

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

Various Routes  
 OVD SIN STR REP & REPL 2006-9  
 Various Counties  
 Sheet 1 of 89  
 Contract Number 44904

PLANS FOR PROPOSED  
 FEDERAL AID HIGHWAY

VARIOUS ROUTES  
 OVD SIN STR REP & REPL 2006-9  
 VARIOUS COUNTIES  
 C-60-010-06

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- 702001-06
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- 720021-01

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED May 16, 2006  
 PASSED

Joe Hill  
 ENGINEER OF OPERATIONS

May 12, 2006  
Mike Hene  
 ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED May 12, 2006  
Milton K. Sees, P.E.  
 DIRECTOR DIVISION OF HIGHWAYS

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

CONTRACT NO. 44904

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Summary of Quantities

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CODE NUMBER	PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	URBAN	RURAL
T9990700	REPLACE OVERHEAD SIGN WALKWAY	FOOT	36.00		36.00
T9990710	REMOVE & REINSTALL WALKWAY	FOOT	417.00		417.00
T9992300	OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	475.00	245.00	230.00
T9992530	REPLACE/TIGHTEN CLIPS PER SIGN	EACH	5.00		5.00
T9992700	REMOVE & REINSTALL SIGN PANEL	SQ FT	3,824.50		3,824.50
T9995010	REMOVE & RE-ERECT OVERHEAD SIGN END SUPPORT	EACH	2.00		2.00
T9995200	REPLACE U-BOLT	EACH	16.00		16.00
T9995400	FURNISH & INSTALL SADDLE SHIM BLOCK	EACH	20.00	12.00	8.00
T9996200	REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE	EACH	4.00	1.00	3.00
T9996300	OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	47.00	12.00	35.00
T9997250	FURNISH & INSTALL INTERNAL TRUSS CLAMP	EACH	1.00		1.00
T9997255	FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	11.00	3.00	8.00
T9997700	FURNISH & INSTALL SAFETY CHAIN	EACH	42.00	4.00	38.00
T9998600	TIGHTEN CANTILEVER CONNECTION	EACH	4.00		4.00
T9998700	FURNISH & INSTALL WALKWAY TIE DOWN BOLT	EACH	1.00		1.00
T9998815	REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	49.00		49.00
T9998897	REPLACE HANDRAIL SUPPORT	EACH	2.00		2.00
T9998995	DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	14.00		14.00
X0321631	REMOVE LUMINAIRE	EACH	5.00		5.00

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X0324397	RELOCATE ELECTRIC SERVICE	EACH	8.00		8.00
X7330100	PAINT OVERHEAD SIGN SUPPORT	EACH	5.00		5.00
Z0013300	CONCRETE REMOVAL SPECIAL	SQ YD	108.40		108.40
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE) TEST LEVEL 3	EACH	2.00		2.00
67100100	MOBILIZATION	L SUM	1.00	0.28	0.72
70101700	TRAFFIC CONTROL & PROTECTION	L SUM	1.00	0.40	0.60
72400310	REMOVE SIGN PANEL - TYPE 1	SQ FT	82.000		82.00
7330100	OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-A (4' - 0" X 4' - 6")	FOOT	434.33		434.33
73300200	OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A (4' - 6" X 5' - 3")	FOOT	588.00		588.00
73302170	OVERHEAD SIG STRUCTURE-CANTILEVER, TYPE II-C-A (36" X 5' - 6")	FOOT	30.00		30.00
73305100	OVERHEAD SIGN STRUCTURE WALKWAY (SPECIAL)	FOOT	88.00		88.00
73400200	DRILLED SHAFT CONCRETE FOUNDATION	CU YD	127.70		127.70
73600100	REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	11.00		11.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER	EACH	4.00		4.00
73700300	REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	20.00		20.00
73800100	STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE-SPAN	EACH	22.00	6.00	16.00
73801100	REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN	EACH	6.00	3.00	3.00
44003800	MEDIAN SURFACE REMOVAL	SQ FT	128.00		128.00
60618300	CONCRETE MEDIAN SURFACE 4 INCH	SQ FT	128.00		128.00



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PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	DISTRICT 1	DISTRICT 2	DISTRICT 3	DISTRICT 4	DISTRICT 5	DISTRICT 7
REPLACE OVERHEAD SIGN WALKWAY	FOOT	36.00		20.00			16.00	
REMOVE & REINSTALL WALKWAY	FOOT	417.00		29.50	220.00		150.50	17.00
REMOVE & RE-ERECT OVERHEAD SIGN END SUPPORT	EACH	2.00				2.00		
OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	475.00	245.00	162.00		68.00		
REPLACE/TIGHTEN CLIP PER SIGN	EACH	5.00		4.00		1.00		
REMOVE & REINSTALL SIGN PANEL	SQ FT	3,824.50		700.00	1,652.00		1,169.75	302.75
REPLACE U-BOLT	EACH	16.00		4.00		12.00		
FURNISH & INSTALL SADDLE SHIM BLOCK	EACH	20.00	12.00	8.00				
REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE	EACH	4.00	1.00			3.00		
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	47.00	12.00	4.00	20.00	7.00		4.00
FURNISH & INSTALL INTERNAL TRUSS CLAMP	EACH	1.00				1.00		
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	11.00	3.00	2.00		5.00		1.00
FURNISH & INSTALL SAFETY CHAIN	EACH	42.00	4.00	8.00	8.00	10.00	8.00	4.00
TIGHTEN CANTILEVER CONNECTION	EACH	4.00				4.00		
FURNISH & INSTALL WALKWAY TIE DOWN BOLT	EACH	1.00				1.00		
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	49.00		4.00		33.00		12.00
REPLACE HANDRAIL SUPPORT	EACH	2.00		2.00				

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PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	DISTRICT 1	DISTRICT 2	DISTRICT 3	DISTRICT 4	DISTRICT 5	DISTRICT 7
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	14.00		4.00	5.00	1.00	3.00	1.00
REMOVE LUMINAIRE	EACH	5.00		5.00				
RELOCATE ELECTRIC SERVICE	EACH	8.00		3.00		1.00	3.00	1.00
PAINT OVERHEAD SIGN SUPPORT	EACH	5.00				5.00		
CONCRETE REMOVAL SPECIAL	SQ YD	108.40					108.40	
IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE) TEST LEVEL 3	EACH	2.00					2.00	
MOBILIZATION	L SUM	1.00	0.15	0.18	0.24	0.12	0.20	0.11
TRAFFIC CONTROL & PROTECTION	L SUM	1.00	0.30	0.10	0.20	0.10	0.20	0.10
REMOVE SIGN PANEL - TYPE 1	SQ FT	82.00						82.00
OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-A (4' - 0 X 4' - 6")	FOOT	434.33		134.00			300.33	
OVERHEAD SIGN STRUCTURE-SPAN TYPE II-A (4' - 6" X 5' - 3")	FOOT	588.00			588.00			
OVERHEAD SIGN STRUCTURE-CANTILEVER, TYPE II-C-A (36" X 5' - 6")	FOOT	30.00						30.00
OVERHEAD SIGN STRUCTURE WALKWAY (SPECIAL)	FOOT	88.00		68.00			20.00	
DRILL SHAFT CONCRETE FOUNDATIONS	CU YD	127.70		53.90		21.50	45.10	7.20
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	11.00		2.00	5.00		4.00	
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER	EACH	4.00						4.00
REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	20.00		8.00		2.00	6.00	4.00

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PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	DISTRICT 1	DISTRICT 2	DISTRICT 3	DISTRICT 4	DISTRICT 5	DISTRICT 7
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE-SPAN	EACH	22.00	6.00	8.00			8.00	
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN	EACH	6.00	3.00	2.00		1.00		
MEDIAN SURFACE REMOVAL	SQ FT	128.00						128.00
CONCRETE MEDIAN SURFACE 4 INCH	SQ FT	128.00						128.00
CONDUIT IN TRENCH, 2 1/2" DIA., PVC	FOOT	25.00						25.00
UNIT DUCT, 2#10XLP, 1#10 XLP GROUND 3/4" POLYETHYLENE	FOOT	550.00						550.00
LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, PHOTOCELL CONTROL, 250 WATT	EACH	1.00						1.00
REMOVAL OF EXISTING LIGHTING UNIT, SALVAGE	EACH	1.00						1.00
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	686.00						686.00
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	186.00						186.00
STEEL MAST ARM ASSEMBLY AND POLE, 28 FT	EACH	1.00						1.00
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 30 FT	EACH	1.00						1.00
CONCRETE FOUNDATION, TYPE E 30 INCH DIAMETER	FOOT	23.50						23.50
TRAFFIC SIGNAL BACKPLATE, LOUVERED	EACH	4.00						4.00
REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	647.00						647.00
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1.00						1.00
SIGNAL HEAD, POLYCARBONATE, LED, 1 FACE,3 SECTION, BRACKET MOUNTED	EACH	1.00						1.00





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*District 1*  
Schedule of Locations for Truss Repair & Replacement

Location No.:	1-01	State I.D. No.:	1S022I055L273.2(TRS-10)D1		
County:	DuPage	Route:	I-55	M.P.:	273.2
				Direction:	SB
Description of Work		Unit	Quantity		
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN		Each	1.00		
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE		Each	2.00		
FURNISH & INSTALL INTERNAL TRUSS DAMPER		Each	1.00		
OVERHEAD SIGN SUPPORT GROUT REPAIR		Each	4.00		
FURNISH & INSTALL SAFETY CHAIN		Each	2.00		
FURNISH & INSTALL SADDLE SHIM BLOCK		Each	4.00		
OVERHEAD SIGN STRUCTURE WALKWAY		Foot	88.00		
This work shall be completed during District 1 night-time hours.					

Location No.:	1-02	State I.D. No.:	1S022I055R272.7 (TRN-8)D2		
County:	DuPage	Route:	I-55	M.P.:	272.7
				Direction:	SB
Description of Work		Unit	Quantity		
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN		Each	1.00		
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE		Each	2.00		
FURNISH & INSTALL INTERNAL TRUSS DAMPER		Each	1.00		
OVERHEAD SIGN SUPPORT GROUT REPAIR		Each	4.00		
FURNISH & INSTALL SAFETY CHAIN		Each	2.00		
REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUC		Each	1.00		
FURNISH & INSTALL SADDLE SHIM BLOCK		Each	4.00		
OVERHEADSIGN STRUCTURE WALKWAY		Foot	88.00		
This work shall be completed during District 1 night-time hours.					

Location No.:	1-03	State I.D. No.:	1S022S083R000.0 (BTN)D3		
County:	DuPage	Route:	IL - 83	M.P.:	0
				Direction:	NB
Description of Work		Unit	Quantity		
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN		Each	1.00		
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE		Each	2.00		
FURNISH & INSTALL INTERNAL TRUSS DAMPER		Each	1.00		
OVERHEAD SIGN SUPPORT GROUT REPAIR		Each	4.00		
OVERHEAD SIGN STRUCTURE WALKWAY		Foot	69.00		
FURNISH & INSTALL SADDLE SHIM BLOCK		Each	4.00		
This work shall be completed during District 1 night-time hours.					

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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.

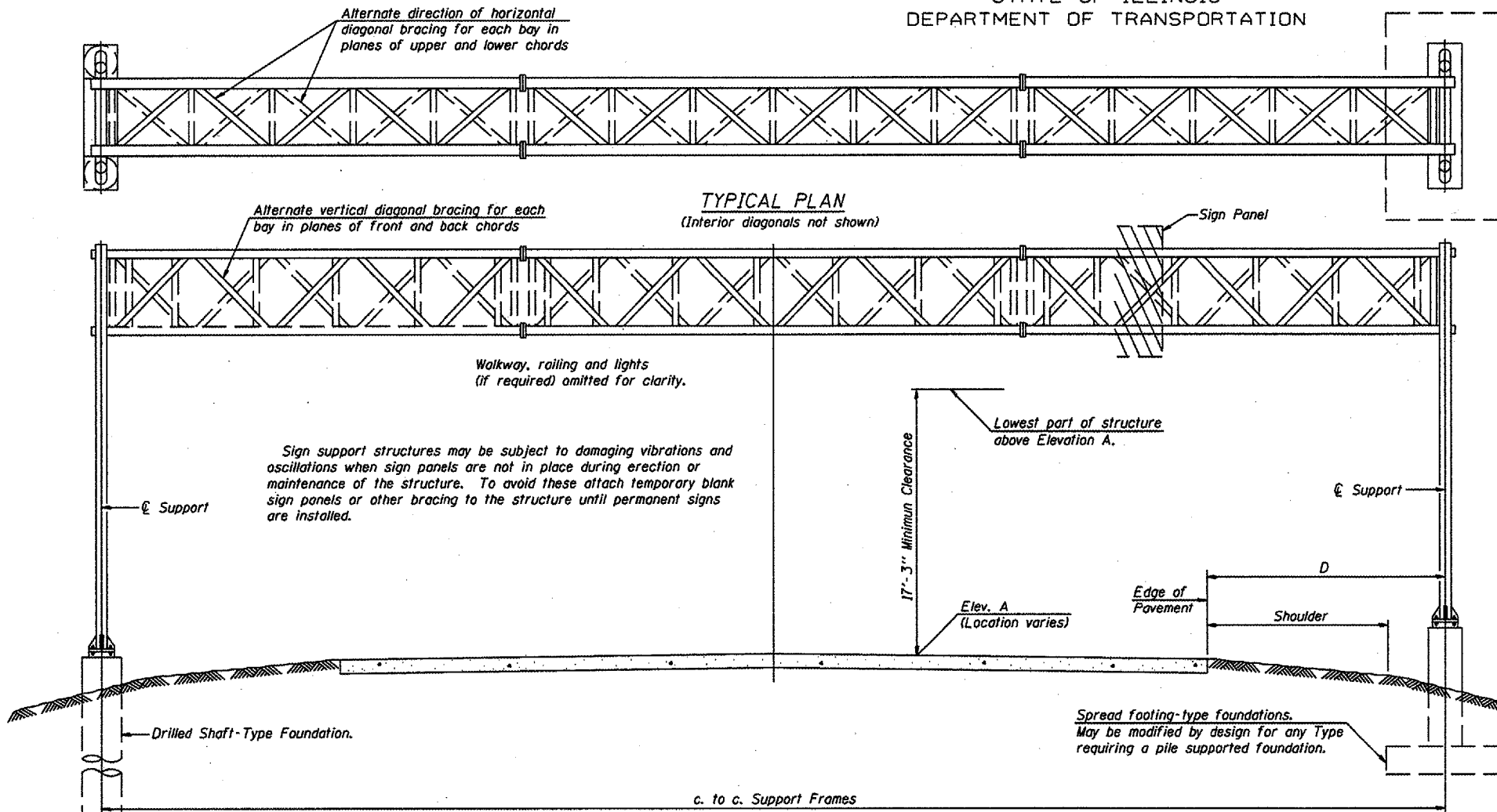
GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

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 Seal 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.



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

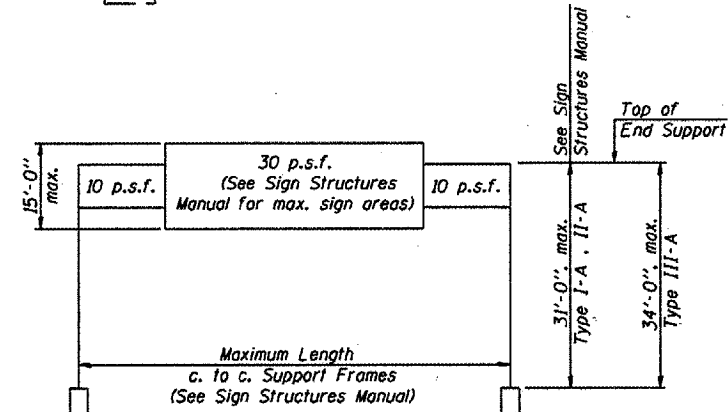
\*\*Looking upstation for structures with signs both sides.

This Sheet For Information Only

TOTAL BILL OF MATERIAL

NUMBER	REVISION	DATE

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE TYPE I-A (4'-0" x 4'-6")	Foot	
OVERHEAD SIGN STRUCTURE TYPE II-A (4'-6" x 5'-3")	Foot	
OVERHEAD SIGN STRUCTURE TYPE III-A (5'-0" x 7'-0")	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	



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.

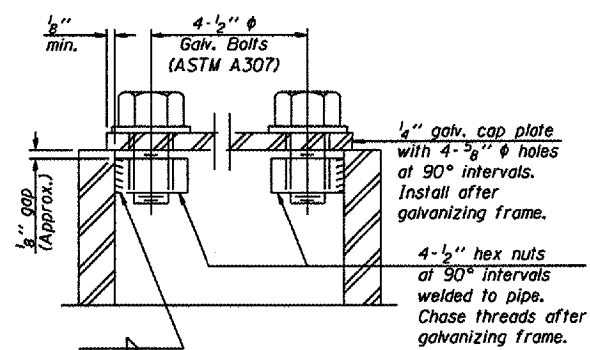
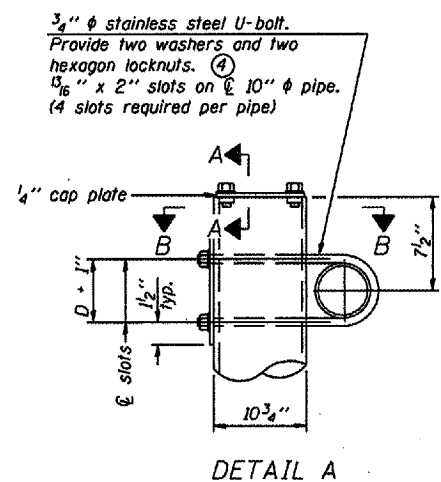
DESIGNED		20
CHECKED	EXAMINED	
DRAWN	PASSED	ENGINEER OF BRIDGE DESIGN
CHECKED		ENGINEER OF BRIDGES AND STRUCTURES

OS-A-1

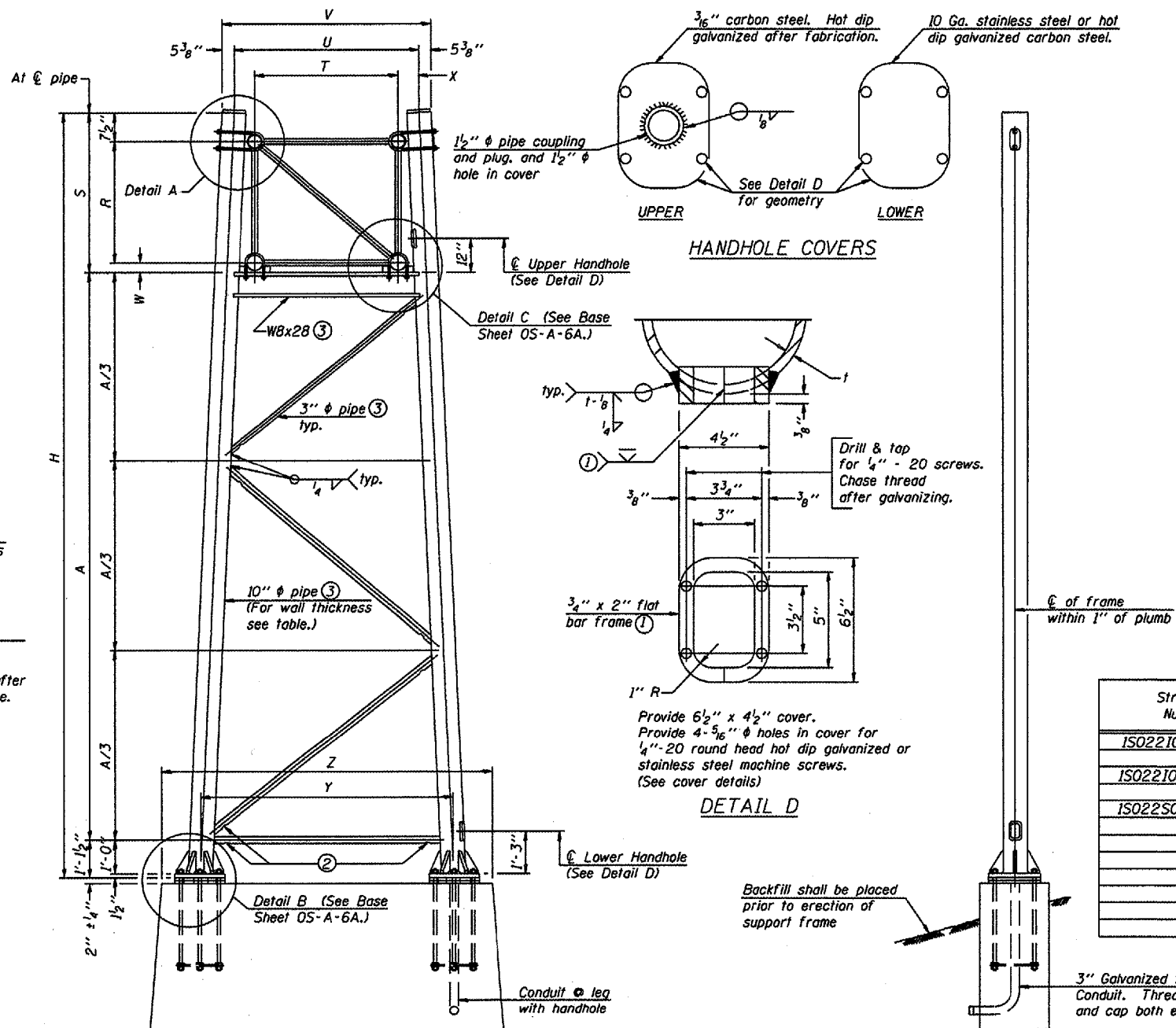
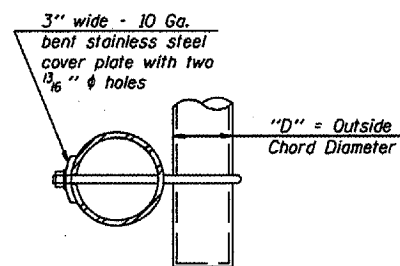
1-7-05

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

District 1  
End Support Replacement



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



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  $\mu$ m 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.

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H	A
		Left	Right				
ISO221055L273.2	916 + 0	X	X	II-A	0.365(Std)	23'-10 1/4"	16'-4"
ISO221055R272.7	890 + 70	X	X	II-A	0.365(Std)	23'-10 1/4"	16'-4"
ISO22S083R000.0	22 + 64	X	X	II-A	0.279	25'-2"	17'-6 1/4"

10"  $\phi$  PIPE TRUSS SUPPORT FRAME

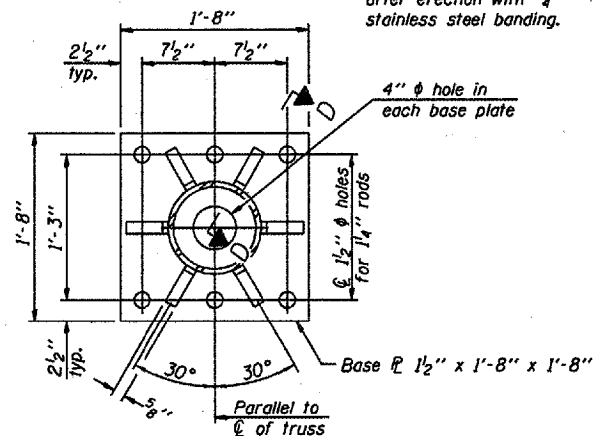
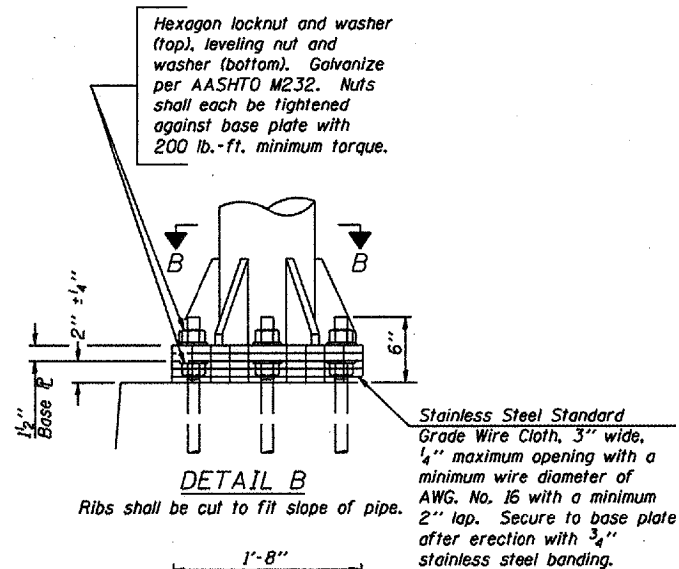
Truss Type	Dimensions								
	R	S	T	U	V	W	X	Y	Z
I-A	4'-6"	5'-5 1/2"	4'-0"	5'-6"	6'-4 3/4"	4"	9"	8'-3"	10'-9"
II-A (5)	5'-3"	6'-3 1/4"	4'-6"	6'-1"	6'-11 3/4"	4 3/4"	9 1/2"	8'-3"	10'-9"

NUMBER	REVISION	DATE

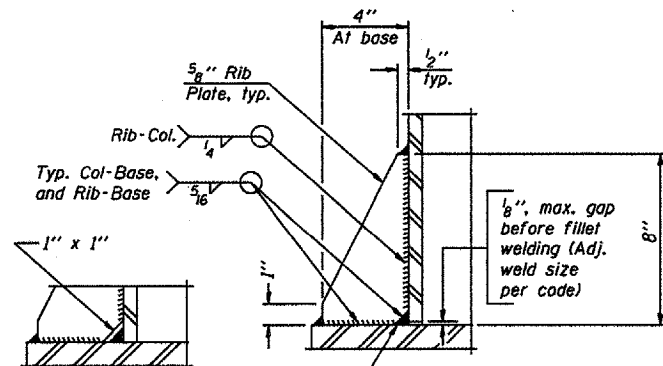
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for ALUMINUM TRUSS

District 1  
End Support Replacement

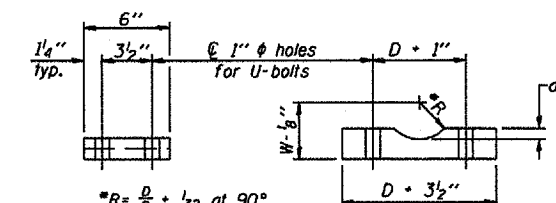


SECTION B-B



SECTION D-D

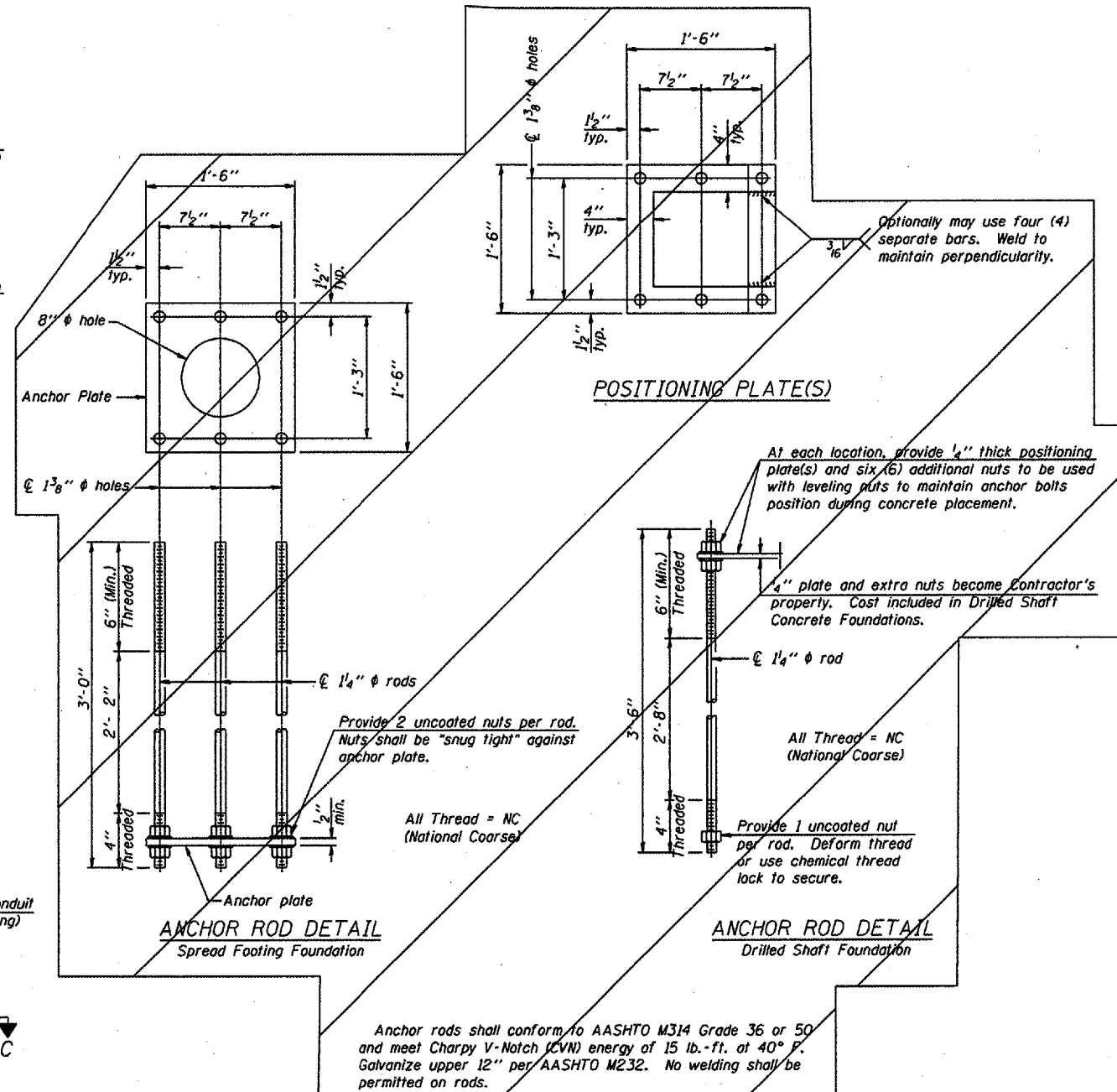
•• Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



SADDLE SHIM DETAIL

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

Truss Chord Nominal Dia.	a
5"	3 1/4"
5 1/2"	4 1/8"
6"	5 1/8"
6 1/2"	6 1/8"
7"	7 1/8"



ANCHOR ROD DETAIL  
Spread Footing Foundation

ANCHOR ROD DETAIL  
Drilled Shaft Foundation

10"  $\phi$  PIPE SUPPORT FRAME DETAILS

NOTES:

1. New End Supports to be installed on existing concrete foundations with existing anchor bolts. Provide new anchor bolt nuts and washers as necessary.
2. The Contractor and the Engineer shall field verify the existing end support dimensions and the existing anchor bolt dimensions prior to fabrication of the new end supports.

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

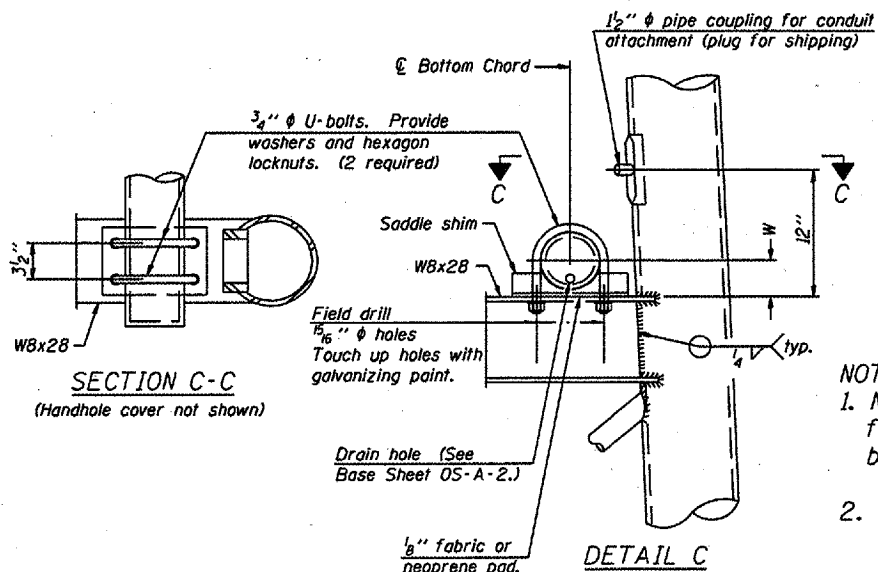
District 1  
End Support Replacement

NUMBER	REVISION	DATE

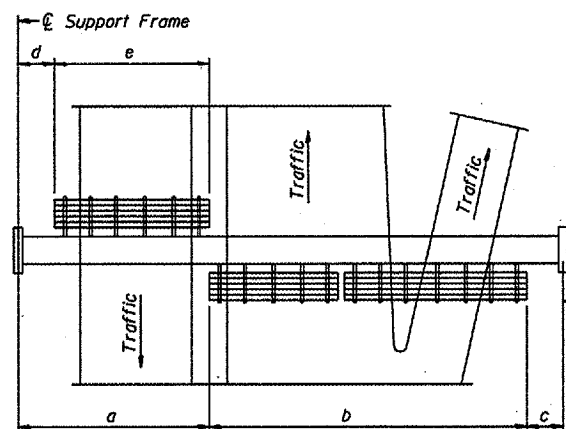
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CHECKED	EXAMINED	ENGINEER OF BRIDGE DESIGN
DRAWN	PASSED	ENGINEER OF BRIDGES AND STRUCTURES
CHECKED		

OS-A-6A

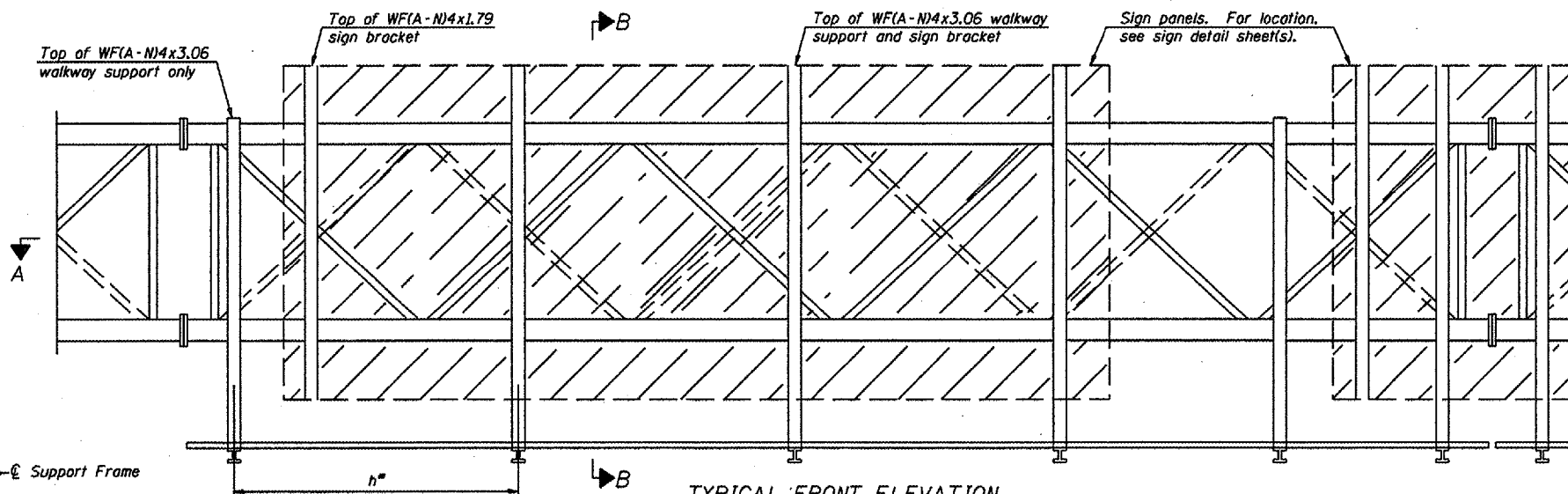
1-7-05



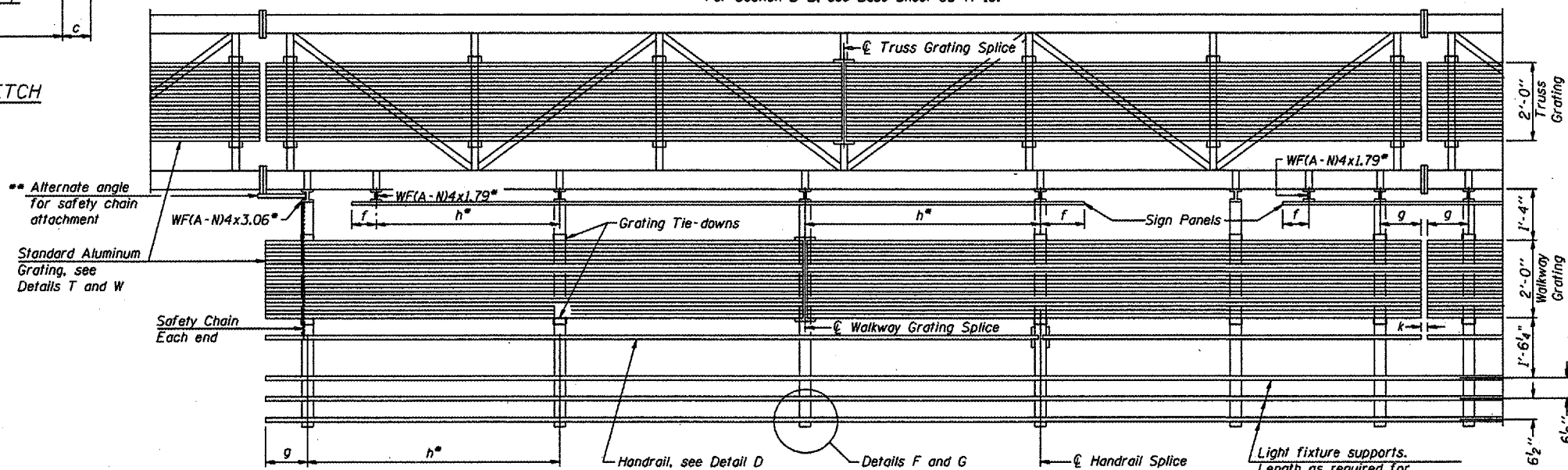
DETAIL C



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.



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"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

Notes:

- Space walkway brackets WFA-N4x3.06 and sign brackets WFA-N4x1.79 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 of sign and/or walkway support brackets, WFA-N4x1.79 or WFA-N4x3.06)
- k = 2" maximum gap between adjacent walkway grating 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 Details D, F, G and P and Handrail Splice Details, see Base Sheet OS-A-11.

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. Grating, handrail 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".

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
IS0221055L273.2	916 + 00 SB	N/A	N/A	N/A	N/A	N/A	88' - 0" *
IS0221055R272.7	890 + 70 NB	N/A	N/A	N/A	N/A	N/A	88' - 0" *
IS0225083R000.0	23 + 00 EB	N/A	N/A	N/A	N/A	N/A	69' - 0" *

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

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

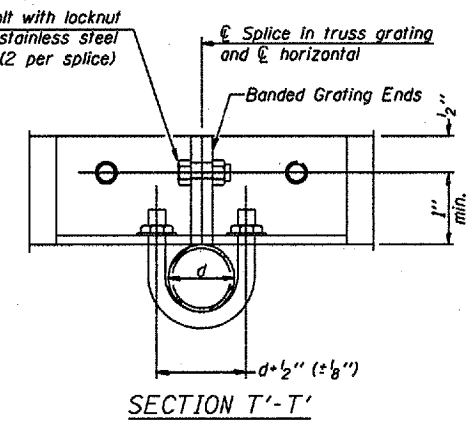
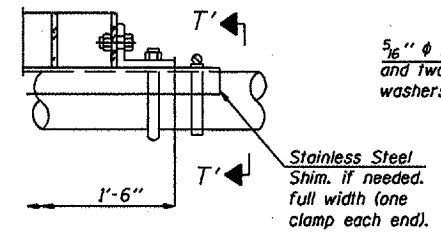
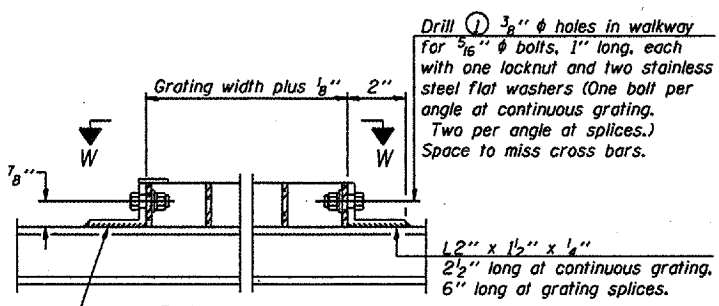
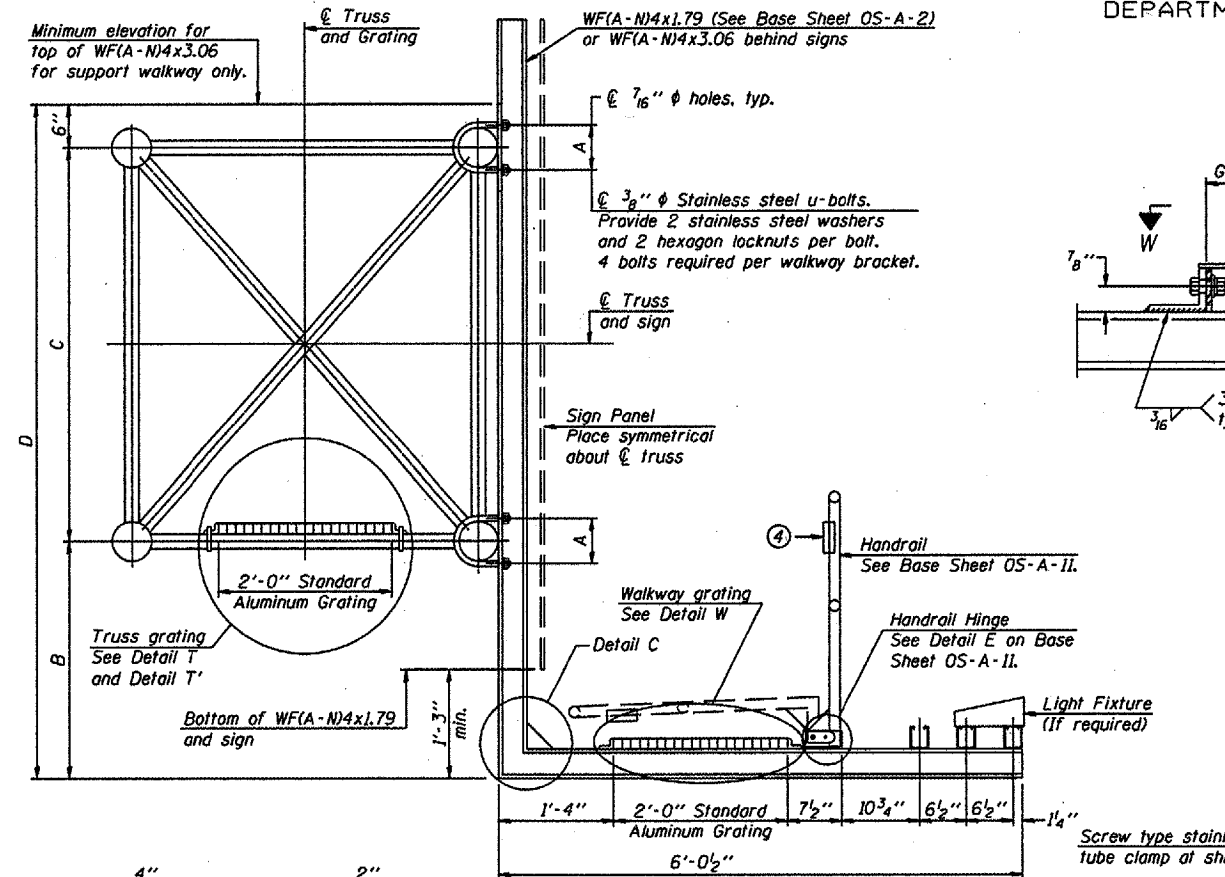
District 1  
End Support Replacement

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

NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

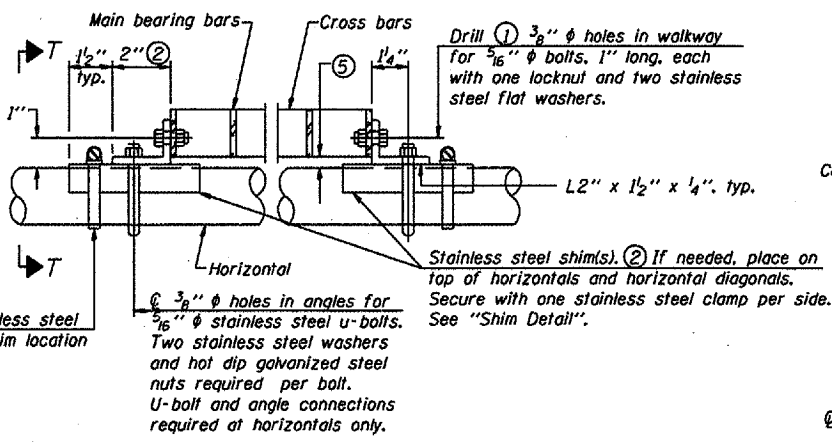
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 14 of 89  
Contract Number 44904



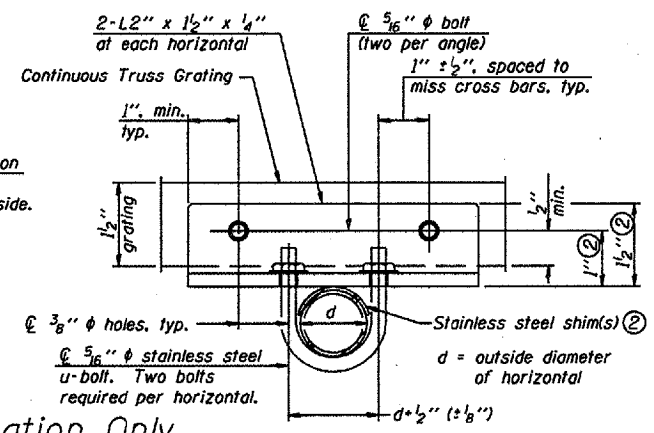
DETAIL W  
(Walkway grating)

DETAIL T'  
(Truss grating splice)

Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.

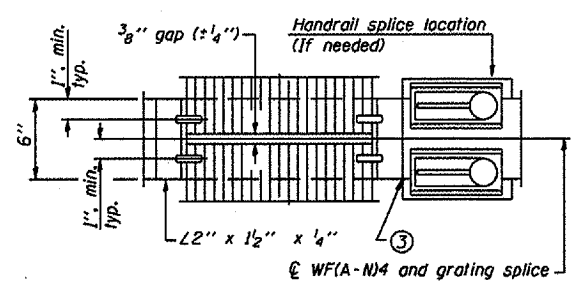


DETAIL T  
(Continuous Truss grating)

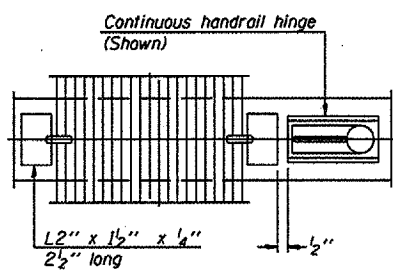


SECTION T-T

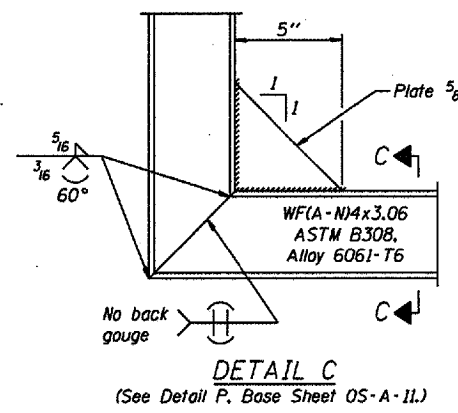
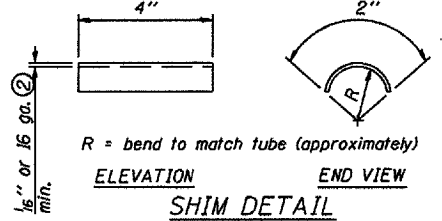
SECTION B-B



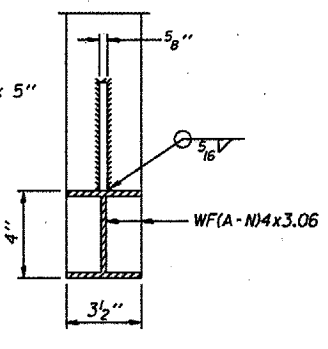
(AT WALKWAY GRATING SPLICE)



SECTION W-W



SECTION C-C



This Sheet For Information Only

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

Main Bearing Bars shall be 3/8" x 1 1/2" on 1 3/16" centers and conform to ASTM B221 Alloy 6061-T6.  
Cross bars shall be 3/8" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

Aluminum Grating with modified "H" 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 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.

Structure Number	Station	A	B	C	D

- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- 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.
- If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OS-A-11.)
- 5/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

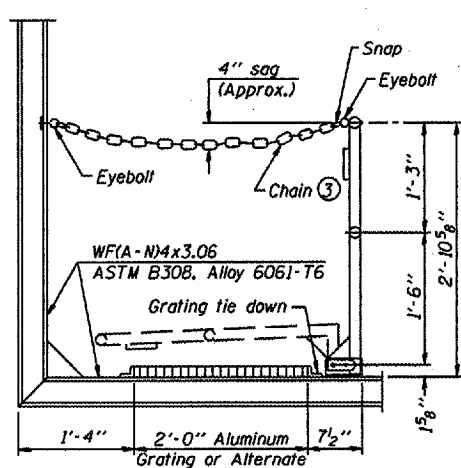
District 1  
End Support Replacement

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

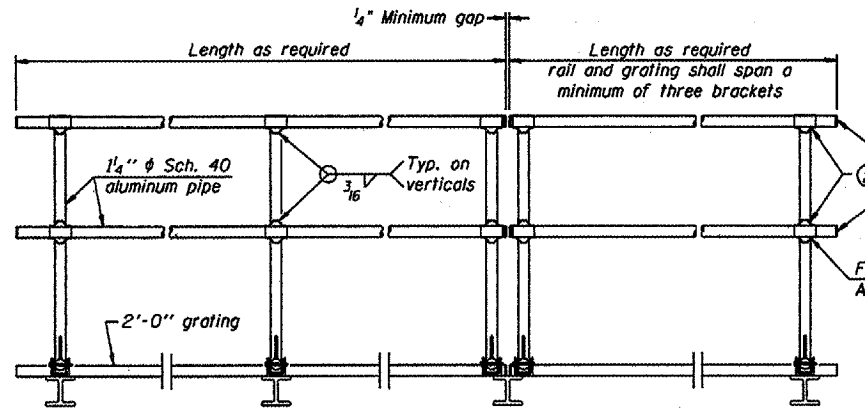
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 15 of 89  
Contract Number 44904



**SIDE ELEVATION**  
(Showing safety chain w/o sign)

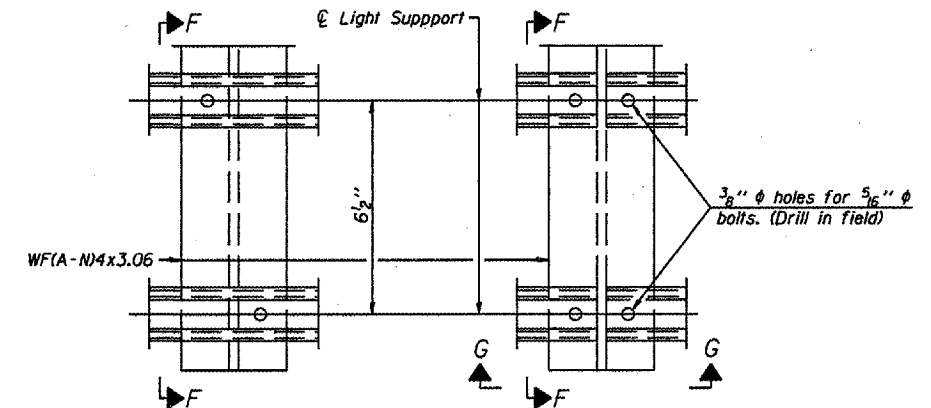


**FRONT ELEVATION**

**HANDRAIL DETAILS**

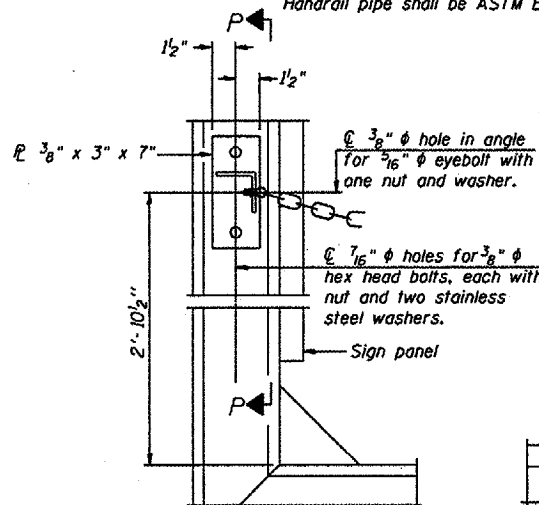
Handrail pipe shall be ASTM B241, Alloy 6063-T6 or Alloy 6061-T6.

- 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" 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.)



