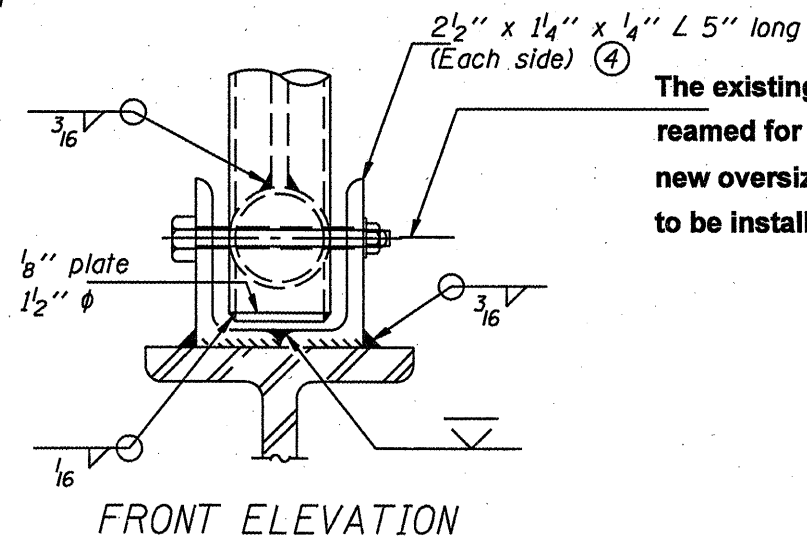
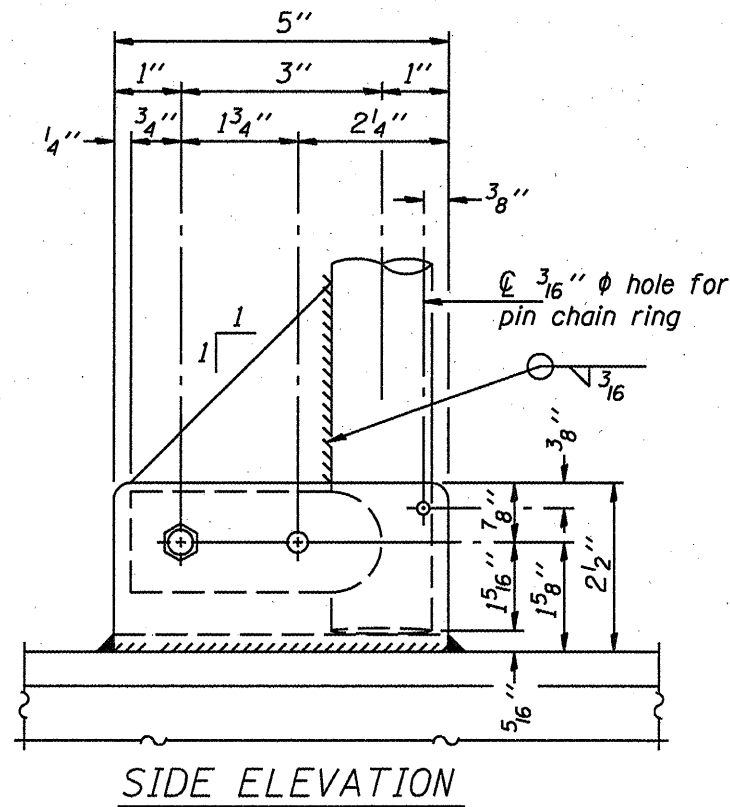
CANTILEVER SIGN STRUCTURE  
DAMPING DEVICE

District 6  
Overhead Sign Structure  
Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

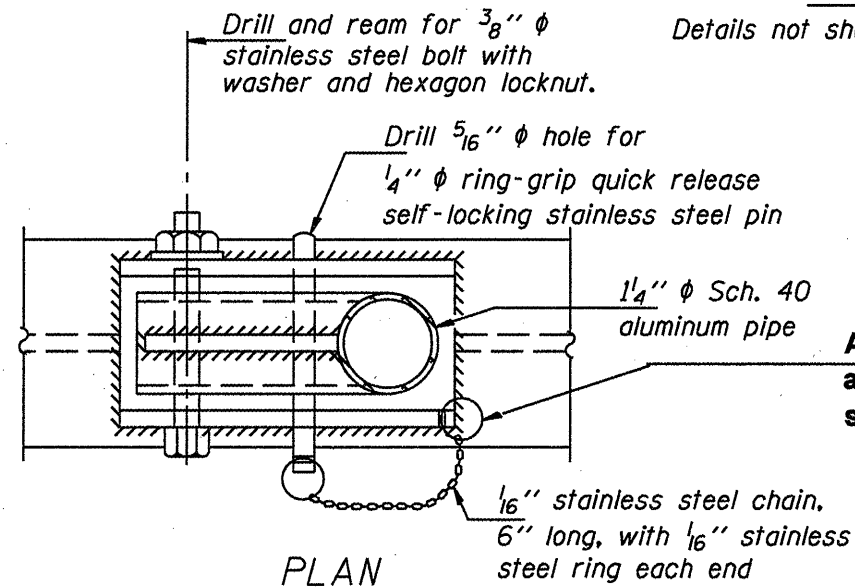


# STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION



The existing locking pin hole to be reamed for proper alignment and a new oversized stainless steel pin to be installed.

Details not shown same as "ELEVATION" at right.



DETAIL E HANDRAIL HINGE

A new stainless steel chain shall be attached to the angle with a 1/16" stainless steel ring.

OVERHEAD SIGN STRUCTURES  
HANDRAIL HINGE REPAIR DETAIL

District 6  
Overhead Sign Structure  
Repair & Replacement