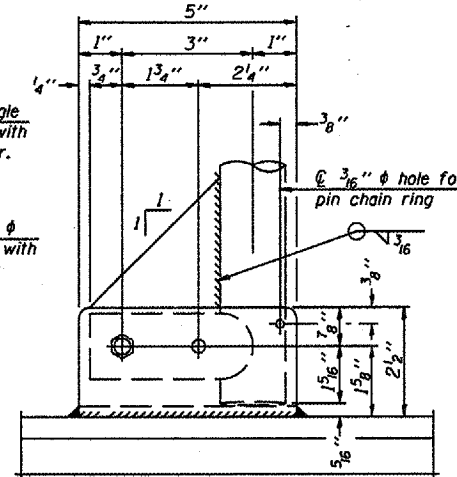
**DETAIL F**

**DETAIL G**

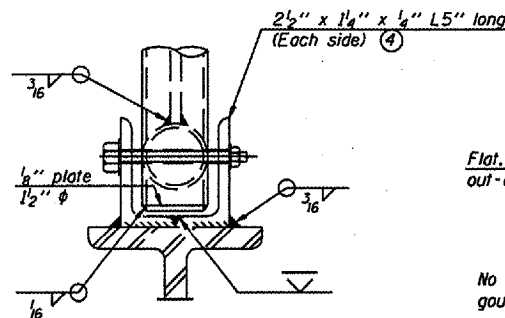


**ALTERNATE SAFETY CHAIN ATTACHMENT**  
(With Sign Present)

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

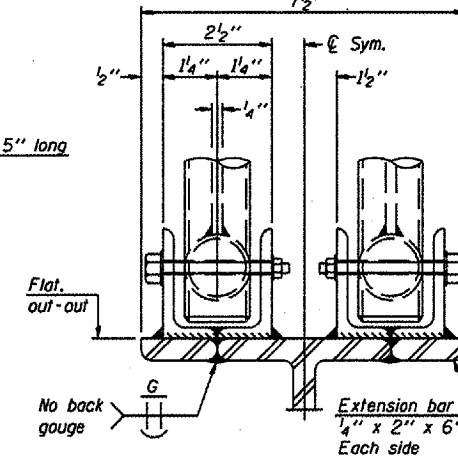


**SIDE ELEVATION**

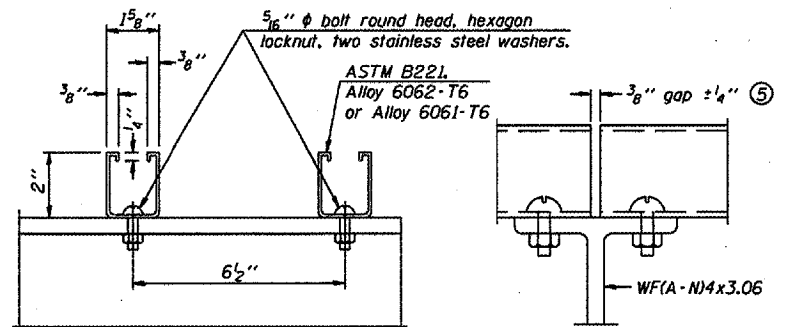


**FRONT ELEVATION**

See "Elevation" at right for dimensions.



**ELEVATION AT HANDRAIL JOINT** ④

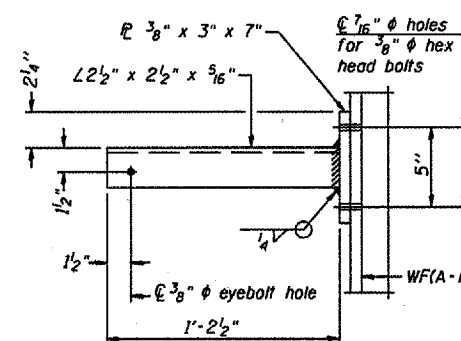


**SECTION F-F**

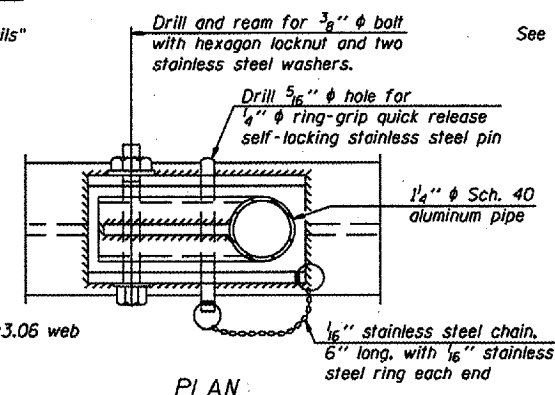
**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

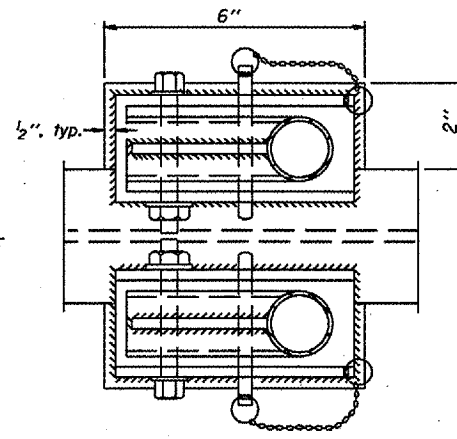
- ⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



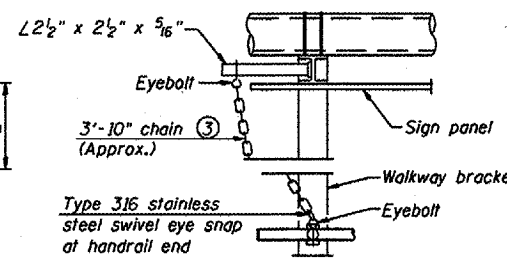
**SECTION P-P**



**PLAN DETAIL E HANDRAIL HINGE**



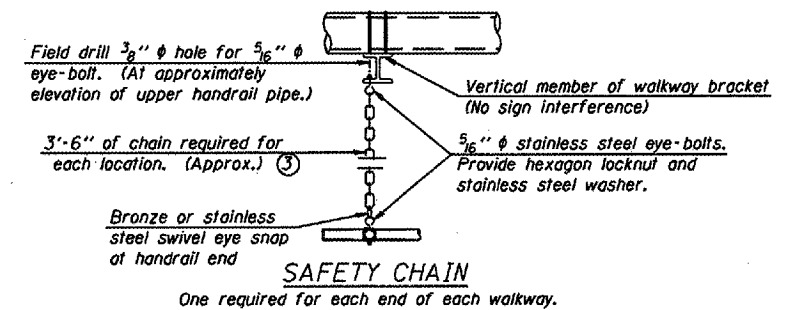
**PLAN AT HANDRAIL JOINT**  
Details not shown same as "PLAN"



**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

- ③ 3/16" Type 304L or 316L 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.

This Sheet For Information Only

**OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS**

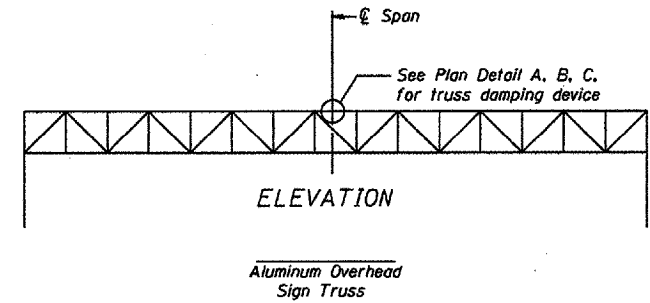
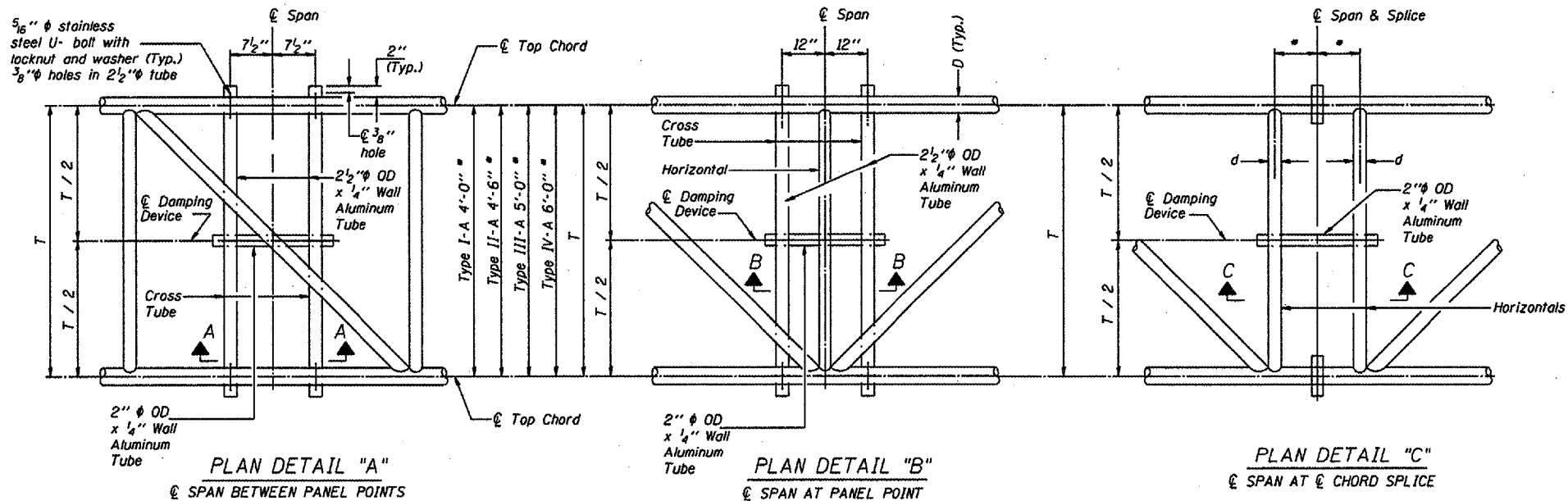
District 1  
End Support Replacement

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

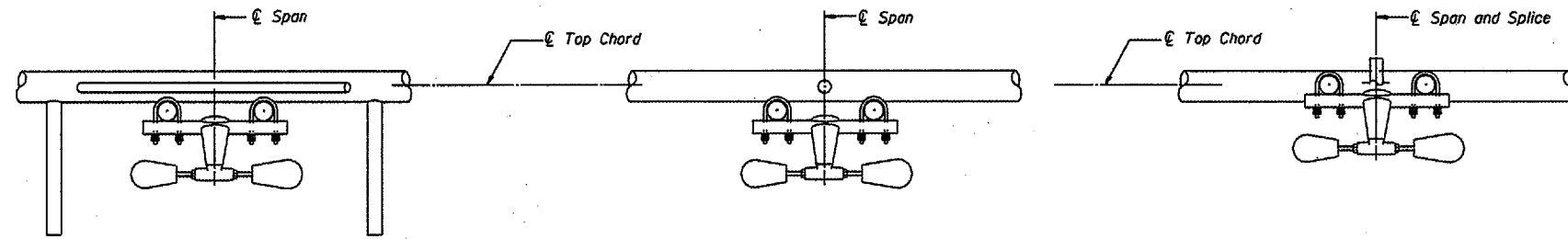
EXAMINED	20
PASSED	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

Verify before drilling holes in mounting tube and cross tubes.



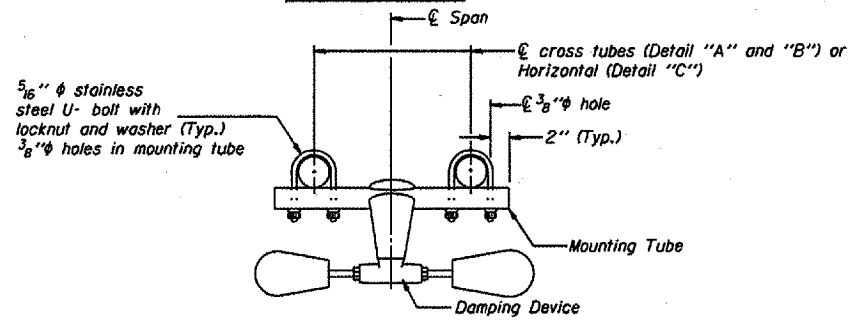
This detail applies to the following overhead sign structures:  
 1. IS0221055L273.2  
 2. IS0221055R272.7  
 3. IS022S083R000.0



SECTION A-A

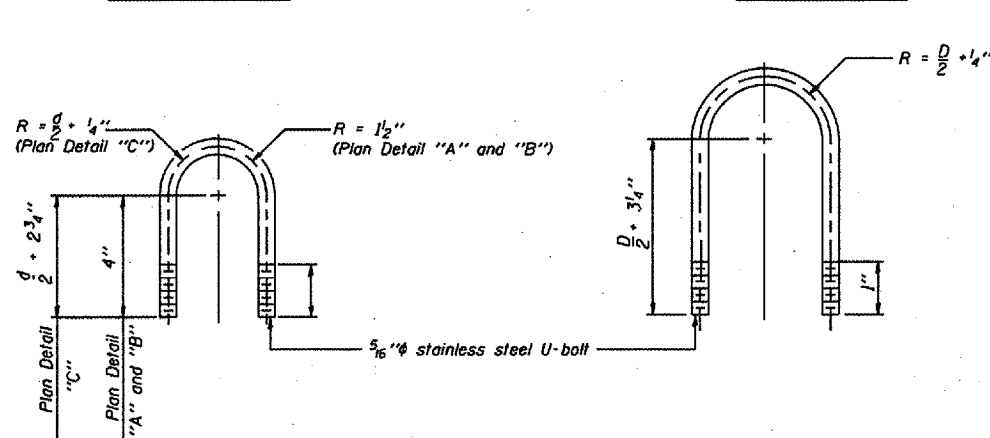
SECTION B-B

SECTION C-C



TRUSS DAMPING

(Typical)



DAMPING DEVICE MOUNTING  
 TUBE U-BOLT DETAIL  
 (Typical)

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

GENERAL NOTES

Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum)  
 Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6  
 Fasteners: U-bolts shall be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finish, or an equivalent material acceptable to the Engineer. All nuts shall be stainless steel conforming to ASTM A194, Grade B (AISI Type 304) or Grade 8F (AISI Type 303). The nuts shall be "locknuts" with nylon or steel inserts and semifinished hexagonal heads equivalent to the finished hex series of the American National Standards. All washers shall be stainless steel conforming to ASTM A240, Type 302 or 304.

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

TRUSS DAMPER RETROFIT 07-01-2001

OVERHEAD SIGN STRUCTURE  
 DAMPING DEVICE

District 1  
 End Support Replacement



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

*Various Routes*  
OVD SIN STR REP & REPL 2006-9  
*Various Counties*  
Sheet 17 of 89  
Contract Number 44904

*District 2*  
*Schedule of Locations for Overhead Sign Structure Replacement*

Location No.: 2-01		State I.D. No.: 2S006I080R059.9	
County:	Bureau	Route:	I - 80 M.P.: 59.9 Direction: EB
Description of Work	Unit	Quantity	
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE - SPAN	EACH	1.00	
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	1.00	
FURNISH & INSTALL SADDLE SHIM BLOCK	EACH	4.00	
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00	
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	2.00	
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00	
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	21.50	
REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	2.00	
RELOCATE ELECTRIC SERVICE	EACH	1.00	
OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	88.00	
OVERHEAD SIGN STRUCTURE WALKWAY, SPECIAL	FOOT	30.00	
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00	
REMOVE EXISTING LUMINAIRE	EACH	2.00	

Location No.: 2-04		State I.D. No.: 2S050I080R073.4	
County:	LaSalle	Route:	I - 80 M.P.: 73.4 Direction: EB
Description of Work	Unit	Quantity	
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00	
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00	
OVERHEAD SIGN STRUCTURE-SPAN TYPE I-A	FOOT	84.00	
REMOVE & REINSTALL WALKWAY	FOOT	29.50	
REMOVE & REINSTALL SIGN PANEL	SQ FT	268.00	
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	20.40	
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00	
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	4.00	
RELOCATE ELECTRIC SERVICE	EACH	1.00	
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00	
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00	

Location No.: 2-02		State I.D. No.: 2S037I080L010.2	
County:	Henry	Route:	I - 80 M.P.: 10.2 Direction: WB
Description of Work	Unit	Quantity	
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00	
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00	
FURNISH & INSTALL SADDLE SHIM BLOCK	EACH	4.00	
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00	
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00	
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00	
REPLACE U-BOLT	EACH	4.00	
REPLACE HANDRAIL SUPPORT	EACH	2.00	
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00	
REPLACE OVERHEAD SIGN WALKWAY	FOOT	20.00	
OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	74.00	

Location No.: 2-03		State I.D. No.: 2S037I080L011.4	
County:	Henry	Route:	I - 80 M.P.: 11.4 Direction: WB
Description of Work	Unit	Quantity	
REMOVE OVERHEAD SIGN STRUCTURE - SPAN	EACH	1.00	
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00	
OVERHEAD SIGN STRUCTURE-SPAN TYPE I-A	FOOT	50.00	
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	12.00	
REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	4.00	
REMOVE & REINSTALL SIGN PANEL	SQ FT	432.00	
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00	
RELOCATE ELECTRIC SERVICE	EACH	1.00	
OVERHEAD SIGN STRUCTURE WALKWAY, SPECIAL	FOOT	38.00	
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00	
REMOVE EXISTING LUMINAIRE	EACH	3.00	

**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.

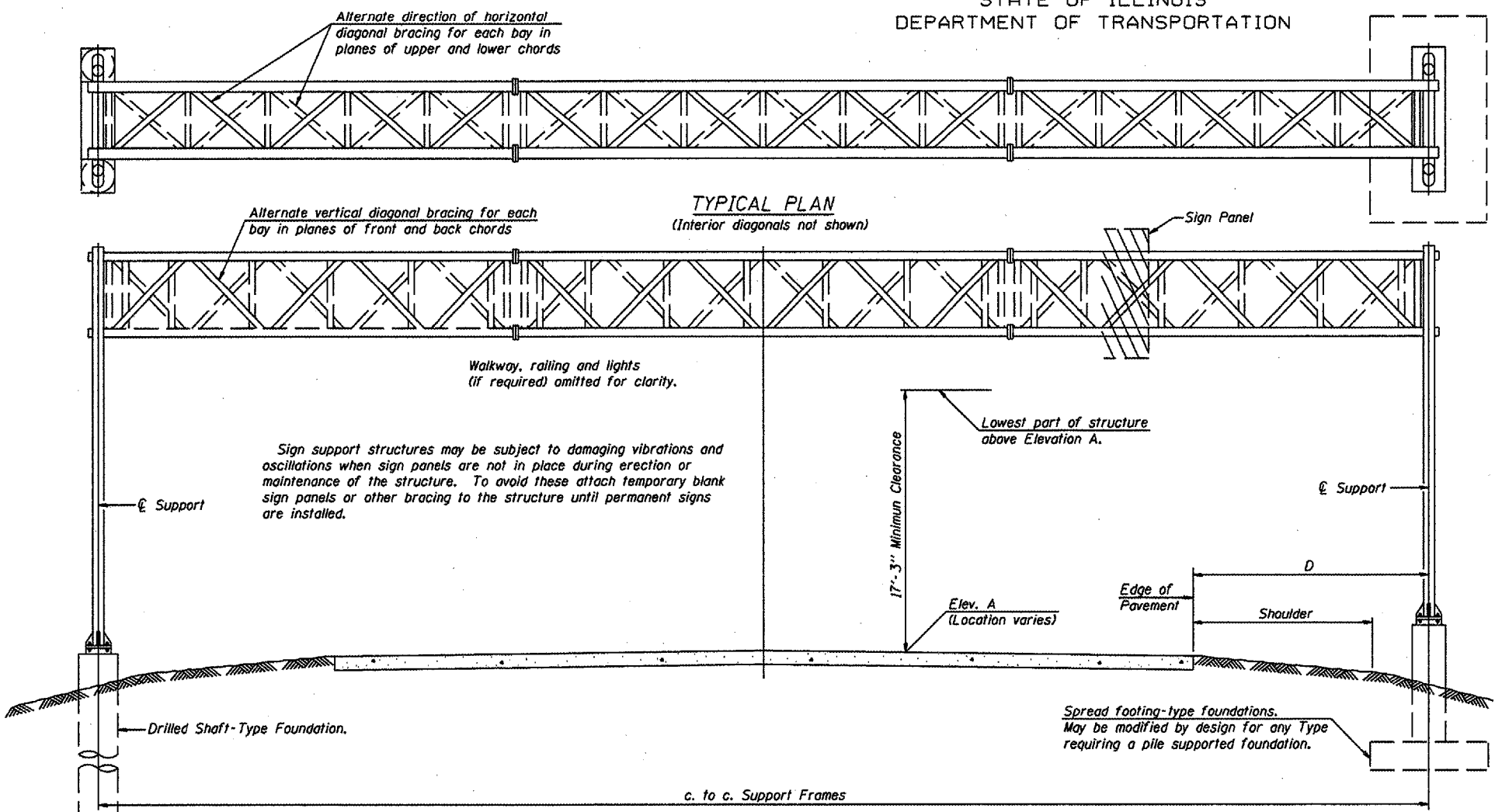
**GALVANIZING:** All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

**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 Seal 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.

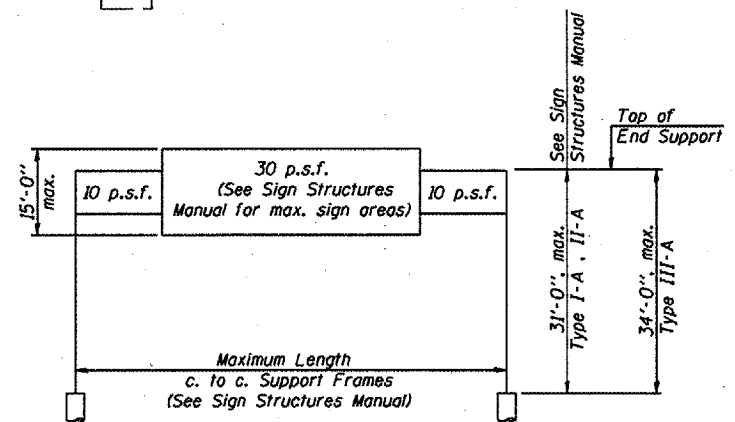


**TYPICAL ELEVATION**  
(Looking at Face of Signs)\*\*

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
2S0371080L011.4	1026 + 40	I-A	50' - 0"	695.89	15' - 6"	12' - 6"	431.50
2S0501080R073.4	486 + 00	I-A	84' - 0"	652.72	35' - 0"	14' - 6"	268.25

\*\*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 1-7-05

NUMBER	REVISION	DATE

**TOTAL BILL OF MATERIAL**

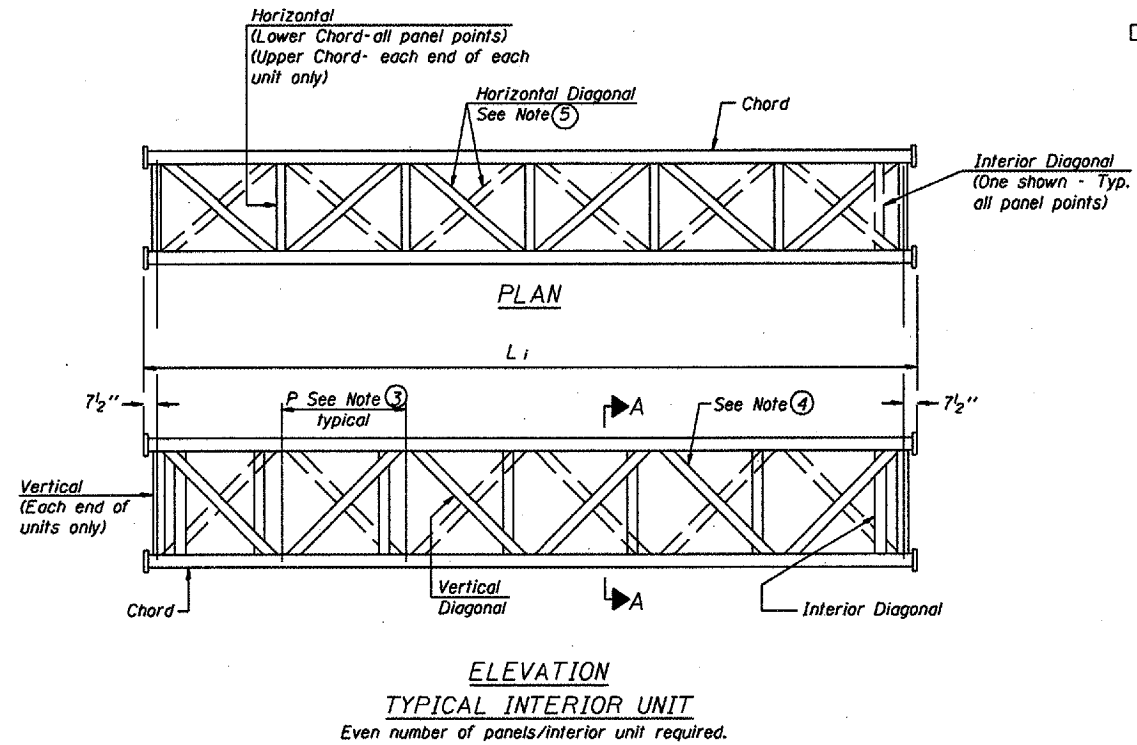
ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE TYPE I-A (4'-0" x 4'-6")	Foot	
OVERHEAD SIGN STRUCTURE TYPE II-A (4'-6" x 5'-3")	Foot	
OVERHEAD SIGN STRUCTURE TYPE III-A (5'-0" x 7'-0")	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	

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

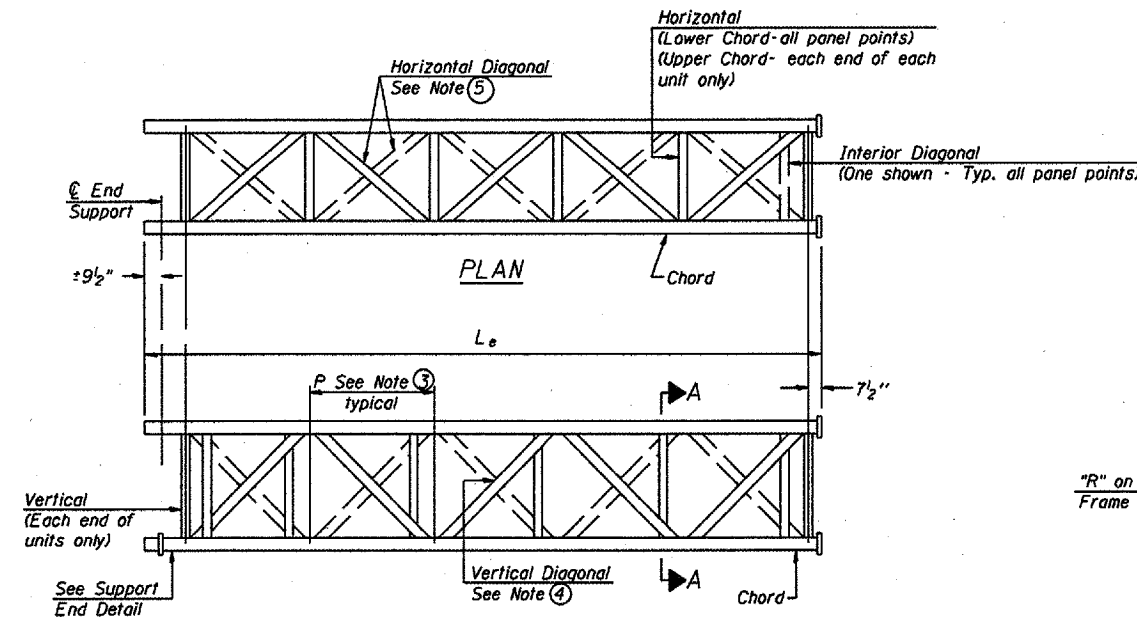
District 2  
Overhead Sign  
Structure Replacement

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

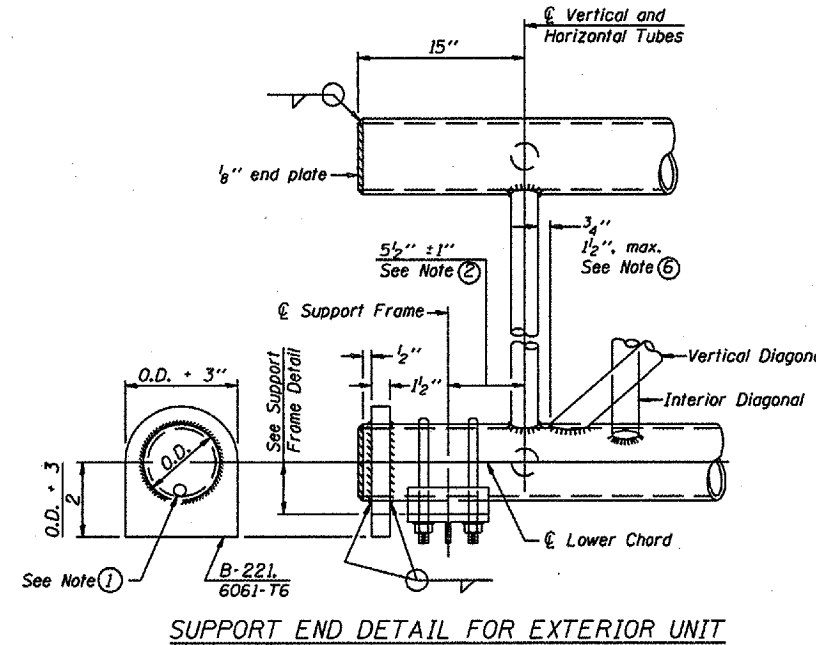
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 19 of 89  
Contract Number 44904



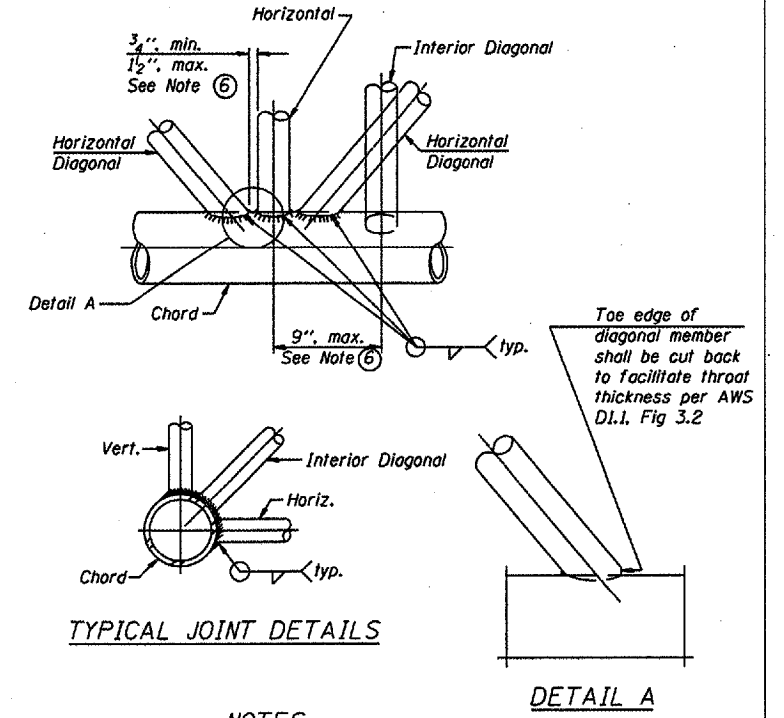
ELEVATION  
TYPICAL INTERIOR UNIT  
Even number of panels/interior unit required.



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



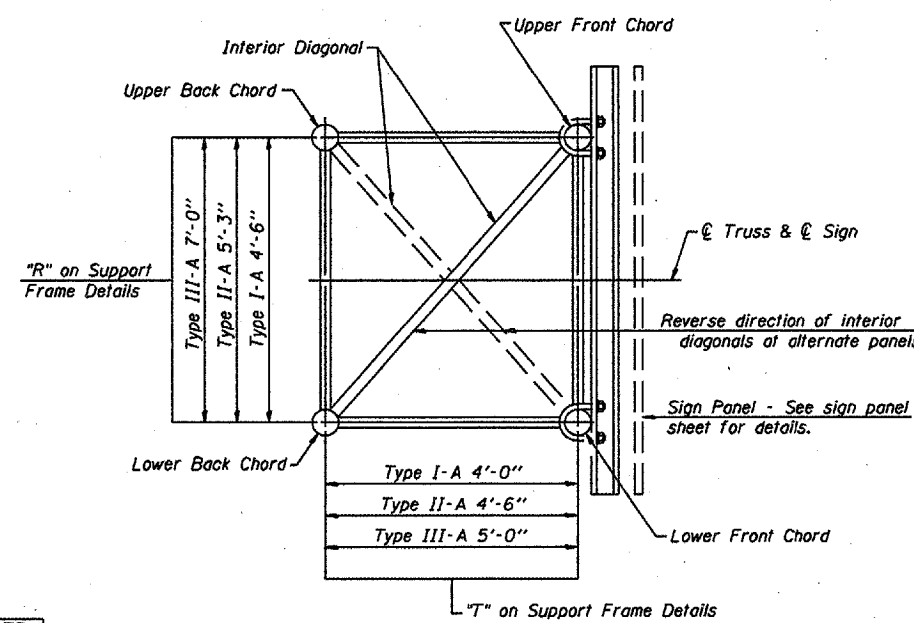
SUPPORT END DETAIL FOR EXTERIOR UNIT



TYPICAL JOINT DETAILS

DETAIL A

- NOTES
- Contractor may alternatively use standard aluminum drive-fit cap to close end.  $\frac{1}{2}$ "  $\phi$  drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
  - $5\frac{1}{2}$ " end dimension may vary by  $\pm 1$ " 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  $\frac{3}{4}$ " minimum to  $1\frac{1}{2}$ " 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

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

District 2  
Overhead Sign  
Structure Replacement

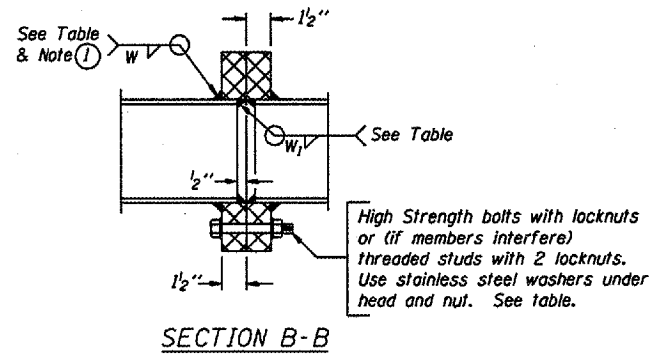
DESIGNED	
CHECKED	
DRAWN	
CHECKED	

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

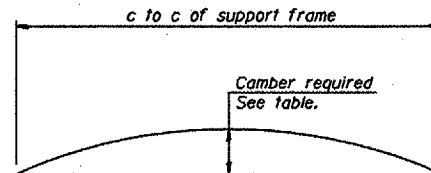
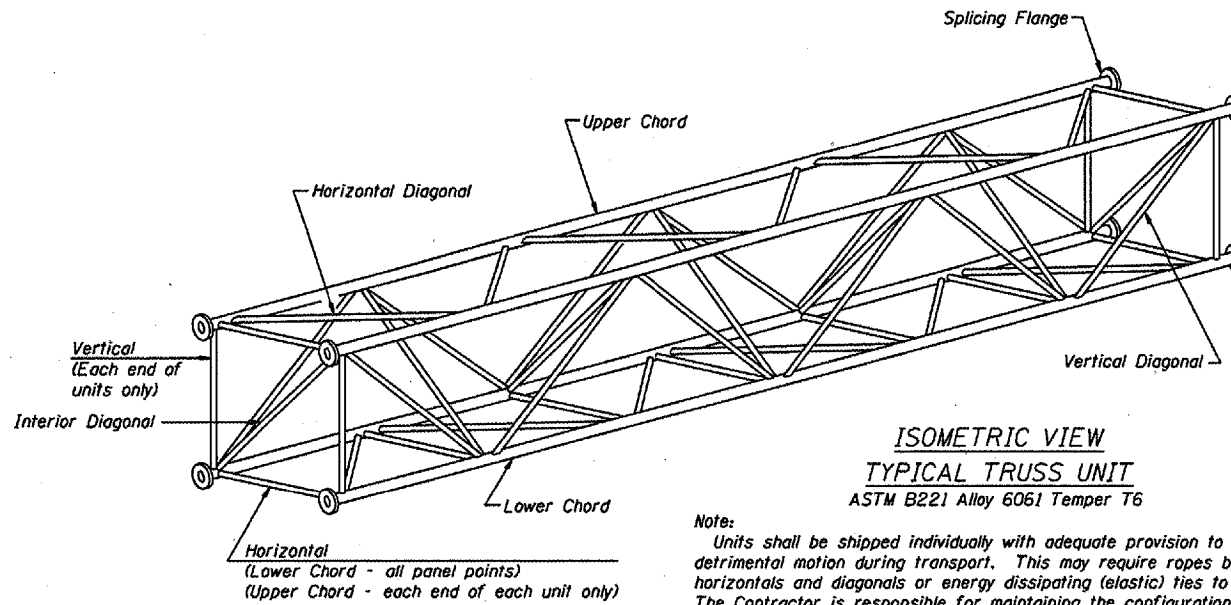
NUMBER	REVISION	DATE

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>e</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	No./Splice	Bolts		Weld Sizes		A	B
																Di.	W	W <sub>1</sub>			
2S0371080L011.4	1026 + 40	I-A	5	25'-10"	4'-9 1/2"				5"	1/4"	2 1/2"	1/4"	1 1/4"	6	7/8"	5/16"	1/4"	8 3/4"	11 3/4"		
2S0501080R073.4	486 + 00	I-A	6	28'-9"	4'-5 3/4"	1	6	28'-1 1/2"	4'-5 3/4"	5"	5/16"	2 1/2"	5/16"	2 1/2"	6	7/8"	5/16"	1/4"	8 3/4"	11 3/4"	

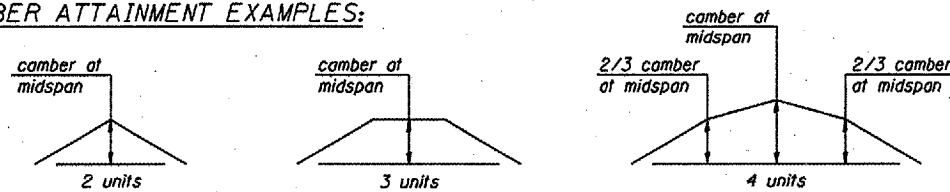


① Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining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

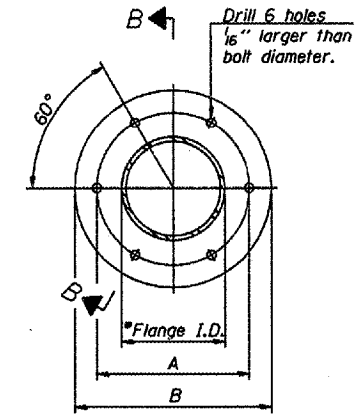


CAMBER DIAGRAM  
Camber curve shown is theoretical. Actual camber attained by slope changes at splices between units.

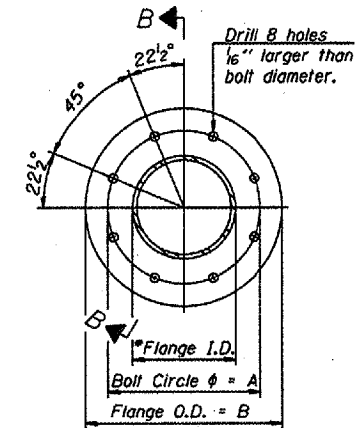
CAMBER ATTAINMENT EXAMPLES:



Camber shown is for fabrication only, measured with truss fully supported. (No-load condition)



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".

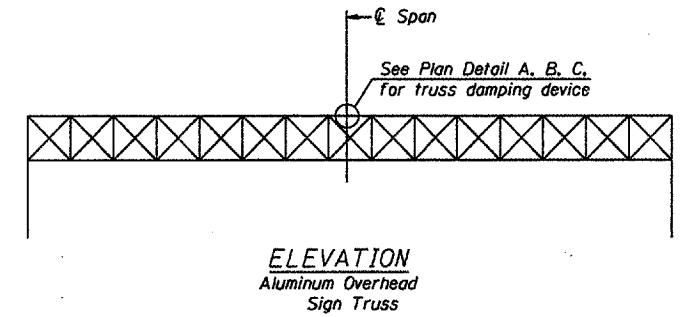
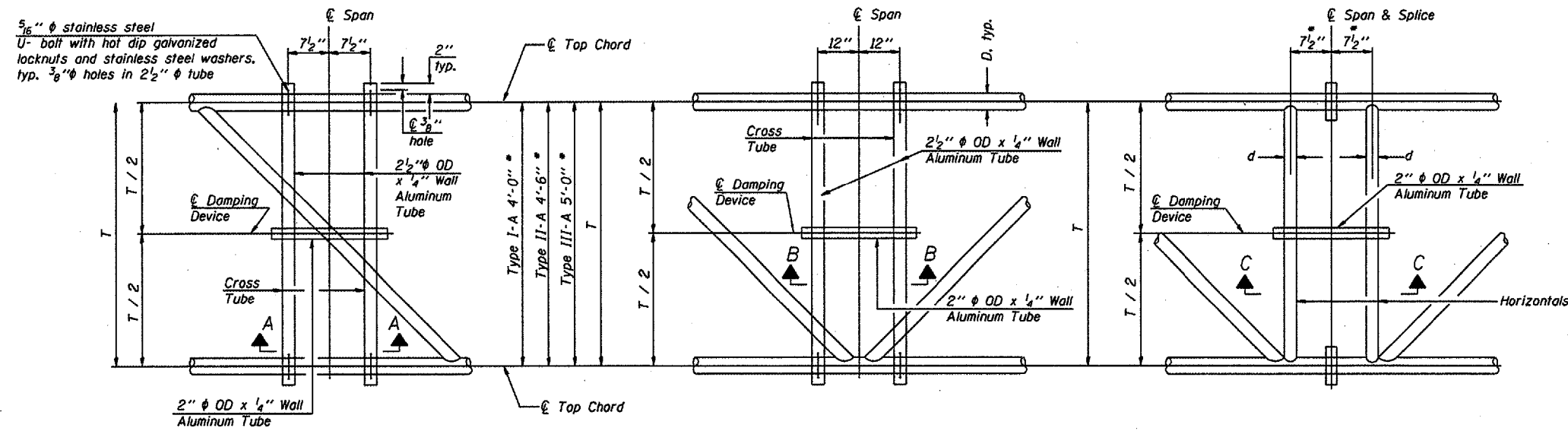
NUMBER	REVISION	DATE

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 21 of 89  
Contract Number 44904

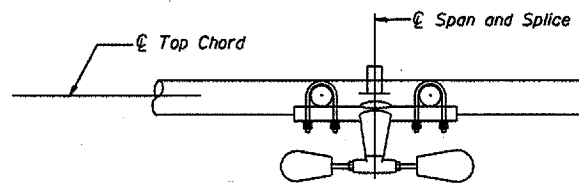
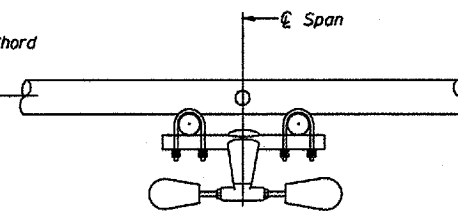
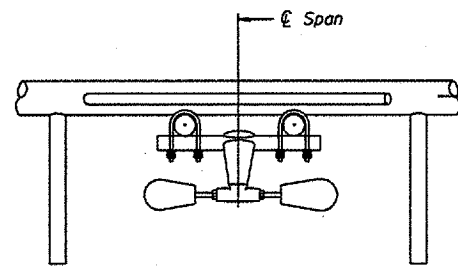


**NOTES**  
Damper: One damper per truss.  
(31 lbs. Stockbridge-Type Aluminum)  
Cost included in Overhead Sign Structure...  
Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...

PLAN DETAIL "A"  
€ Span between Panel Points

PLAN DETAIL "B"  
€ Span at Panel Point

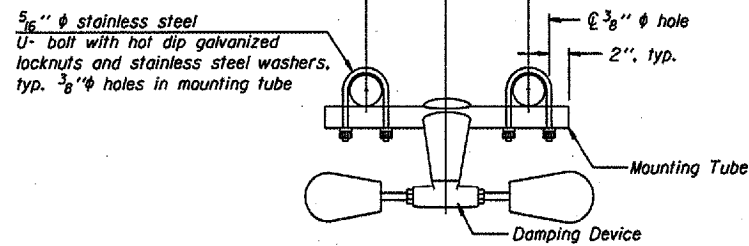
PLAN DETAIL "C"  
€ Span at € Chord Splice



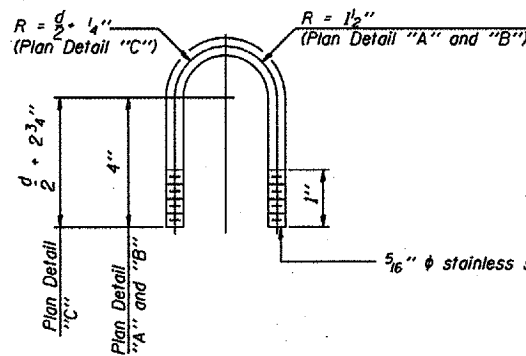
SECTION A-A

SECTION B-B

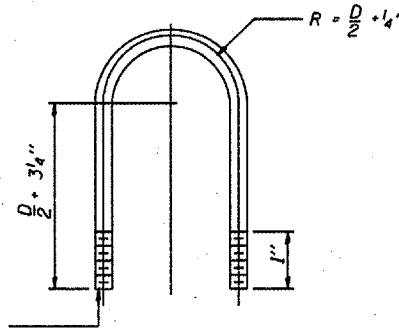
SECTION C-C



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")

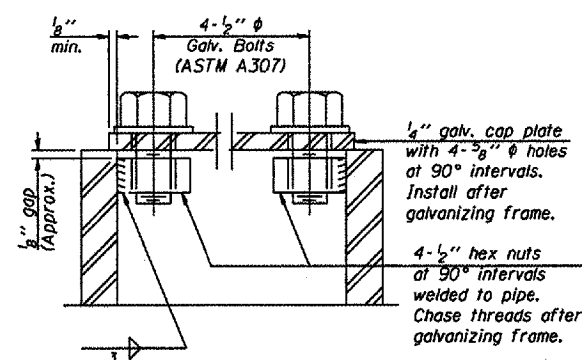
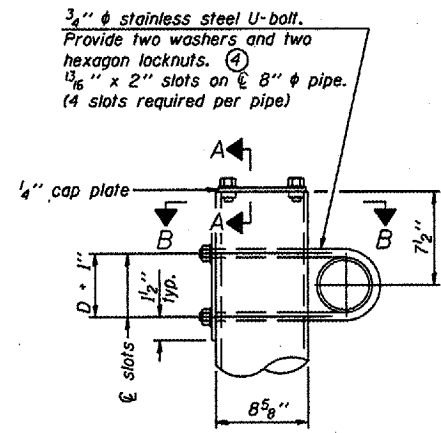
This detail applies to the following overhead sign structures:  
1. 2S0371080L011.4  
2. 2S0501080R073.4

OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE

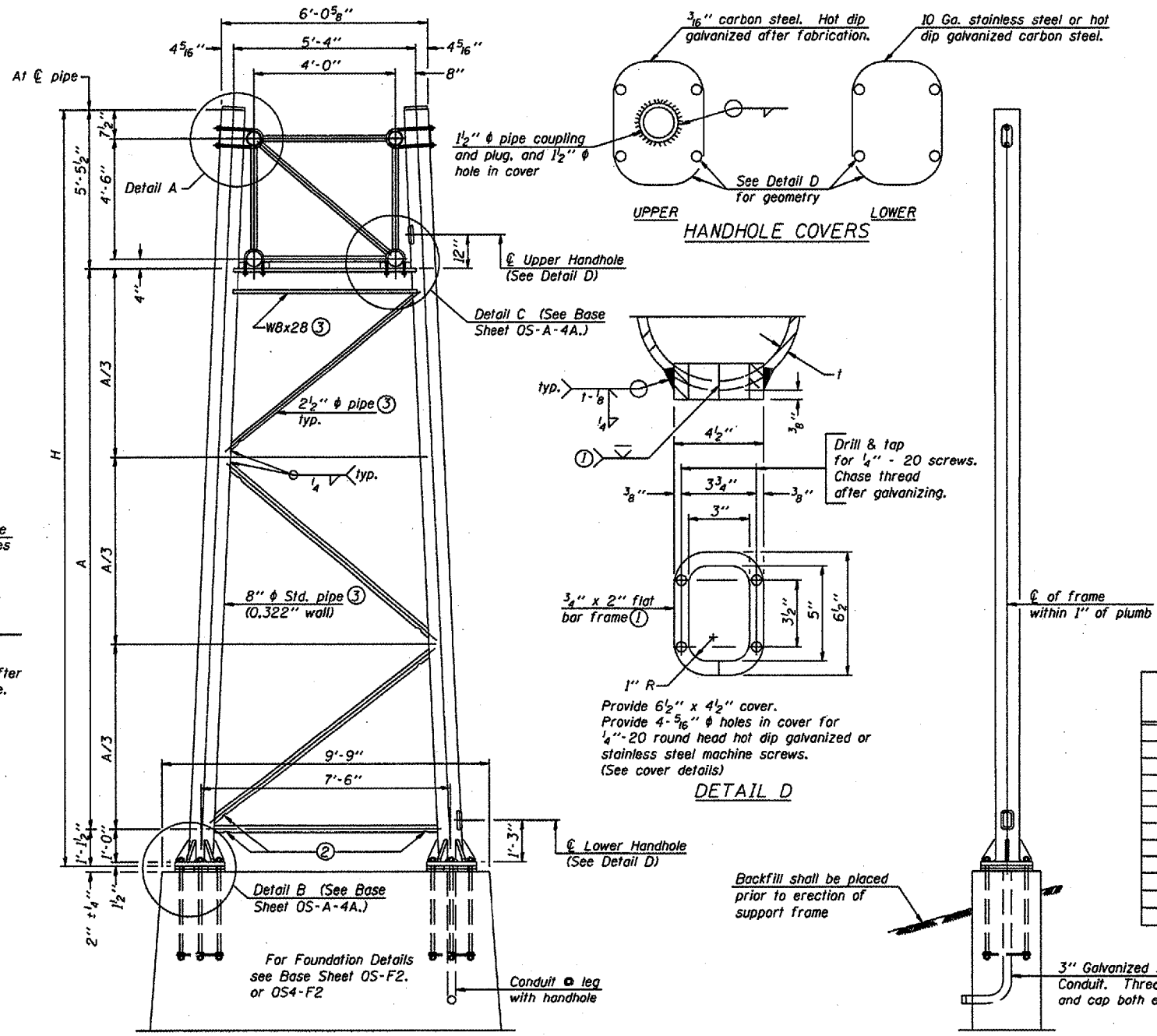
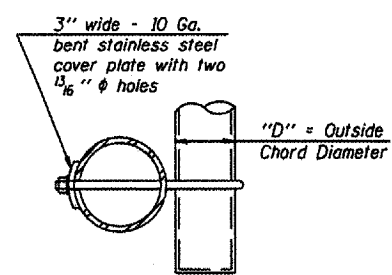
District 2  
Overhead Sign  
Structure Replacement

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

OS-A-D 1-7-05



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



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  $\mu$ in 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.

Structure Number	Station	Support		H	A
		Left	Right		
250371080L011.4	1026 + 40	X	X	23'-10 1/4"	16'-4"

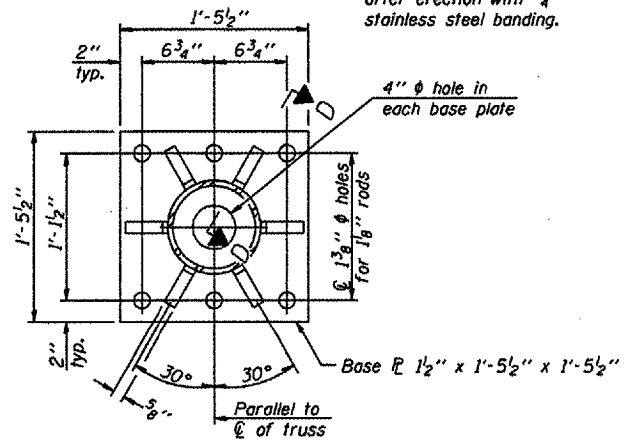
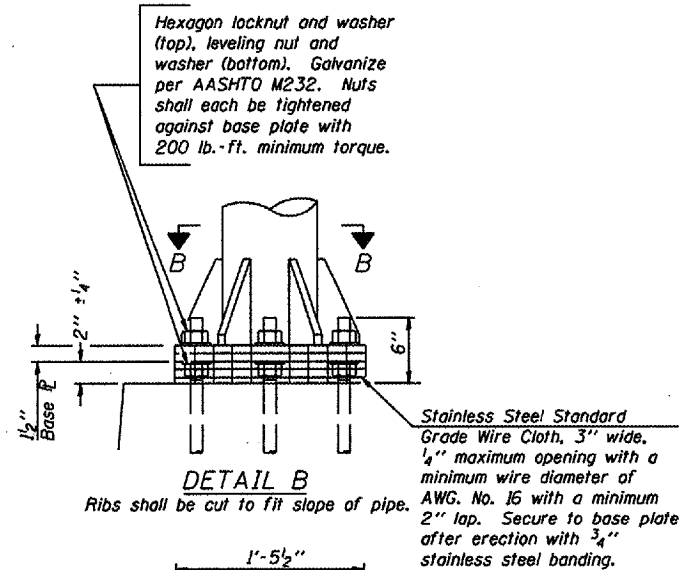
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE I-A ALUMINUM TRUSS

District 2  
Overhead Sign  
Structure Replacement

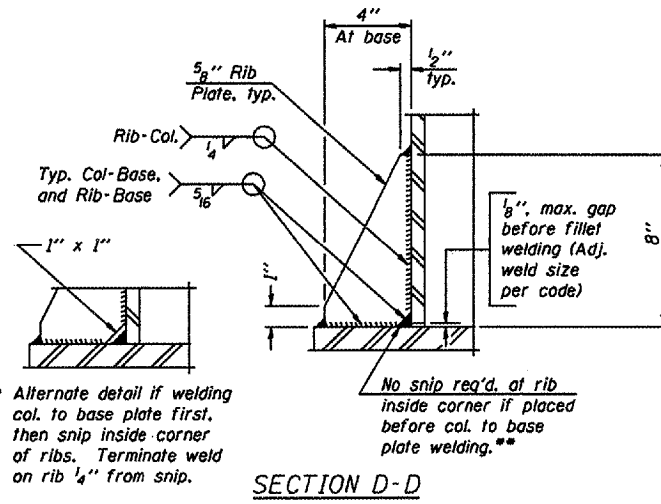
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

8"  $\phi$  PIPE TRUSS SUPPORT FRAME

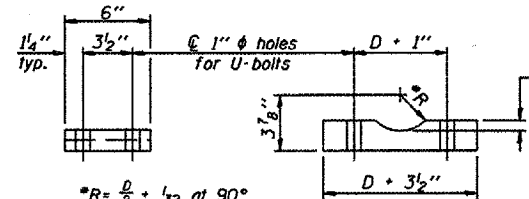


SECTION B-B



SECTION D-D

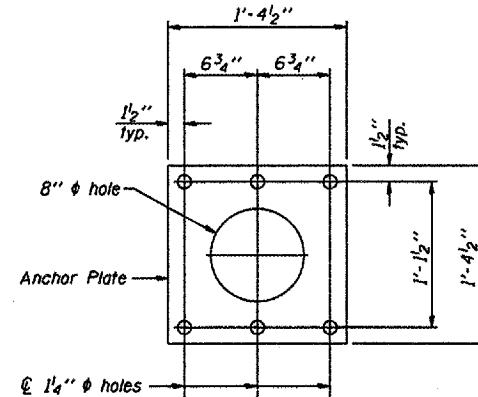
\*\* Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



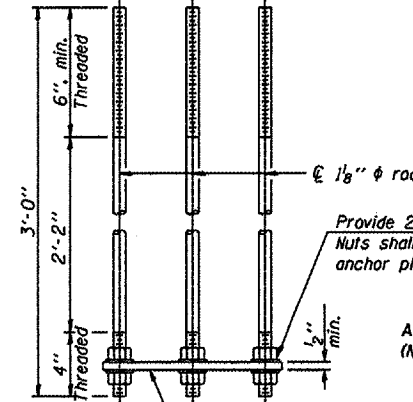
\*R =  $\frac{D}{2} + \frac{1}{32}$  at 90°  
D = Outside Diameter of Chord.

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

Truss Chord Nominal Dia.	$\sigma$
5"	3/4"
5 1/2"	15/16"
6"	7/8"
6 1/2"	5/8"

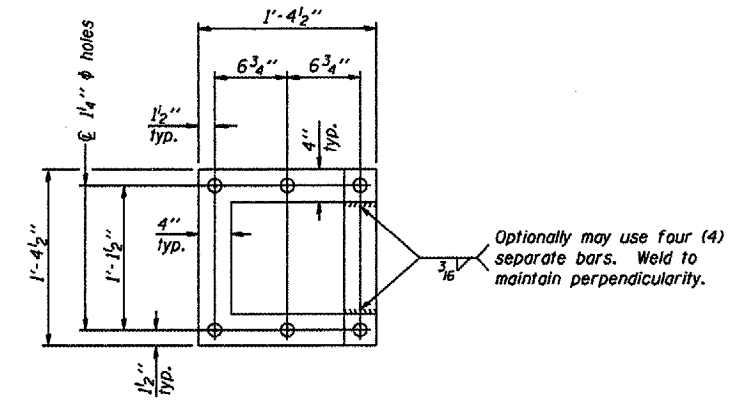


Anchor Plate



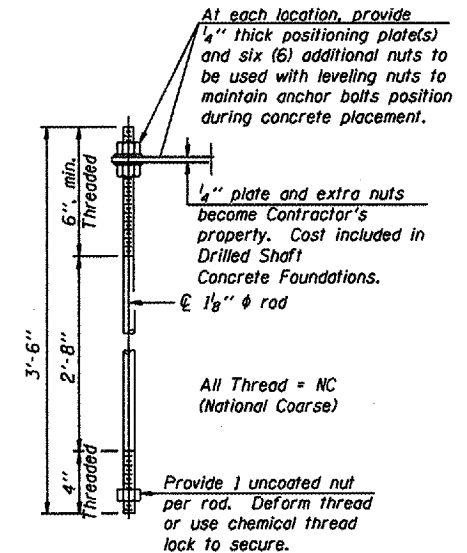
ANCHOR ROD DETAIL  
Spread Footing Foundation

All Thread = NC (National Coarse)



POSITIONING PLATE(S)

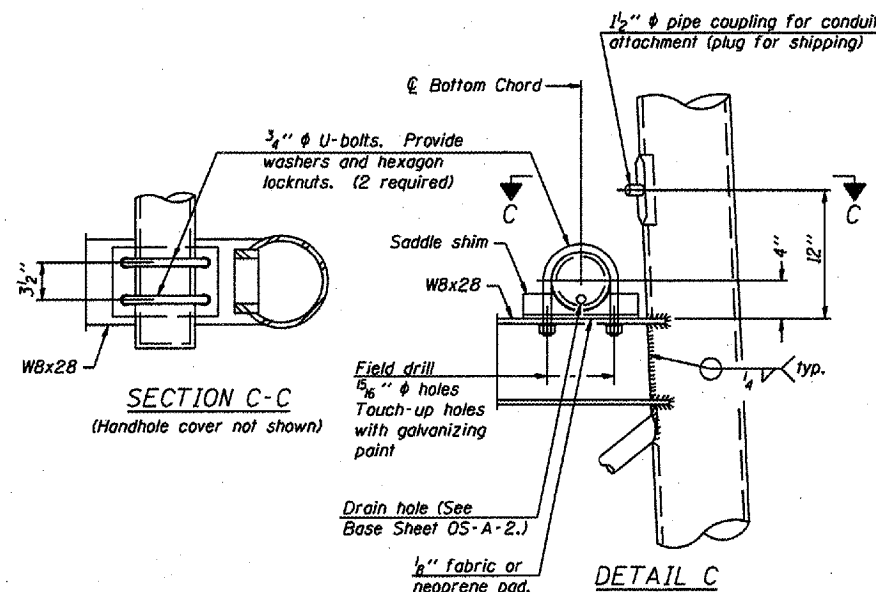
Optionally may use four (4) separate bars. Weld to maintain perpendicularity.



ANCHOR ROD DETAIL  
Drilled Shaft Foundation

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.

NUMBER	REVISION	DATE



SECTION C-C  
(Handhole cover not shown)

DETAIL C

TYPE I-A TRUSS  
8" PIPE SUPPORT FRAME DETAILS

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 2  
Overhead Sign  
Structure Replacement

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

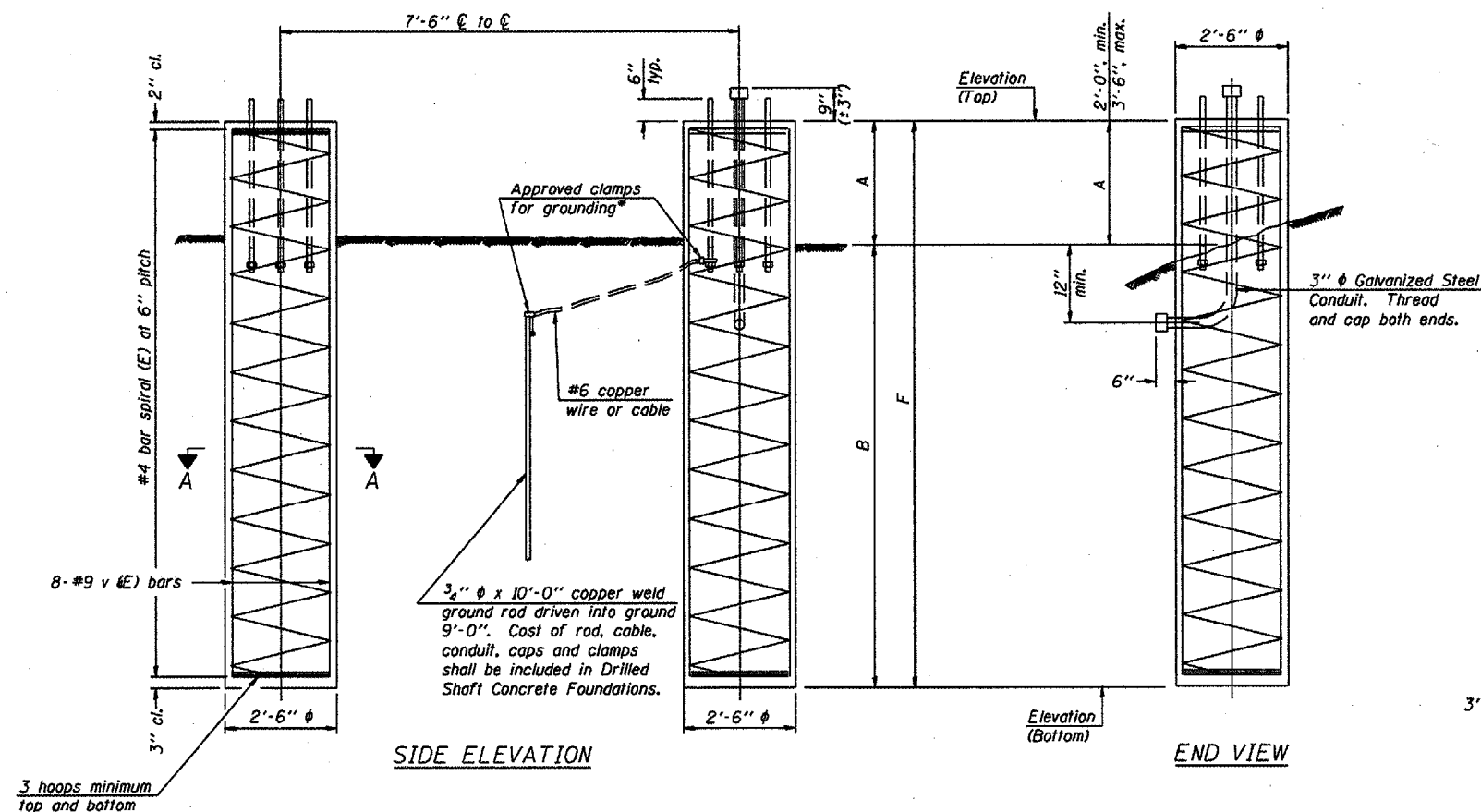
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 24 of 89  
Contract Number 44904

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
w(E)	16	#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.

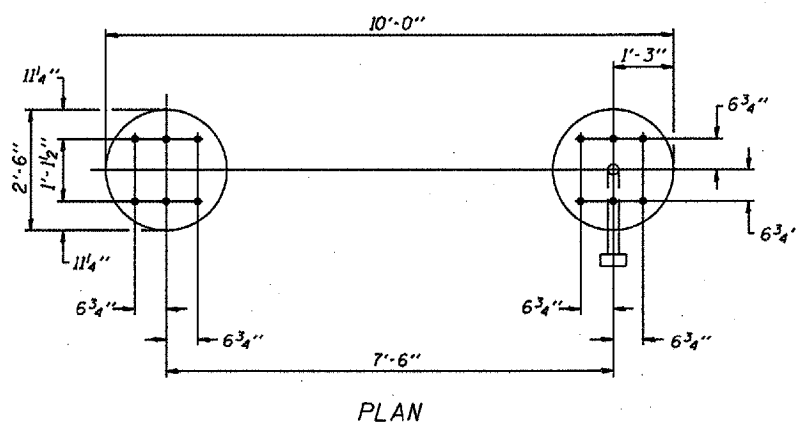
If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District 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.



Structure Number	Station	Left Foundation			Right Foundation			Class SI Concrete (Cu. Yds.)				
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top		Elevation Bottom	A	B	F
2S0371080L011.4	1026 + 40	N/A		3' - 0"	13' - 6"	16' - 6"	N/A		3' - 0"	13' - 6"	16' - 6"	12.00

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

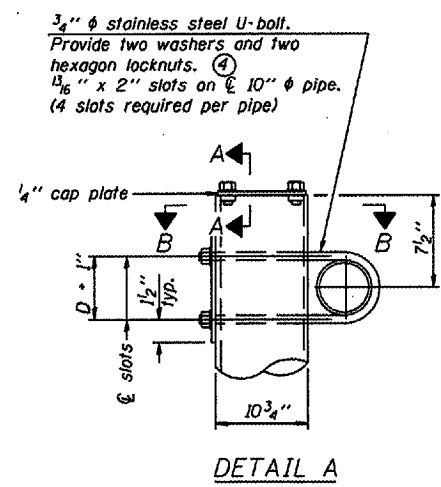
NUMBER	REVISION	DATE

DETAILS FOR 8"  $\phi$  SUPPORT FRAME  
TYPE I-A TRUSS

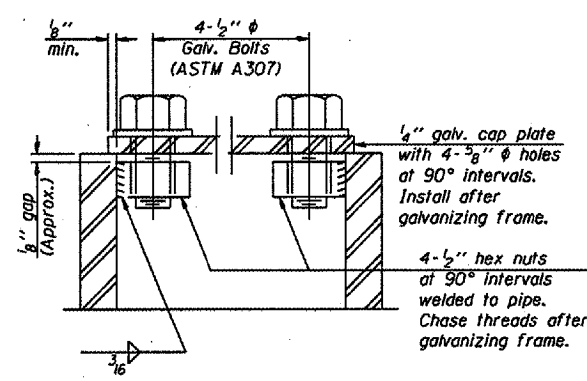
OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 2  
Overhead Sign  
Structure Replacement

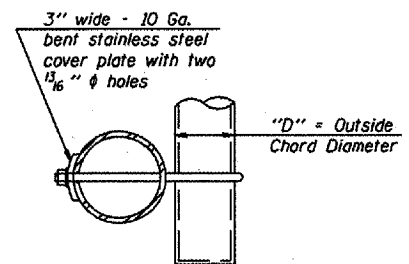




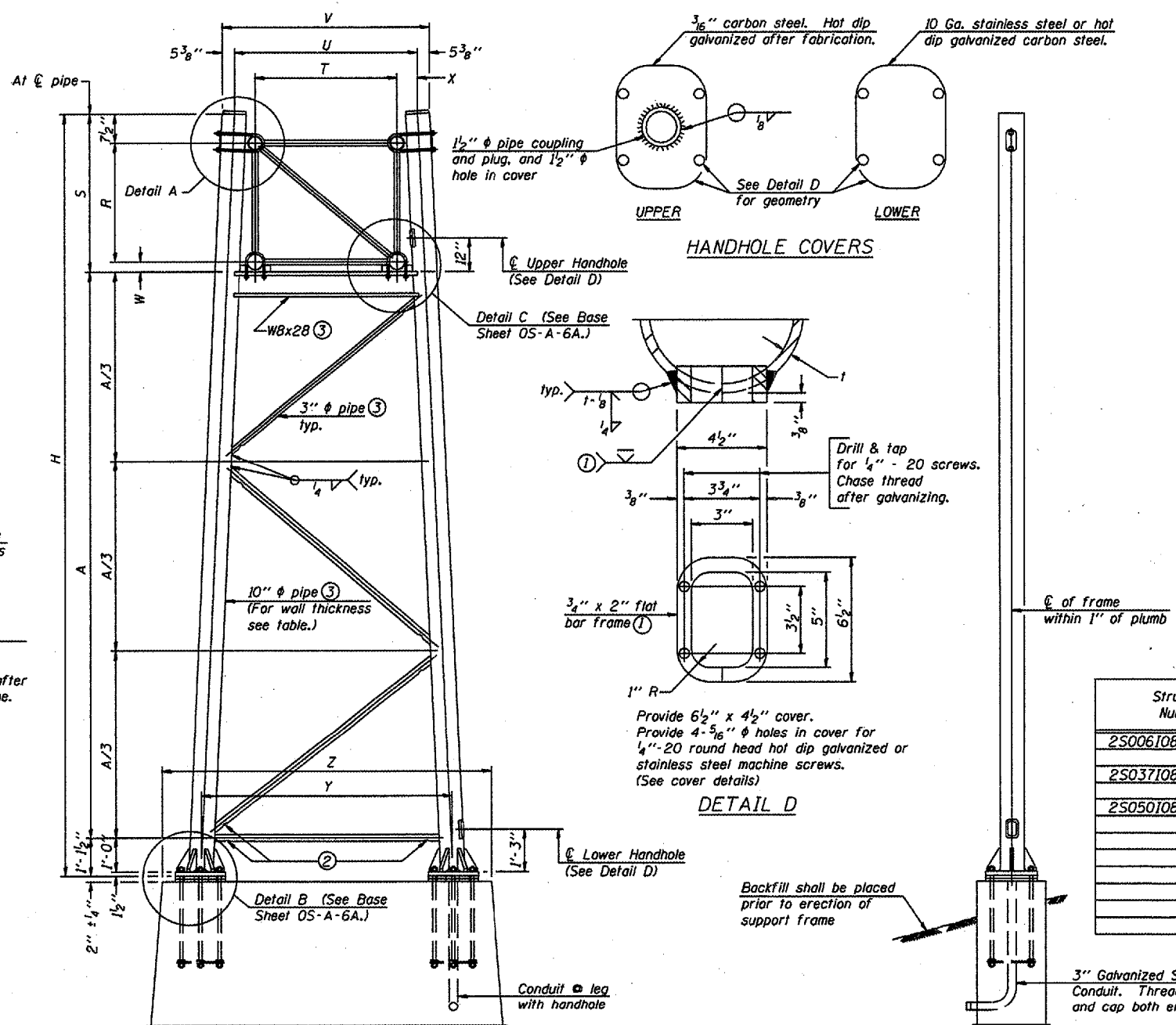
DETAIL A



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

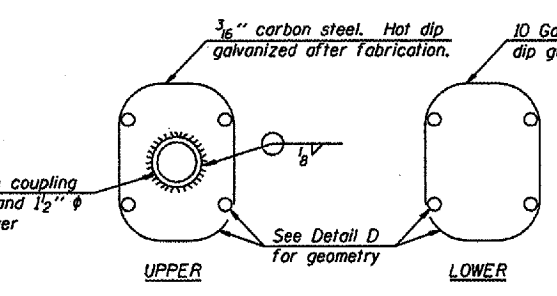


SECTION B-B

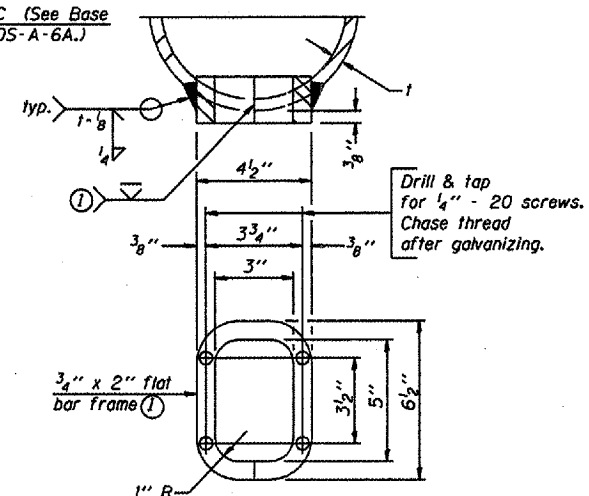


For Foundation Details, see base sheet OS-F3 (Spread Footing) or OS4-F3 (Drilled Shaft).

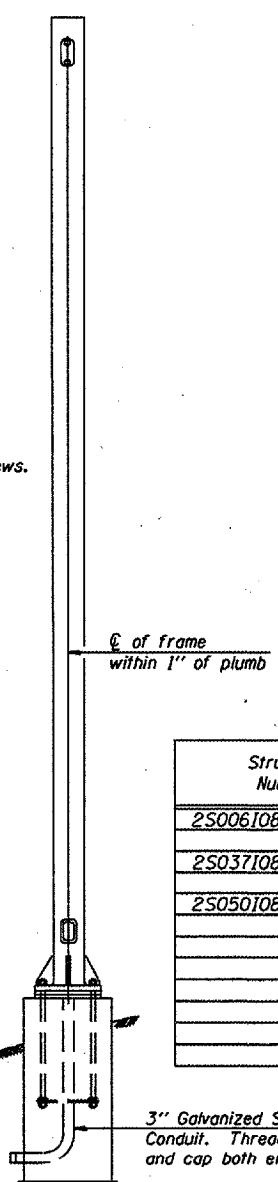
SIDE ELEVATION



HANDHOLE COVERS



DETAIL D



END ELEVATION

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  $\mu$ m 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.

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H	A
		Left	Right				
2S0061080R059.9	1316 + 20	X	X	II-A	0.365(Std)	26'-3 3/4"	18'-8"
2S0371080L010.2	567 + 50	X	X	III-A	0.365(Std)	26'-1 1/2"	16'-10 1/4"
2S0501080R073.4	486 + 00	X	X	I-A	0.279	29'-8 1/2"	23'-1 1/2"

The "H" and "A" dimensions shown were taken from the existing end support details for Structure No. 2S0061080R059.9 and Structure No. 2S0371080L010.2.

**OVERHEAD SIGN STRUCTURES**  
SUPPORT FRAME for ALUMINUM TRUSS

District 2  
Overhead Sign  
Structure Replacement

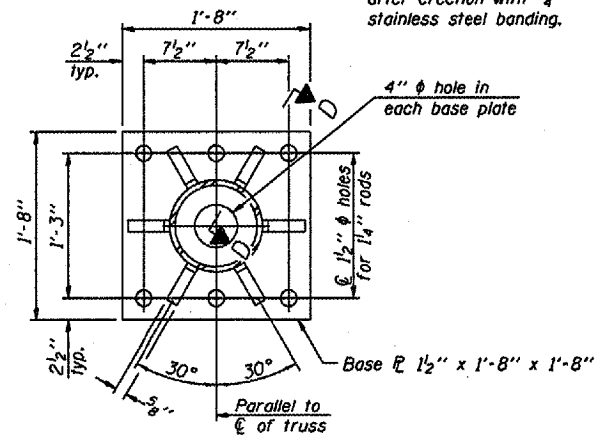
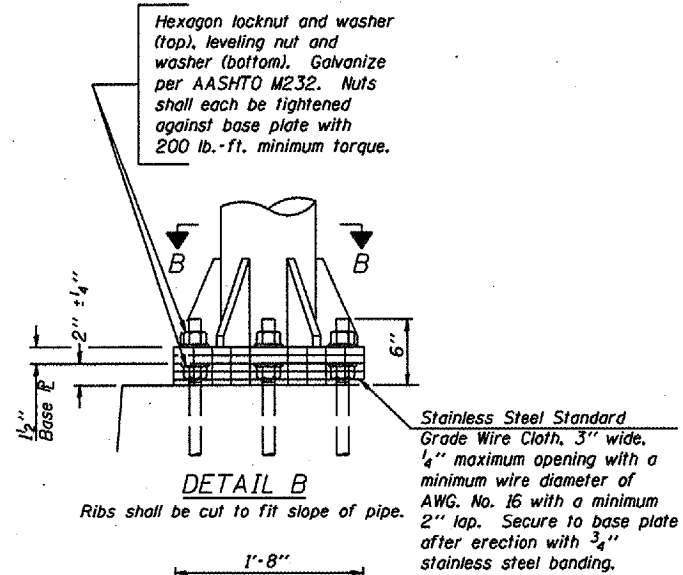
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OS-A-6 1-7-05

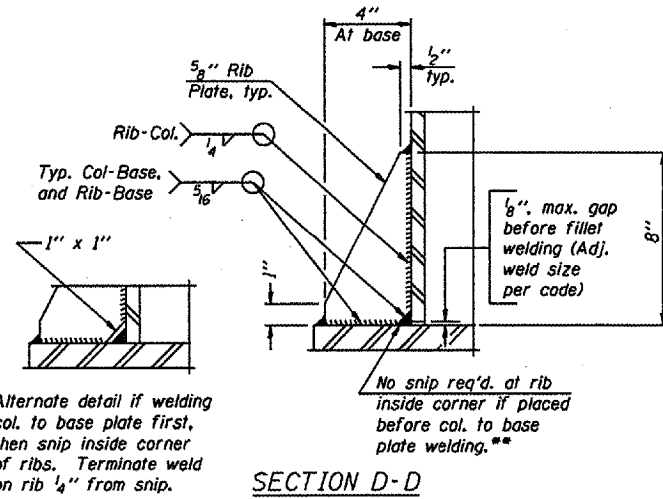
NUMBER	REVISION	DATE

**10"  $\phi$  PIPE TRUSS SUPPORT FRAME**

Truss Type	Dimensions									
	R	S	T	U	V	W	X	Y	Z	
I-A	4'-6"	5'-5 1/2"	4'-0"	5'-6"	6'-4 3/4"	4"	9"	8'-3"	10'-9"	
II-A ⑤	5'-3"	6'-3 1/4"	4'-6"	6'-1"	6'-11 3/4"	4 3/8"	9 1/2"	8'-3"	10'-9"	

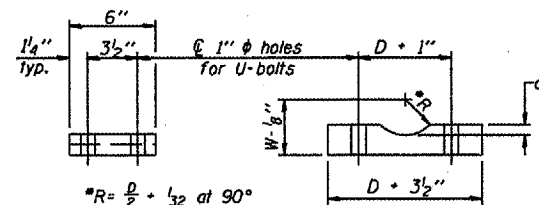


SECTION B-B



SECTION D-D

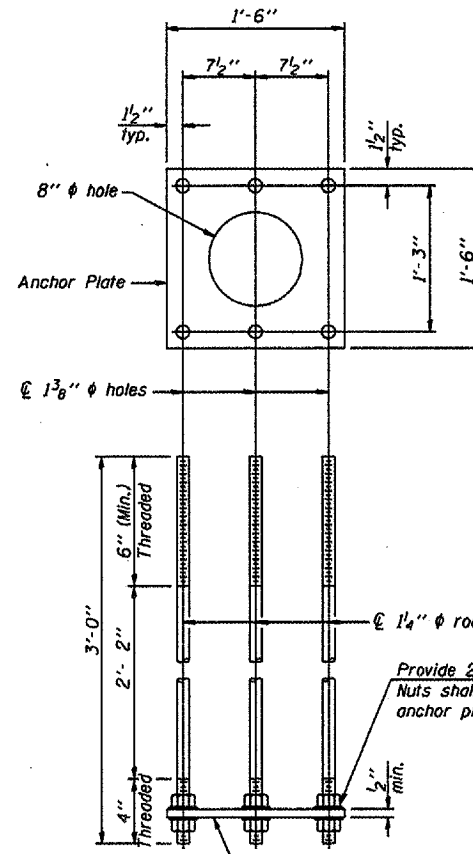
\*\* Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



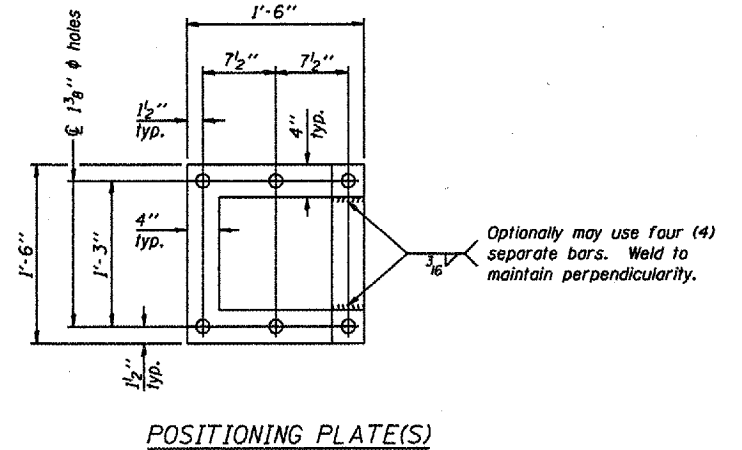
SADDLE SHIM DETAIL

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

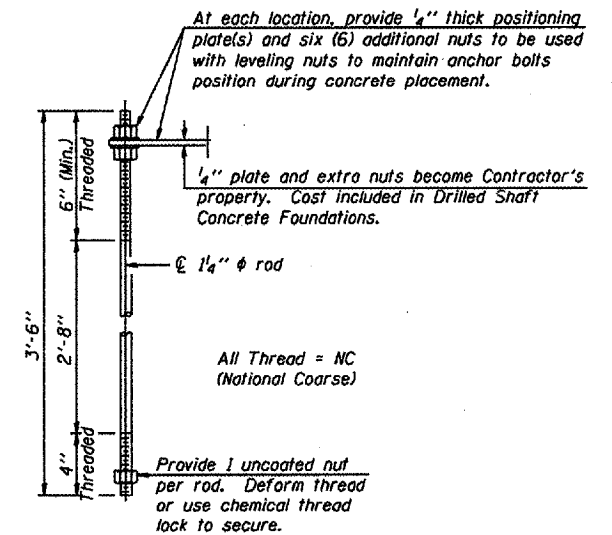
Truss Chord Nominal Dia.	a
5"	3 1/2"
5 1/2"	4 1/8"
6"	7 1/8"
6 1/2"	5 1/8"
7"	1"



ANCHOR ROD DETAIL  
Spread Footing Foundation



POSITIONING PLATE(S)



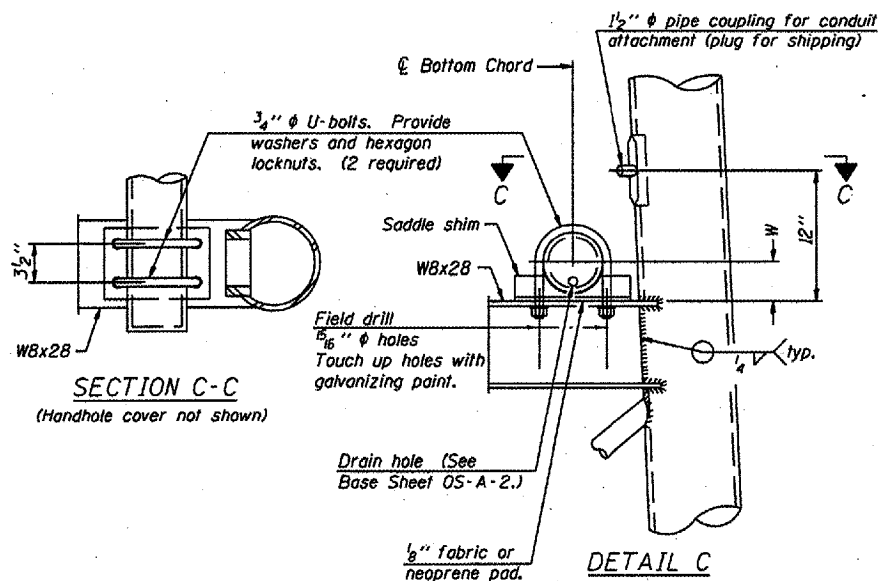
ANCHOR ROD DETAIL  
Drilled Shaft Foundation

Anchor rods shall conform to AASHTO M314 Grade 36 or 50 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.

10"  $\phi$  PIPE SUPPORT FRAME DETAILS

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 2  
Overhead Sign  
Structure Replacement



SECTION C-C

(Handhole cover not shown)

DETAIL C

NUMBER	REVISION	DATE

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

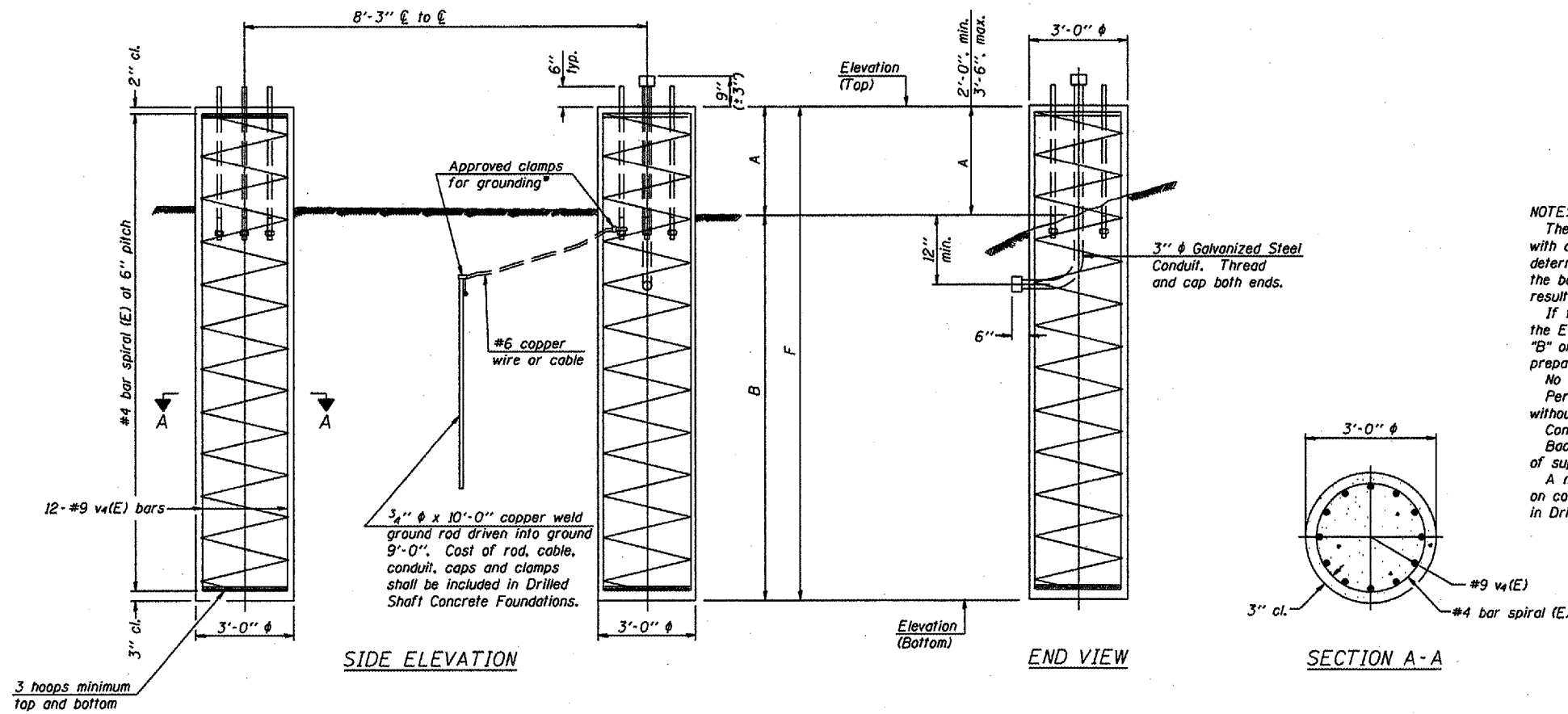
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 27 of 89  
Contract Number 44904

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 ( $Q_u$ ) 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.

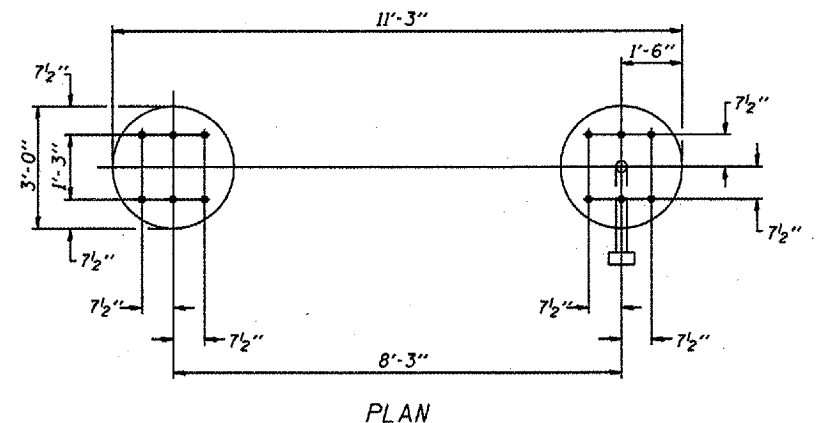
If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District 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 Seal 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	Elevation Top	Elevation Bottom	Left Foundation			Right Foundation			Class SI Concrete (Cu. Yds.)		
				A	B	F	Elevation Top	Elevation Bottom	A		B	F
2S0501080R073.4	486 + 00	651.47		3' - 0"	16' - 6"	19' - 6"	651.47		3' - 0"	16' - 6"	19' - 6"	20.40
2S0061080R059.9	1316 + 20	707.30		3' - 0"	17' - 6"	20' - 6"	707.30		3' - 0"	17' - 6"	20' - 6"	21.50

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

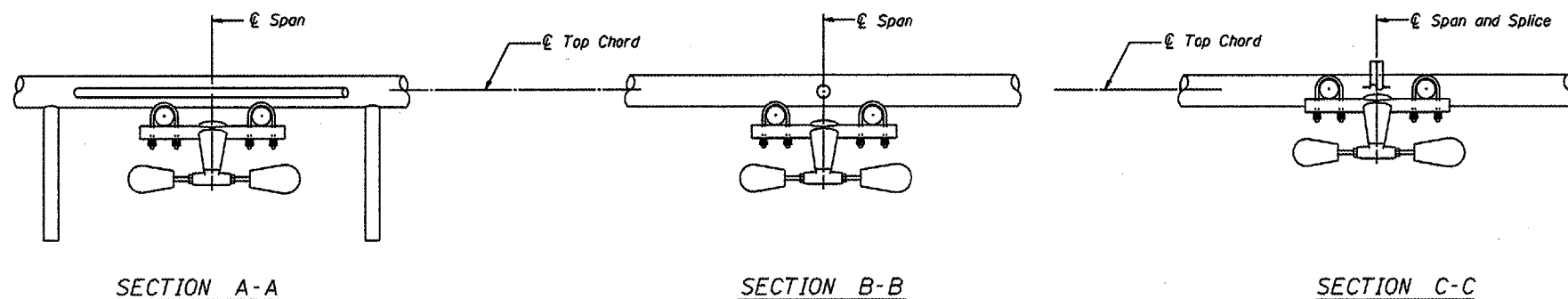
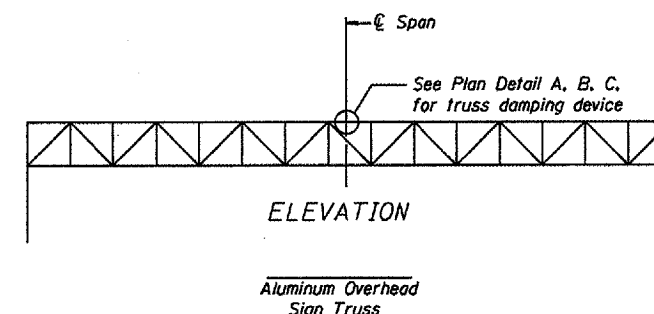
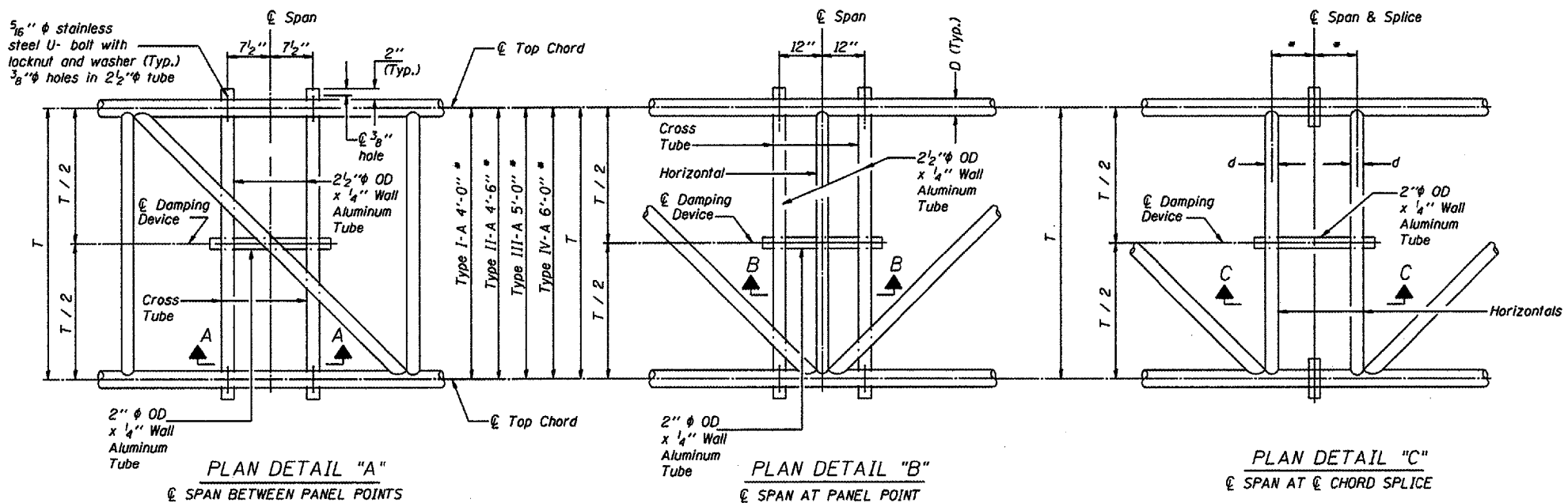
NUMBER	REVISION	DATE

DETAILS FOR 10"  $\phi$  SUPPORT FRAME  
TYPE I-A or II-A TRUSS

OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 2  
Overhead Sign  
Structure Replacement

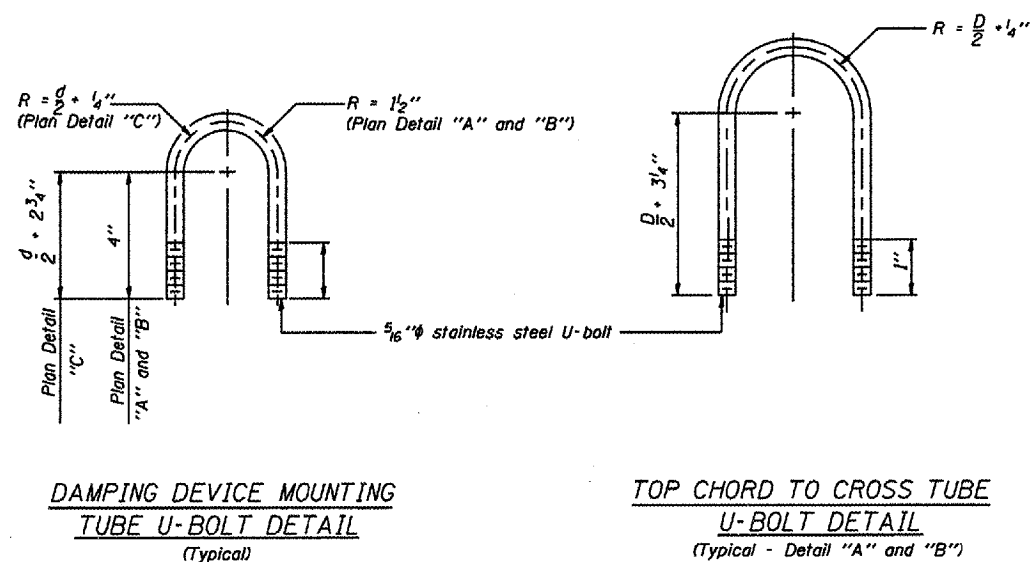
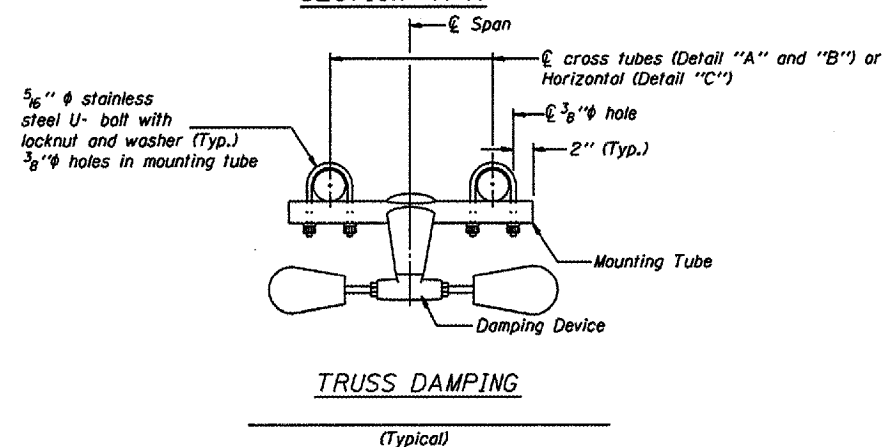
\* Verify before drilling holes in mounting tube and cross tubes.



This detail applies to the following overhead sign structures:  
1. 2S0061080R059.9  
2. 2S0371080L010.2

**GENERAL NOTES**

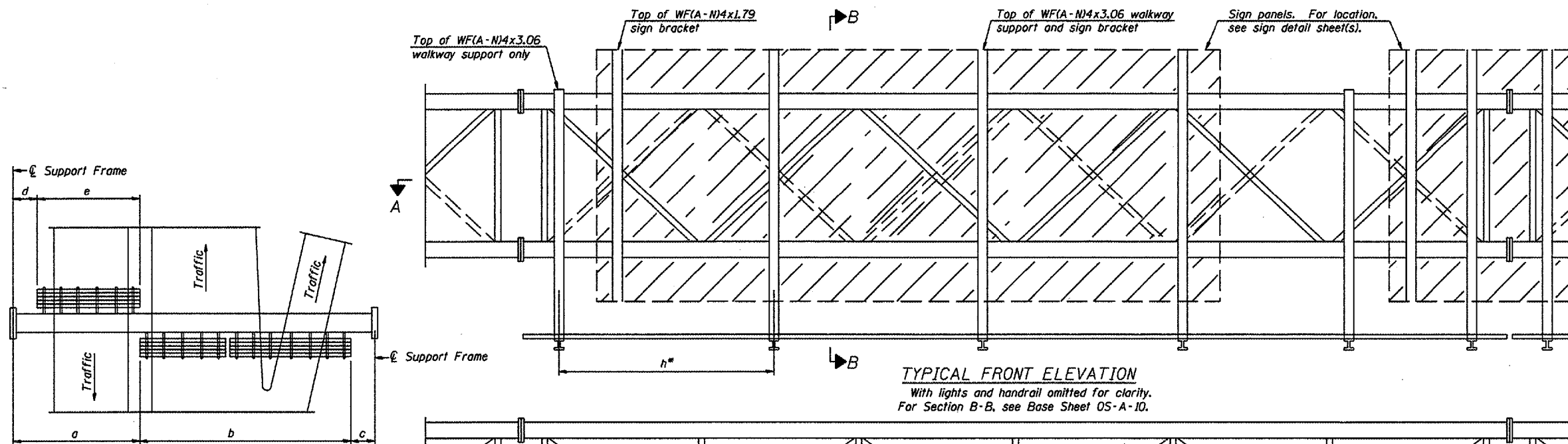
**Damper:** One damper per truss. (31 lbs. Stockbridge-Type Aluminum)  
**Materials:** Aluminum tubes shall be ASTM B221 alloy 6061 temper T6  
**Fasteners:** U-bolts shall be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finish, or an equivalent material acceptable to the Engineer. All nuts shall be stainless steel conforming to ASTM A194, Grade 8 (AISI Type 304) or Grade 8F (AISI Type 303). The nuts shall be "locknuts" with nylon or steel inserts and semifinished hexagonal heads equivalent to the finished hex series of the American National Standards. All washers shall be stainless steel conforming to ASTM A240, Type 302 or 304.



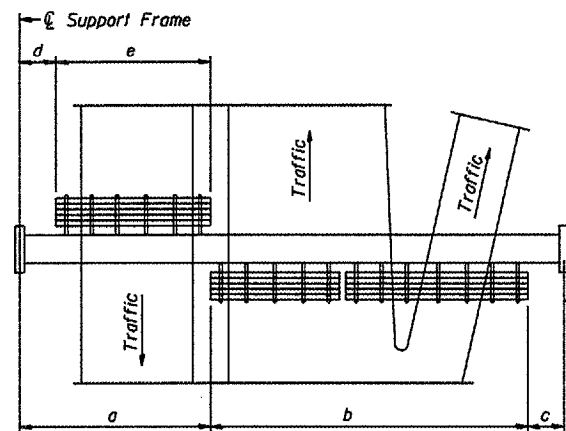
**OVERHEAD SIGN STRUCTURE DAMPING DEVICE**

District 2  
Overhead Sign  
Structure Replacement

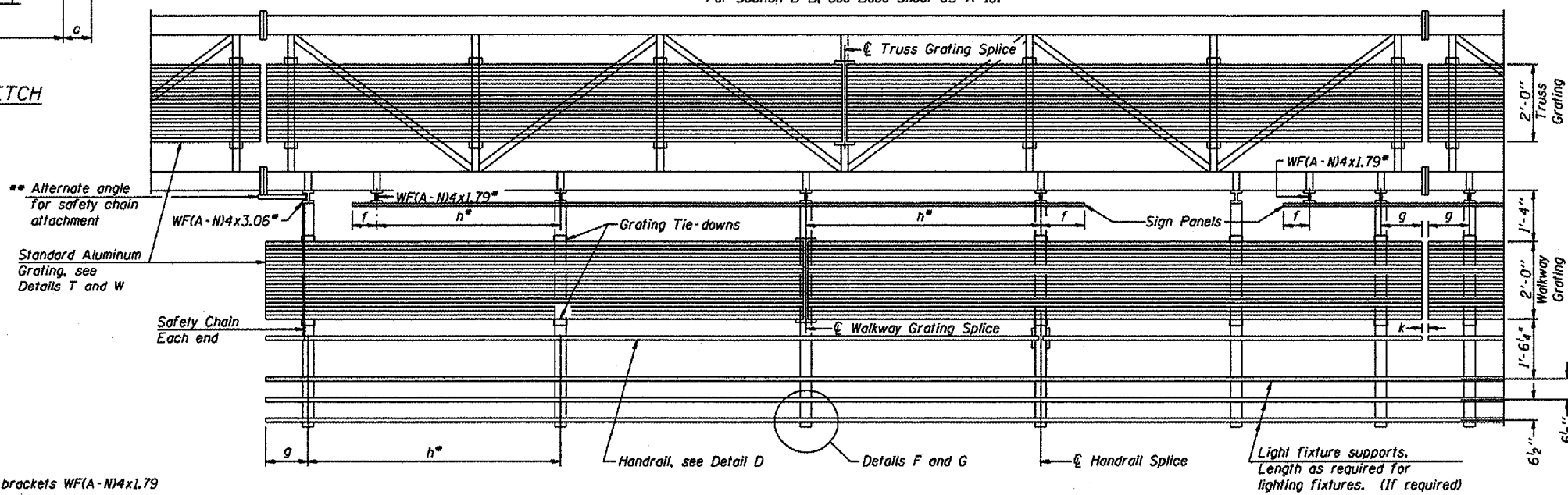
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES



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



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



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. Grating, handrail 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"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	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 grating 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 Details D, F, G and P and Handrail Splice Details, see Base Sheet OS-A-11.

Alternate angle for safety chain attachment

Standard Aluminum Grating, see Details T and W

Safety Chain Each end

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
2S0061080R059.5	1316 + 20	N/A	30' - 0"	31' - 6"	N/A	N/A	30' - 0"
2S0371080L011.4	1026 + 40	N/A	38' - 0"	8' - 0"	N/A	N/A	38' - 0"
The length shown for the following structures is for internal truss grating installation.							
2S0061080R059.9	1316 + 20	N/A	N/A	N/A	N/A	N/A	88' - 0"
2S0371080L010.2	567 + 50	N/A	N/A	N/A	N/A	N/A	74' - 0"

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

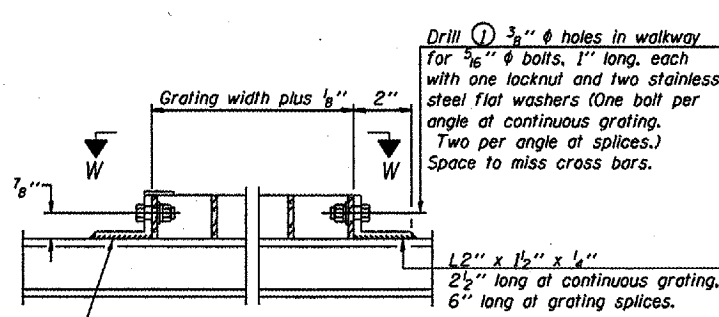
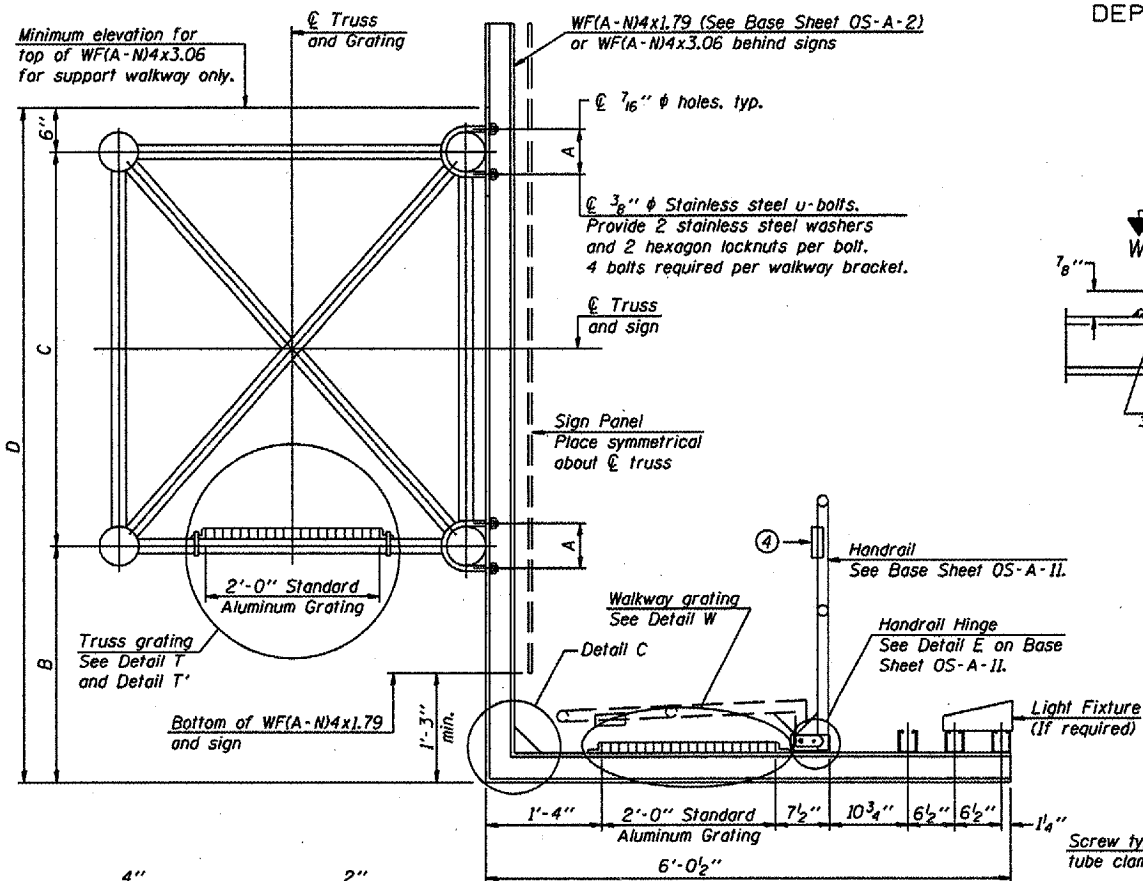
District 2  
Overhead Sign  
Structure Replacement

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

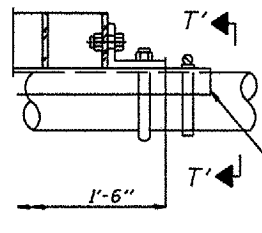
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

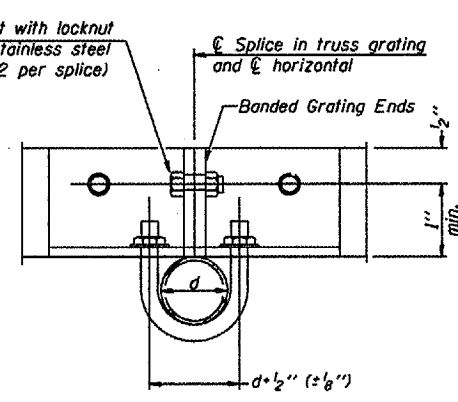
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 30 of 89  
Contract Number 44904



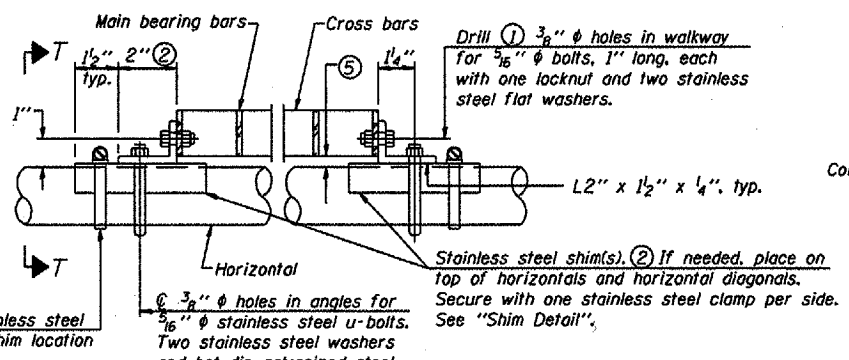
DETAIL W  
(Walkway grating)



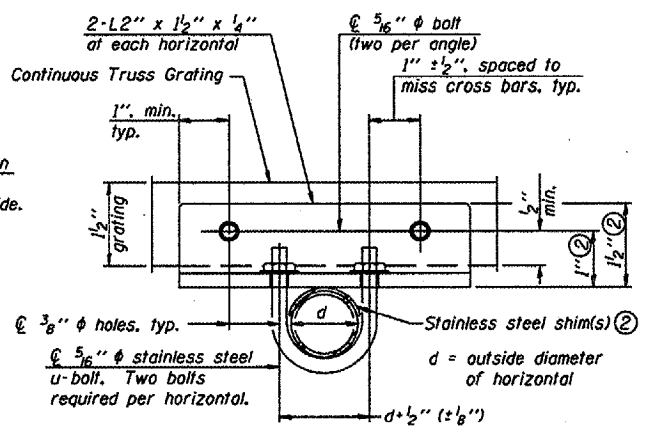
DETAIL T'  
(Truss grating splice)  
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.



SECTION T'-T'



DETAIL T  
(Continuous Truss grating)



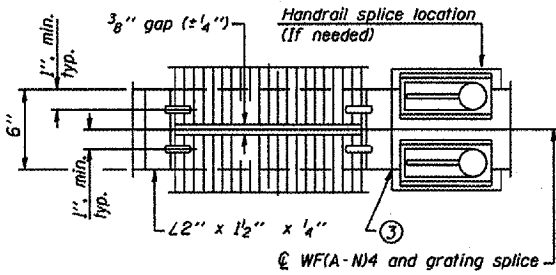
SECTION T-T

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

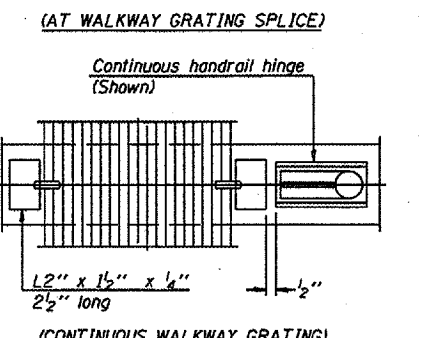
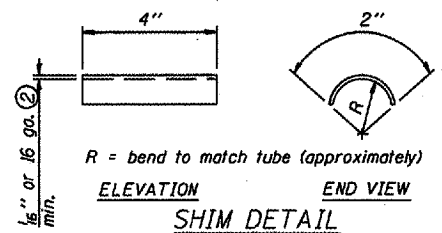
Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/8" centers and conform to ASTM B221 Alloy 6061-T6.  
Cross bars shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

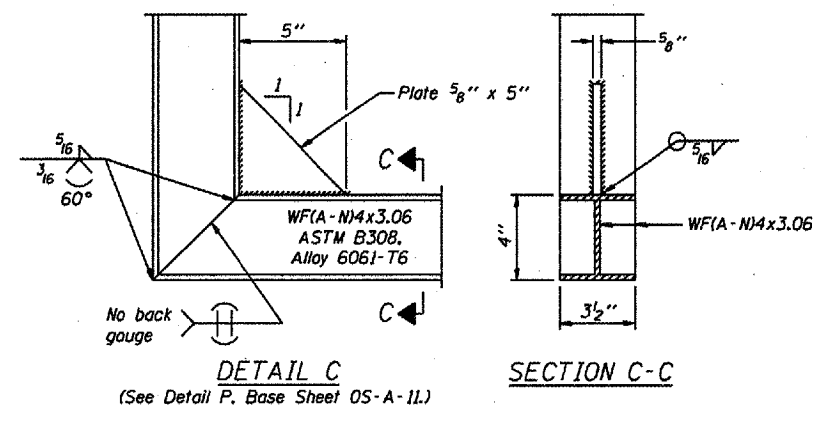
Aluminum Grating with modified "4" sections for main bearing bars shall meet the following requirements:  
Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.<sup>3</sup> per bar, a depth of 1 1/2", spaced on 1 3/8" centers.  
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.



SECTION B-B



SECTION W-W



- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- 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.
- If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OS-A-11.)
- 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.

Structure Number	Station	A	B	C	D
2S0061080R059.5	1316 + 20	5' 7/8"	3'-10 1/2"	5' - 3"	9' - 8"
2S0371080L011.4	1026 + 40	5' 3/8"	5' - 3"	4' - 6"	10' - 6"

At all other locations the existing walkway and walkway support brackets will be reused.

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

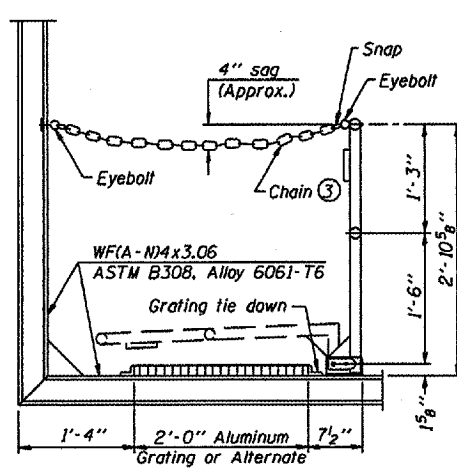
District 2  
Overhead Sign  
Structure Replacement

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

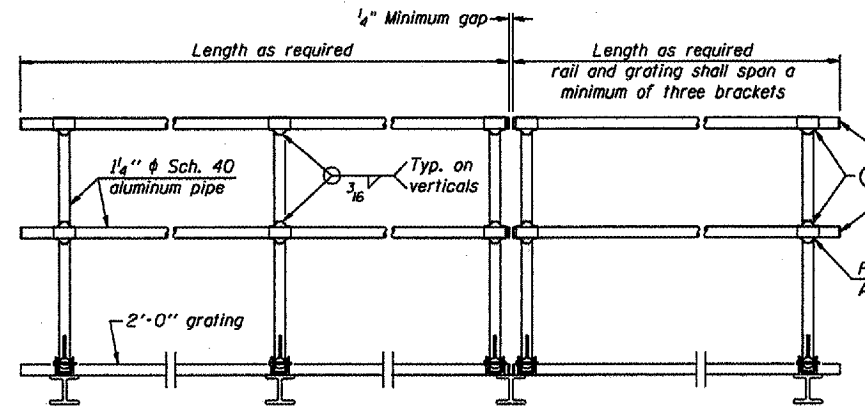
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 31 of 89  
Contract Number 44904



**SIDE ELEVATION**  
(Showing safety chain w/o sign)

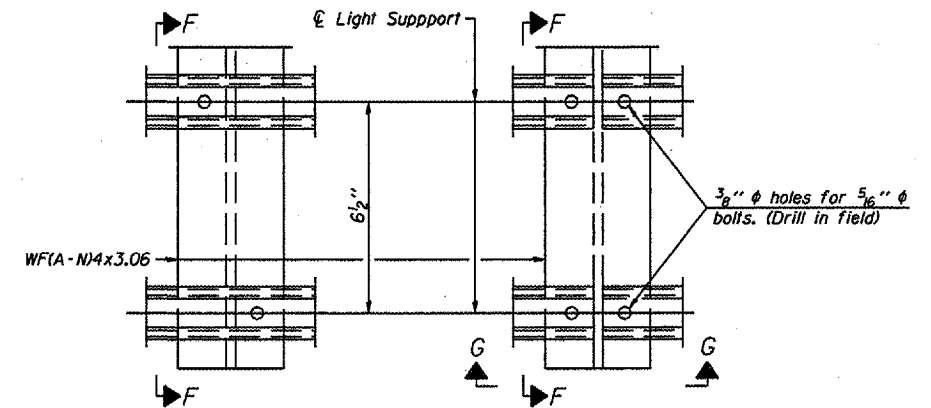


**FRONT ELEVATION**

**HANDRAIL DETAILS**

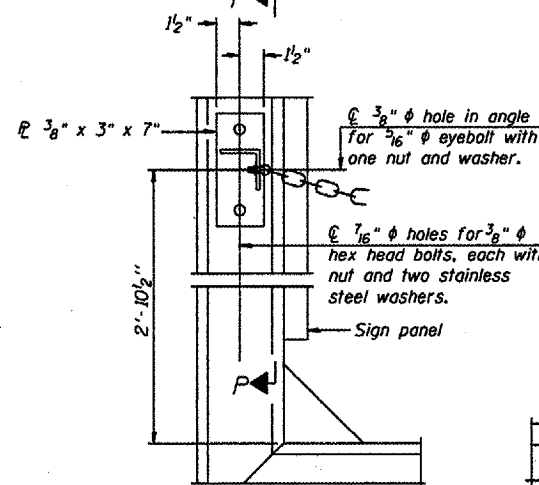
Handrail pipe shall be ASTM B241, Alloy 6063-T6 or Alloy 6061-T6.

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



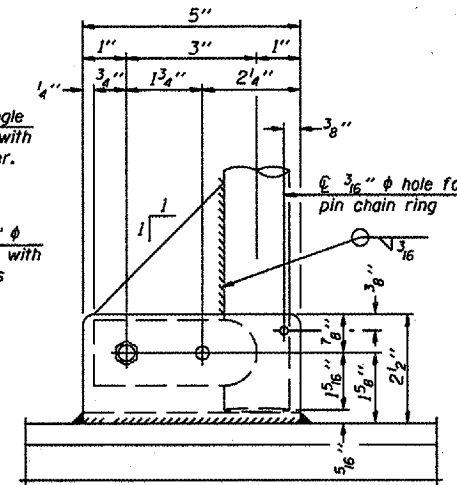
**DETAIL F**

**DETAIL G**

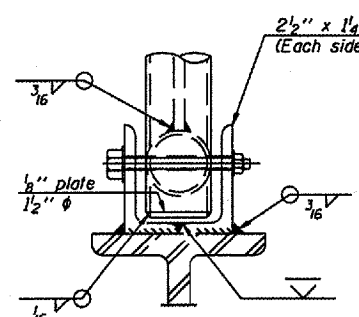


**ALTERNATE SAFETY CHAIN ATTACHMENT**  
(With Sign Present)

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

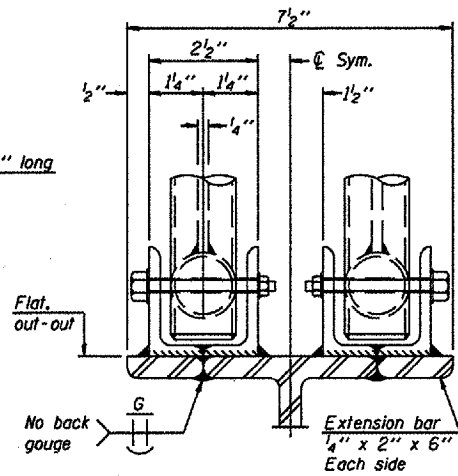


**SIDE ELEVATION**

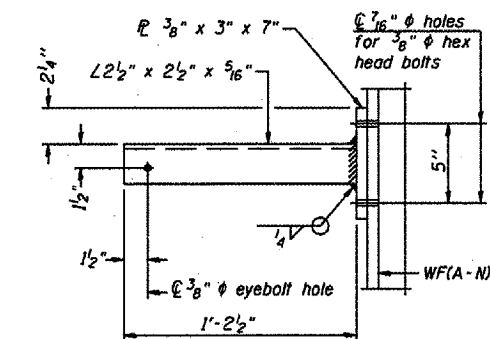


**FRONT ELEVATION**

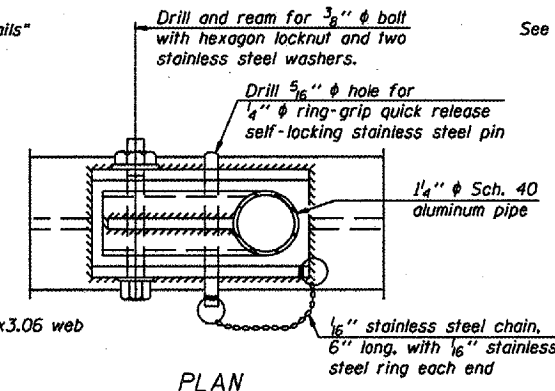
See "Elevation" at right for dimensions.



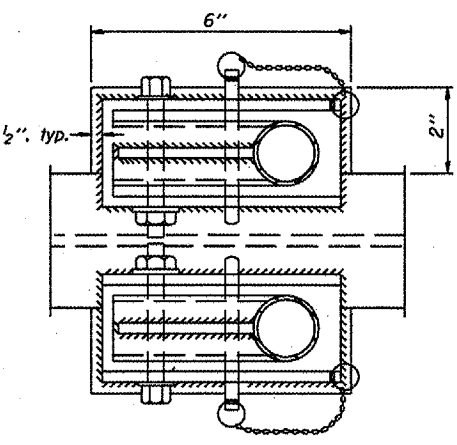
**ELEVATION AT HANDRAIL JOINT**



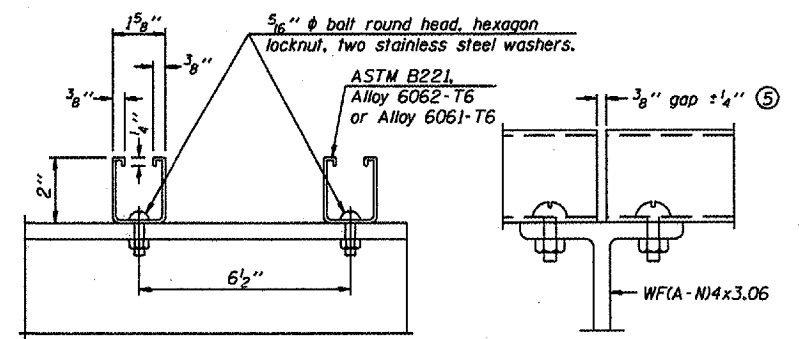
**SECTION P-P**



**PLAN**  
**DETAIL E HANDRAIL HINGE**



**PLAN AT HANDRAIL JOINT**  
Details not shown same as "PLAN"

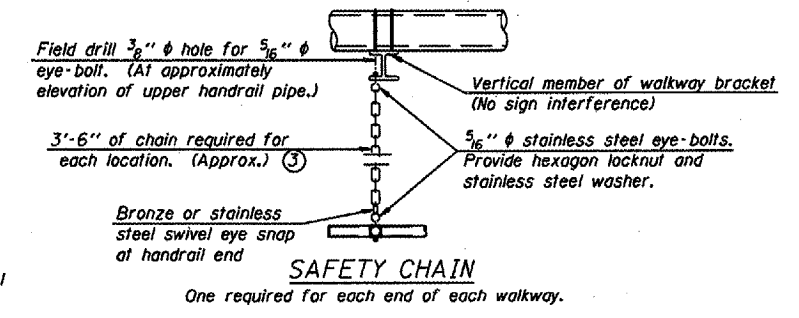


**SECTION F-F**

**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

- 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.

**OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS**

District 2  
Overhead Sign  
Structure Replacement

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

OS-A-11 1-7-05

NUMBER	REVISION	DATE

**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

- 3/16" Type 304L or 316L stainless steel chain, approximately 12 links per foot.
- Extrusions may be used in lieu of the details shown, with approval of the Engineer.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

*Various Routes*  
OVD SIN STR REP & REPL 2006-9  
*Various Counties*  
Sheet 32 of 89  
Contract Number 44904

*District 3*  
*Schedule of Locations for Overhead Sign Structure Replacement*

Location No.:	3-01	State I.D. No.:	3S0501039L059.6				
County:	LaSalle	Route:	I-39	M.P.:	59.6	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				
REMOVE & REINSTALL SIGN PANEL		SQ FT	342.50				
REMOVE & REINSTALL WALKWAY		FOOT	31.00				
OVERHEAD SIGN SUPPORT GROUT REPAIR		EACH	4.00				
FURNISH & INSTALL SAFETY CHAIN		EACH	2.00				
DISCONNECT/RECONNECT ELECTRIC SERVICE		EACH	1.00				
This structure is being downsized from a Type IV truss to a Type II truss.							

Location No.:	3-02	State I.D. No.:	3S0501039R057.7				
County:	LaSalle	Route:	I-39	M.P.:	57.7	Direction:	NB
Description of Work		Unit	Quantity				
REMOVE OVERHEAD SIGN STRUCTURE - SPAN		EACH	1.00				
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A		FOOT	124.00				
REMOVE & REINSTALL SIGN PANEL		SQ FT	299.00				
REMOVE & REINSTALL WALKWAY		FOOT	44.00				
OVERHEAD SIGN SUPPORT GRPOUT REPAIR		EACH	4.00				
DISCONNECT/RECONNECT ELECTRIC SERVICE		EACH	1.00				
This structure is being downsized from a Type IV truss to a Type II truss.							

Location No.:	3-03	State I.D. No.:	3S0501039R057.2				
County:	LaSalle	Route:	I-39	M.P.:	57.2	Direction:	NB
Description of Work		Unit	Quantity				
REMOVE OVERHEAD SIGN STRUCTURE-SPAN		EACH	1.00				
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A		FOOT	124.00				
REMOVE & REINSTALL SIGN PANEL		SQ FT	299.00				
REMOVE & REINSTALL WALKWAY		FOOT	44.00				
OVERHEAD SIGN SUPPORT GROUT REPAIR		EACH	4.00				
FURNISH & INSTALL SAFETY CHAIN		EACH	2.00				
DISCONNECT/RECONNECT ELECTRIC SERVICE		EACH	1.00				
This structure is being downsized from a Type IV truss to a Type II truss.							

Location No.:	3-04	State I.D. No.:	3S0501039R058.3				
County:	LaSalle	Route:	I-39	M.P.:	58.3	Direction:	NB
Description of Work		Unit	Quantity				
REMOVE OVERHEAD SIGN STRUCTURE-SPAN		EACH	1.00				
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A		FOOT	124.00				
REMOVE & REINSTALL SIGN PANEL		SQ FT	413.25				
REMOVE & REINSTALL WALKWAY		FOOT	49.00				
OVERHEAD SIGN SUPPORT GROUT REPAIR		EACH	4.00				
FURNISH & INSTALL SAFETY CHAIN		EACH	2.00				
DISCONNECT/RECONNECT ELECTRIC SERVICE.		EACH	1.00				
This structure is being downsized from a Type IV truss to a Type II truss.							

Location No.:	3-05	State I.D. No.:	3S0501-39L060.3				
County:	LaSalle	Route:	I-39	M.P.:	60.3	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				
REMOVE & REINSTALL SIGN PANEL		SQ FT	298.25				
REMOVE & REINSTALL WALKWAY		FOOT	52.00				
FURNISH & INSTALL SAFETY CHAIN		EACH	2.00				
OVERHEAD SIGN SUPPORT GROUT REPAIR		EACH	4.00				
DISCONNECT/RECONNECT ELECTRIC SERVICE		EACH	1.00				
This structure is being downsized from a Type IV truss to a Type II truss.							



**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<sub>c</sub> = 3,500 p.s.i.  
f<sub>y</sub> = 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.

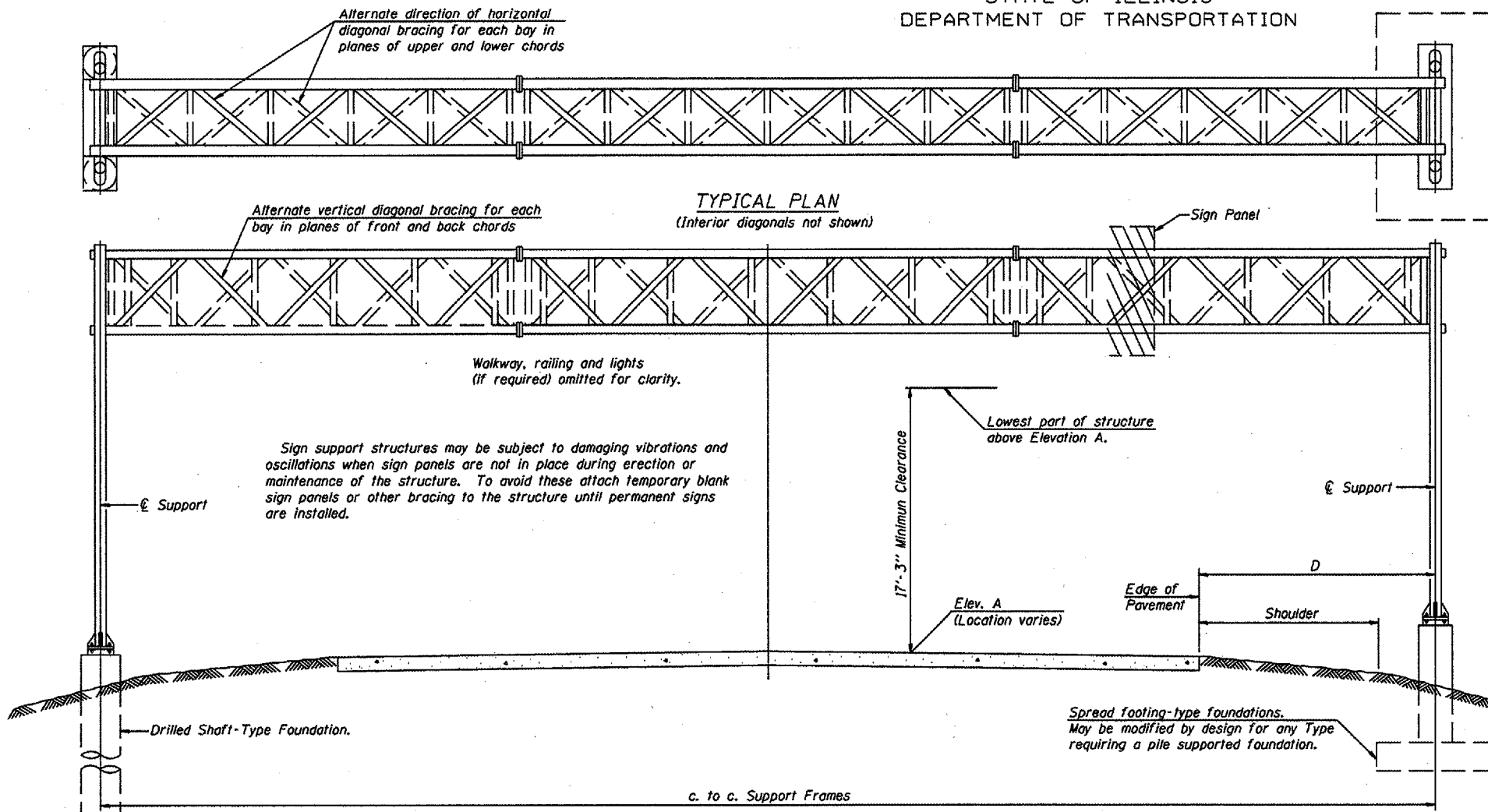
**GALVANIZING:** All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

**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 Seal 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.

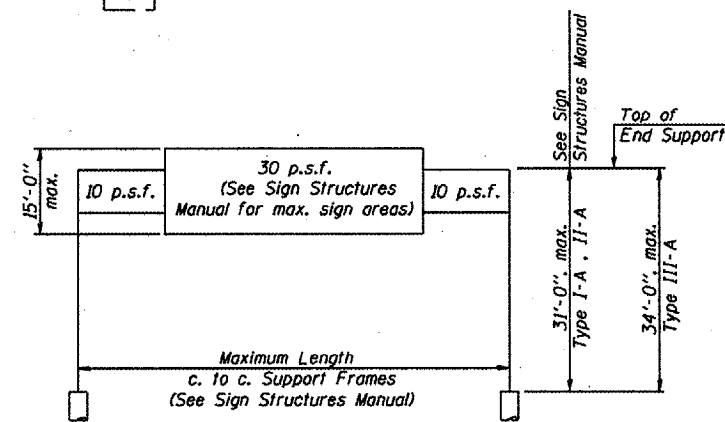


**TYPICAL ELEVATION**  
(Looking at Face of Signs\*\*)

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
3S0501039L059.6	1072 + 00	II-A	108' - 0"	100.00	42' - 0"	15' - 0"	342.50
3S0501039R057.7	975 + 00	II-A	124' + 0"	636.27	40' - 0"	12' - 0"	299.00
3S0501039R057.2	949 + 00	II-A	124' + 0"	605.74	40' - 0"	12' - 0"	299.00
3S0501039R058.3	1002 +96	II-A	124' + 0"	100.00	42' - 0"	12' - 0"	413.25
3S0501039L060.3	1106 + 75	II-A	108' - 0"	100.00	42' - 0"	10' - 6"	298.25

\*\*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 1-7-05

NUMBER	REVISION	DATE

**TOTAL BILL OF MATERIAL**

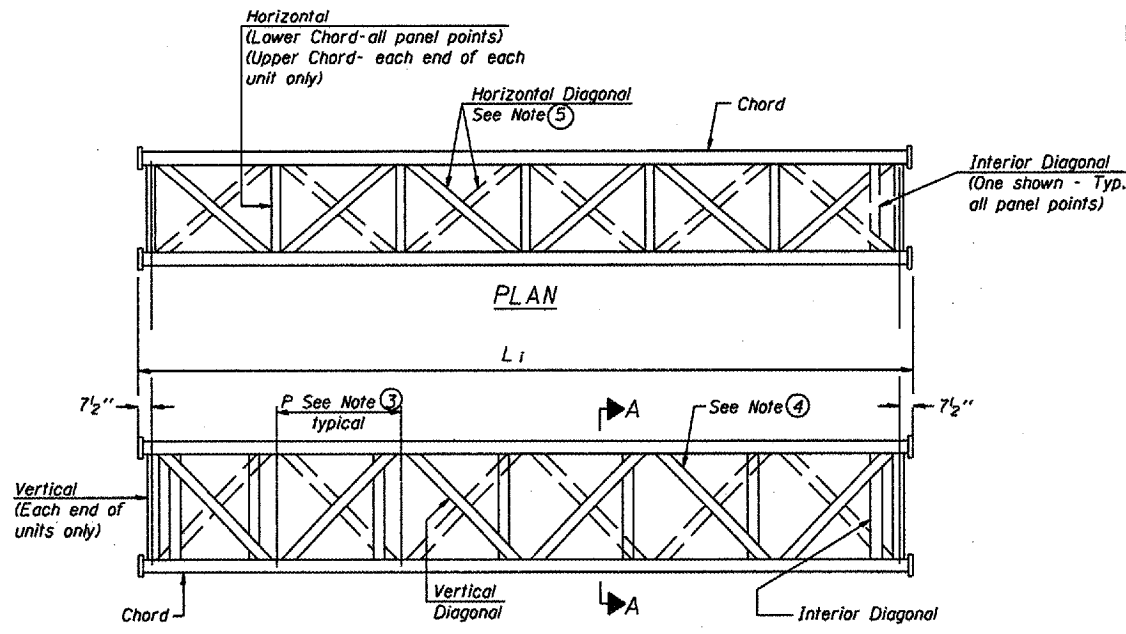
ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE TYPE I-A (4'-0" x 4'-6")	Foot	
OVERHEAD SIGN STRUCTURE TYPE II-A (4'-6" x 5'-3")	Foot	
OVERHEAD SIGN STRUCTURE TYPE III-A (5'-0" x 7'-0")	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	

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

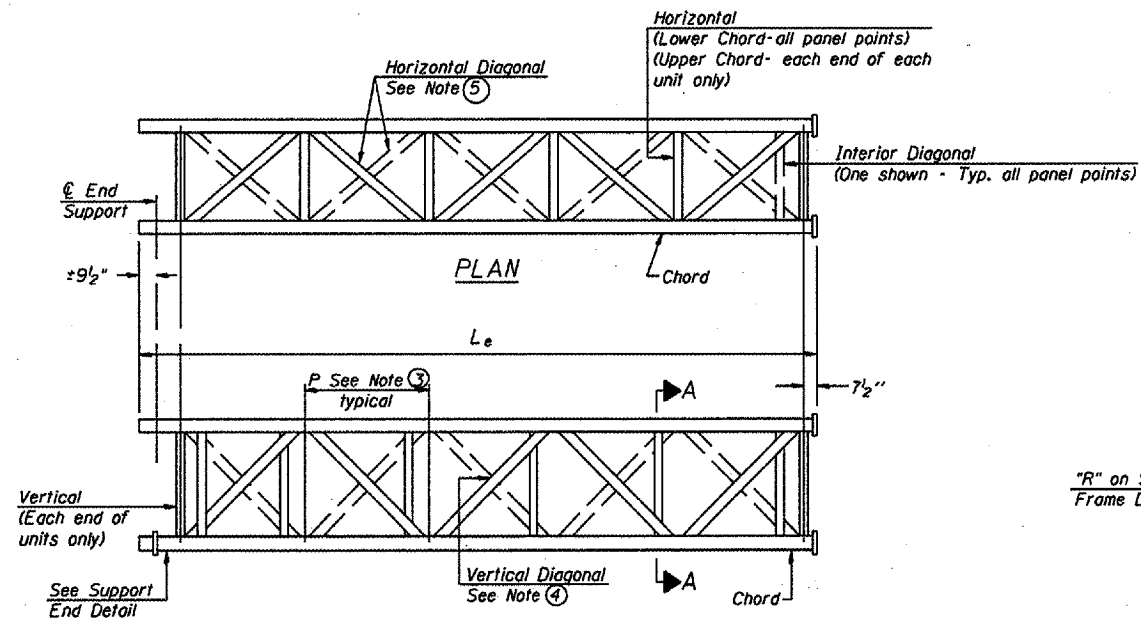
District 3  
Overhead Sign  
Structure Replacement

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

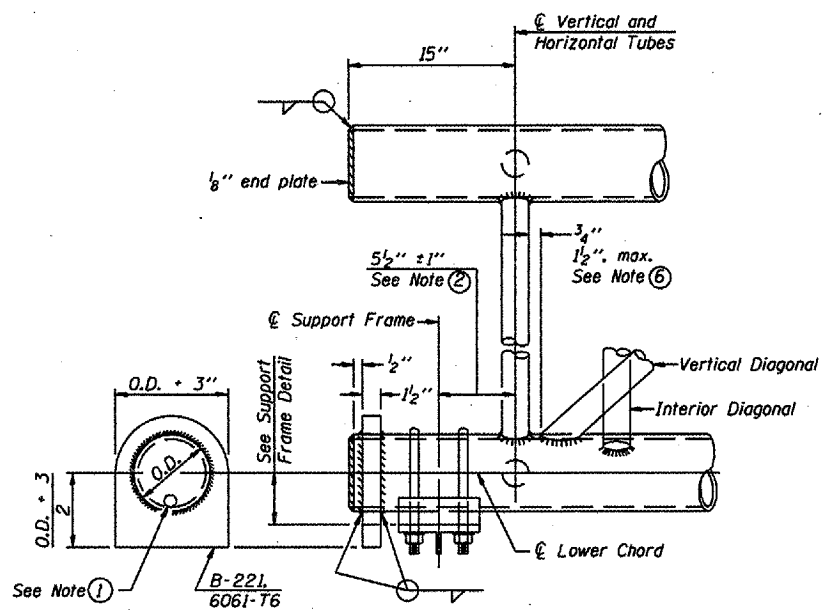
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 34 of 89  
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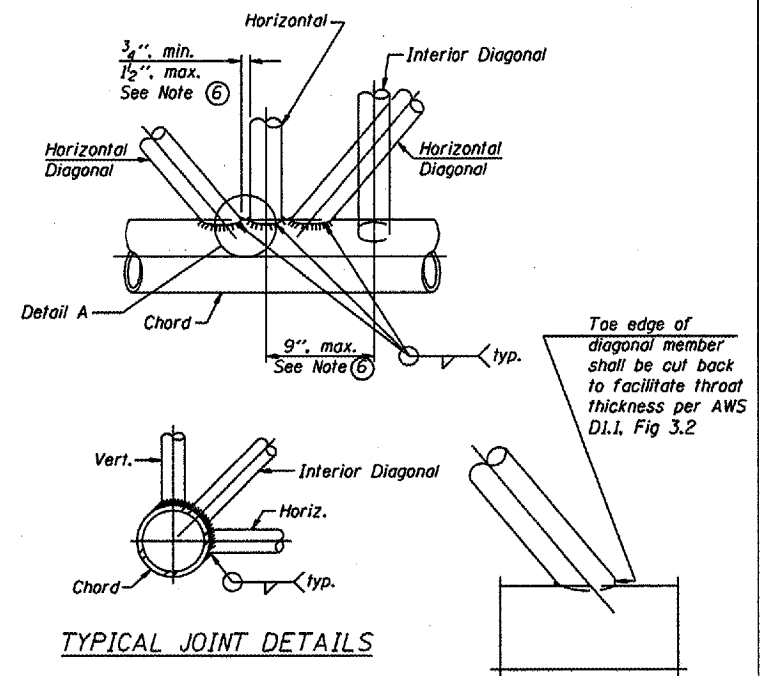
ELEVATION  
TYPICAL INTERIOR UNIT  
Even number of panels/interior unit required.



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



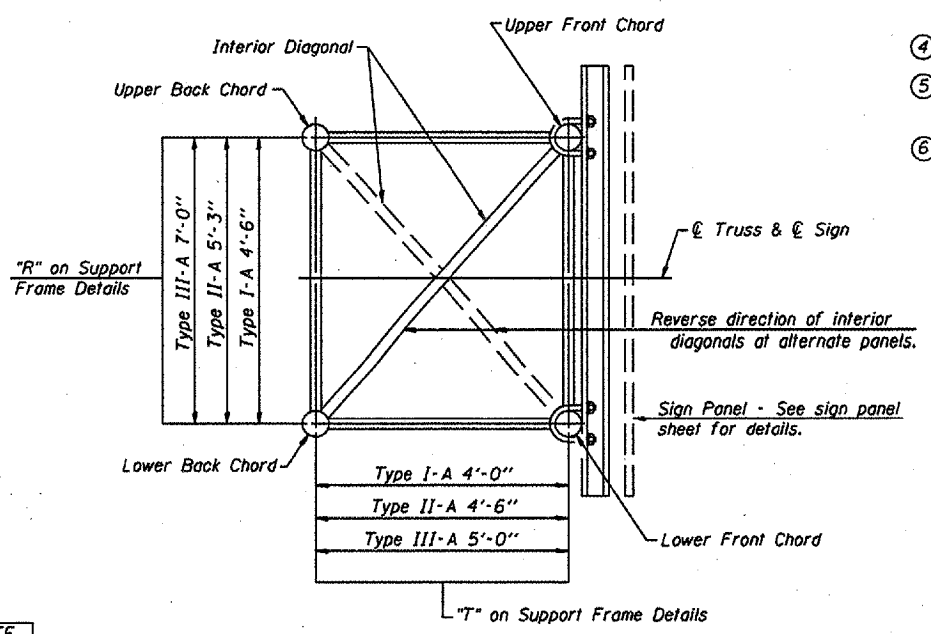
SUPPORT END DETAIL FOR EXTERIOR UNIT



TYPICAL JOINT DETAILS

DETAIL A

- NOTES
- Contractor may alternatively use standard aluminum drive-fit cap to close end. 1/2"  $\phi$  drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
  - 5 1/2" end dimension may vary by  $\pm 1$ " 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

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

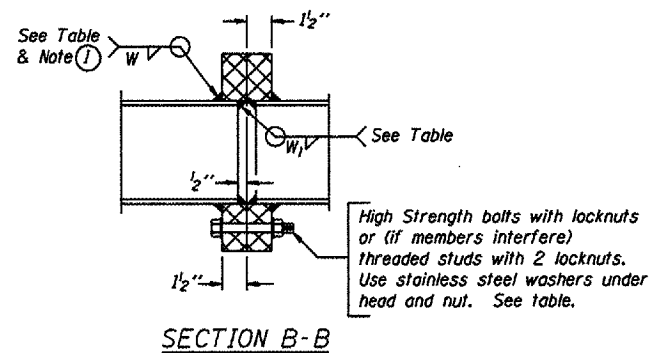
District 3  
Overhead Sign  
Structure Replacement

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

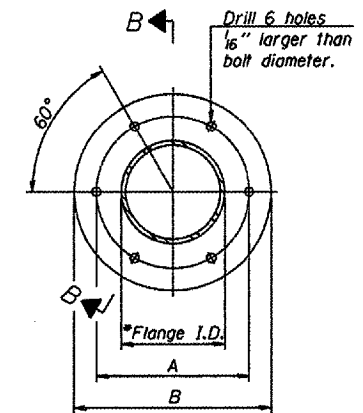
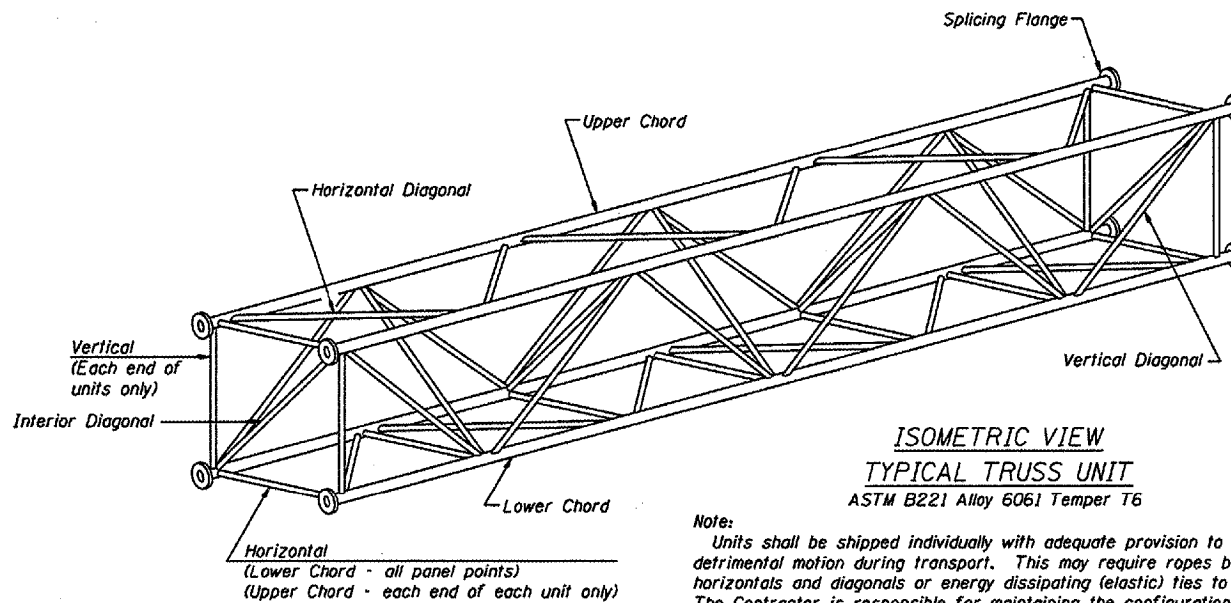
NUMBER	REVISION	DATE

TRUSS UNIT TABLE

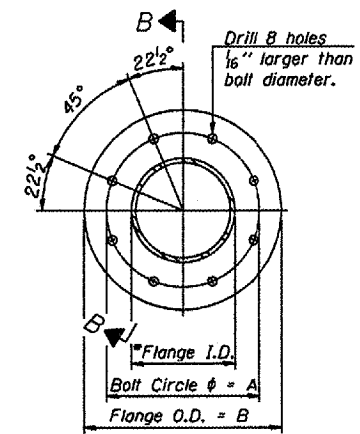
Structure Number	Station	Design Truss Type	Exterior Units (2)			Interior Unit			Upper & Lower Chord		Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals		Camber at Midspan	Splicing Flange							
			No. Panels per Unit	Unit Lgth. (L)	Panel Lgth. (P)	No. Req'd.	No. Panels per Unit	Unit Lgth. (L)	Panel Lgth. (P)	O.D.	Wall	O.D.		Wall	No./Splice	Bolts		Weld Sizes		A	B
																Dia.	W	W <sub>i</sub>			
3S0501039L059.6	1072 + 00	II-A	7	38'-5 3/4"	5'-2 3/4"	1	6	32'-7 1/2"	5'-2 3/4"	6 1/2"	5/16"	3"	5/16"	3 1/2"	6	1"	3/8"	1/4"	11"	14 1/2"	
3S0501039R057.7	975 + 00	II-A	6	31' - 9"	4'-11 3/4"	2	6	31'-1 1/2"	4'-11 3/4"	7"	3/8"	3"	5/16"	4 1/2"	8	1"	7/16"	5/16"	11 1/2"	15"	
3S0501039R057.2	949 + 00	II-A	6	31' - 9"	4'-11 3/4"	2	6	31'-1 1/2"	4'-11 3/4"	7"	3/8"	3"	5/16"	4 1/2"	8	1"	7/16"	5/16"	11 1/2"	15"	
3S0501039R058.3	1002 + 96	II-A	6	31' - 9"	4'-11 3/4"	2	6	31'-1 1/2"	4'-11 3/4"	7"	3/8"	3"	5/16"	4 1/2"	8	1"	7/16"	5/16"	11 1/2"	15"	
3S0501039L060.3	1106 + 75	II-A	7	38'-5 3/4"	5'-2 3/4"	1	6	32'-7 1/2"	5'-2 3/4"	6 1/2"	5/16"	3"	5/16"	3 1/2"	6	1"	3/8"	1/4"	11"	14 1/2"	



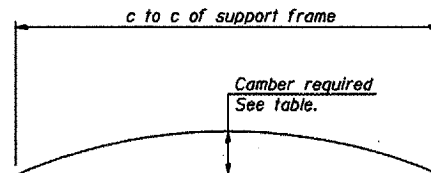
① Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining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



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

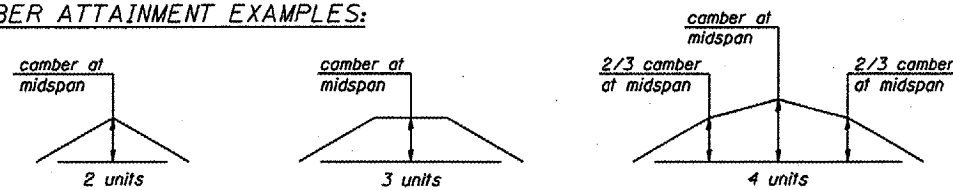


TRUSS TYPES II-A & III-A  
SPlicing FLANGES  
ASTM B221, Alloy 6061-T6  
or ASTM B209, Alloy 6061-T651  
\*To fit O.D. of Chord with maximum gap of 1/16".



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

CAMBER ATTAINMENT EXAMPLES:



Camber shown is for fabrication only, measured with truss fully supported. (No-load condition)

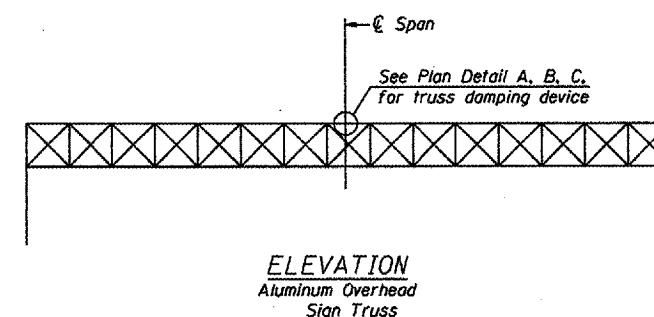
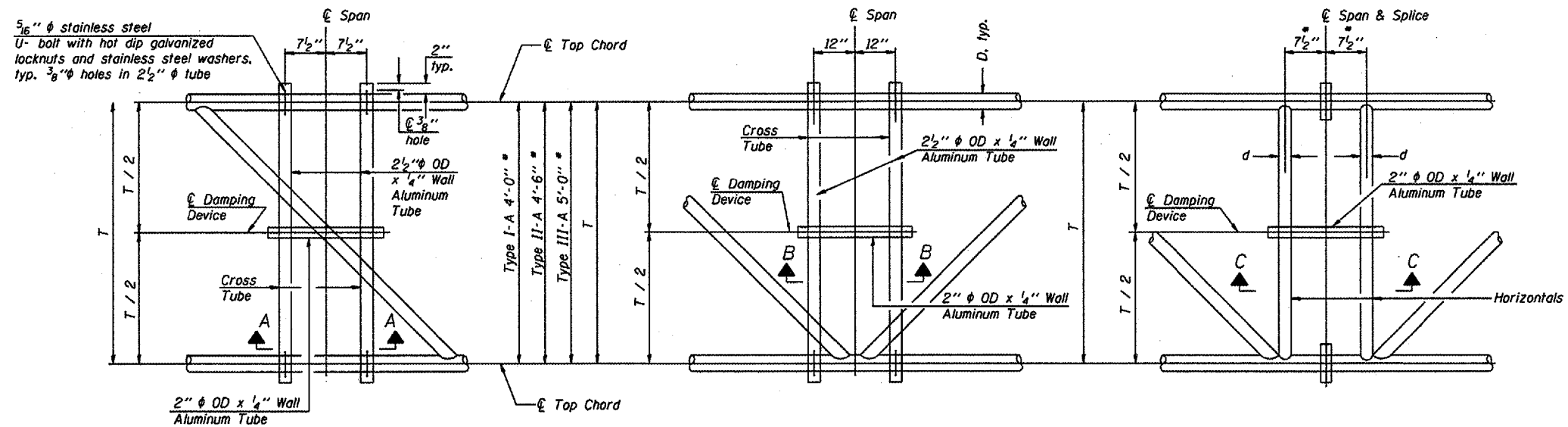
NUMBER	REVISION	DATE

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
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PLAN DETAIL "A"  
 $\phi$  Span between Panel Points

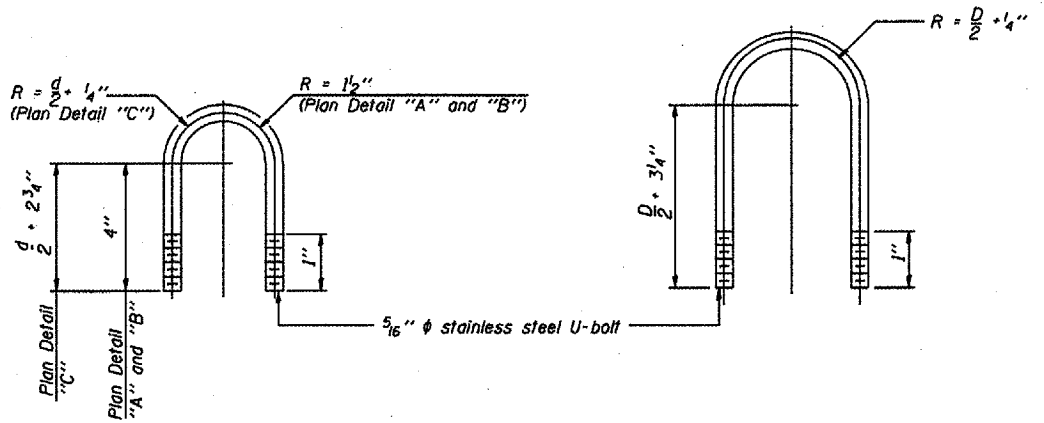
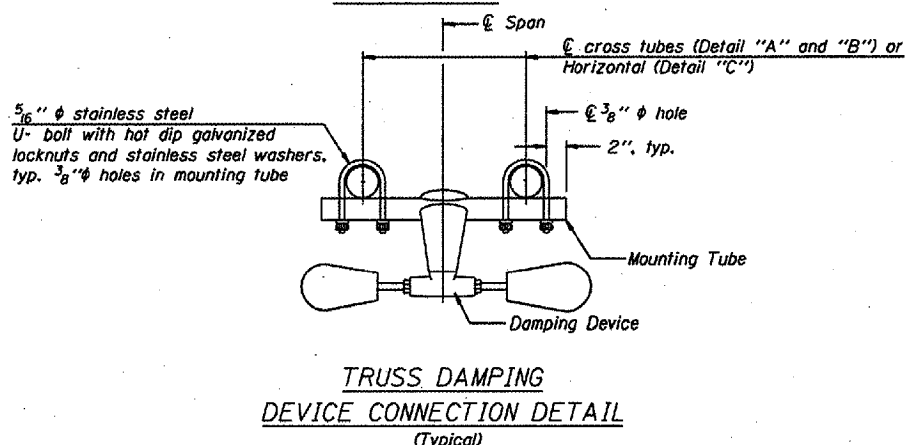
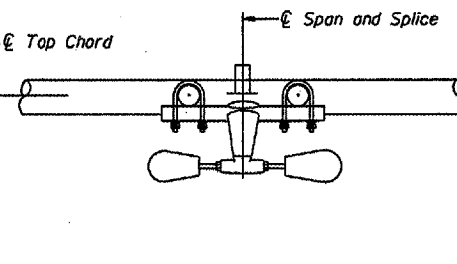
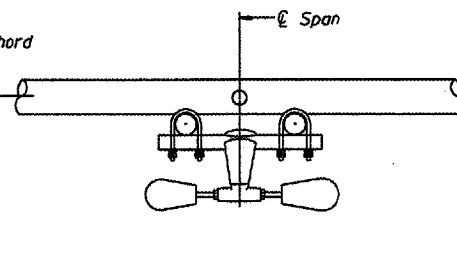
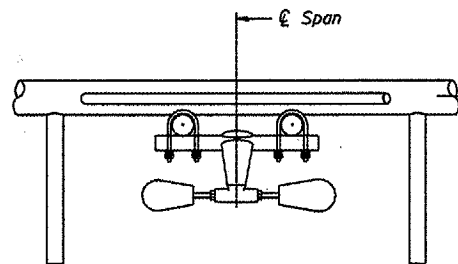
PLAN DETAIL "B"  
 $\phi$  Span at Panel Point

PLAN DETAIL "C"  
 $\phi$  Span at  $\phi$  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...



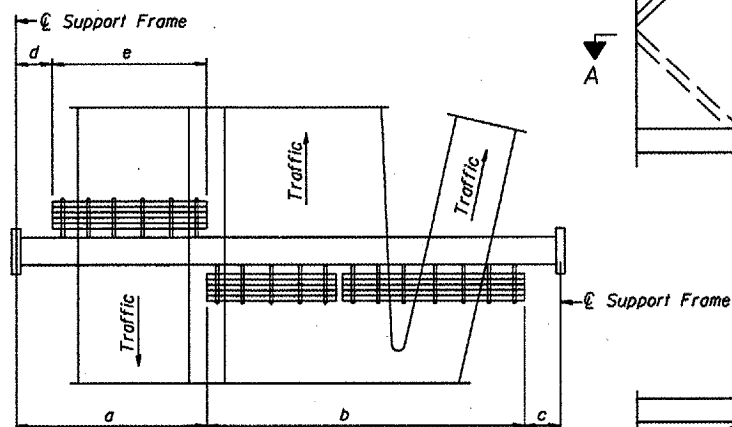
OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE

District 3  
Overhead Sign  
Structure Replacement

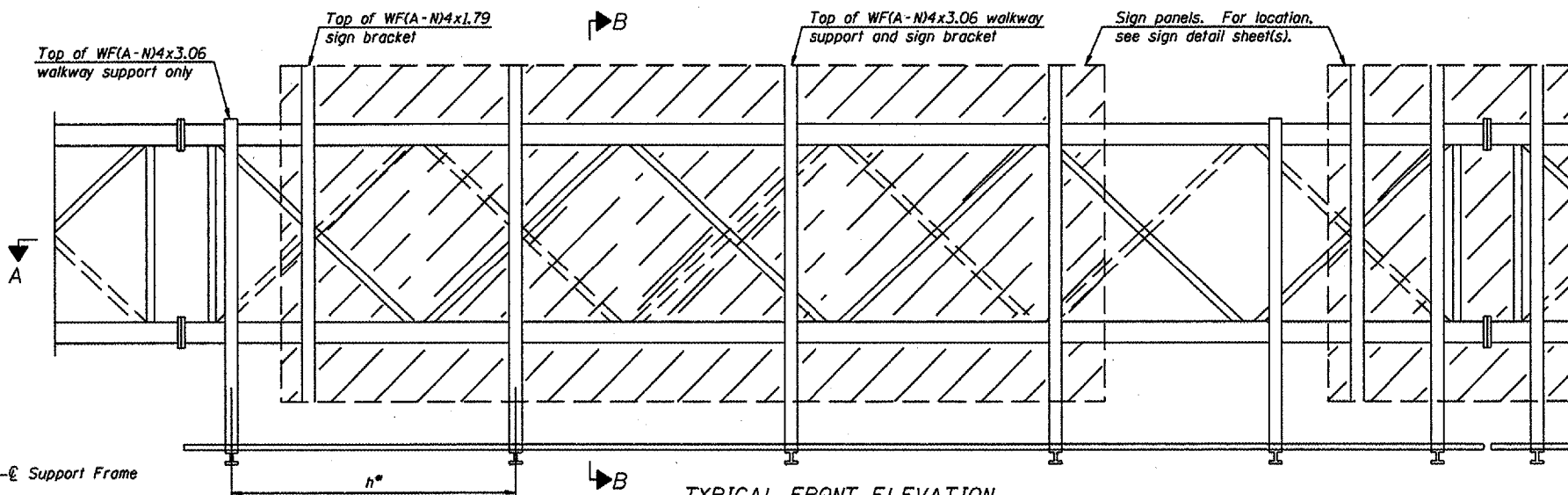
DESIGNED	20
CHECKED	EXAMINED ENGINEER OF BRIDGE DESIGN
DRAWN	PASSED ENGINEER OF BRIDGES AND STRUCTURES
CHECKED	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

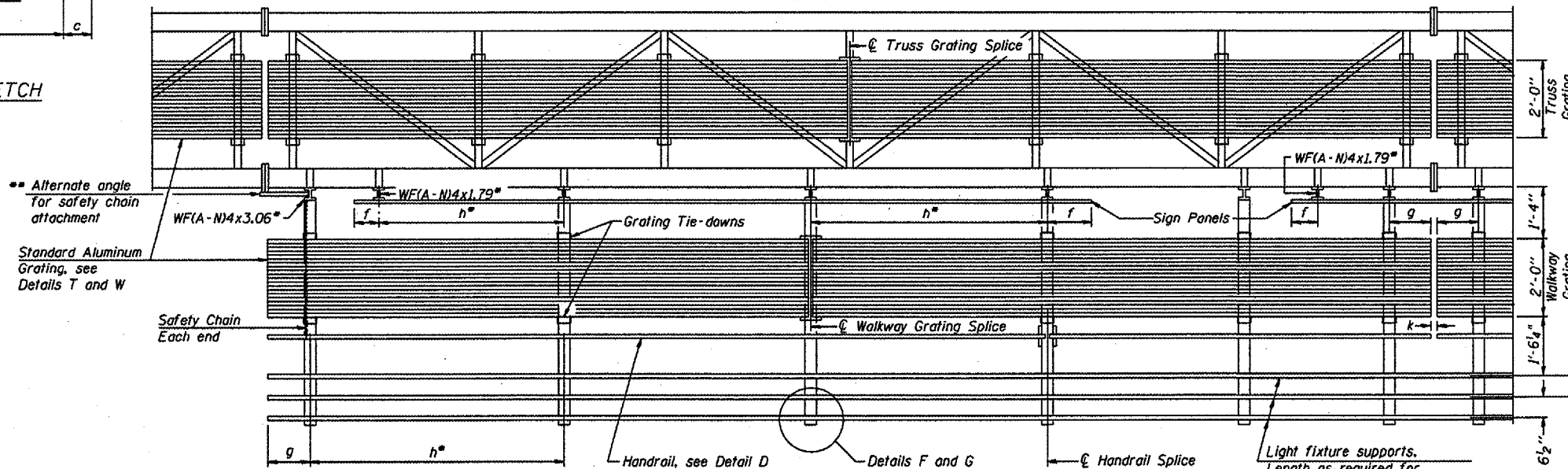
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
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PLAN  
WALKWAY AND HANDRAIL SKETCH  
(Road plan beneath truss varies)



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



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

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"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	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  $\text{\O}$  of nearest bracket)  
g = 12" maximum, 4" minimum (End of walkway grating to  $\text{\O}$  of nearest support bracket)  
h = 6'-0" maximum ( $\text{\O}$  to  $\text{\O}$  sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)  
k = 2" maximum gap between adjacent walkway grating 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 Details D, F, G and P and Handrail Splice Details, see Base Sheet OS-A-11.

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. Grating, handrail and light support splices placed as needed.

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

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
3S050I039L059.6	1072 + 00	N/A	N/A	N/A	N/A	N/A	109' - 7" *
3S050I039R057.7	975 + 00	N/A	N/A	N/A	N/A	N/A	125' - 9" *
3S050I039R057.2	949 + 00	N/A	N/A	N/A	N/A	N/A	125' - 9" *
3S050I039R058.3	1002 + 96	N/A	N/A	N/A	N/A	N/A	125' - 9" *
3S050I039L060.3	1106 + 75	N/A	N/A	N/A	N/A	N/A	109' - 7" *

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

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

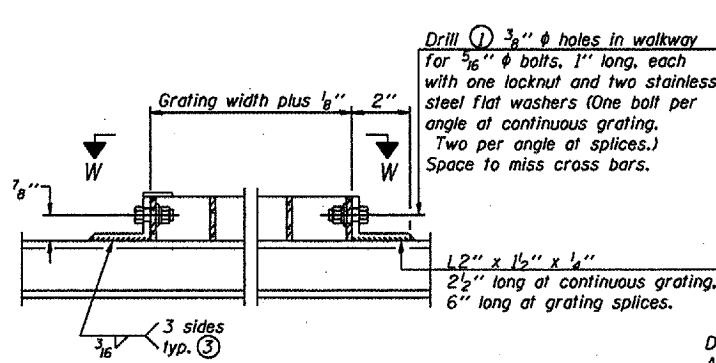
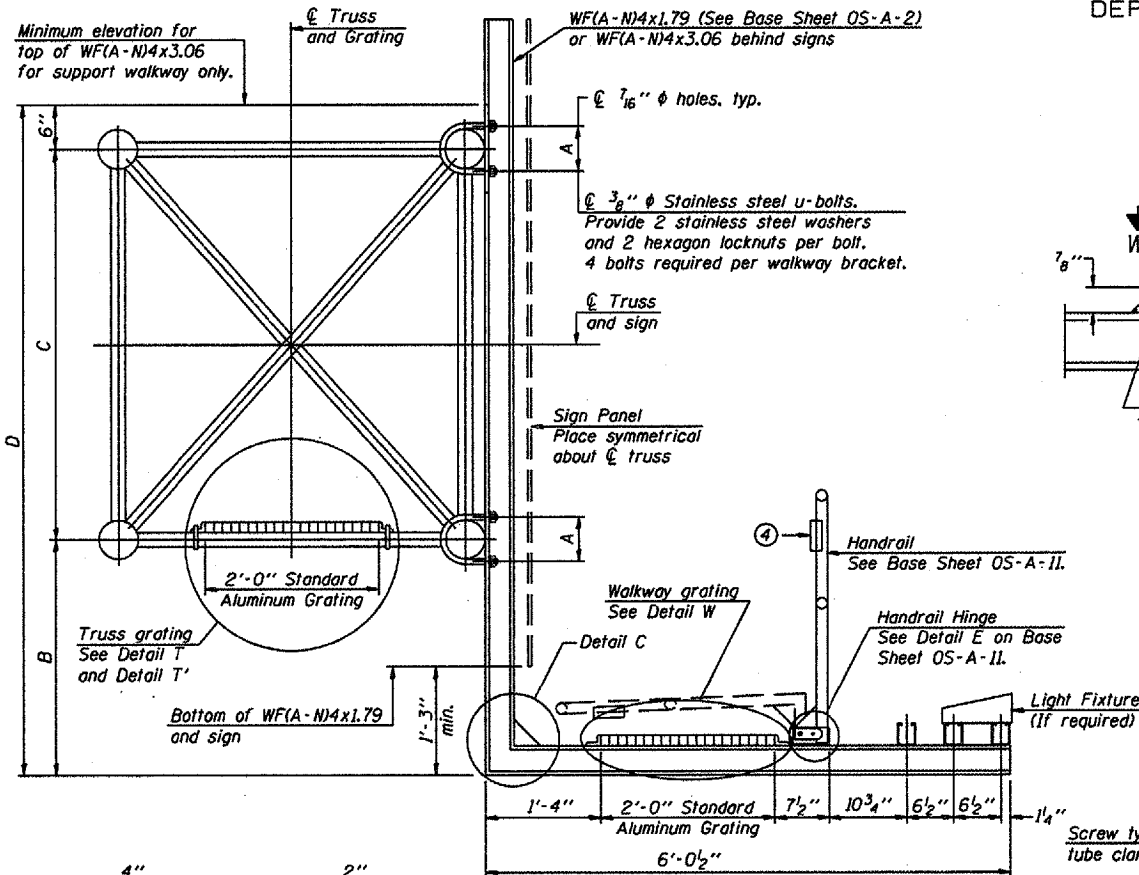
District 3  
Overhead Sign  
Structure Replacement

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

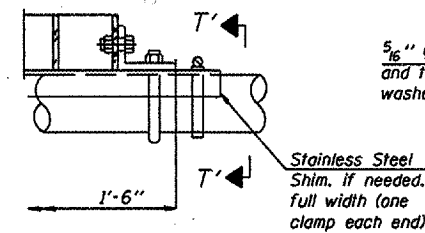
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

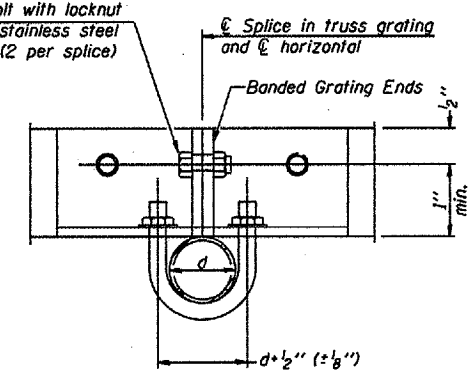
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 38 of 89  
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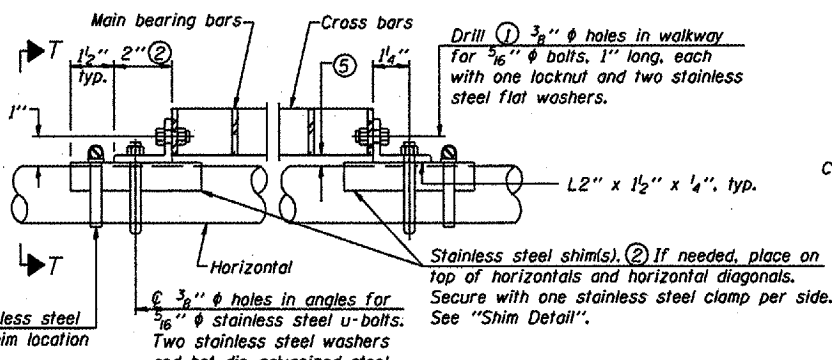
DETAIL W  
(Walkway grating)



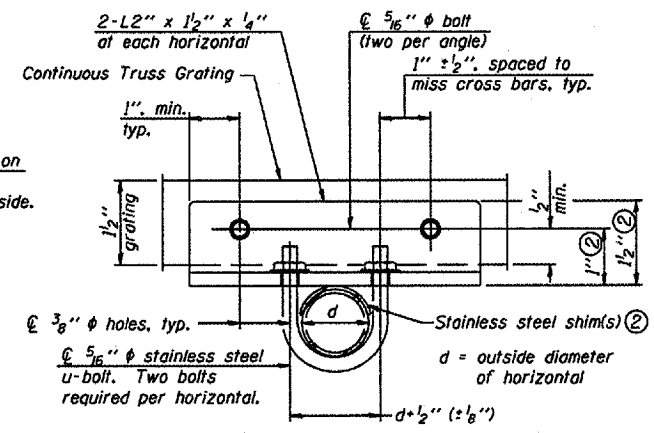
DETAIL T'  
(Truss grating splice)  
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.



SECTION T'-T'



DETAIL T  
(Continuous Truss grating)



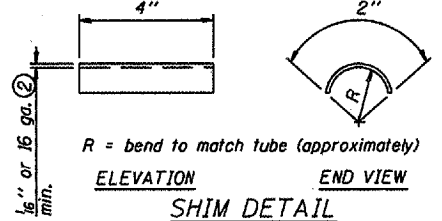
SECTION T-T

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

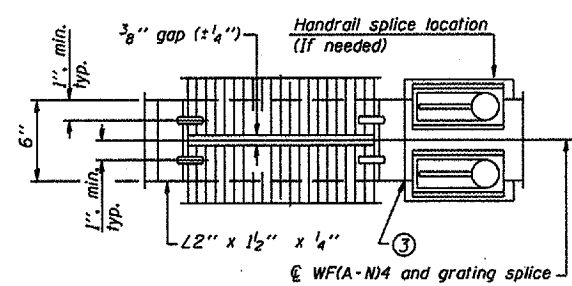
Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/8" centers and conform to ASTM B221 Alloy 6061-T6.  
Cross bars shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

Aluminum Grating with modified "I" 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 1/2", spaced on 1 3/8" centers.  
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.

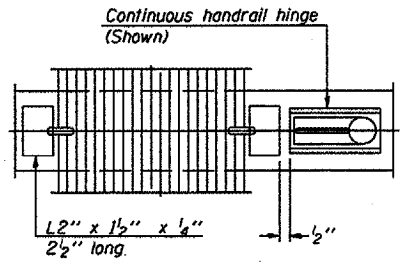
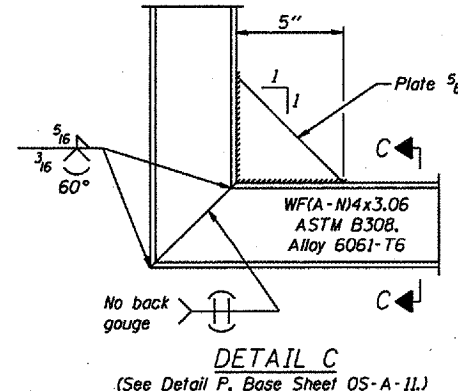


SECTION B-B



(AT WALKWAY GRATING SPLICE)

SECTION C-C



SECTION W-W

- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- 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.
- If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OS-A-11.)
- 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.

Structure Number	Station	A	B	C	D

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

District 3  
Overhead Sign  
Structure Replacement

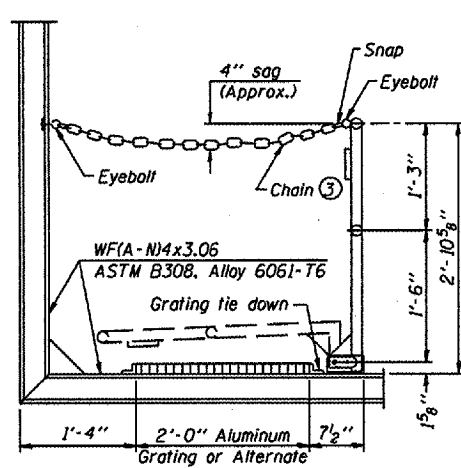
Existing Walkway and Walkway Support Brackets to be Reused.

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

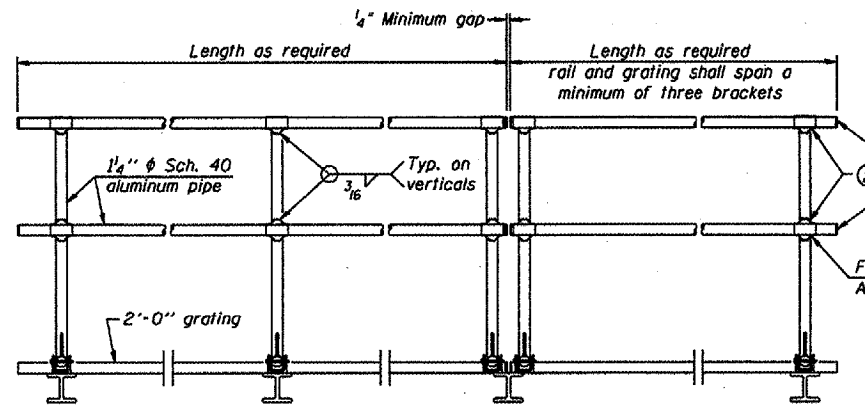
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 39 of 39  
Contract Number 44904



**SIDE ELEVATION**  
(Showing safety chain w/o sign)

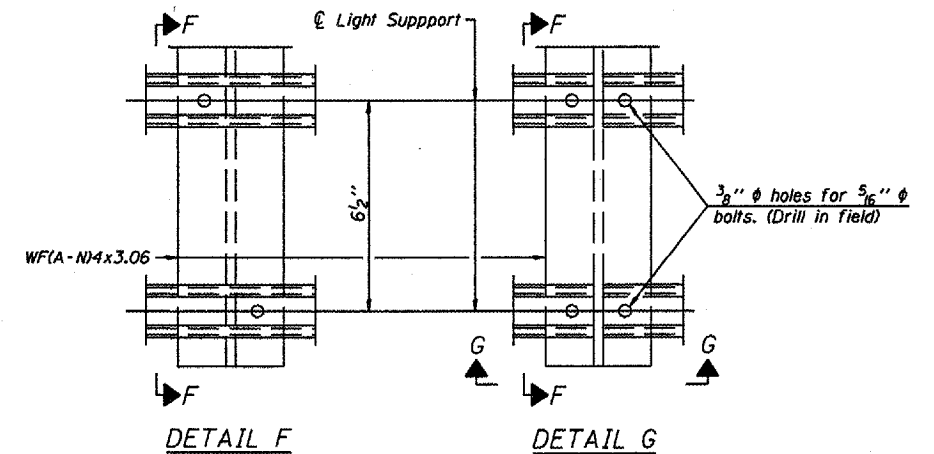


**FRONT ELEVATION**

**HANDRAIL DETAILS**

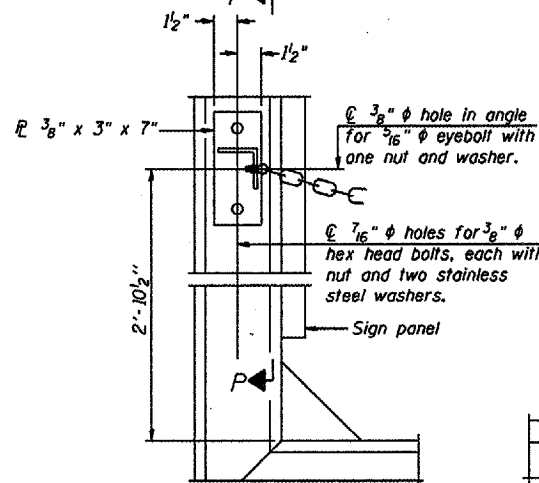
Handrail pipe shall be ASTM B241, Alloy 6063-T6 or Alloy 6061-T6.

- ① Install standard force-fit end caps or weld 1/2" end plates with 1/2" 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.)



**DETAIL F**

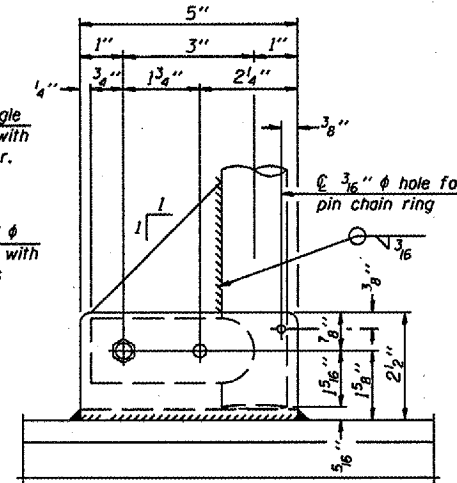
**DETAIL G**



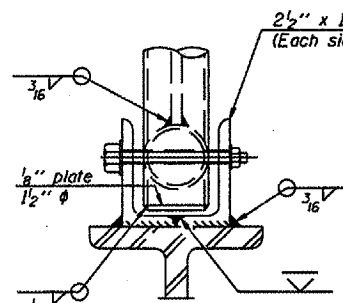
**ALTERNATE SAFETY CHAIN ATTACHMENT**

(With Sign Present)

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

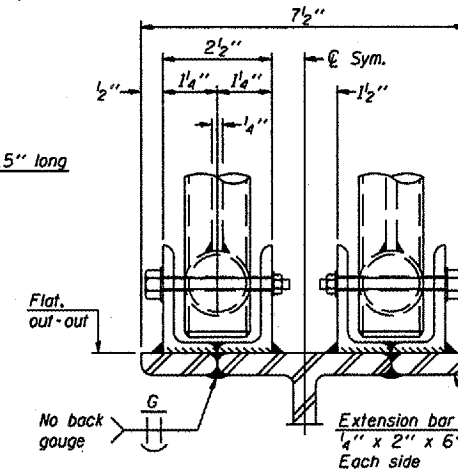


**SIDE ELEVATION**

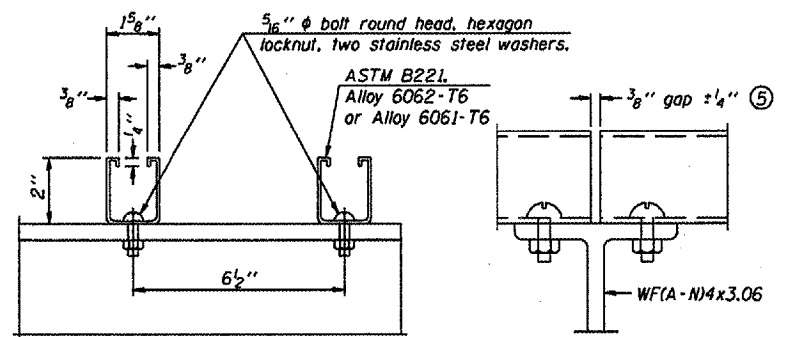


**FRONT ELEVATION**

See "Elevation" at right for dimensions.



**ELEVATION AT HANDRAIL JOINT**

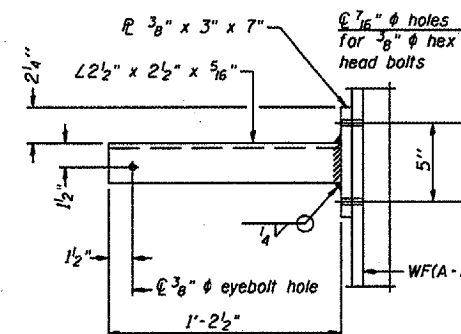


**SECTION F-F**

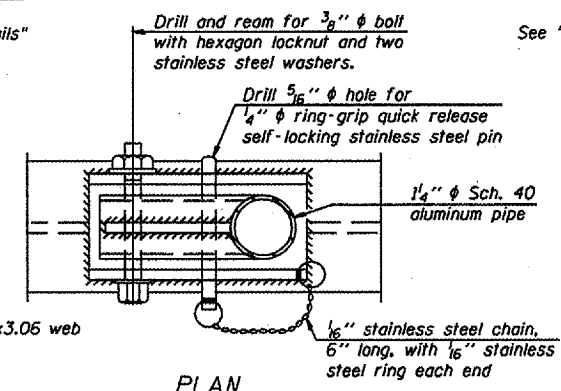
**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

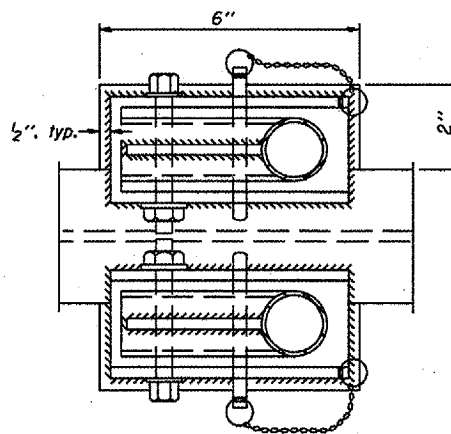
- ⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



**SECTION P-P**

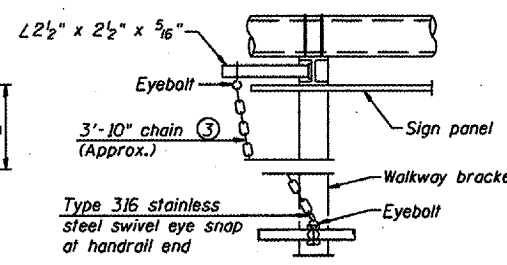


**DETAIL E HANDRAIL HINGE**



**PLAN AT HANDRAIL JOINT**

Details not shown same as "PLAN"

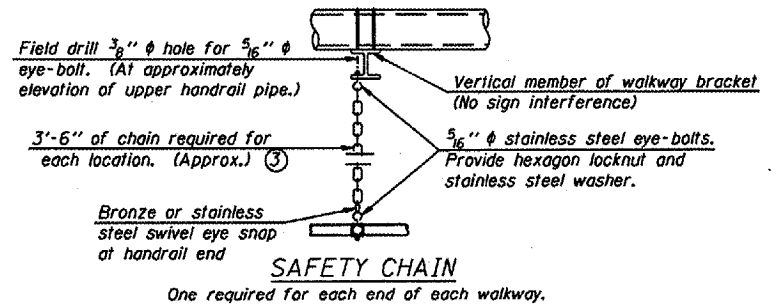


**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

- ③ 3/16" Type 304L or 316L 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**

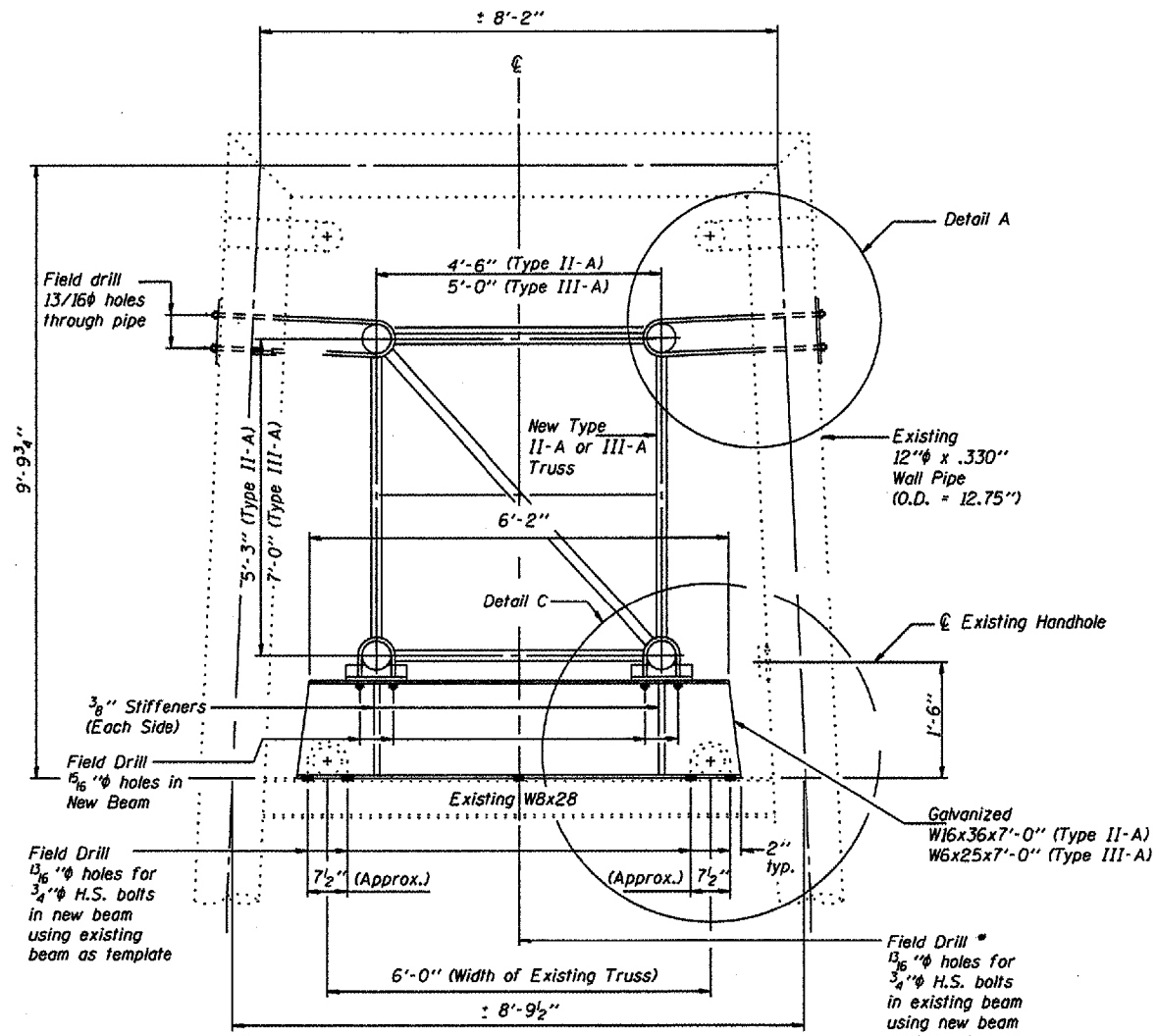
One required for each end of each walkway.

**OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS**

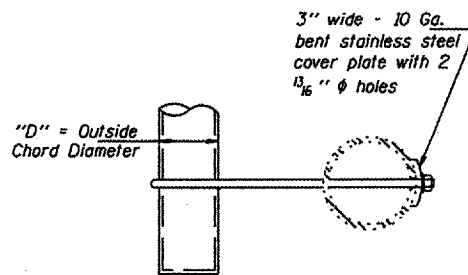
District 3  
Overhead Sign  
Structure Replacement

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

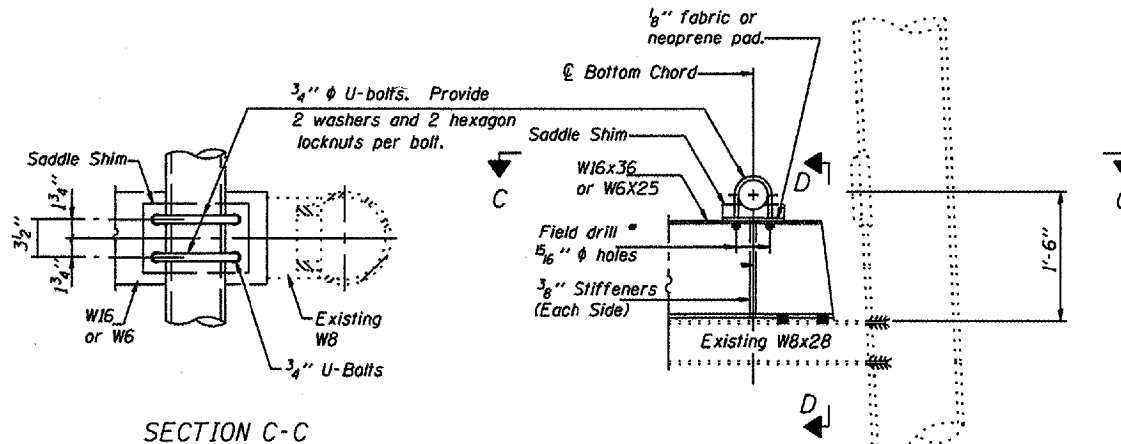
NUMBER	REVISION	DATE



SIDE VIEW

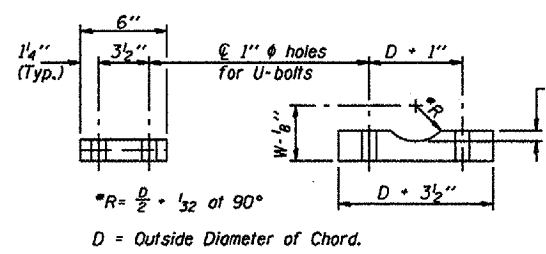


SECTION B-B



SECTION C-C

DETAIL C

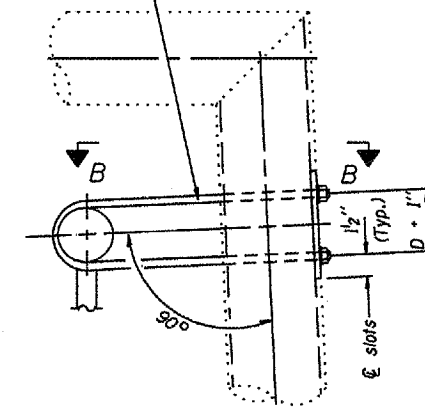


SADDLE SHIM DETAIL

ASTM B26 Alloy 356-F  
or  
ASTM B209 Alloy 6061-T6S1  
(4 required per sign truss)

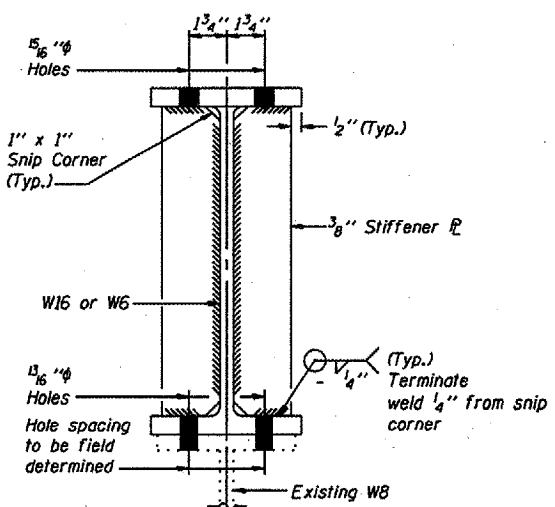
Truss Chord Nominal Dia.	a	W
5 1/2"	13/16"	4 3/4"
6"	7/8"	4 3/4"
6 1/2"	5/8"	4 3/4"
7"	1"	4 3/4"
8 1/2"	1 1/4"	5 1/2"
9"	1 3/8"	5 3/4"

3/4" stainless steel U-bolt. Provide two washers and two hexagon locknuts. Field drill 1/8" holes through pipe. (4 holes required per pipe)



DETAIL A

This detail applies to the following overhead sign structures that are being downsized:  
1. 3S0501039R059.9  
2. 3S0501039R057.7  
3. 3S0501039R057.2  
4. 3S0501039R058.3  
5. 3S0501039L060.3



SECTION D-D

OVERHEAD SIGN STRUCTURES  
EXISTING SUPPORT FRAME  
RETROFIT for ALUMINUM TRUSS

District 3  
Overhead Sign  
Structure Replacement

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



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 41 of 89  
Contract Number 44904

*District 4*  
*Schedule of Locations for Truss Repair & Replacement*

Location No.:	4-01	State I.D. No.:	4S090I474R012.7		
County:	Tazewell	Route:	I-474	M.P.:	12.7
		Direction:	EB		
Description of Work	Unit	Quantity			
REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00			
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00			
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00			
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	10.00			
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00			
PAINT OVERHEAD SIGN SUPPORT	EACH	2.00			
REPLACE / TIGHTEN CLIP PER SIGN	EACH	1.00			
FURNISH & INSTALL WALKWAY TIE DOWN BOLT	EACH	1.00			
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	21.50			
RELOCATE ELECTRIC SERVICE	EACH	1.00			
OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	68.00			
REMOVE & RE-ERECT OVERHEAD SIGN END SUPPORT	EACH	2.00			
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00			

Location No.:	4-05	State I.D. No.:	4S090I474R012.2		
County:	Tazewell	Route:	I-474	M.P.:	12.2
		Direction:	EB		
Description of Work	Unit	Quantity			
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00			
REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE	EACH	2.00			
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	9.00			
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00			
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00			
FURNISH & INSTALL INTERNAL TRUSS CLAMP	EACH	1.00			
PAINT OVERHEAD SIGN SUPPORT	EACH	2.00			
REPLACE U-BOLT	EACH	12.00			

Location No.:	4-02	State I.D. No.:	4C072I474L003.41		
County:	Peoria	Route:	I-474	M.P.:	3.41
		Direction:	WB		
Description of Work	Unit	Quantity			
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	1.00			
REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE	EACH	1.00			
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00			
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	4.00			
PAINT OVERHEAD SIGN SUPPORT	EACH	1.00			
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00			

Location No.:	4-03	State I.D. No.:	4C090S116L005.9		
County:	Tazewell	Route:	IL 116	M.P.:	5.9
		Direction:	WB		
Description of Work	Unit	Quantity			
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	1.00			
TIGHTEN CANTILEVER CONNECTION	EACH	2.00			
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	5.00			
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00			
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00			

Location No.:	4-04	State I.D. No.:	4C072U024R022.76		
County:	Peoria	Route:	US - 24	M.P.:	22.76
		Direction:	EB		
Description of Work	Unit	Quantity			
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	1.00			
TIGHTEN CANTILEVER CONNECTION	EACH	2.00			
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	5.00			
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00			
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00			

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 42 of 89  
Contract Number 44904

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.

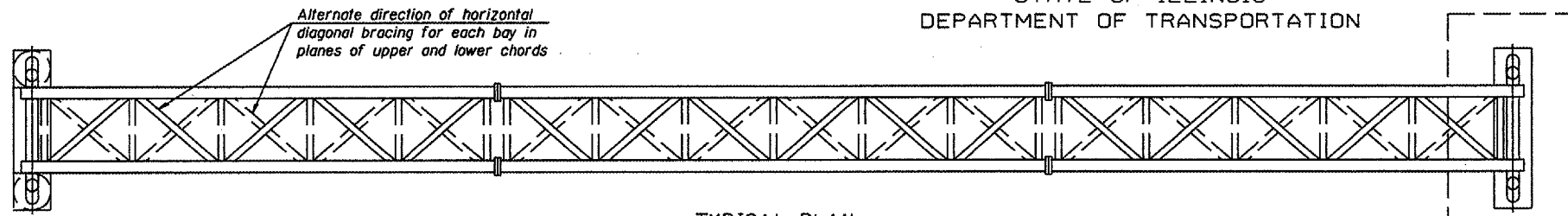
CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Bridge Seal Sealer in accordance with the Standard Specifications.

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

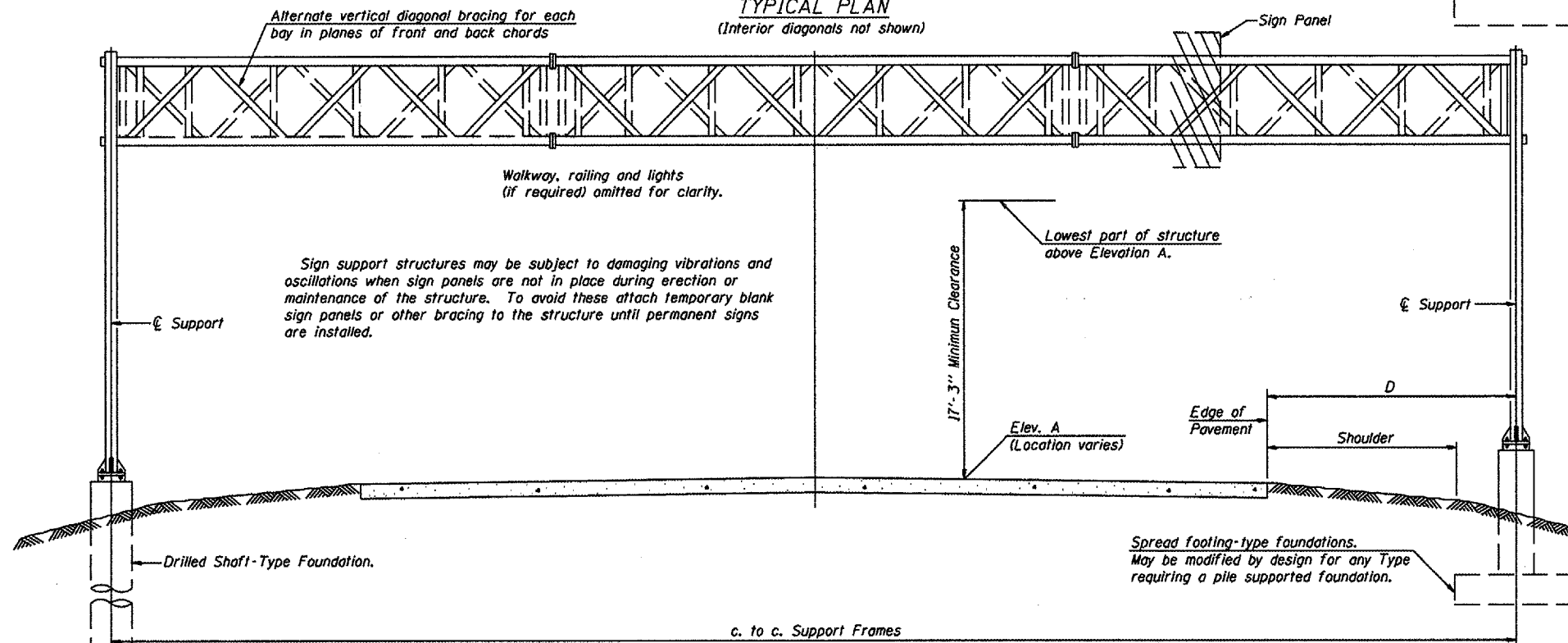
\* If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding.

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

District 4  
Overhead Sign Structure  
Repair and Replacement



TYPICAL PLAN  
(Interior diagonals not shown)



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

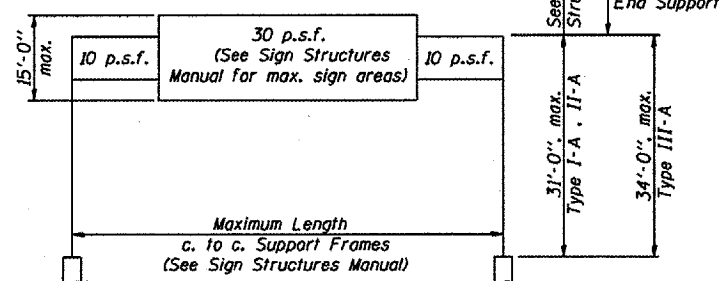
\*\*Looking upstation for structures with signs both sides.

This Sheet For Information Only

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE TYPE I-A (4'-0" x 4'-6")	Foot	
OVERHEAD SIGN STRUCTURE TYPE II-A (4'-6" x 5'-3")	Foot	
OVERHEAD SIGN STRUCTURE TYPE III-A (5'-0" x 7'-0")	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	

NUMBER	REVISION	DATE



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.

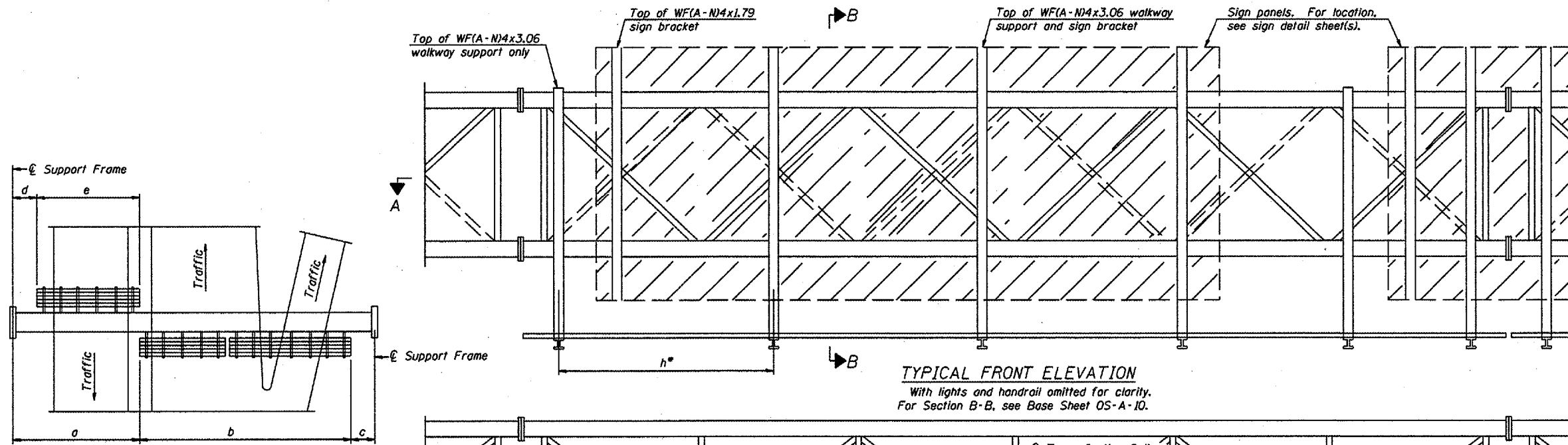
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OS-A-1

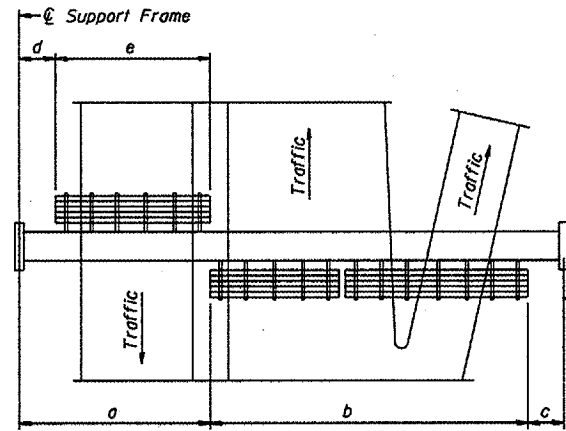
1-7-05

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

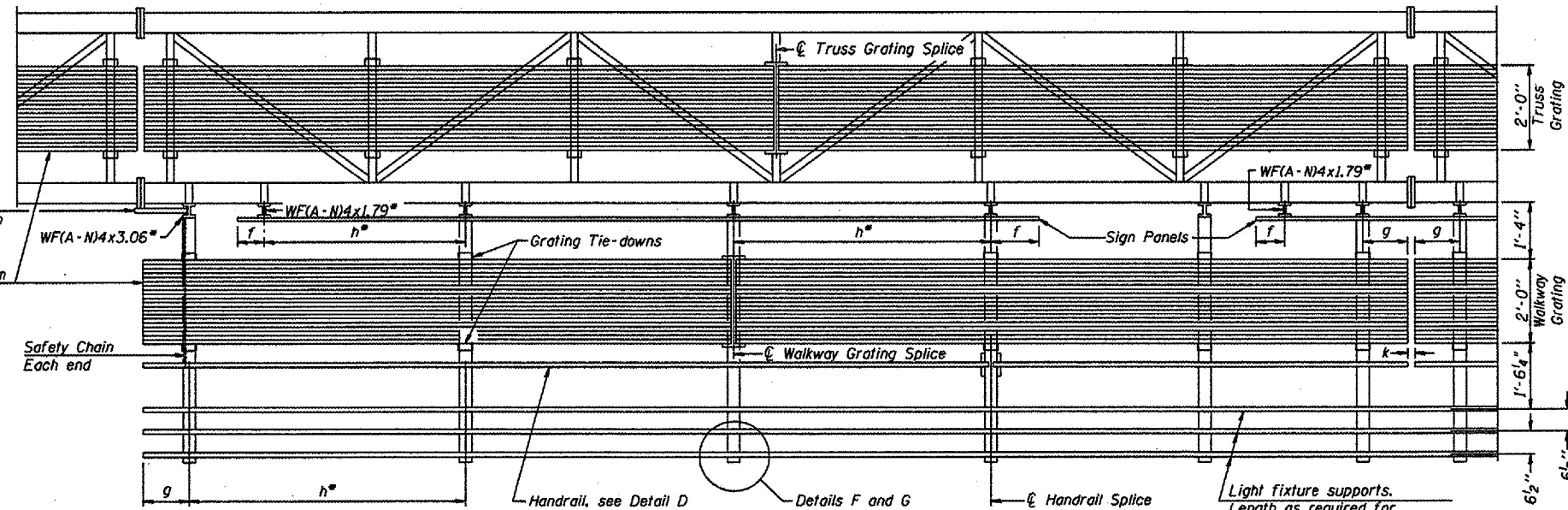
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
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TYPICAL FRONT ELEVATION  
With lights and handrail omitted for clarity.  
For Section B-B, see Base Sheet OS-A-10.



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



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"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

WF(A-N)4x1.79 or WF(A-N)4x3.06  
ASTM B308, Alloy 6061-T6

\*\* Alternate angle for safety chain attachment

Standard Aluminum Grating, see Details T and W

Safety Chain Each end

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 of sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)
- k = 2" maximum gap between adjacent walkway grating 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 Details D, F, G and P and Handrail Splice Details, see Base Sheet OS-A-11.

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. Grating, handrail 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".

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
4S0901474R012.7	304 + 50	N/A	N/A	N/A	N/A	N/A	68' - 0" *

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

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

District 4  
Overhead Sign Structure  
Repair and Replacement

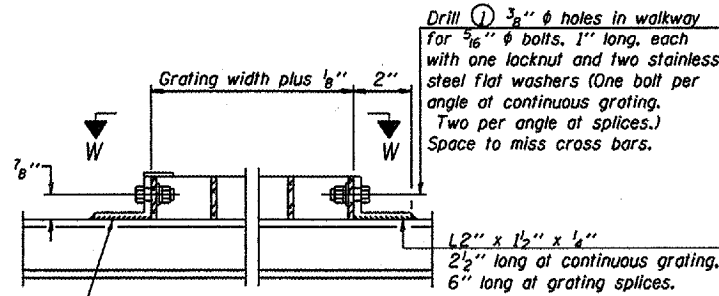
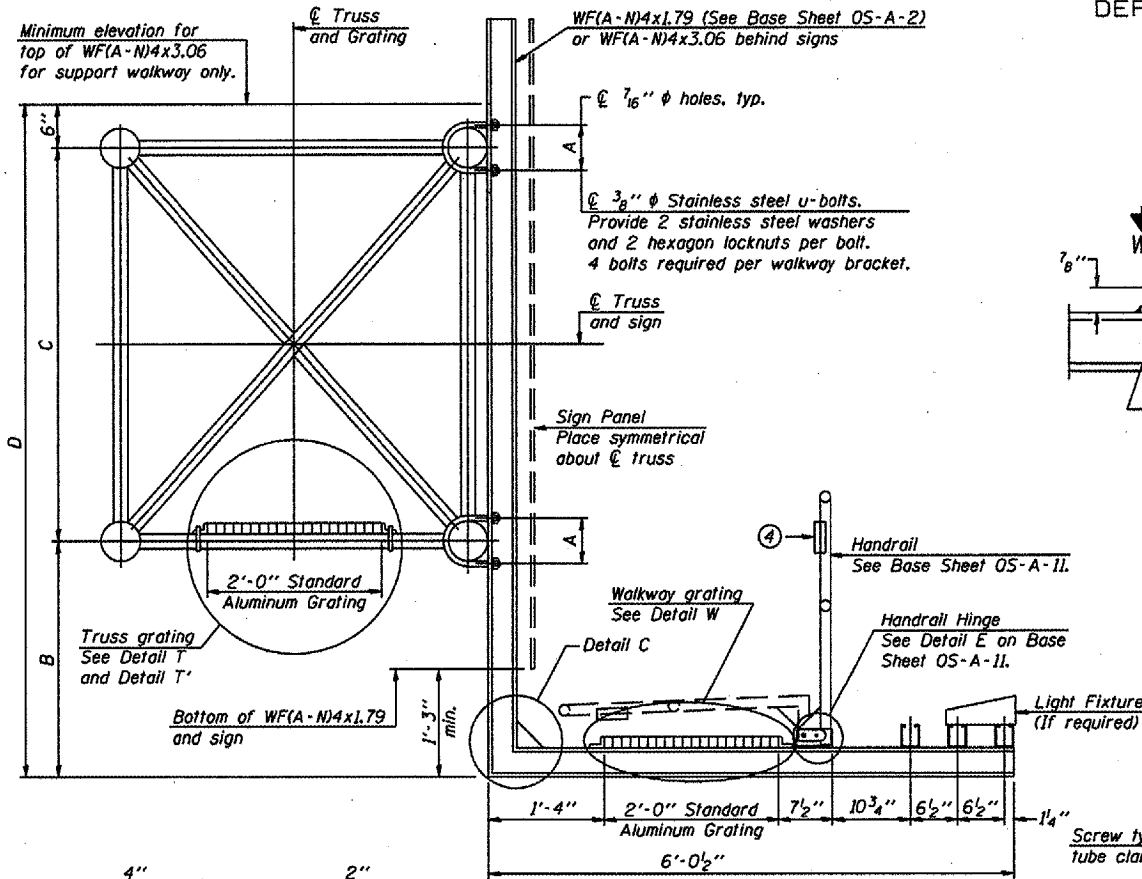
DESIGNED	
CHECKED	
DRAWN	
CHECKED	

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

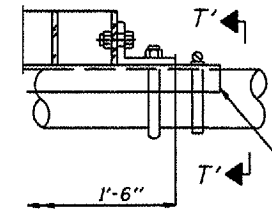
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

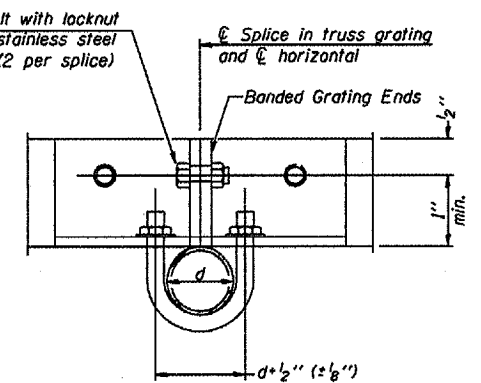
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
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Contract Number 44904



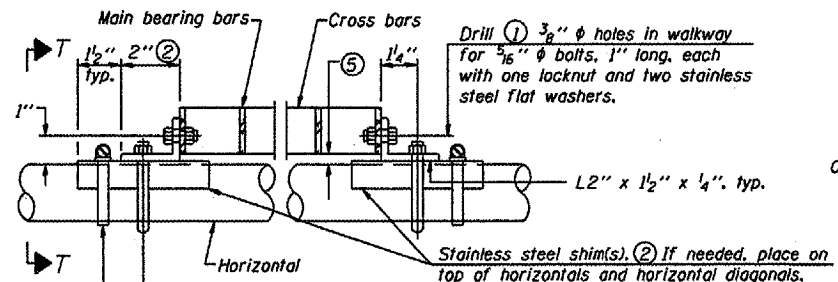
DETAIL W  
(Walkway grating)



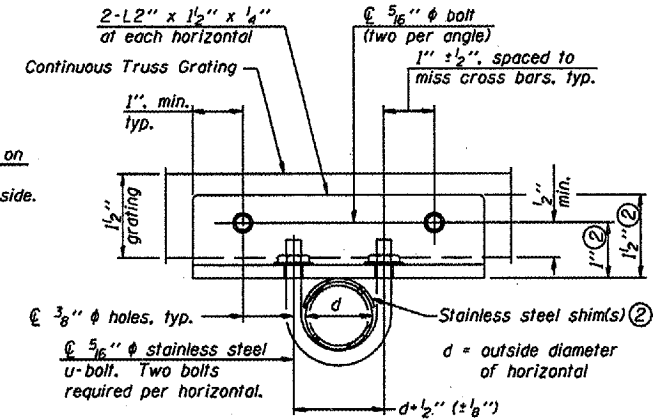
DETAIL T'  
(Truss grating splice)  
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.



SECTION T'-T'



DETAIL T  
(Continuous Truss grating)



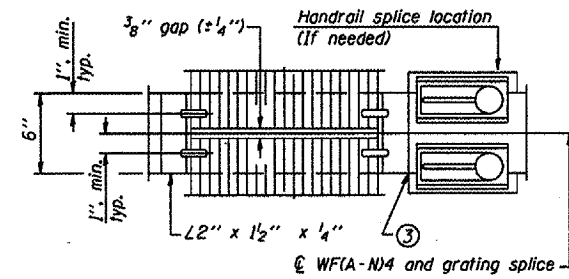
SECTION T-T

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

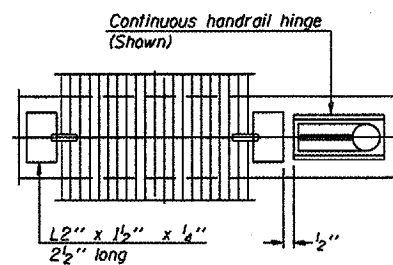
Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B221 Alloy 6061-T6.  
Cross bars shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

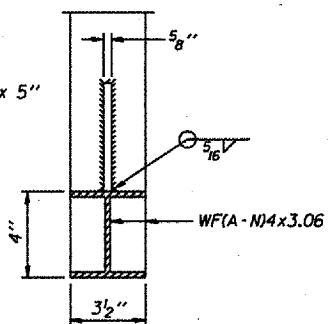
Aluminum Grating with modified "T" sections for main bearing bars shall meet the following requirements:  
Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.<sup>3</sup> per bar, a depth of 1 1/2", spaced on 1 3/16" centers.  
Cross bars shall conform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



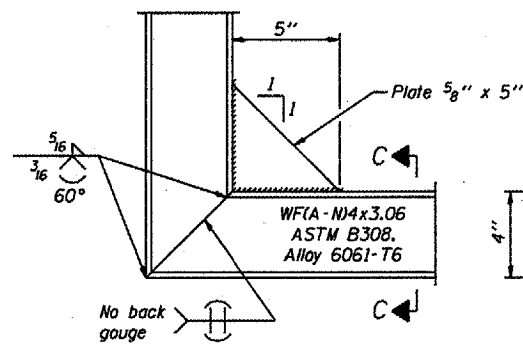
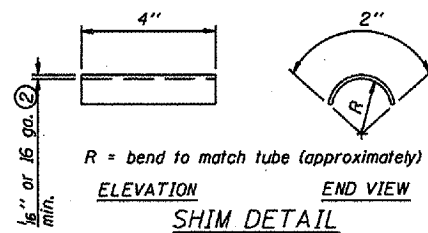
(AT WALKWAY GRATING SPLICE)



SECTION W-W



SECTION C-C



DETAIL C

(See Detail P, Base Sheet OS-A-11.)

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

OS-A-10

1-7-05

NUMBER	REVISION	DATE

Structure Number	Station	A	B	C	D

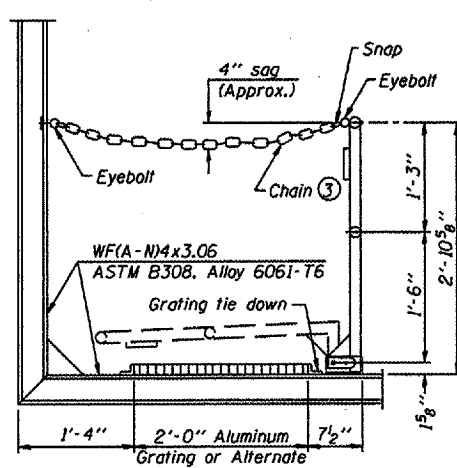
Existing Walkway and Walkway Support Brackets to be Reused.

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

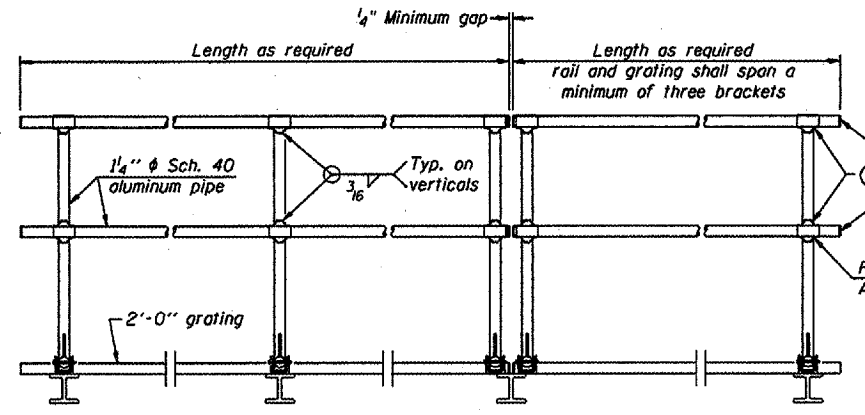
District 4  
Overhead Sign Structure  
Repair and Replacement

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 45 of 89  
Contract Number 44904



**SIDE ELEVATION**  
*(Showing safety chain w/o sign)*

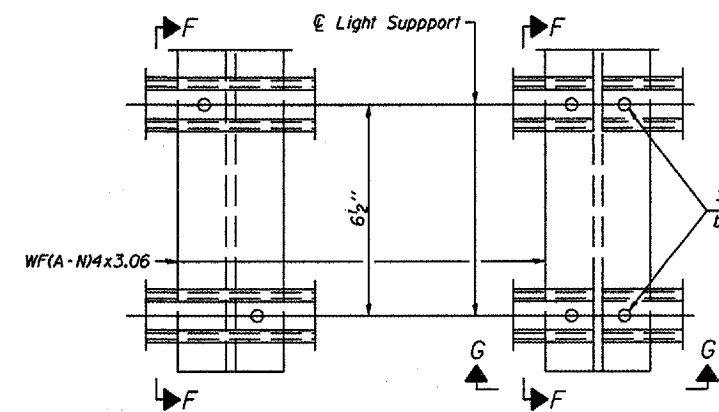


**FRONT ELEVATION**

**HANDRAIL DETAILS**

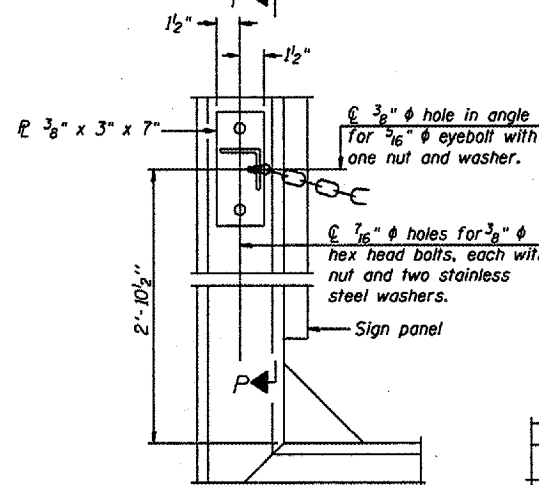
Handrail pipe shall be ASTM B241, Alloy 6063-T6 or Alloy 6061-T6.

- ① Install standard force-fit end caps or weld  $\frac{1}{8}$ " end plates with  $\frac{1}{8}$ " c.f.w. and grind smooth. (All rail ends)
- ② Horizontal handrail member shall be continuous thru fitting. Provide  $\frac{1}{16}$ "  $\phi$  hole in fitting for  $\frac{3}{8}$ "  $\phi$  bolt. Field drill  $\frac{1}{16}$ "  $\phi$  hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use  $\frac{5}{16}$ " eyebolts in  $\frac{1}{16}$ "  $\phi$  holes on top rail at ends only.)



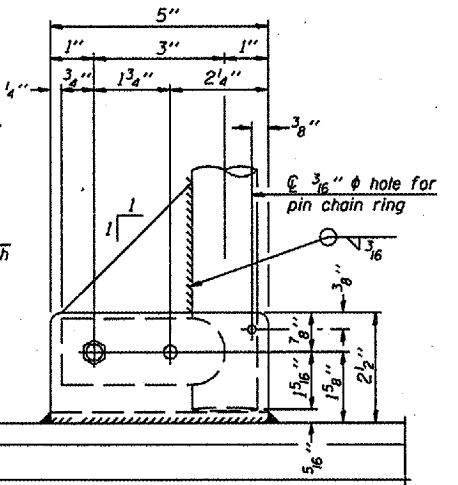
**DETAIL F**

**DETAIL G**

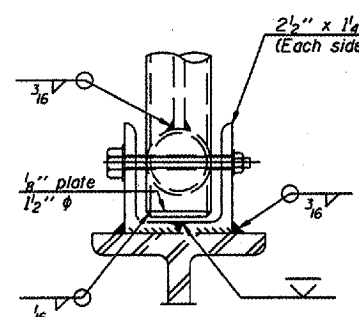


**ALTERNATE SAFETY CHAIN ATTACHMENT**  
*(With Sign Present)*

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

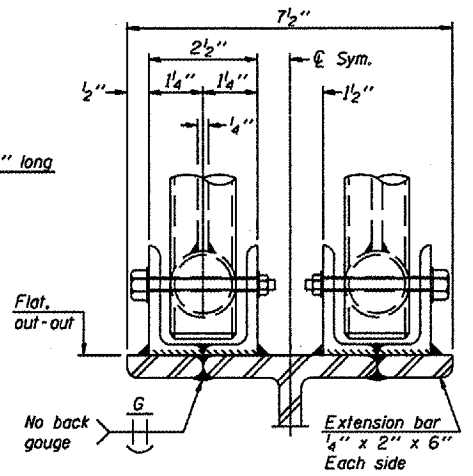


**SIDE ELEVATION**

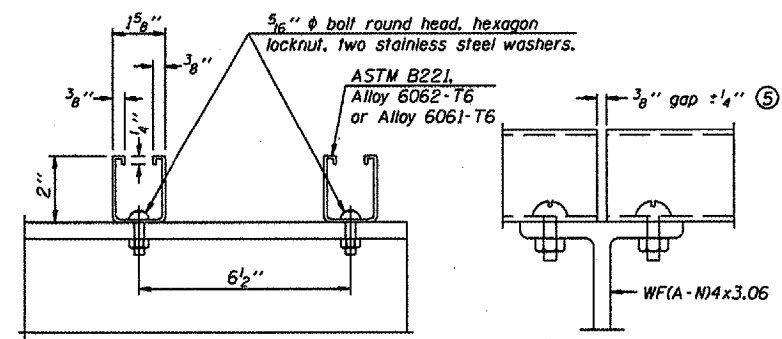


**FRONT ELEVATION**

See "Elevation" at right for dimensions.



**ELEVATION AT HANDRAIL JOINT** ④

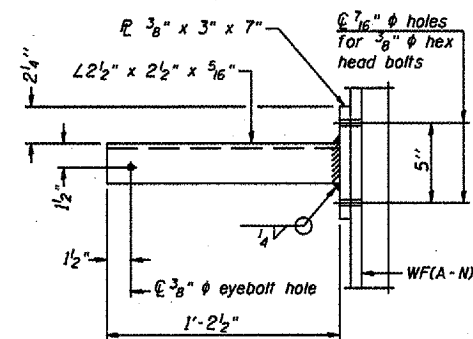


**SECTION F-F**

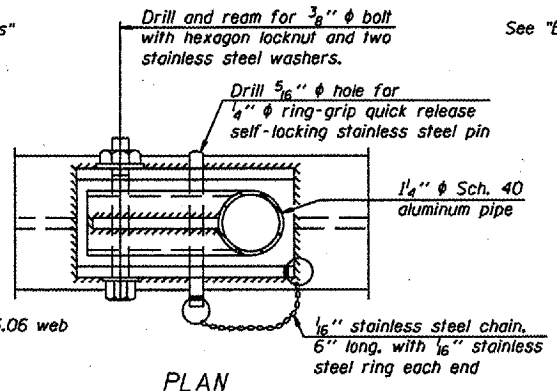
**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

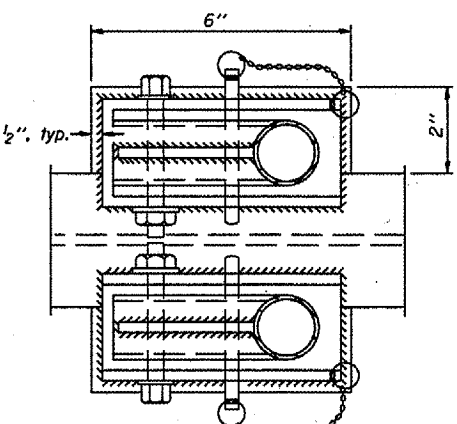
- ⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



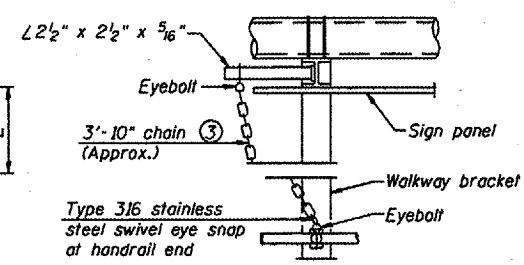
**SECTION P-P**



**PLAN  
DETAIL E HANDRAIL HINGE**



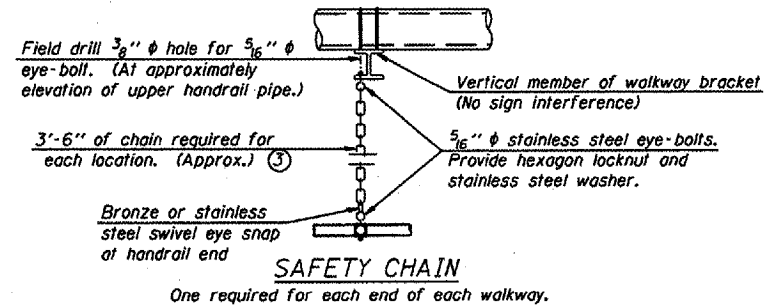
**PLAN AT HANDRAIL JOINT**  
*Details not shown same as "PLAN"*



**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

- ③  $\frac{3}{16}$ " Type 304L or 316L 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.

*This Sheet For Information Only*

**OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS**

District 4  
Overhead Sign Structure  
Repair and Replacement

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

NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

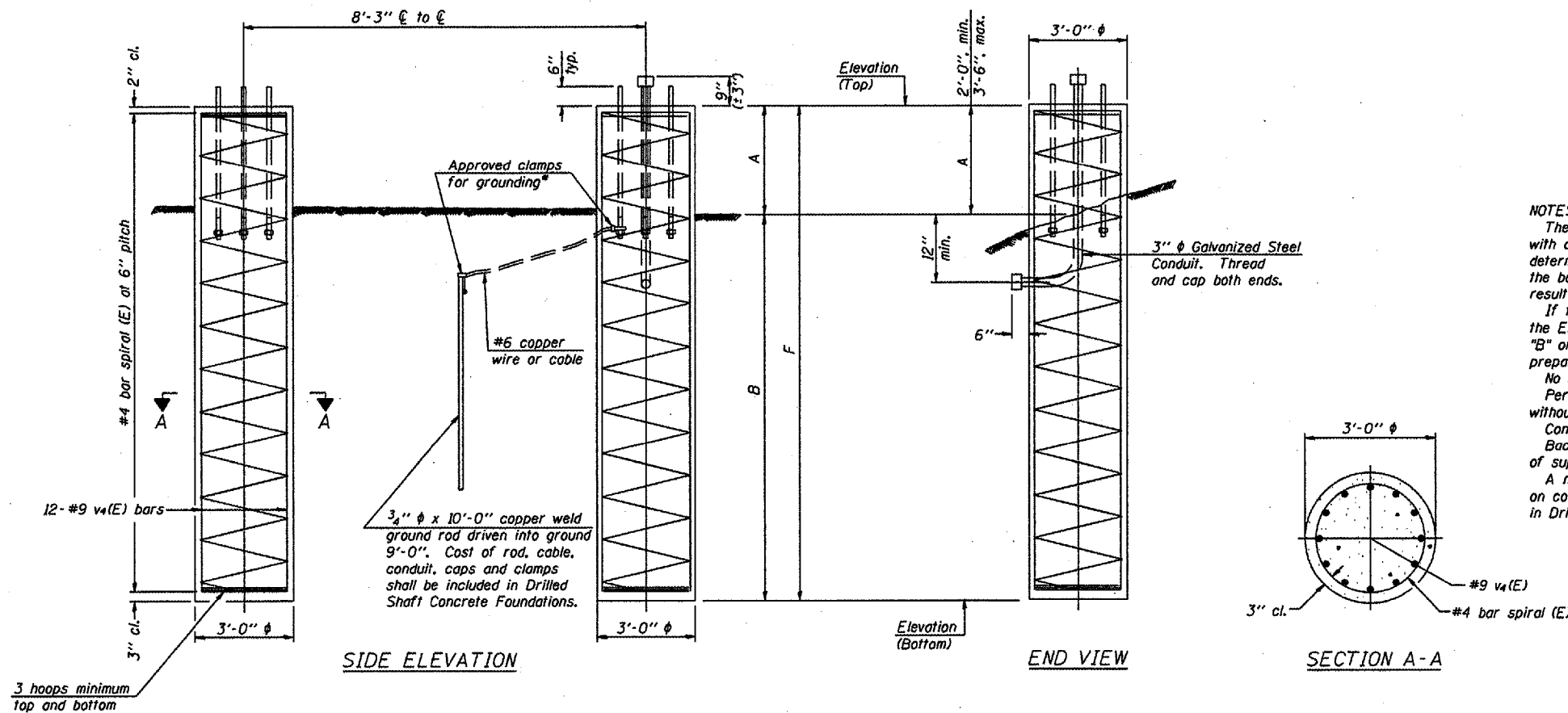
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 46 of 89  
Contract Number 44904

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 ( $Q_u$ ) 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.

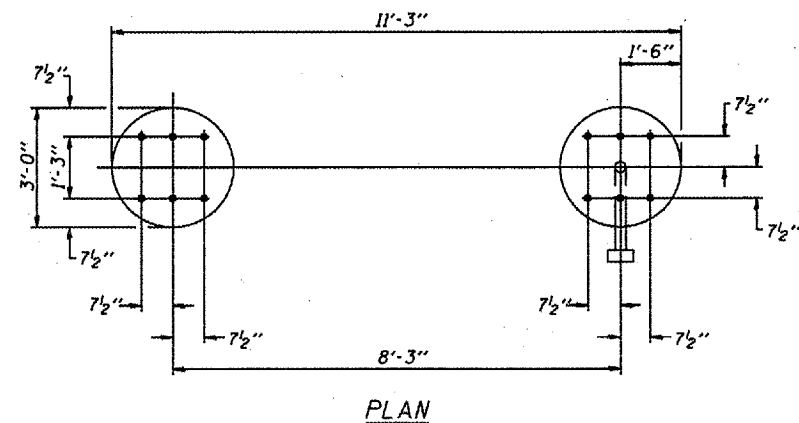
No sonotubes or decomposable forms shall be used below the lower conduit entrance.

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 Seal 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	Left Foundation					Right Foundation					Class SI Concrete (Cu. Yds.)
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top	Elevation Bottom	A	B	F	
4S0901474R012.7	304 + 50	376.65		3' - 0"	16' - 6"	19' - 6"	376.65		3' - 0"	16' - 6"	19' - 6"	20.40

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

EXAMINED	20
PASSED	

NUMBER	REVISION	DATE

DETAILS FOR 10"  $\phi$  SUPPORT FRAME  
TYPE I-A or II-A TRUSS

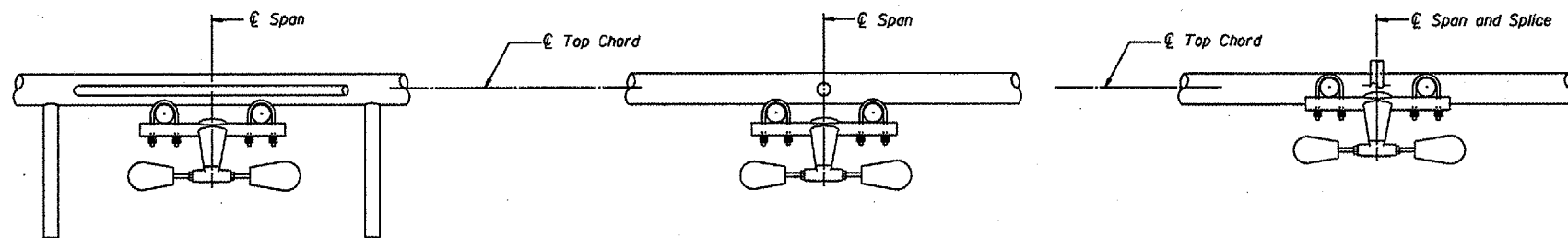
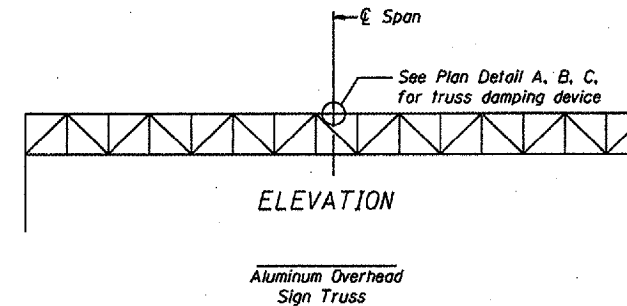
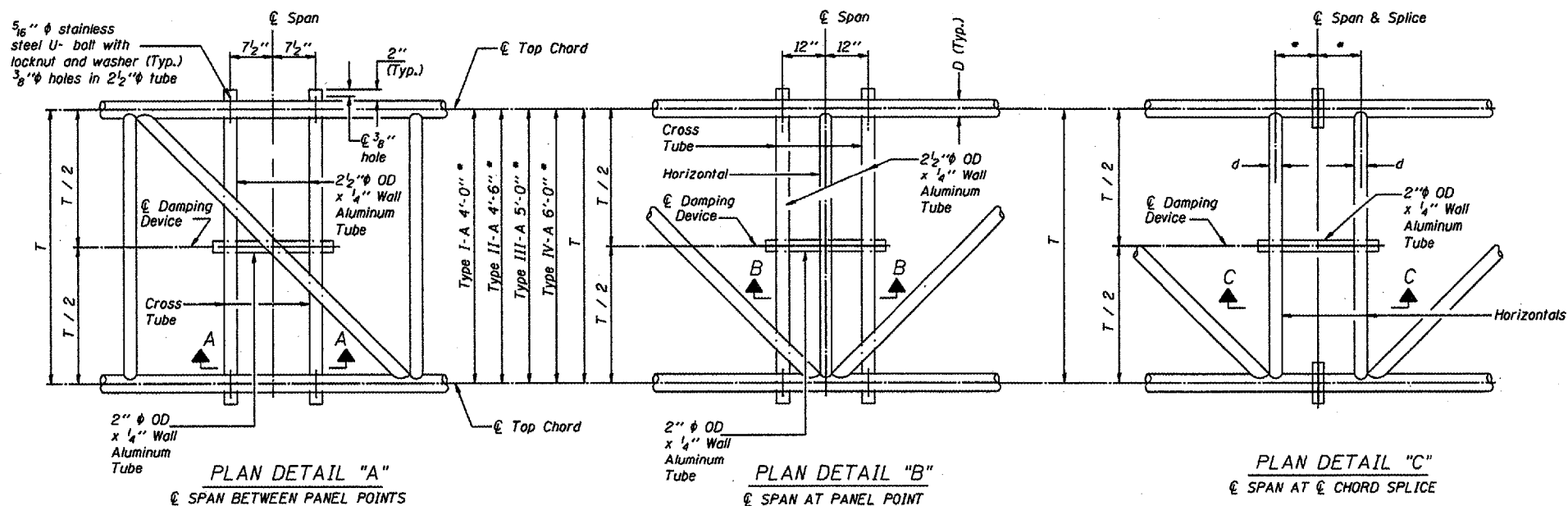
OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 4  
Overhead Sign Structure  
Repair and Replacement

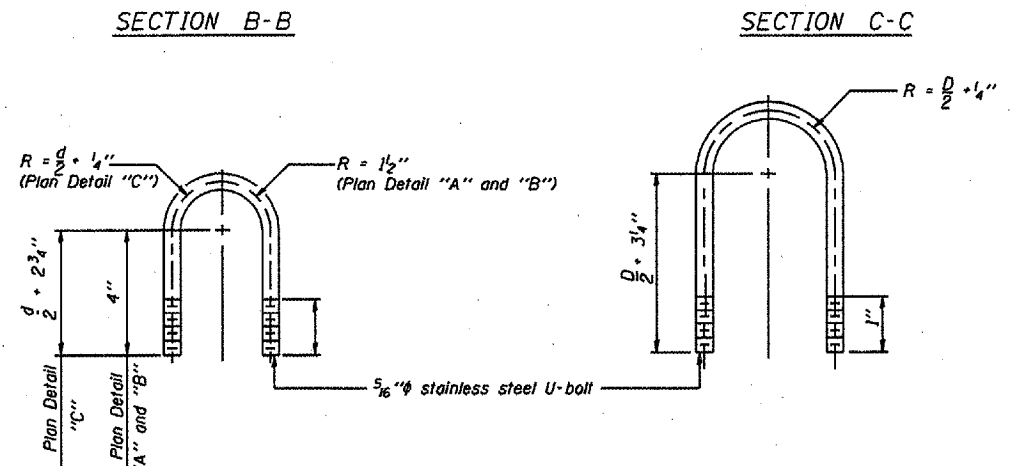
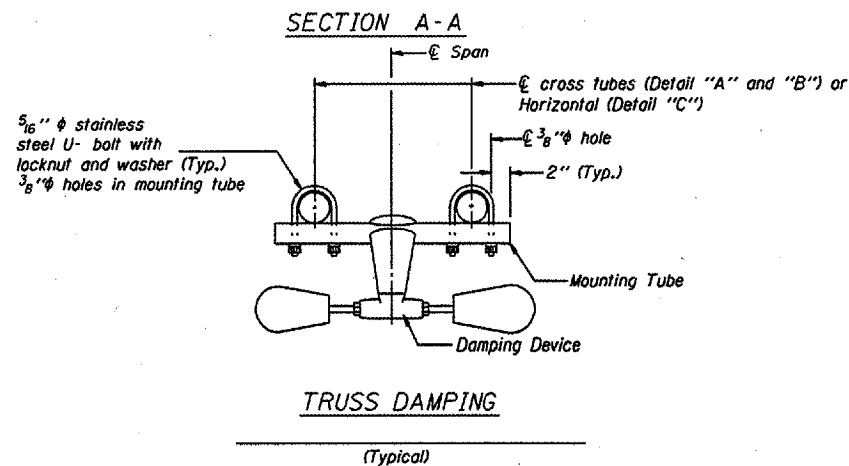
OS4-F3

1-7-05

\* Verify before drilling holes in mounting tube and cross tubes.



This detail applies to the following overhead sign structures:  
 1. 4S0901474R012.7  
 2. 4S0901474R012.2



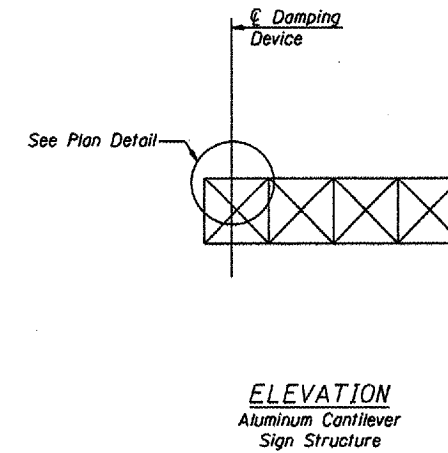
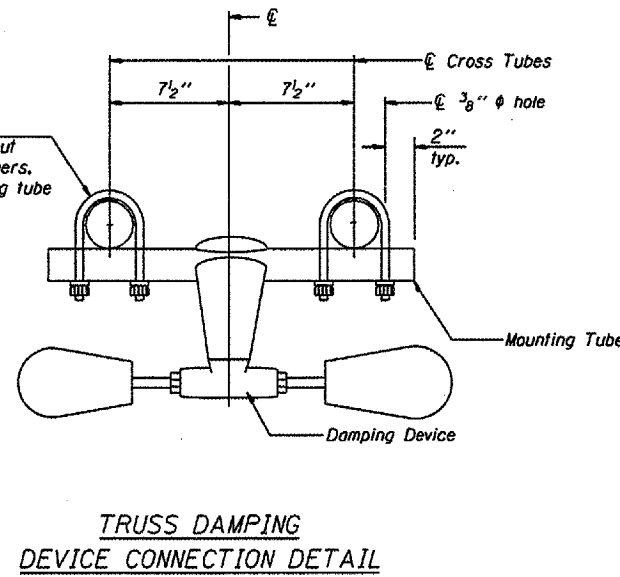
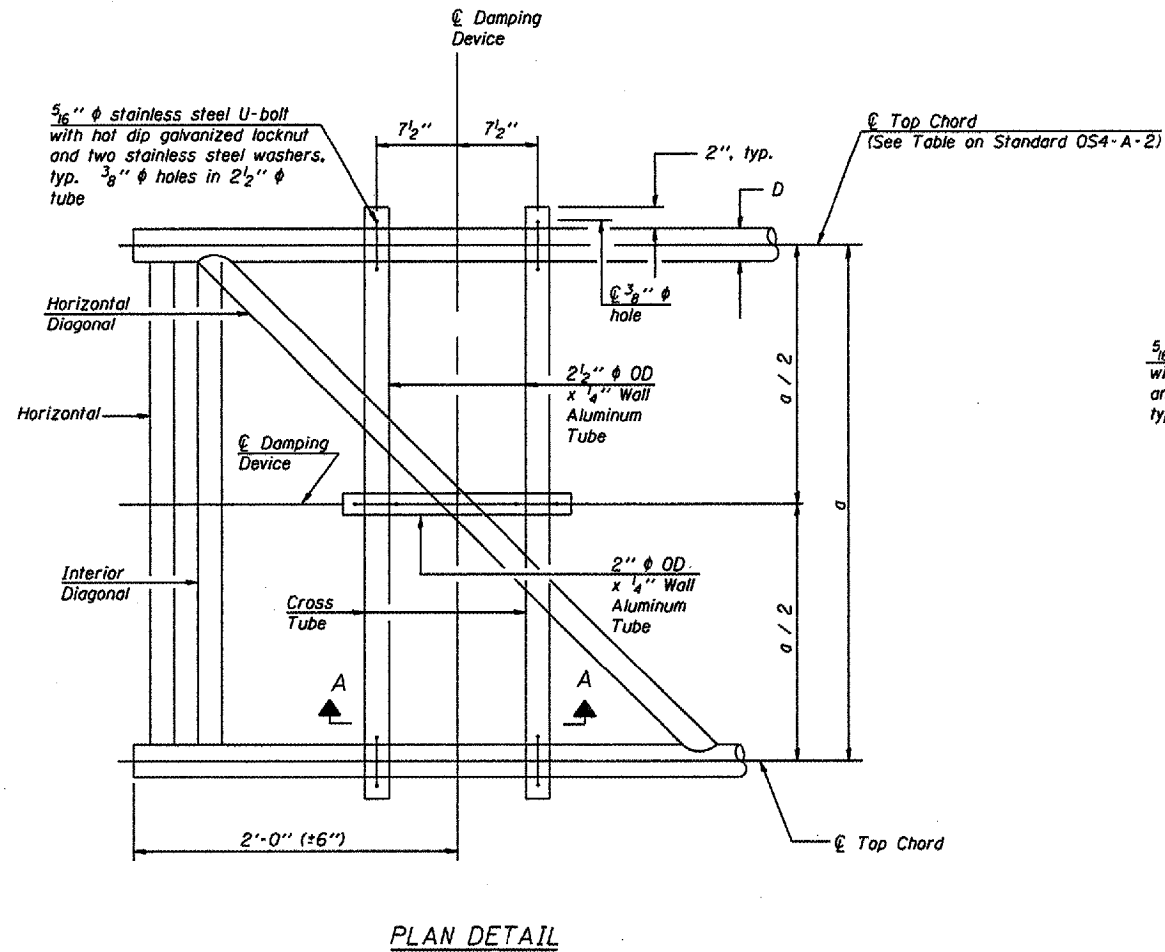
GENERAL NOTES

Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum)  
 Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6  
 Fasteners: U-bolts shall be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finish, or an equivalent material acceptable to the Engineer. All nuts shall be stainless steel conforming to ASTM A194, Grade 8 (AISI Type 304) or Grade 8F (AISI Type 303). The nuts shall be "locknuts" with nylon or steel inserts and semifinished hexagonal heads equivalent to the finished hex series of the American National Standards. All washers shall be stainless steel conforming to ASTM A240, Type 302 or 304.

OVERHEAD SIGN STRUCTURE DAMPING DEVICE

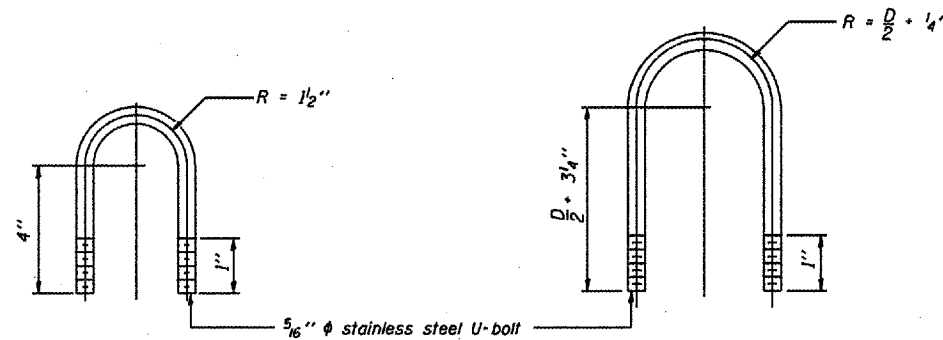
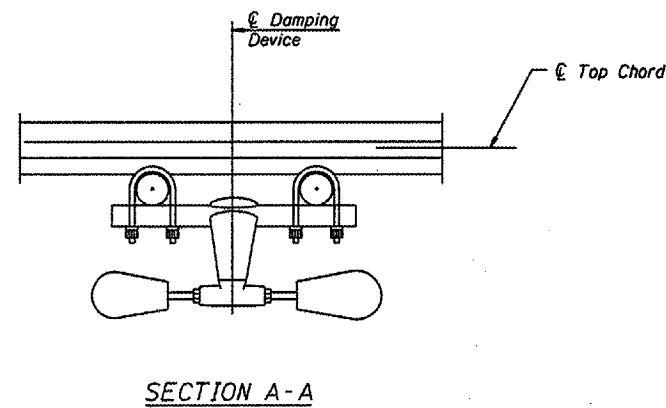
District 4  
 Overhead Sign Structure  
 Repair and Replacement

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



GENERAL NOTES

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



- This detail applies to the following overhead sign structures:
- 4C0721474L003.41
  - 4C0905116L005.9
  - 4C072U024R022.76

CANTILEVER SIGN STRUCTURE  
DAMPING DEVICE

District 4  
Overhead Sign Structure  
Repair and Replacement

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

OSC-A-D 1-7-05





Illinois Department  
 of Transportation  
 Division of Highways  
 IDOT

### SOIL BORING LOG

Page 1 of 1

Date 1/19/05

ROUTE VARIOUS ROUTES DESCRIPTION EB I-474 approx 2 mi. west of 474/74 interchange  
 Taz. Co LOGGED BY JAR

SECTION Sign Trusses LOCATION SEC. TWP. RNG.

COUNTY Peoria & Tazewell DRILLING METHOD Hollow Stem Auger HAMMER TYPE AUTO

STRUCT. NO. 4S090474RS12.7  
 Station \_\_\_\_\_  
 BORING NO. 18  
 Station 20+981  
 Offset 14.80ft Right of CL  
 Ground Surface Elev. 734.35 ft

DEPTH H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft		D E P T H	B L O W S	U C S Qu	M O I S T
				(ft)	(/6")				
							7	P	
	3						3		
	7	2.5	17.9				5	1.6	13.9
	7	P					6	B	
				730.35					
	1						2		
	3	1.0	20.9				5	1.6	13.8
	4	B					6	B	
				727.85					
	2						2		
	4	1.3	21.5				5	1.6	14.1
	6	B					6	B	
				725.35					
	2						2		
	3	1.7	14.4				5	1.2	14.5
	6	B					6	B	
				703.85					
				722.85					
	3								
	6	1.7	13.1						
	8	B							
	1								
	4	1.7	13.8						
	5	B							
	2								
	3	1.4	14.1						
	6	B							
	5								
	6	1.4	14.8						

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)



Illinois Department  
 of Transportation  
 Division of Highways  
 IDOT

### SOIL BORING LOG

Page 1 of 1

Date 1/18/05

ROUTE VARIOUS ROUTES DESCRIPTION EB I-474 approx 2 mi. west of 474/74 interchange  
 Taz. Co LOGGED BY JAR

SECTION Sign Trusses LOCATION SEC. TWP. RNG.

COUNTY Peoria & Tazewell DRILLING METHOD Hollow Stem Auger HAMMER TYPE AUTO

STRUCT. NO. 4S090474RS12.7  
 Station \_\_\_\_\_  
 BORING NO. 19  
 Station 20+988  
 Offset 72.10ft Right of CL  
 Ground Surface Elev. 734.85 ft

DEPTH H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft		D E P T H	B L O W S	U C S Qu	M O I S T
				(ft)	(/6")				
	2						3	2.3	23.4
	3						5	B	
				730.85					
	1						1	0.5	27.4
	1	P							
				728.35					
	3						3		
	5	3.3	14.7				9	B	
	6	B							
	2						2		
	5	3.3	13.3				5	3.3	13.3
	7	B					7	B	
				704.35					
	2						2		
	4	1.7	14.4				4	1.7	14.4
	6	B					6	B	
	2						2		
	4	1.7	15.1				4	1.7	15.1
	6	B					6	B	
	2						2		
	4	1.6	14.6				4	1.6	14.6
	6	B					6	B	
	2						2		
	4	1.2	10.2				4	1.2	10.2

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)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 50 of 89  
Contract Number 44904

District 5  
Schedule of Locations for Overhead Sign Structure Repair and Replacement

Location No.:	5-01	State I.D. No.:	5S0101072L182.12				
County:	Champaign	Route:	I - 72	M.P.:	182.12	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE I A	FOOT	76.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	12.70					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	379.00					
REMOVE & REINSTALL WALKWAY	FOOT	61.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
Existing design plans are not available for this structure.							

Location No.:	5-02	State I.D. No.:	5S0101057R239.96				
County:	Champaign	Route:	I - 57	M.P.:	239.96	Direction:	NB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE SPAN, TYPE I A	FOOT	60.33					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	12.00					
REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	276.25					
REMOVE & REINSTALL WALKWAY	FOOT	36.50					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					

Location No.:	5-03	State I.D. No.:	5S0101074R178.7				
County:	Champaign	Route:	I - 74	M.P.:	178.7	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN TYPE I A	FOOT	78.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	182.00					
OVERHEAD SIGN STRUCTURE WALKWAY (SPECIAL)	FOOT	20.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					

Location No.:	5-04	State I.D. No.:	5S0921074R214.0				
County:	Vermilion	Route:	I - 74	M.P.:	214.00	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN TYPE I A	FOOT	86.00					
DRILLED SHAFT CONCRETE FOUNDATION	CU YD	20.40					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					
STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	332.50					
REMOVE & REINSTALL WALKWAY	FOOT	53.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
CONCRETE REMOVAL (SPECIAL)	SQ YD	108.40					
IMPACT ATTENUATORS, RELOCATE (NON-DIRECTIVE) TL 3	EACH	2.00					
REPLACE OVERHEAD SIGN WALKWAY	FOOT	16.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
This locations will require additional traffic control due to being located on a collector distributor route.							

**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.

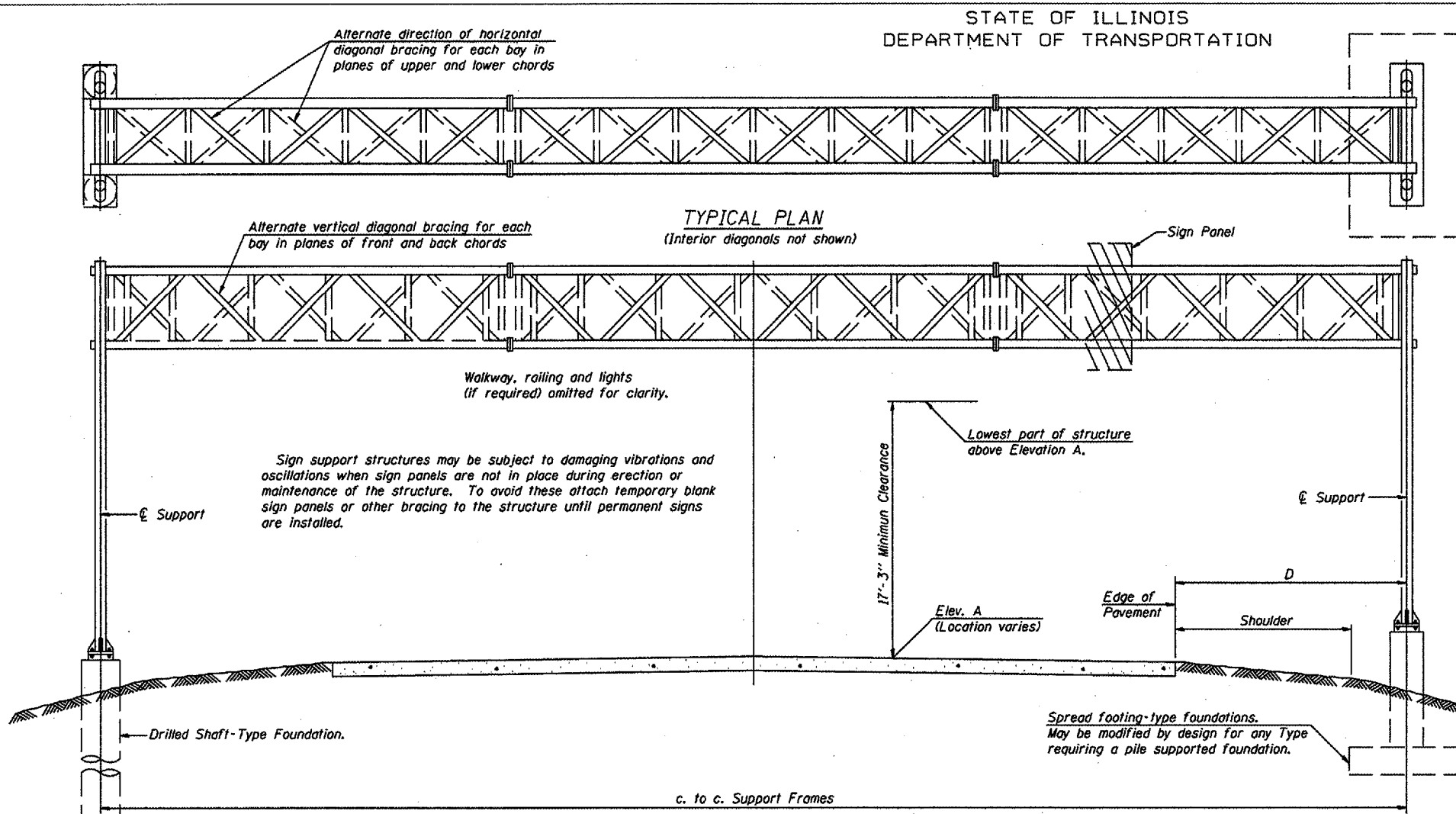
**CONCRETE SURFACES:** All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Bridge Seal Sealer in accordance with the Standard Specifications.

**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 5  
Overhead Sign Structure  
Repair and Replacement



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

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

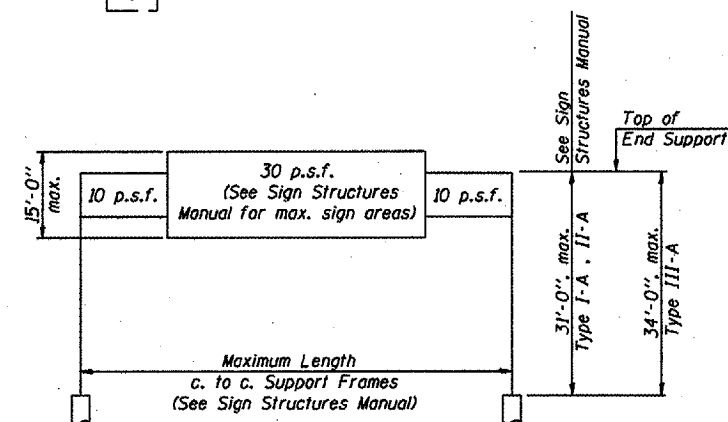
Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign	Total Sign Area
5S0101072L182.2*	N/A	I-A	76' - 0"	N/A	N/A	9' - 6"	379.0
5S0101057R239.9	582 + 20	I-A	61' - 0"	771.17	13' - 0"	11' - 6"	276.25
5S0101074R178.7	1824 + 00	I-A	78' - 0"	824.44	32' - 0"	13' - 0"	182.00
5S0921074R214.0	1913 + 00	I-A	86' - 0"	623.26	20' - 0"	11' - 6"	332.50

\*\*Looking upstation for structures with signs both sides.  
\* Existing overhead sign structure details not available.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE TYPE I-A (4'-0" x 4'-6")	Foot	
OVERHEAD SIGN STRUCTURE TYPE II-A (4'-6" x 5'-3")	Foot	
OVERHEAD SIGN STRUCTURE TYPE III-A (5'-0" x 7'-0")	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	

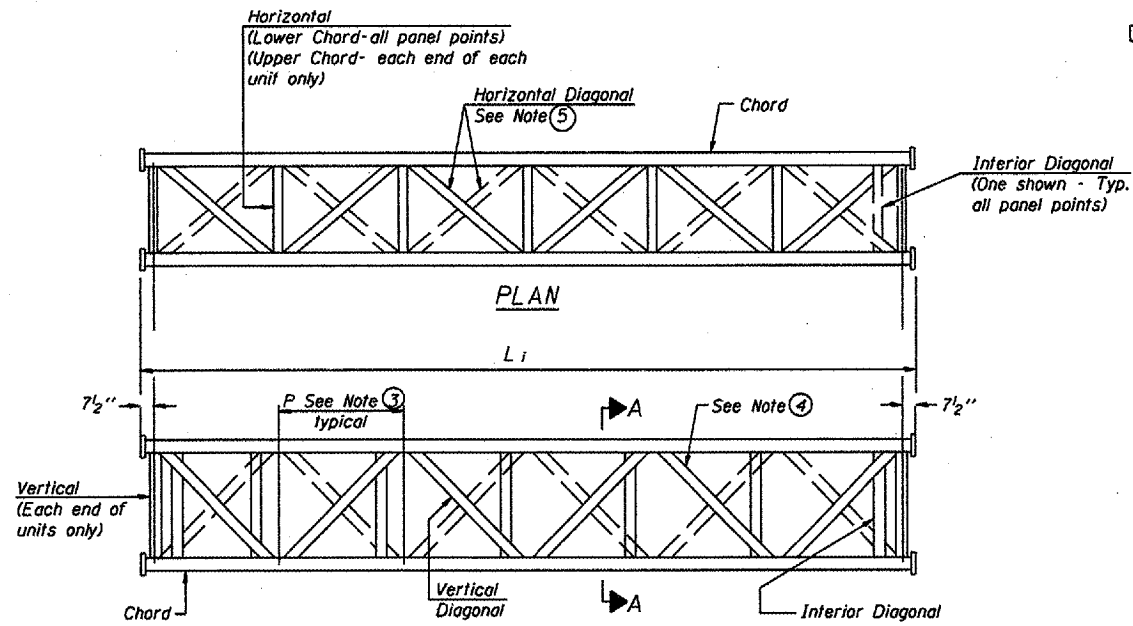
NUMBER	REVISION	DATE



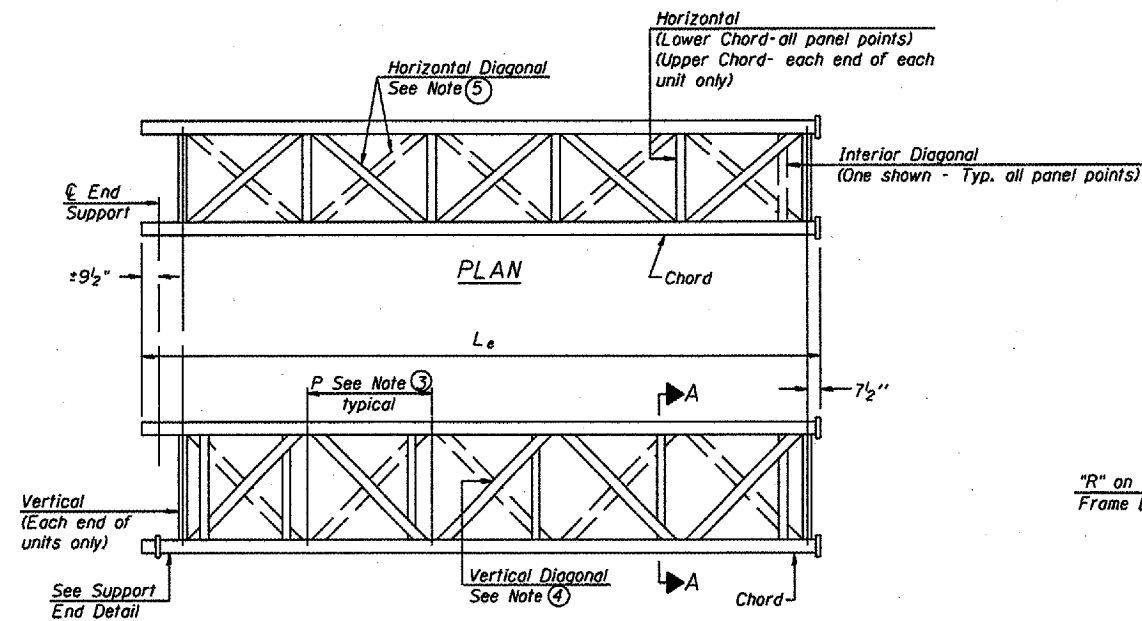
**DESIGN WIND LOADING DIAGRAM**

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.

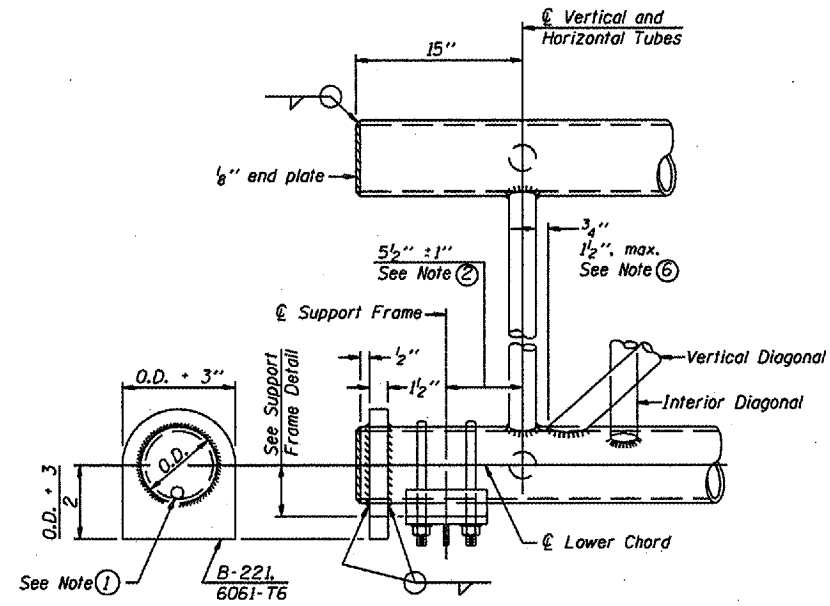
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES



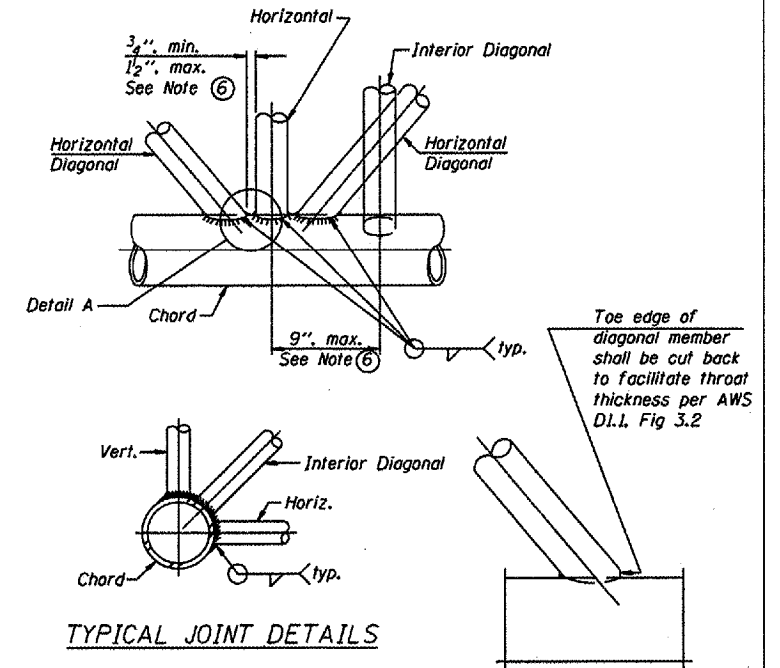
ELEVATION  
TYPICAL INTERIOR UNIT  
Even number of panels/interior unit required.



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



SUPPORT END DETAIL FOR EXTERIOR UNIT

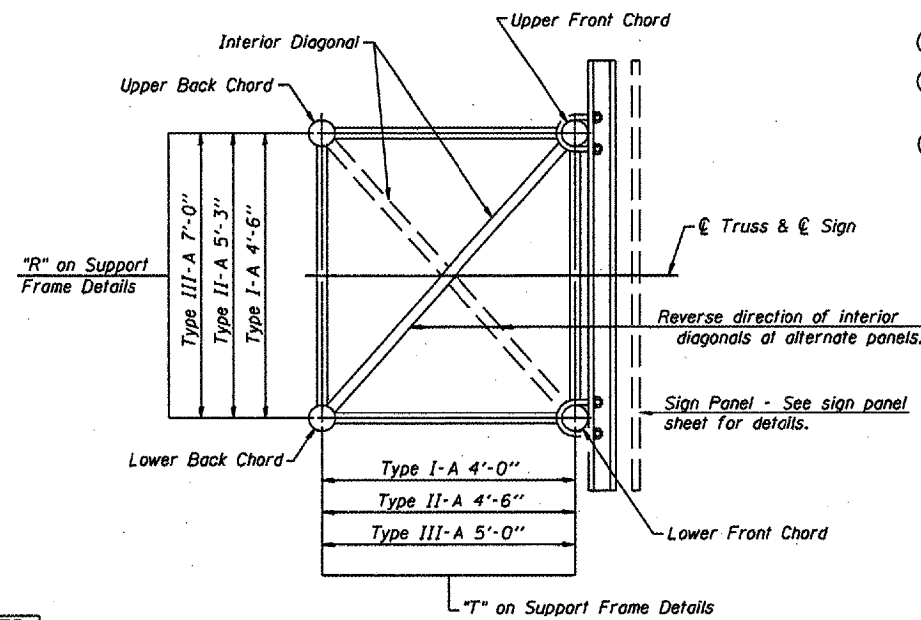


TYPICAL JOINT DETAILS

DETAIL A

NOTES

- ① Contractor may alternatively use standard aluminum drive-fit cap to close end. 1/2" # drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
- ② 5 1/2" end dimension may vary by ±1" to provide uniform panel spacing (P).
- ③ 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.
- ④ Vertical Diagonals in front and back face shall alternate.
- ⑤ Hidden lines show wind bracing alternates direction between planes of top and bottom chords.
- ⑥ 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

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

District 5  
Overhead Sign Structure  
Repair and Replacement

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

NUMBER	REVISION	DATE

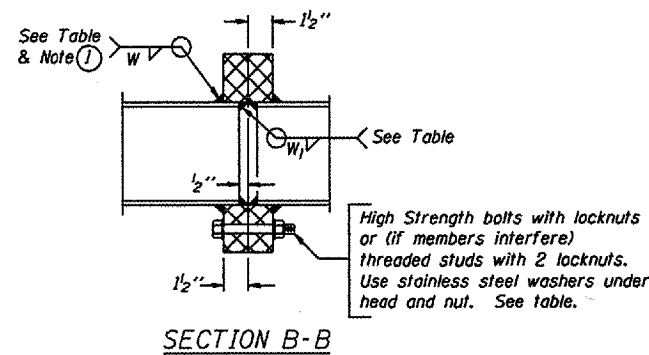
OS-A-2

1-7-05

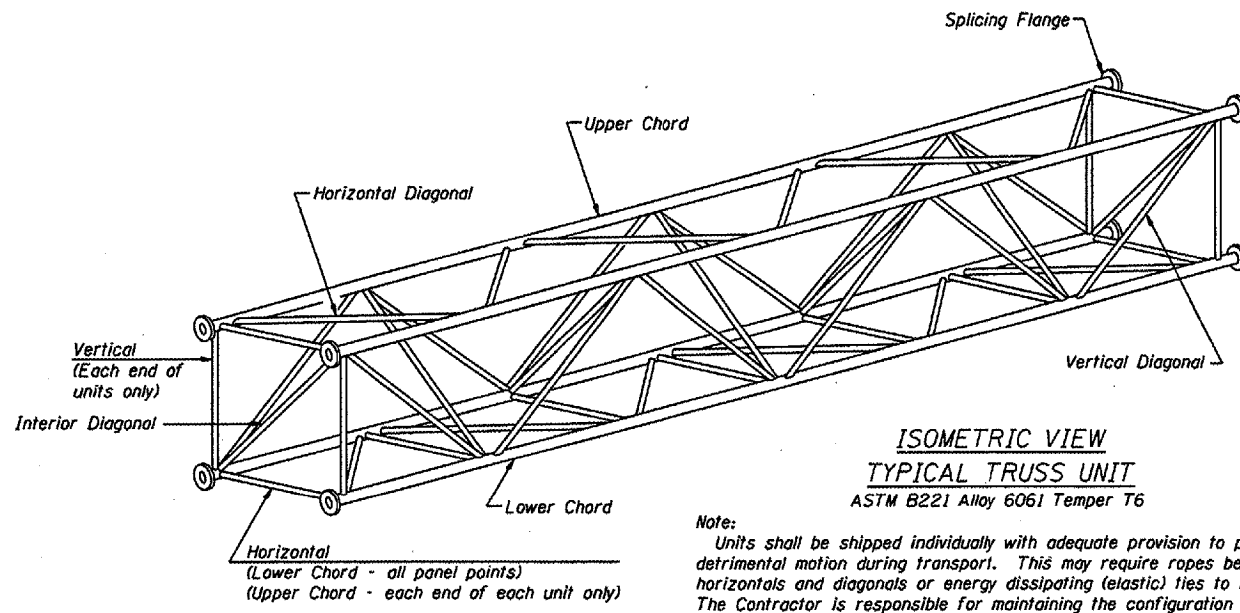
TRUSS UNIT TABLE

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>u</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>		
550101072L182.2 *	N/A	I-A	8	38'-10 1/2"	4'-7 1/2"				5"	5/16"	2 1/2"	5/16"	2"	6	7/8"	5/16"	1/4"	8 3/4"	11 3/4"	
550101057R239.9	582 + 20	I-A	6	31'-4 1/2"	4'-11"				5"	1/4"	2 1/2"	1/4"	1 1/2"	6	7/8"	5/16"	1/4"	8 3/4"	11 3/4"	
550101074R178.7	1824 + 00	I-A	8	39'-10 1/2"	4'-9"				5"	5/16"	2 1/2"	5/16"	2"	6	7/8"	5/16"	1/4"	8 3/4"	11 3/4"	
550921074R214.0	1913 + 00	I-A	6	29'-4 1/2"	4'-7"	1	6	28'-9" 4' - 7"	5"	5/16"	2 1/2"	5/16"	2 1/2"	6	7/8"	5/16"	1/4"	8 3/4"	11 3/4"	

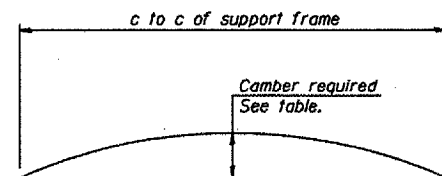
\* Existing overhead sign structure details not available.



(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 banded 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.



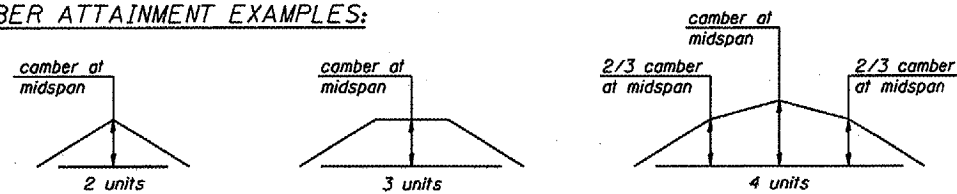
Note:  
Units shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The Contractor is responsible for maintaining the configuration and protection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



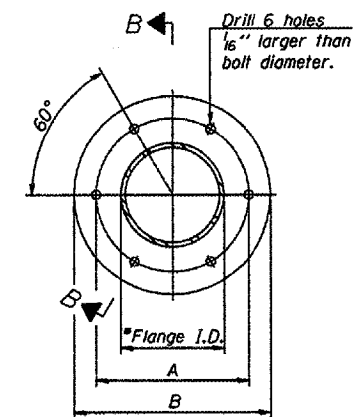
CAMBER DIAGRAM

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

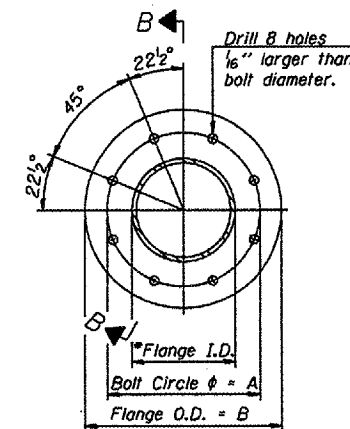
CAMBER ATTAINMENT EXAMPLES:



Camber shown is for fabrication only, measured with truss fully supported. (No-load condition)



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



TRUSS TYPES II-A & III-A

SPLICING FLANGES

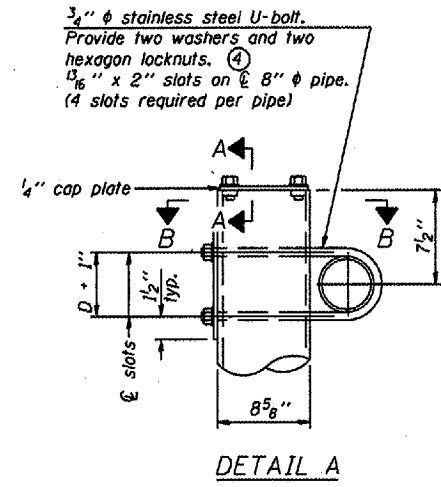
ASTM B221, Alloy 6061-T6  
or ASTM B209, Alloy 6061-T651  
\*To fit O.D. of Chord with maximum gap of 1/16".

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

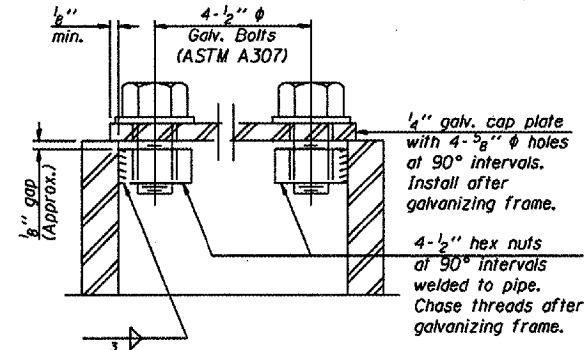
District 5  
Overhead Sign Structure  
Repair and Replacement

NUMBER	REVISION	DATE

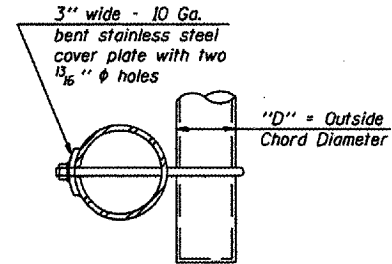
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES



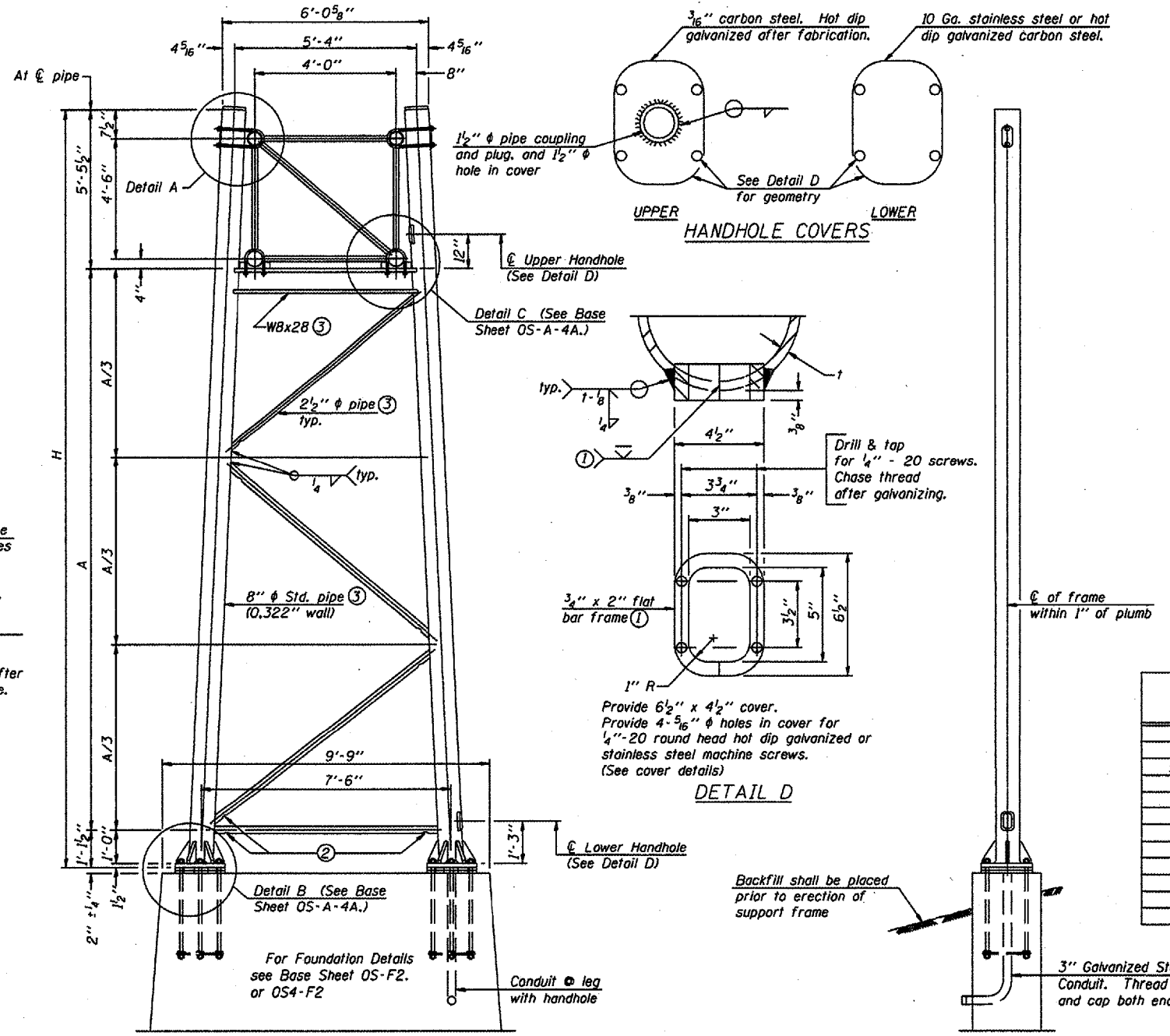
DETAIL A



SECTION A-A



SECTION B-B



SIDE ELEVATION

8"  $\phi$  PIPE TRUSS SUPPORT FRAME

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  $\mu$ in 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.

Structure Number	Station	Support		H	A
		Left	Right		
550101072L182.2 *	N/A	X	X	26'-2 1/2"	19'-7 1/2"
550101057R239.9	582 + 20	X	X	24' - 6"	17' - 11"

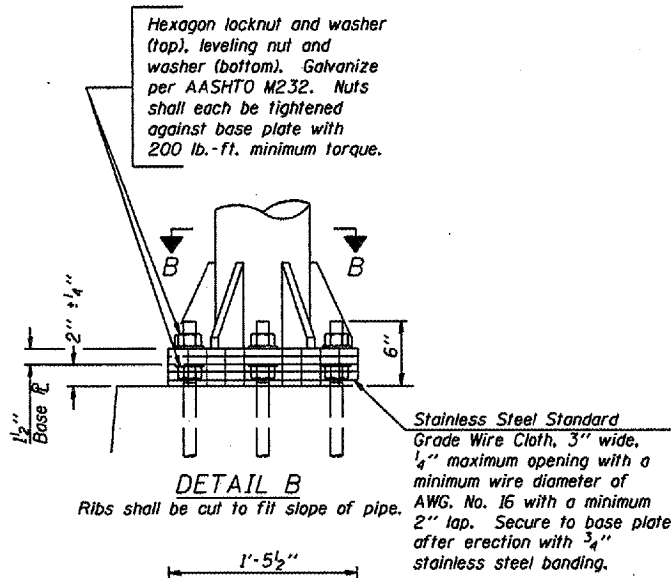
\* Existing overhead sign structure details not available.

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

NUMBER	REVISION	DATE

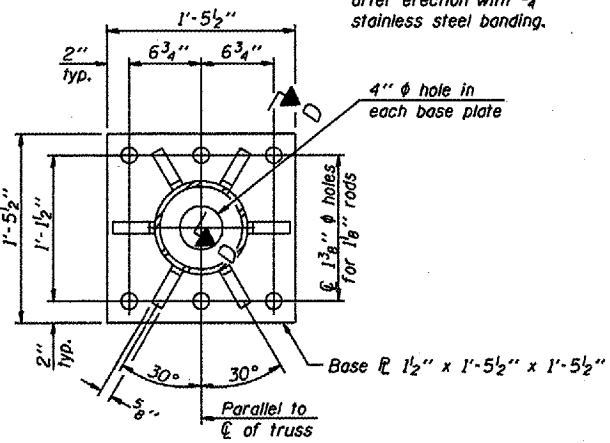
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE I-A ALUMINUM TRUSS

District 5  
Overhead Sign Structure  
Repair and Replacement

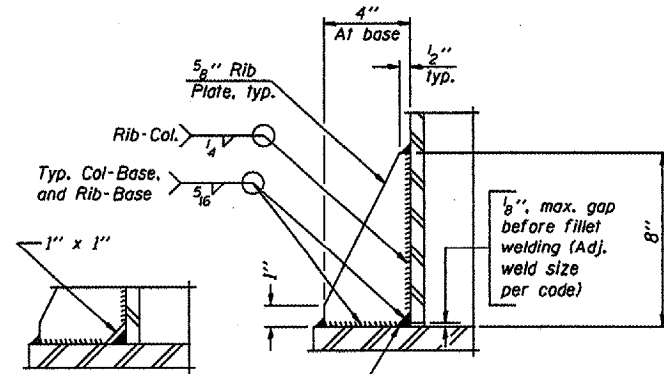


**DETAIL B**

Ribs shall be cut to fit slope of pipe.  
Stainless Steel Standard Grade Wire Cloth, 3" wide, 1/4" maximum opening with a minimum wire diameter of AWG. No. 16 with a minimum 2" lap. Secure to base plate after erection with 3/4" stainless steel banding.

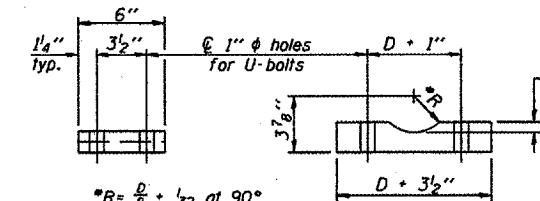


**SECTION B-B**



**SECTION D-D**

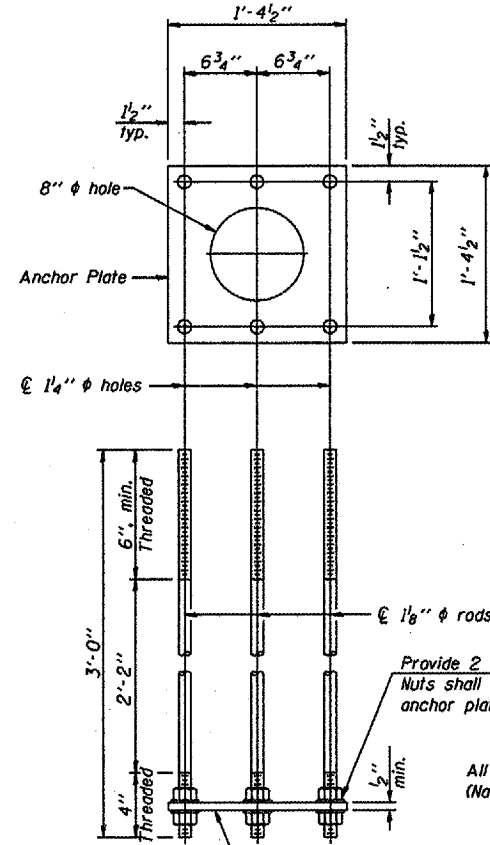
\*\* Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



**SADDLE SHIM DETAIL**

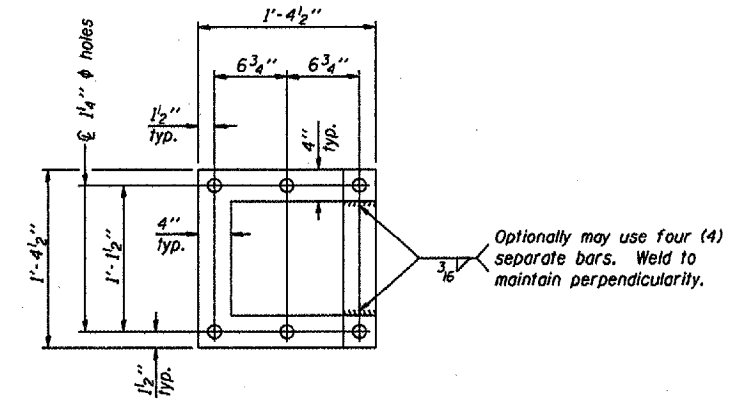
ASTM B26 Alloy 356-F  
or  
ASTM B209 Alloy 6061-T651  
(4 required per sign truss)

Truss Chord Nominal Dia.	a
5"	3/4"
5 1/2"	13/16"
6"	7/8"
6 1/2"	15/16"

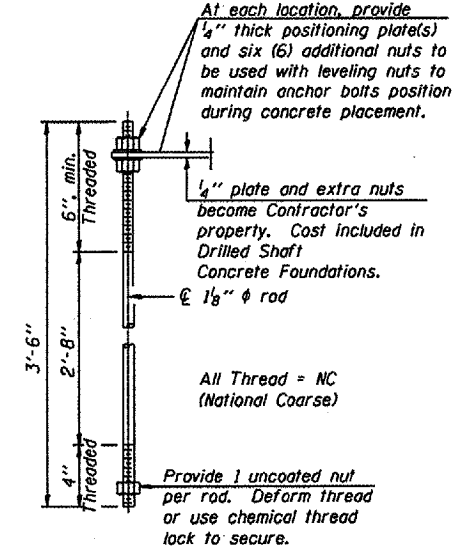


**ANCHOR ROD DETAIL**  
Spread Footing Foundation

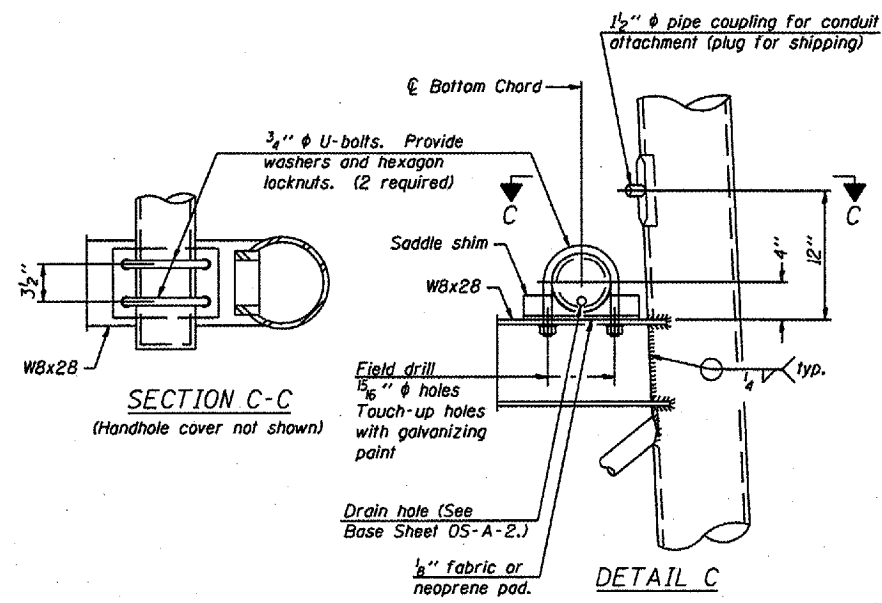
Anchor rods shall conform to AASHTO M314 Grade 36 or 55 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. Galvanize upper 12" per AASHTO M232. No welding shall be permitted on rods.



**POSITIONING PLATE(S)**



**ANCHOR ROD DETAIL**  
Drilled Shaft Foundation



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

**DETAIL C**

**TYPE I-A TRUSS**  
8" φ PIPE SUPPORT FRAME DETAILS

NUMBER	REVISION	DATE

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

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 5  
Overhead Sign Structure  
Repair and Replacement

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

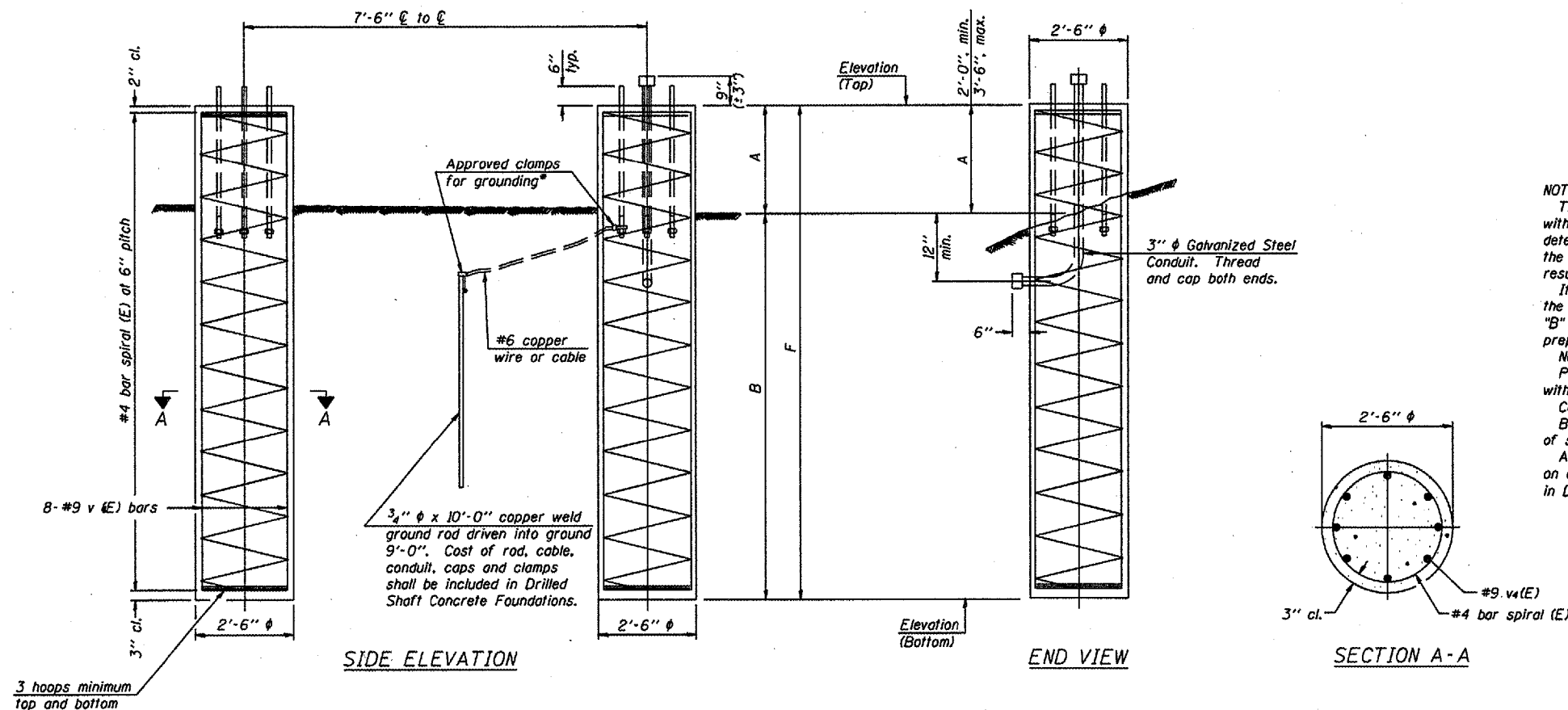
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 56 of 89  
Contract Number 44904

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(E)	16	#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.

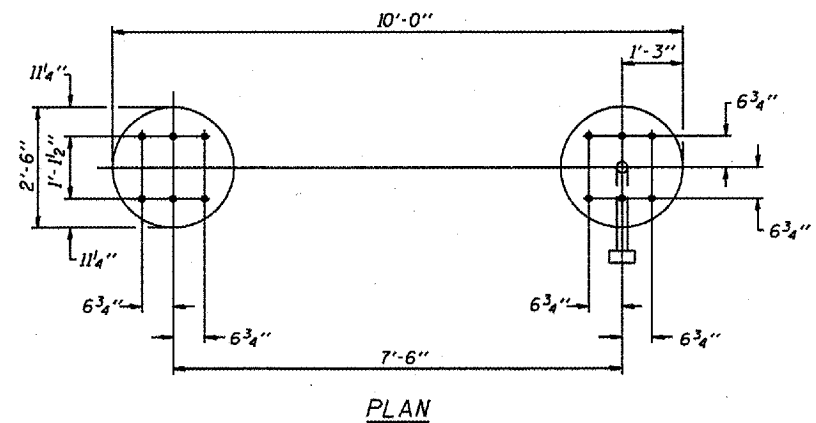
If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District 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.



Structure Number	Station	Left Foundation						Right Foundation			Class SI Concrete (Cu. Yds.)	
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top	Elevation Bottom	A	B		F
550101072L182.2	N/A	N/A		3' - 0"	14' - 6"	17' - 6"	N/A		3' - 0"	14' - 6"	17' - 6"	12.70
550101057R239.9	582 + 20	773.87 *		3' - 0"	13' - 6"	16' - 6"	773.87		3' - 0"	13' - 6"	16' - 6"	12.00

\*Elevations were taken from existing sign structure details.

The Contractor shall be responsible for staking and laying out the new concrete foundations.

OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 5  
Overhead Sign Structure  
Repair and Replacement

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

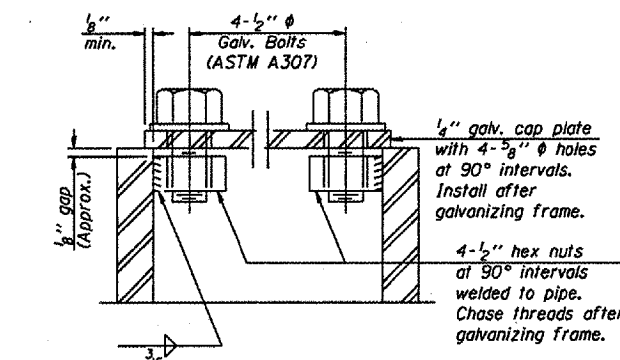
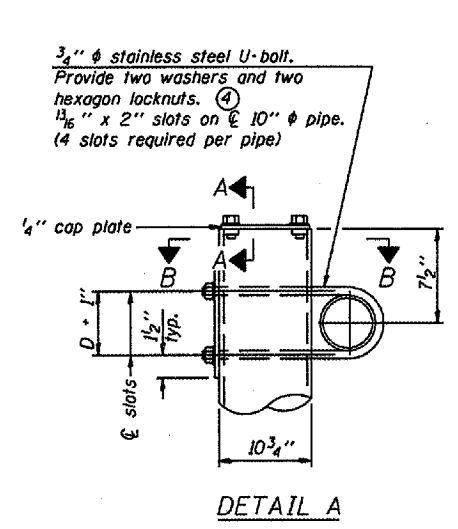
NUMBER	REVISION	DATE

DETAILS FOR 8" Ø SUPPORT FRAME  
TYPE I-A TRUSS

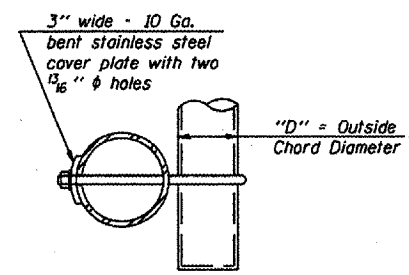


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

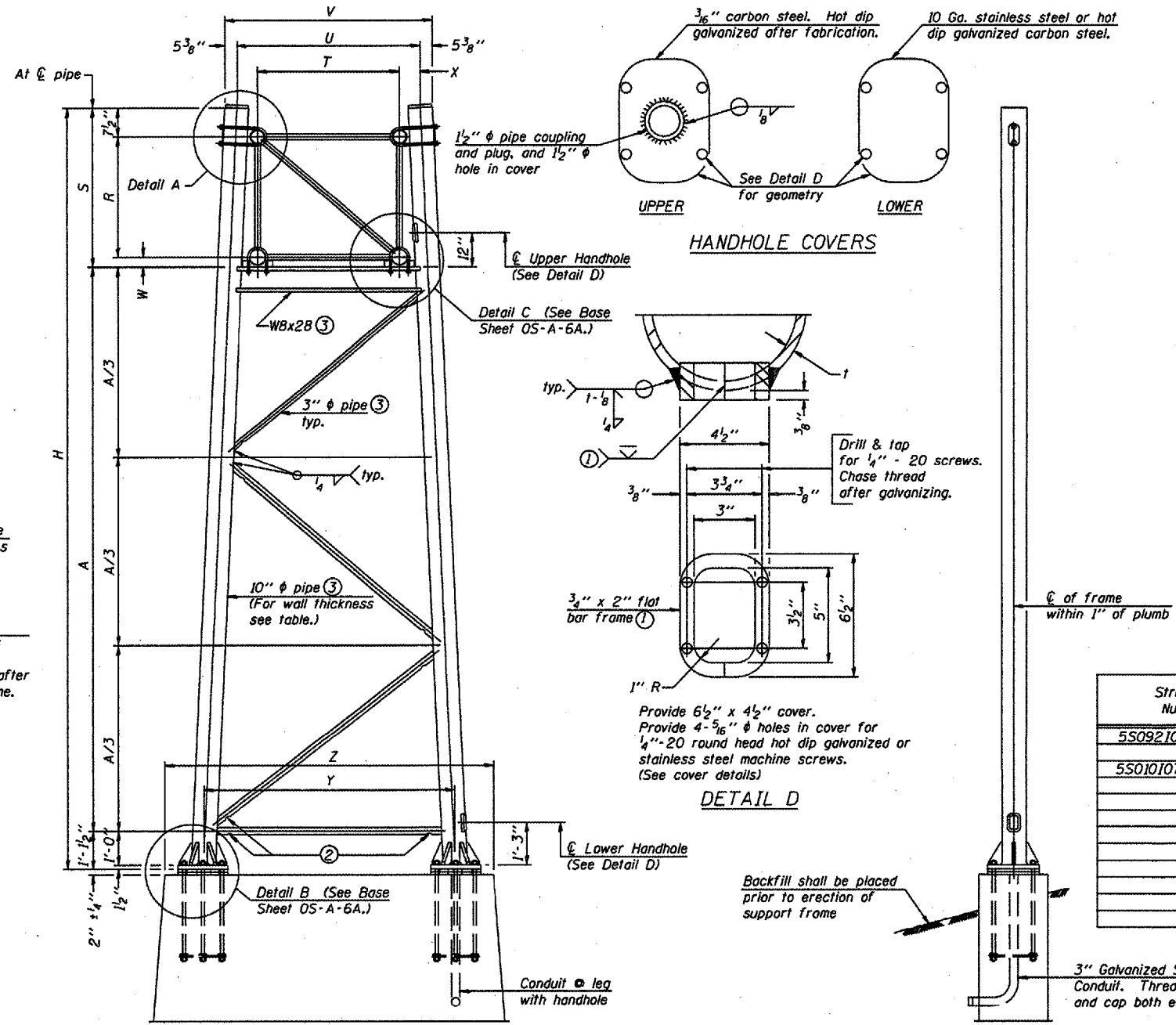
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 57 of 89  
Contract Number 44904



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

10" φ PIPE TRUSS SUPPORT FRAME

Truss Type	Dimensions									
	R	S	T	U	V	W	X	Y	Z	
I-A	4'-6"	5'-5 1/2"	4'-0"	5'-6"	6'-4 3/4"	4"	9"	8'-3"	10'-9"	
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"	10'-9"	

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.

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H	A
		Left	Right				
5S0921074R214.0	1913 + 00	X	X	I-A	0.279	28'-6"	21'-11"
5S0101074R178.7*	1824 + 00	X	X	I-A	0.279	27'-7 3/4"	21'-0 3/4"

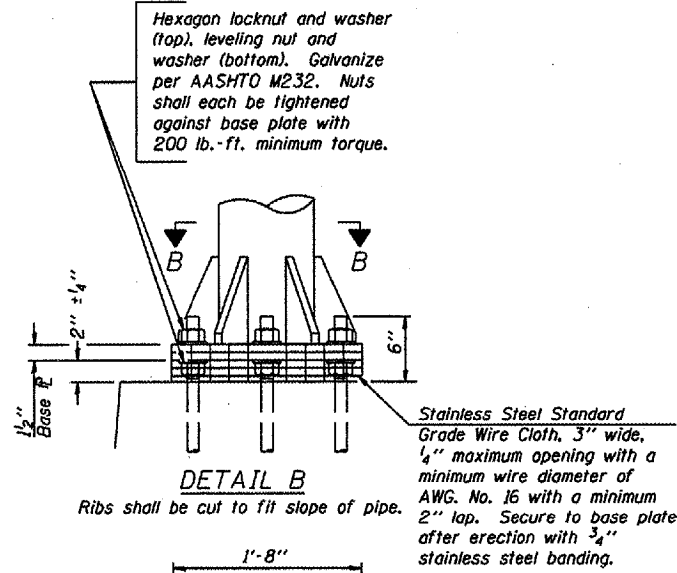
\* End supports to be installed on existing concrete foundations.

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

OS-A-6 1-7-05

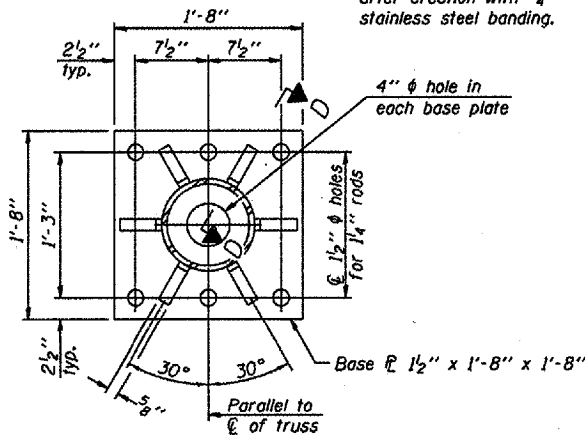
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for ALUMINUM TRUSS

District 5  
Overhead Sign Structure  
Repair and Replacement

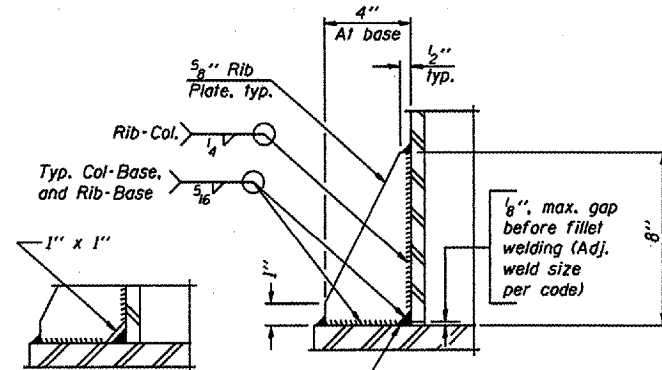


DETAIL B

Ribs shall be cut to fit slope of pipe.  
Stainless Steel Standard Grade Wire Cloth, 3" wide, 1/4" maximum opening with a minimum wire diameter of AWG. No. 16 with a minimum 2" lap. Secure to base plate after erection with 3/4" stainless steel banding.

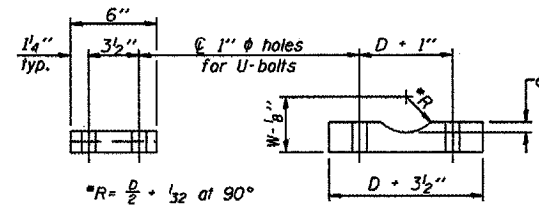


SECTION B-B



SECTION D-D

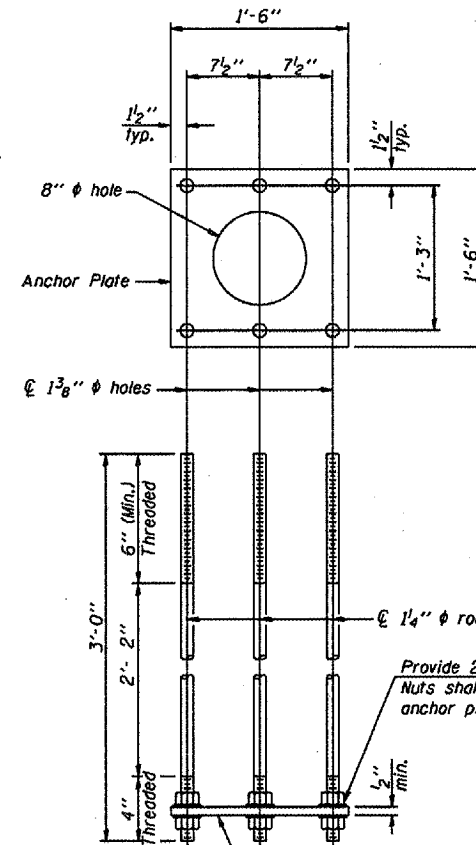
\*\* Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



SADDLE SHIM DETAIL

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

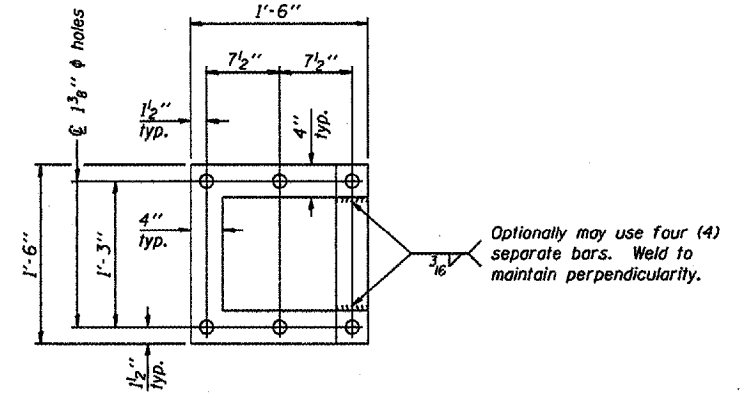
Truss Chord Nominal Dia.	a
5"	3/4"
5 1/2"	7/8"
6"	1"
6 1/2"	1 1/8"
7"	1 1/4"



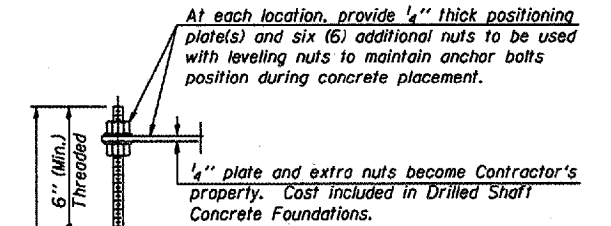
ANCHOR ROD DETAIL  
Spread Footing Foundation

Anchor Rod Details apply to Structure No. 5S0921074R214.0 Only.

Anchor rods shall conform to AASHTO M314 Grade 36 or 50 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.



POSITIONING PLATE(S)



ANCHOR ROD DETAIL  
Drilled Shaft Foundation

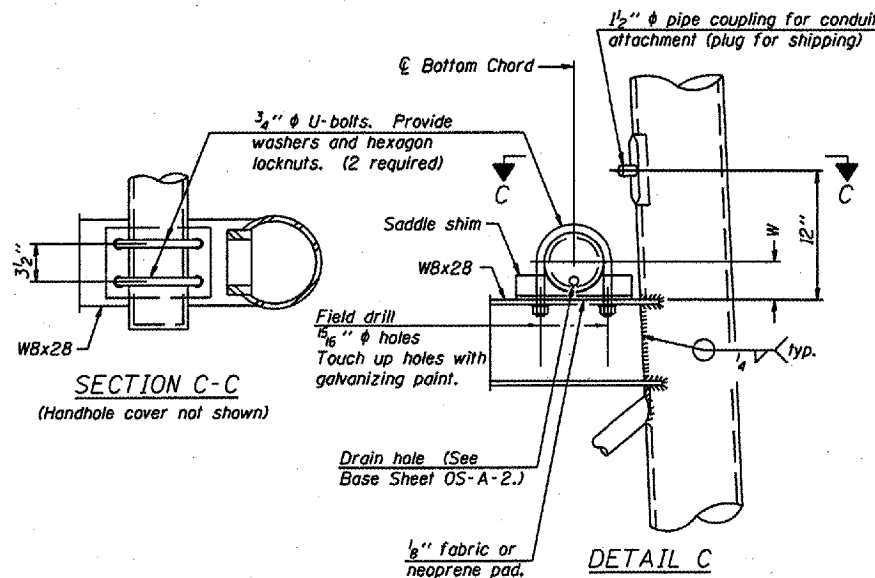
All Thread = NC  
(National Course)

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

NUMBER	REVISION	DATE

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

OS-A-6A 1-7-05



SECTION C-C  
(Handhole cover not shown)

DETAIL C

10" PIPE SUPPORT FRAME DETAILS

- NOTES: Structure No. 5S0101074R178.7
1. New End Supports to be installed on existing concrete foundations with existing anchor bolts. Provide new anchor bolt nuts and washers as necessary.
  2. The Contractor and the Engineer shall field verify the existing end support dimensions and the existing anchor bolt dimensions prior to fabrication of the new end supports.

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 5  
Overhead Sign Structure  
Repair and Replacement

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

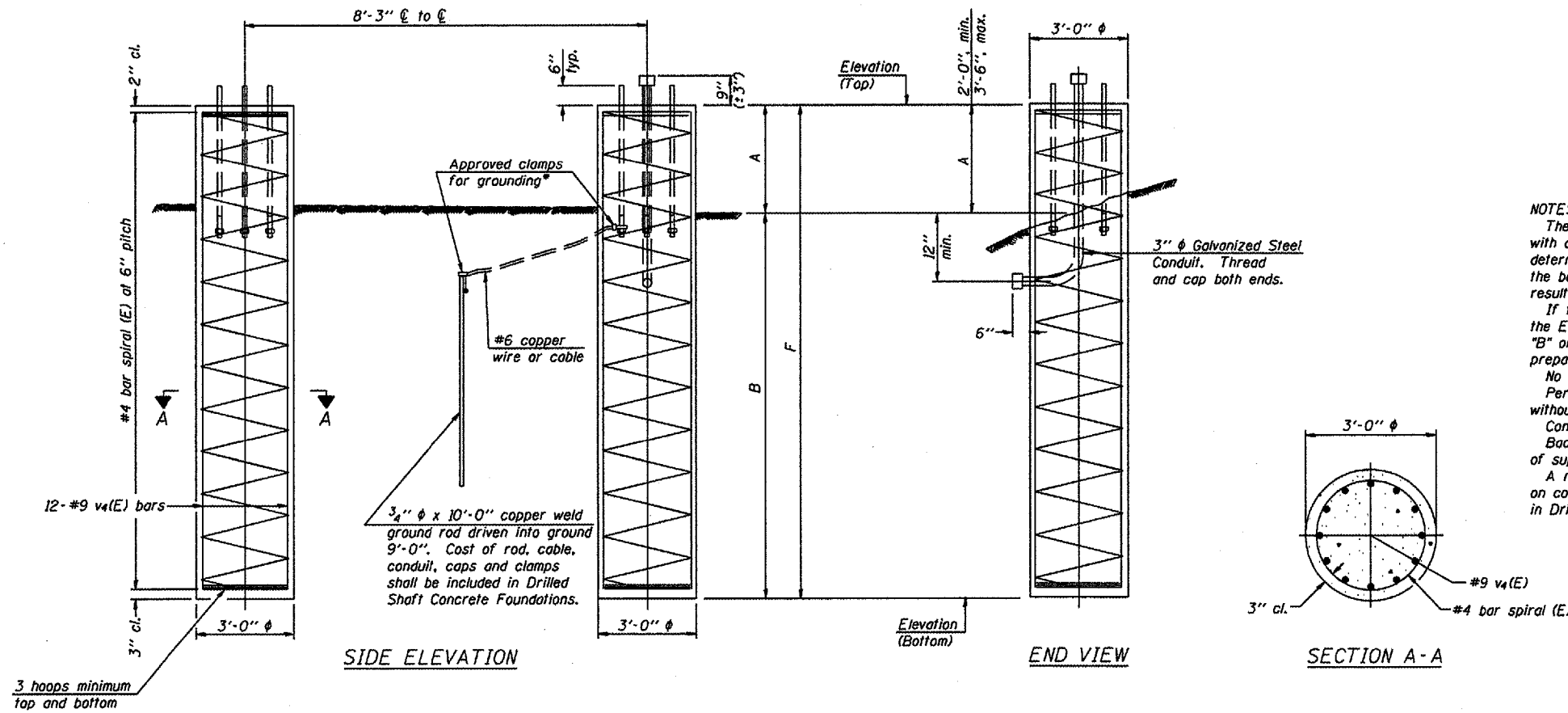
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 59 of 89  
Contract Number 44904

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 ( $Q_u$ ) 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.

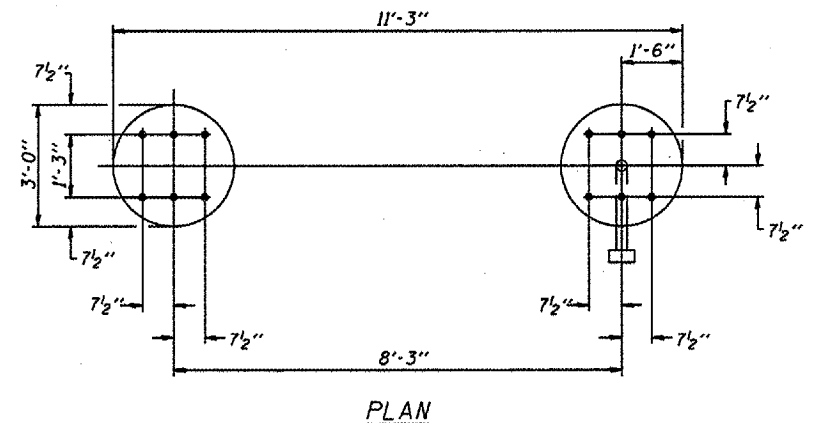
No sonotubes or decomposable forms shall be used below the lower conduit entrance.

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 Seal 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	Left Foundation			Right Foundation			Class SI Concrete (Cu. Yds.)				
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top		Elevation Bottom	A	B	F
550921074R214.0	1913 + 00	621.97 *		3' - 0"	16' - 6"	19' - 6"	621.97		3' - 0"	16' - 6"	19' - 6"	20.40

\* Elevations were taken from existing sign structure details.

The Contractor shall be responsible for staking and laying out the new concrete foundations.

OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 5  
Overhead Sign Structure  
Repair and Replacement

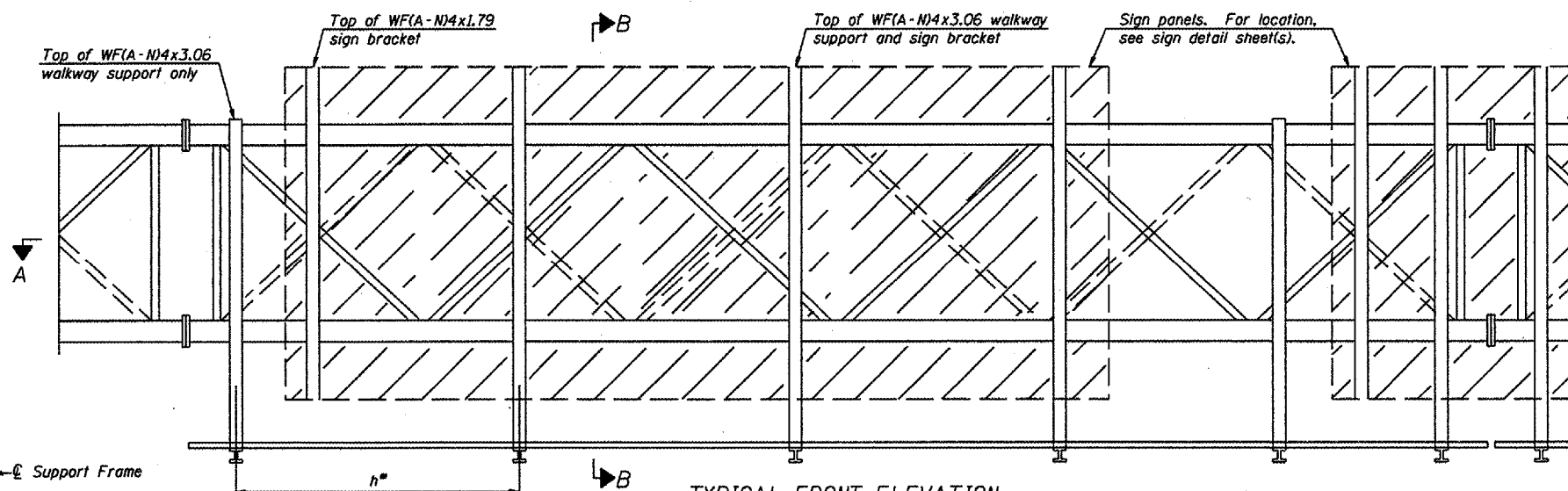
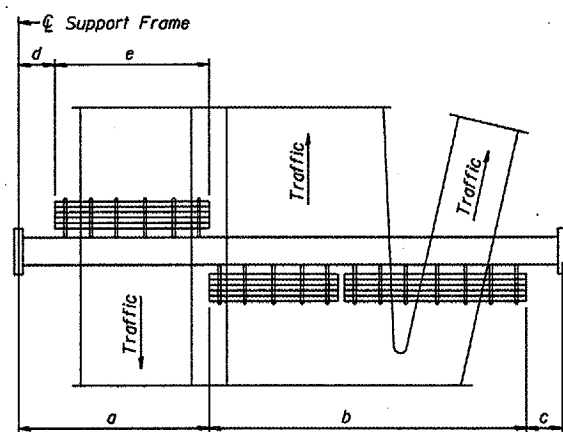
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 60 of 89  
Contract Number 44904



**BRACKET TABLE**

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

\*\* Alternate angle for safety chain attachment

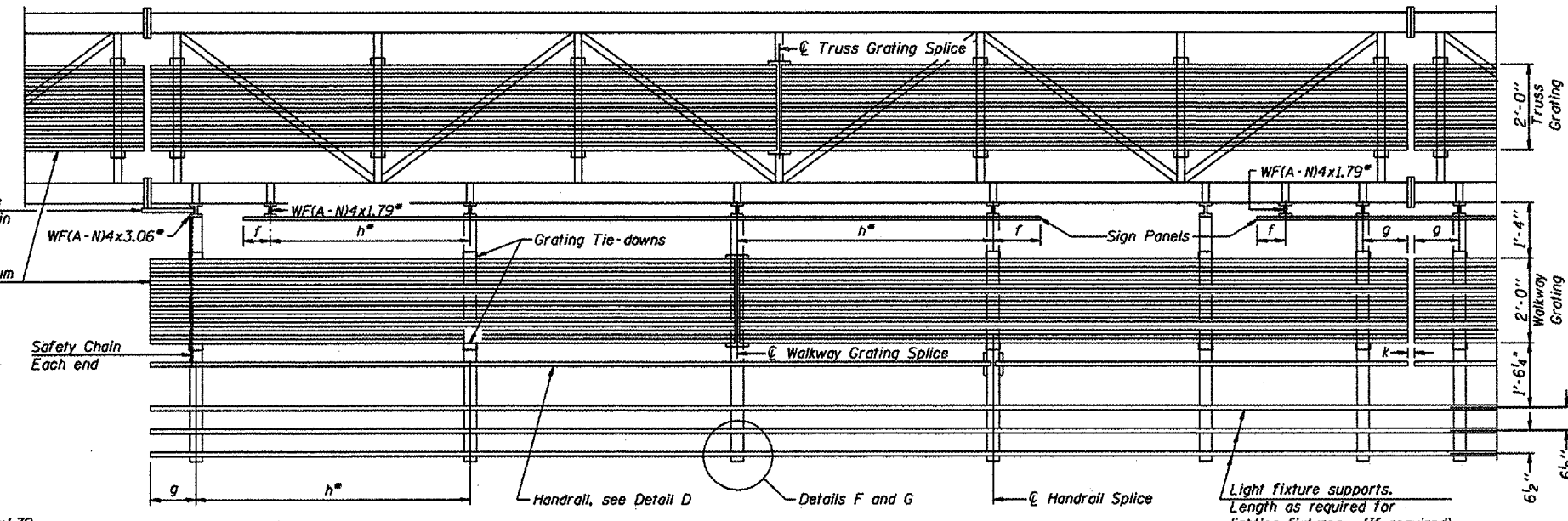
Standard Aluminum Grating, see Details T and W

Safety Chain Each end

Grating Tie-downs

Sign Panels

Light fixture supports. Length as required for lighting fixtures. (If required)



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

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 of sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06
- k = 2" maximum gap between adjacent walkway grating 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 Details D, F, G and P and Handrail Splice Details, see Base Sheet OS-A-11.

Structure Number	Station	a	b	c	d I-A	e	Walkway Grating and Handrail Lengths
5S0101072L182.2	N/A	N/A	N/A	N/A	N/A	N/A	77' - 9" *
5S0101057R239.9	582 + 20	N/A	N/A	N/A	N/A	N/A	62' - 9" *
5S0101074R178.7	1824 + 00	N/A	20' - 0"	30' - 0"	N/A	N/A	79' - 9" *
5S0921074R214.0	1913 + 00	N/A	16' - 0"	N/A	N/A	N/A	87' - 6" *
*Length shown is for internal truss grating to be installed. Structure No. 5S0101074R178.7 includes the installation of walkway, walkway support brackets, handrail and light support channels.							
Structure No. 5S0101074R178.7 includes the replacement of walkway, walkway support brackets, handrail and light support channels.							

**OVERHEAD SIGN STRUCTURES**  
**ALUMINUM WALKWAY DETAILS**

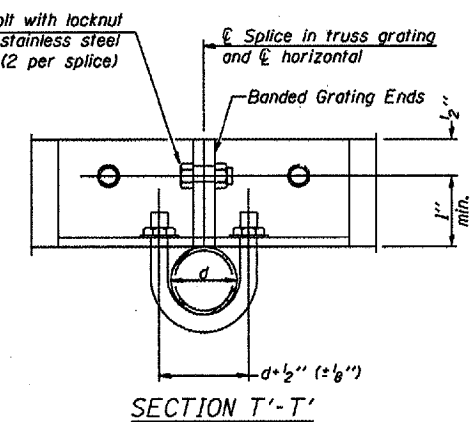
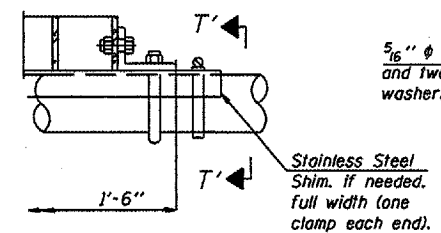
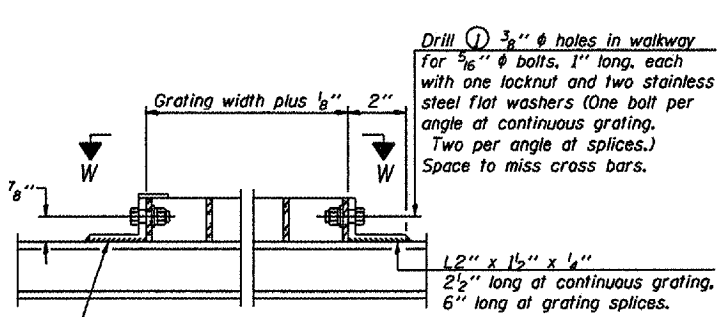
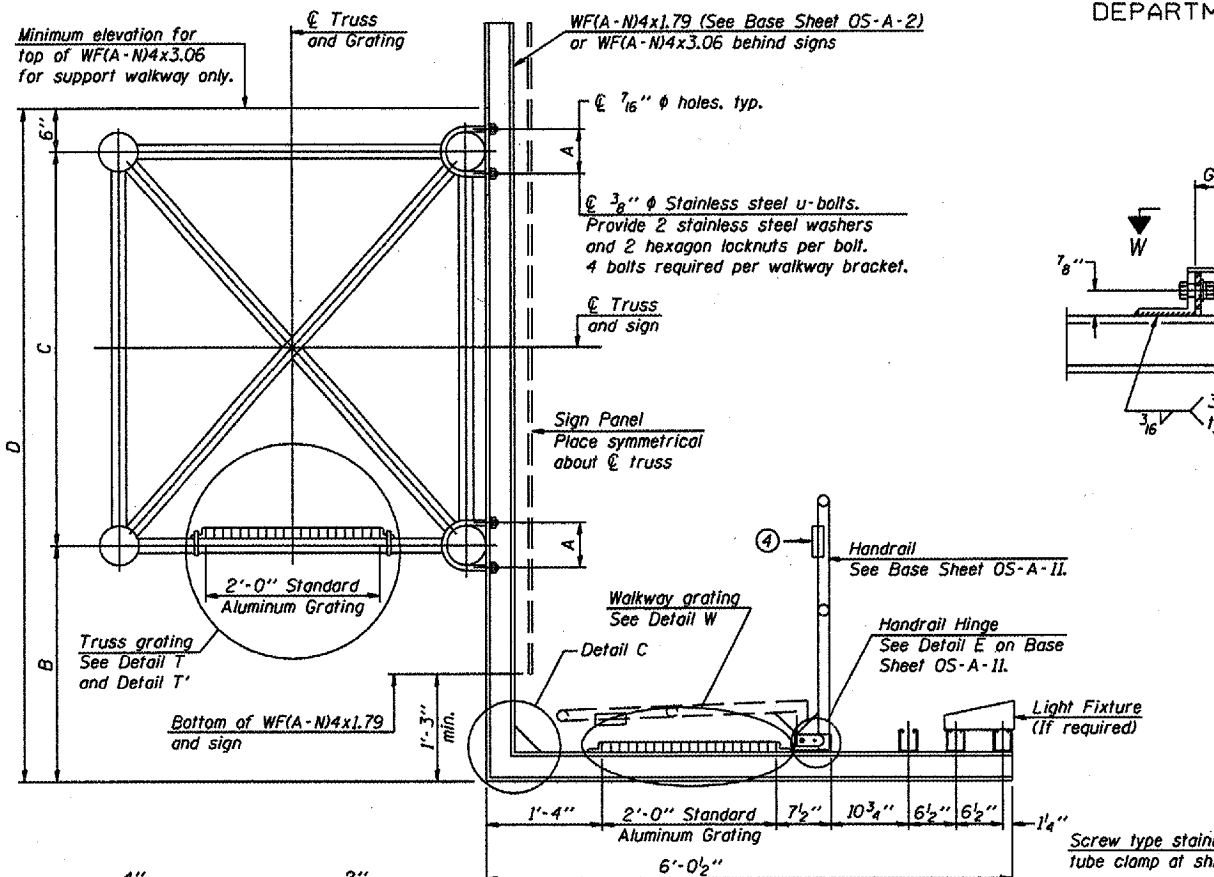
District 5  
Overhead Sign Structure  
Repair and Replacement

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

NUMBER	REVISION	DATE

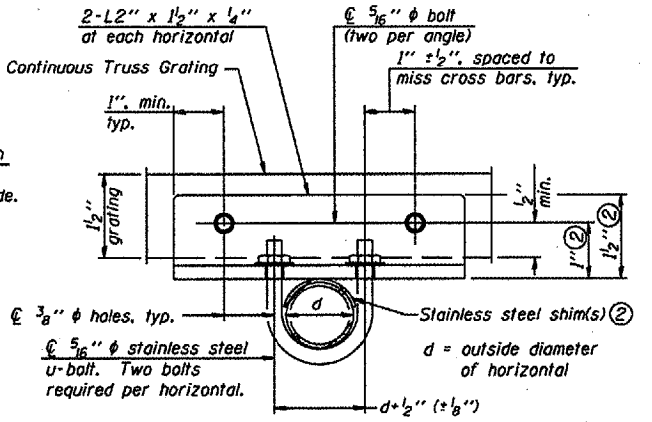
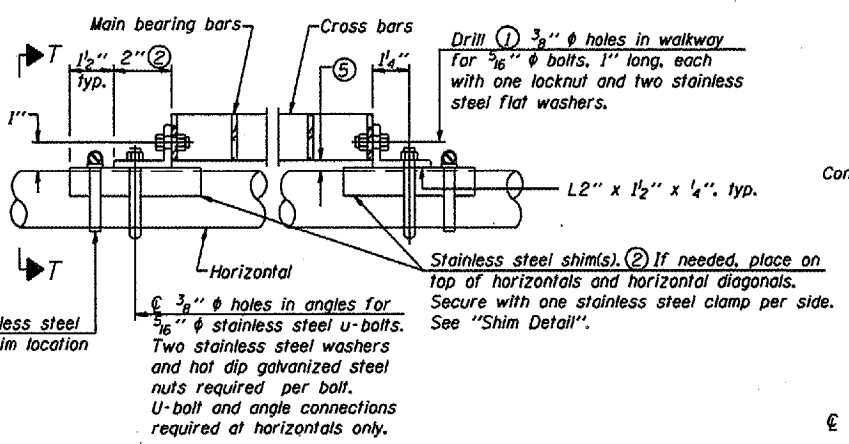
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 61 of 89  
Contract Number 44904



DETAIL W  
(Walkway grating)

DETAIL T'  
(Truss grating splice)  
Details not shown same as Detail T.  
Alternate materials may be used subject to the Engineer's review and approval.



DETAIL T  
(Continuous Truss grating)

SECTION T-T

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/8" centers and conform to ASTM B221 Alloy 6061-T6.  
Cross bars 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 "I" 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 1/2", spaced on 1 3/8" centers.  
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.

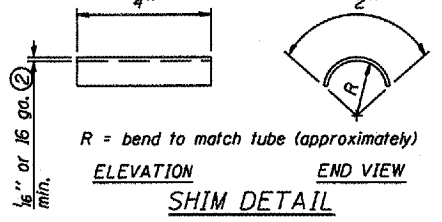
- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- Stainless steel shims shall be placed as shown in Detail T if needed to compensate for alignment variations between horizontal and diagonal pipes beyond adjustment provided by angles. Thicker shims may be used subject to shims performing properly.
- If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OS-A-11.)
- 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.

Structure Number	Station	A	B	C	D
5S0101074R178.7 *	1824+00	5 3/8"	5' - 6"	4' - 6"	14' - 3"
5S0921074R214.0 *	1913+00	5 3/8"	3' - 5"	5' - 3"	10' - 9"

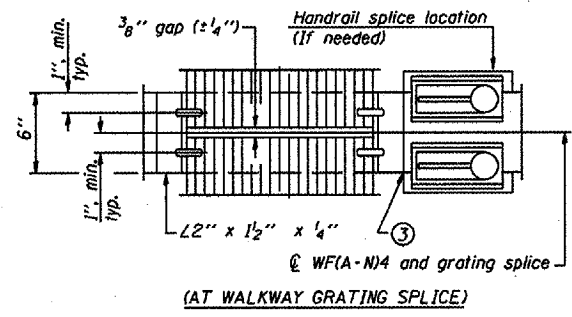
\* The Contractor shall field verify the dimensions for all walkway support brackets.

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

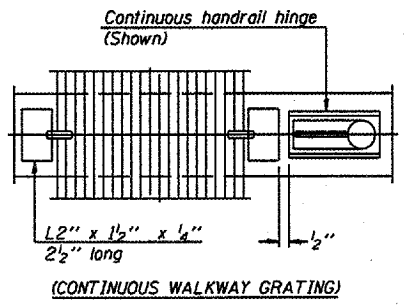
District 5  
Overhead-Sign Structure  
Repair and Replacement



SECTION B-B

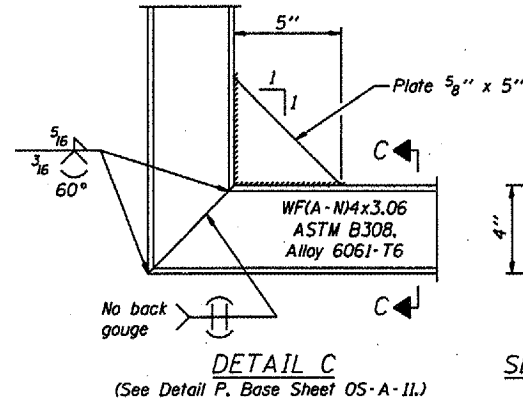


(AT WALKWAY GRATING SPLICE)



SECTION C-C

SECTION W-W



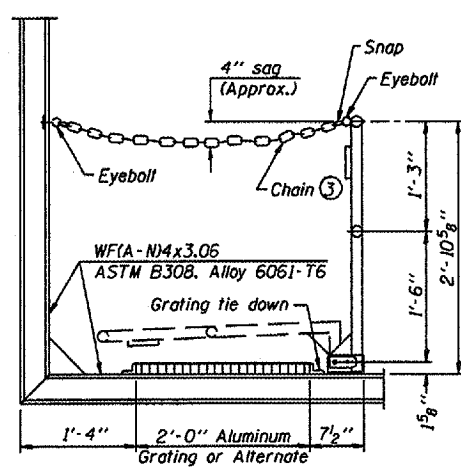
DETAIL C

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

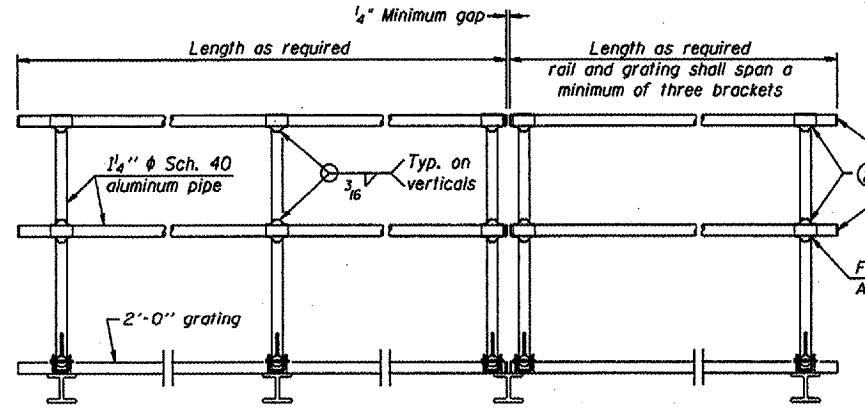
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 62 of 89  
Contract Number 44904



**SIDE ELEVATION**  
(Showing safety chain w/o sign)

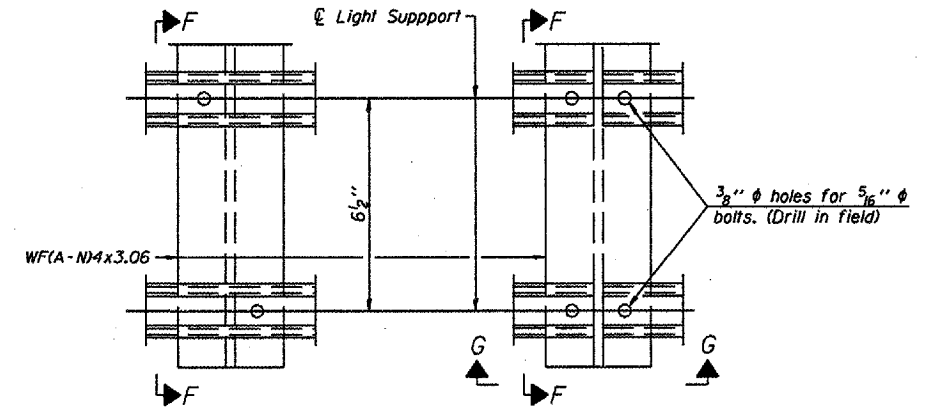


**FRONT ELEVATION**

**HANDRAIL DETAILS**

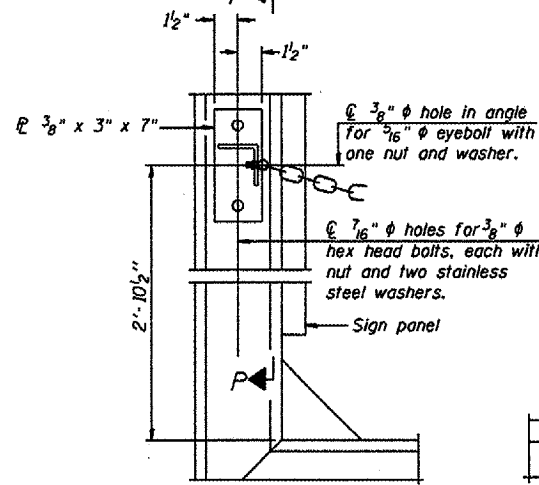
Handrail pipe shall be ASTM B241, Alloy 6063-T6 or Alloy 6061-T6.

- ① Install standard force-fit end caps or weld 3/8" end plates with 3/8" 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" eyeballs in 1/16" holes on top rail at ends only.)

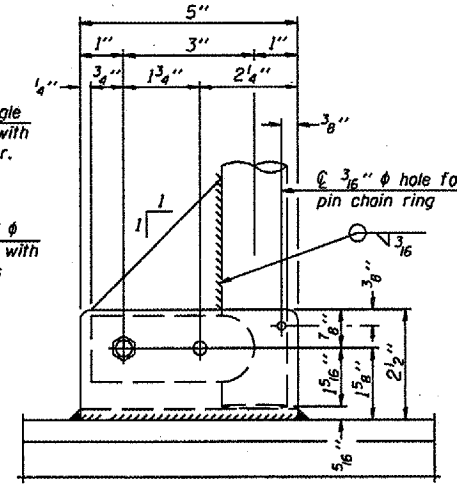


**DETAIL F**

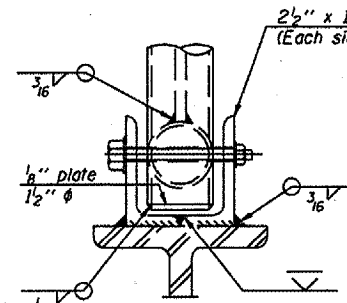
**DETAIL G**



**ALTERNATE SAFETY CHAIN ATTACHMENT**  
(With Sign Present)  
Items not shown same as "Side Elevation" of "Handrail Details"

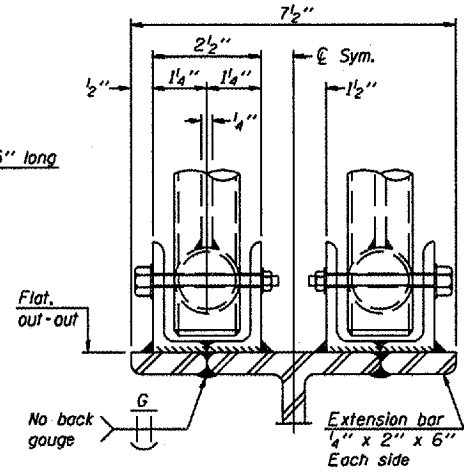


**SIDE ELEVATION**

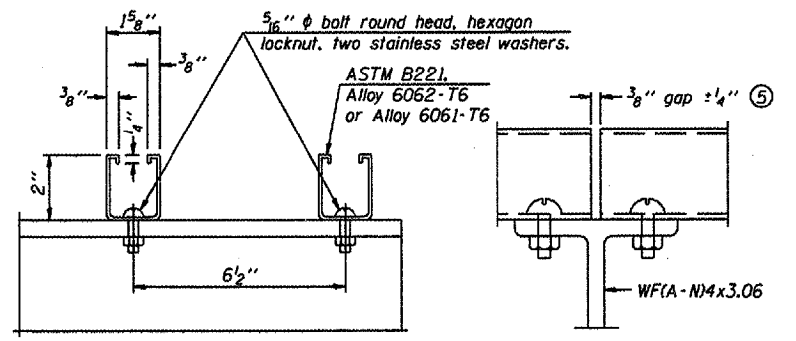


**FRONT ELEVATION**

See "Elevation" at right for dimensions.



**ELEVATION AT HANDRAIL JOINT** ④

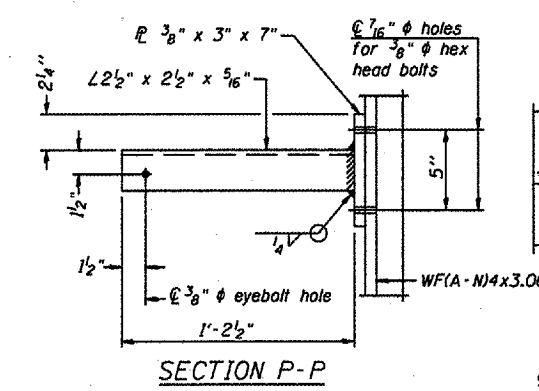


**SECTION F-F**

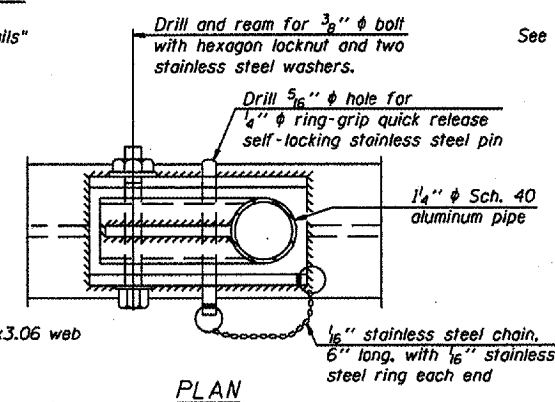
**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

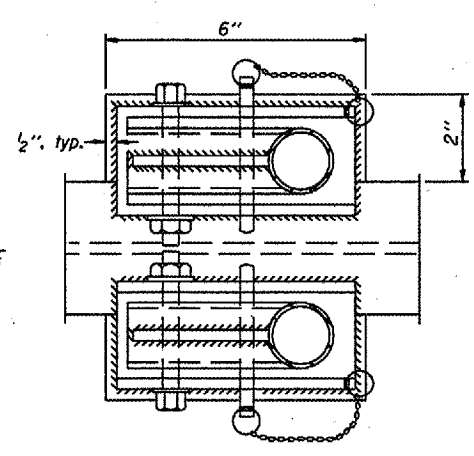
- ⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



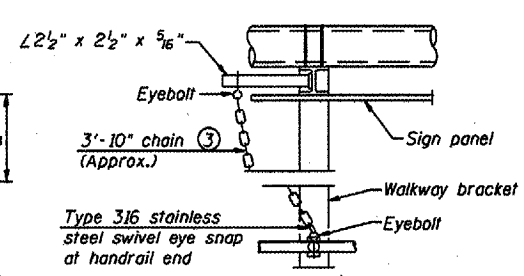
**SECTION P-P**



**PLAN**  
**DETAIL E HANDRAIL HINGE**



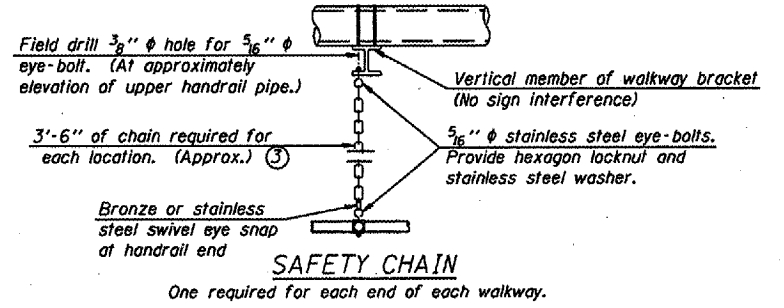
**PLAN AT HANDRAIL JOINT**  
Details not shown same as "PLAN"



**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

- ③ 3/16" Type 304L or 316L 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.

**OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS**

District 5  
Overhead Sign Structure  
Repair and Replacement

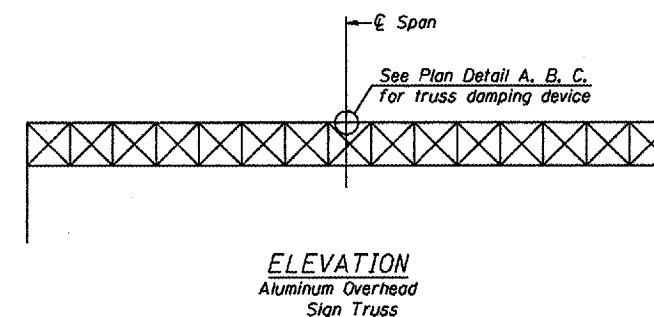
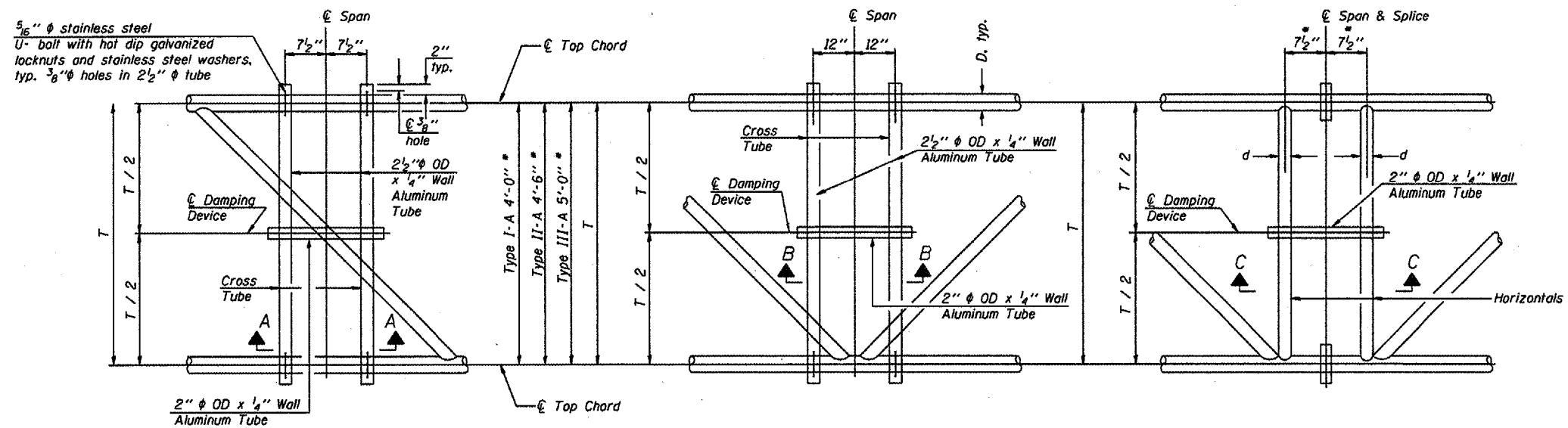
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 63 of 89  
Contract Number 44904



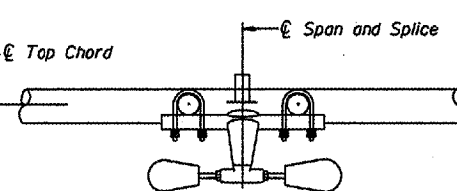
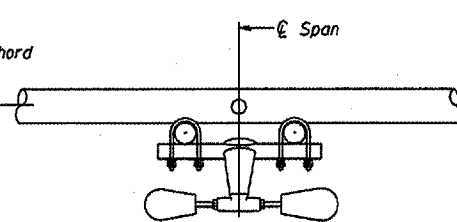
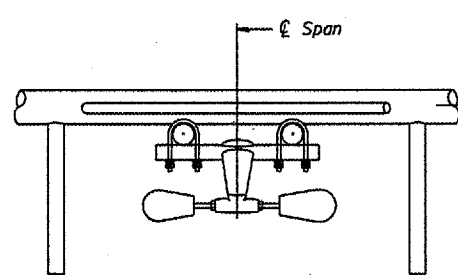
PLAN DETAIL "A"  
Span between Panel Points

PLAN DETAIL "B"  
Span at Panel Point

PLAN DETAIL "C"  
Span at Chord Splice

NOTES

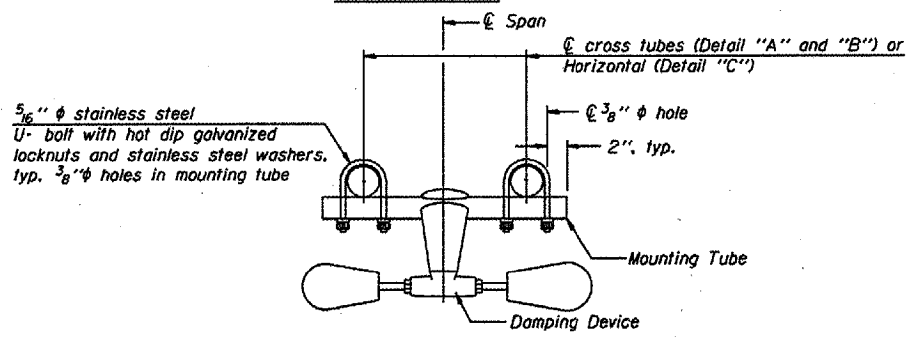
Damper: One damper per truss.  
(31 lbs. Stockbridge-Type Aluminum)  
Cost included in Overhead Sign Structure...  
Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...



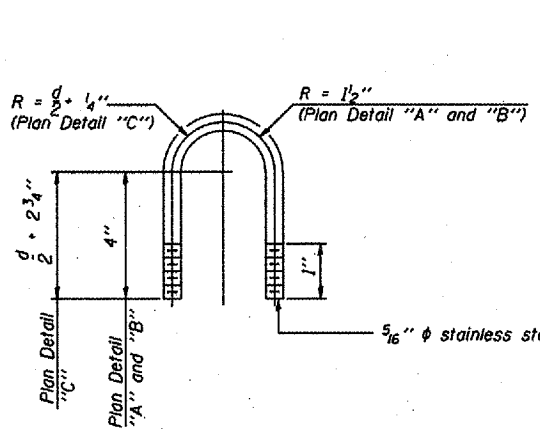
SECTION A-A

SECTION B-B

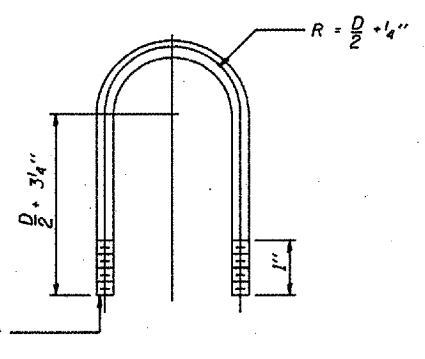
SECTION C-C



TRUSS DAMPING  
DEVICE CONNECTION DETAIL  
(Typical)



DAMPING DEVICE MOUNTING  
TUBE U-BOLT DETAIL  
(Typical)

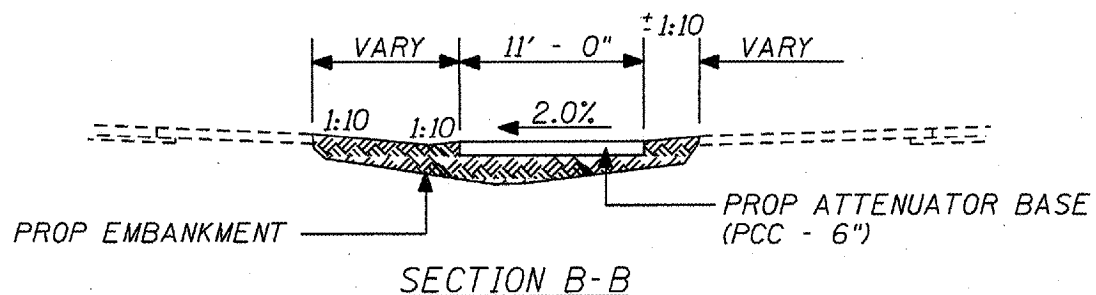
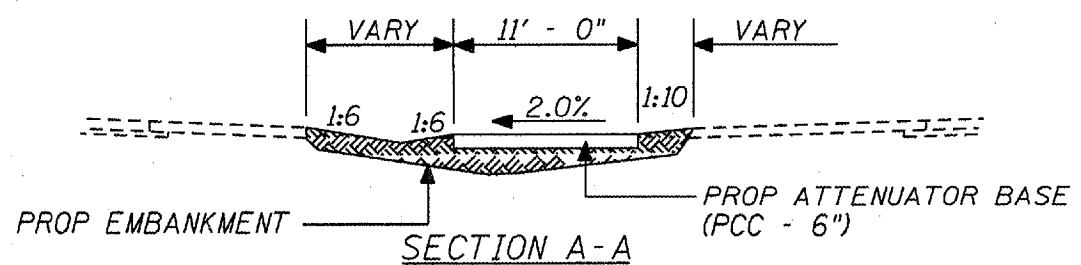
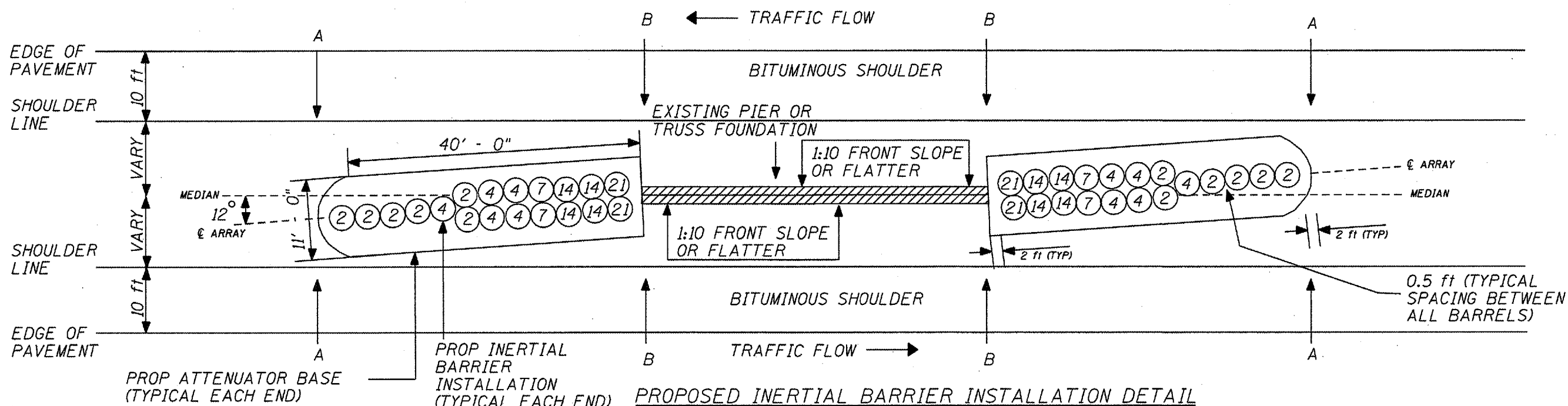


TOP CHORD TO CROSS TUBE  
U-BOLT DETAIL  
(Typical - Detail "A" and "B")

OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE

District 5  
Overhead Sign Structure  
Repair and Replacement

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



Location	Concrete (Special) SQ YD	Removal Attenuator Base SQ YD	Relocate Impact Attenuator EACH
STATION 1913 + 00	108.4	108.4	2

THE CONTRACTOR AND THE ENGINEER SHALL DETERMINE THE LAYOUT FOR THE IMPACT ATTENUATORS

NOTE:  
THIS DETAIL APPLIES TO:  
STRUCTURE NO. 550921074R214.0

THE FIGURES WITHIN EACH CIRCLE ON THE LAYOUT DETAIL INDICATE THE AMOUNT OF SAND IN POUNDS X 100 CONTAINED IN EACH MODULE

LONGITUDINAL GRADE OF ATTENUATOR BASE SHALL MATCH THE MAINLINE PROFILE

ALL DISTURBED AREAS SHALL RECEIVE SEEDING, CLASS 2 AND FERTILIZER AT THE FOLLOWING RATES:  
RATIO 1:1:1  
RATE 270 lb NUTRIENTS/ACRE  
(90 lb NITROGEN, 90 lb PHOSPHORUS, 90lb POTASSIUM)  
SEEDING AND FERTILIZER NUTRIENTS ARE INCLUDED IN THE COST FOR INERTIAL BARRIER INSTALLATION

IMPACT ATTENUATOR DETAIL

District 5  
Overhead Sign Structure  
Repair and Replacement

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







Illinois Department  
 of Transportation  
 Division of Highways  
 IDOT - Dist 3

SOIL BORING LOG

Page 1 of 1

Date 1/27/05

ROUTE I-72 DESCRIPTION Overhead Sign Trusses 1-72EB & WB LOGGED BY CNA

SECTION \_\_\_\_\_ LOCATION SE. SEC. 8. TWP. 19N. RNG. 8E. 3<sup>rd</sup> PM

COUNTY Champaign DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. \_\_\_\_\_  
 Station \_\_\_\_\_

BORING NO. 1 5S0101072L182.12  
 Station 1973+47  
 Offset 49.0 ft Lt.  
 Ground Surface Elev. 95.1 ft

D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft	D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)

Brown Sandy Clay Loam (Embankment) (Note: Soil boring for overhead sign truss on I-72WB at offramp to I-57NB)	95.1			Gray Clay Loam Till (continued)				
	5			(Note: Used top of existing north foundation as benchmark elevation of 100.0')		1		
	7	4.8	18			3	1.4	13
	11	S			71.1	3	B	
				End of Boring				
	2							
	4	2.1	21					
	4	B						
	2							
	4	2.1	21					
	5	B						
	2							
	4	2.7	12					
Brown Sandy Clay Loam Till	6	B						
	2							
	3	2.7	16					
Gray Clay Loam Till	6	B						
	4							
	5	3.5	12					
	9	B						
	2							
	6	4.3	30					
	6	B						

2/18/2005 8:47:32 AM 51SOILBORING LOGS\CHAMPAIGN\CHTYL172&157 INT SIGNTRUSSES.GPJ

An assumed centerline elevation of 100.00' and station of 10+00 is used when this information is not available.  
 The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPJ (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T208)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 67 of 89  
Contract Number 44904

District 7  
Schedule of Locations for Truss Repair & Replacement

Location No.:	7-01	State I.D. No.:	7S051U050L014.8				
County:	Lawrence	Route:	U. S. 50	M.P.:	14.8	Direction:	WB
Description of Work			Unit	Quantity			
OVERHEAD SIGN SUPPORT GROUT REPAIR			EACH	4.00			
REPAIR HANDRAIL LOCKING PIN CONNECTION			EACH	12.00			
FURNISH & INSTALL SAFETY CHAIN			EACH	2.00			
FURNISH & INSTALL INTERNAL TRUSS DAMPER			EACH	1.00			

Location No.:	7-02	State I.D. No.:	7C025I057R166.1				
County:	Effingham	Route:	I-57	M.P.:	166.1	Direction:	NB
Description of Work			Unit	Quantity			
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER			EACH	1.00			
REMOVE CONCRETE FOUNDATION-OVERHEAD			EACH	1.00			
OVERHEAD SIGN STRUCTURE CANTILEVER 2CA3-0X5-6			FOOT	30.00			
DRILLED SHAFT CONCRETE FOUNDATION			CU YD	7.20			
REMOVE & REINSTALL SIGN PANEL			SQ FT	74.75			
REMOVE & REINSTALL WALKWAY			FOOT	17.00			
FURNISH & INSTALL SAFETY CHAIN			EACH	2.00			
RELOCATE ELECTRIC SERVICE			EACH	1.00			
DISCONNECT/RECONNECT ELECTRIC SERVICE			EACH	1.00			
UNIT DUCT, 2#10 XLP, 1#10 XLP GROUND 3/4" POLYETHYLENE			FOOT	150.00			
This overhead sign structure is being completely replaced.							

Location No.:	7-03	State I.D. No.:	7C026U051L011.0				
County:	Fayette	Route:	U.S. 51	M.P.:	11	Direction:	SB
Description of Work			Unit	Quantity			
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER			EACH	1.00			
REMOVE CONCRETE FOUNDATION-OVERHEAD			EACH	1.00			
STEEL MAST ARM ASSEMBLY & POLE, 28 FOOT			EACH	1.00			
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER			FOOT	10.00			
REMOVE & REINSTALL SIGN PANEL			SQ FT	93.00			
MEDIAM SURFACE REMOVAL			SQ FT	128.00			
CONCRETE MEDIAN SURFACE, 4 INCH			SQ FT	128.00			
REMOVE ELECTRIC SERVICE			EACH	1.00			
This overhead sign structure is being replaced with a steel mast arm and pole assembly.							

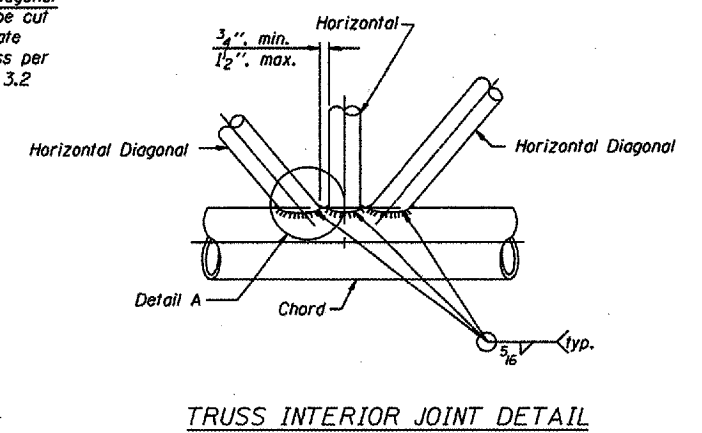
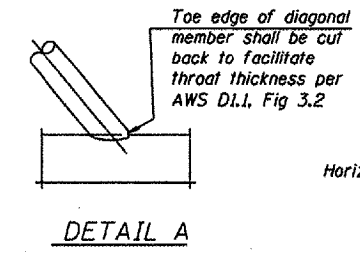
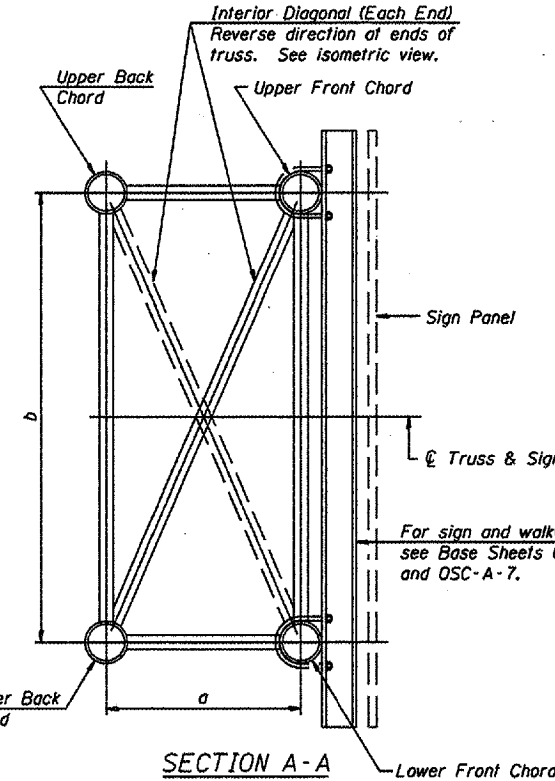
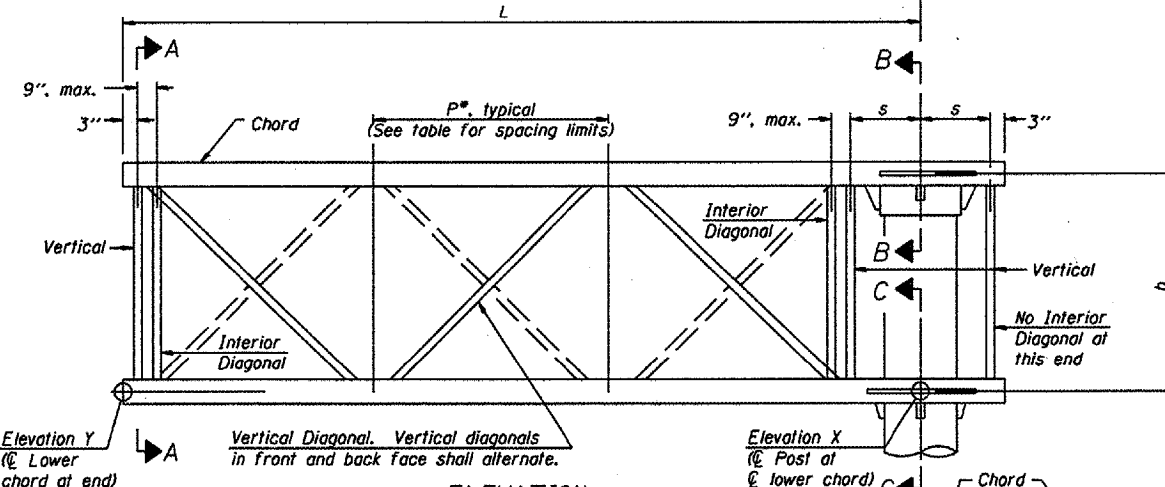
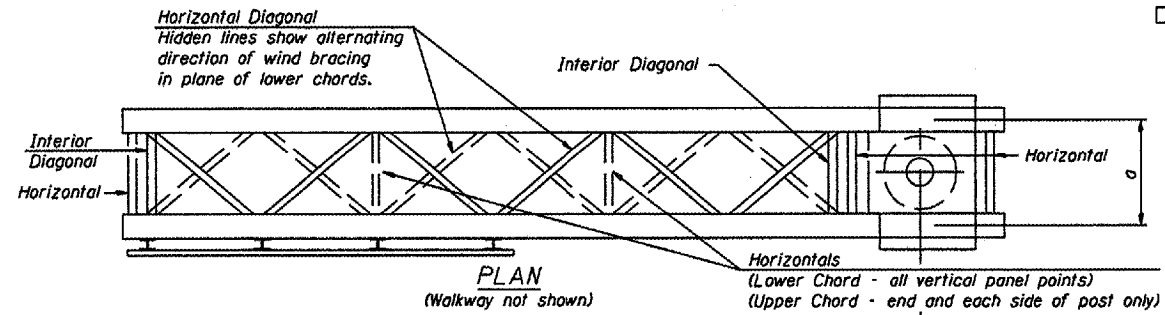
Location No.:	7-04	State I.D. No.:	7C026U051R010.9				
County:	Fayette	Route:	U.S. 51	M.P.:	10.9	Direction:	NB
Description of Work			Unit	Quantity			
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER			EACH	1.00			
REMOVE CONCRETE FOUNDATION-OVERHEAD			EACH	1.00			
REMOVE ELECTRIC SERVICE			EACH	2.00			
REMOVAL OF EXISTING LIGHTING UNIT, SALVAGE			EACH	1.00			
REMOVE EXISTING SIGN			SQ FT	82.00			
This overhead sign structure is being completely removed.							

Location No.:	7-05	State I.D. No.:	7C026U051R011.0				
County:	Fayette	Route:	U.S. 51	M.P.:	11	Direction:	NB
Description of Work			Unit	Quantity			
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER			EACH	1.00			
REMOVE CONCRETE FOUNDATION-OVERHEAD			EACH	1.00			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 30 FT.			EACH	1.00			
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER			FOOT	13.50			
UNIT DUCT, 2#10 XLP, 1#10 XLP GROUND 3/4" POLYETHYLENE			FOOT	400.00			
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C			FOOT	686.00			
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C			FOOT	186.00			
TRAFFIC SIGNAL BACKPLATE, LOUVERED			EACH	4.00			
REMOVE ELECTRIC CABLE FROM CONDUIT			FOOT	647.00			
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT			EACH	1.00			
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE,							
3-SECTION, BRACKET MOUNTED			EACH	1.00			
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE,							
3-SECTION, MAST ARM MOUNTED			EACH	2.00			
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE,							
5-SECTION, BRACKET MOUNTED			EACH	1.00			
REMOVE & REINSTALL SIGN PANEL			SQ FT	135.00			
CONDUIT IN TRENCH, 2 1/2 INCH DIAMETER PVC			FOOT	25.00			
LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT,							
PHOTOCELL CONTROL, 250 WATT			EACH	1.00			



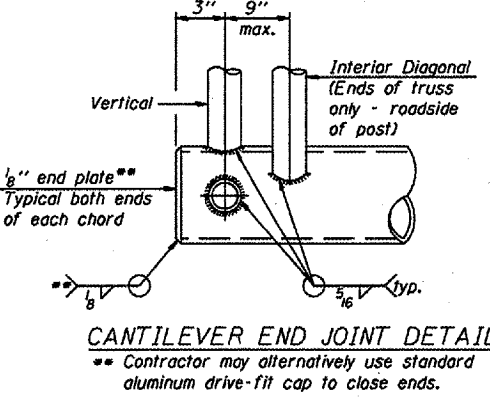
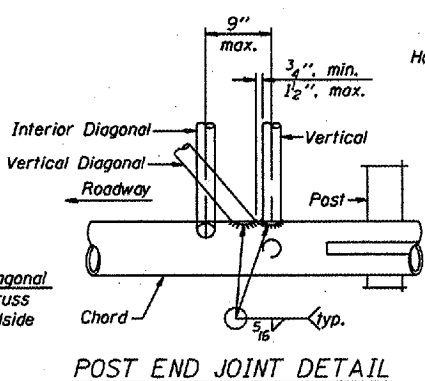
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
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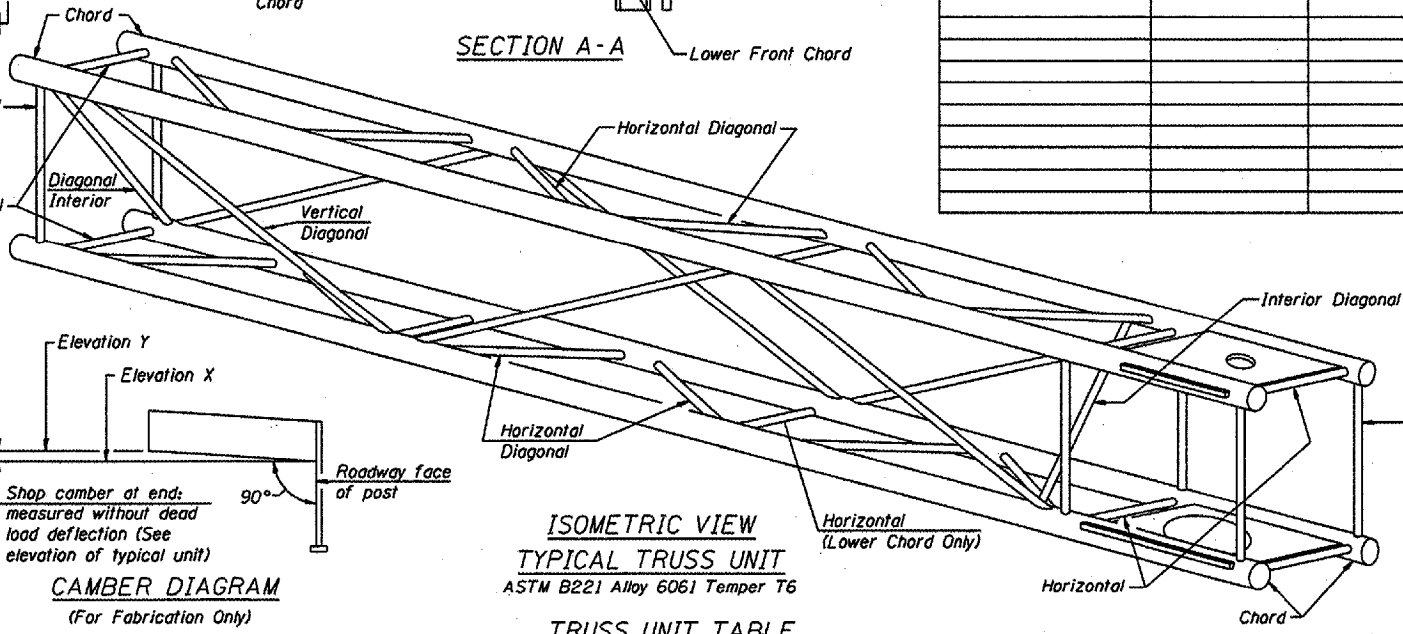
Structure Number	Station	Truss Type	Design Length (L)	Number of Panels Per Unit	Panel Length (P)*
7C0251057R166.1	5502 + 38	11	30' - 0"	7	4' - 0"

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



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"



CAMBER DIAGRAM  
(For Fabrication Only)

TRUSS UNIT TABLE

Truss Type	Dimension "a"	Dimension "b"	Dimension "s"	Limits for Panel Spacing (P)*	Up. & Low. Chord		Verticals, Horizontals, Vertical, Horizontal, and Interior Diagonals	
					O.D.	Wall	O.D.	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 =  $\frac{L-s-3"}{\# \text{ Panels}}$

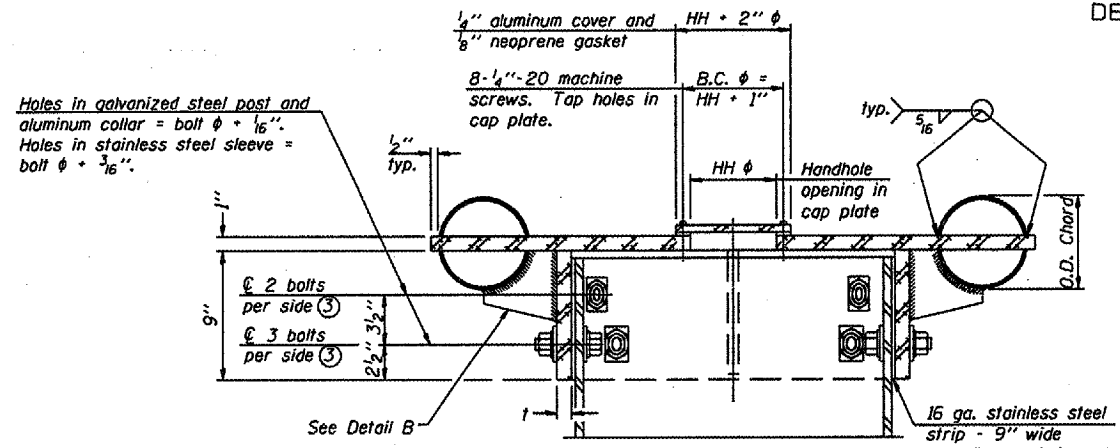
NUMBER	REVISION	DATE

CANTILEVER SIGN STRUCTURES  
TRUSS DETAILS  
ALUMINUM TRUSS & STEEL POST

District 7  
Overhead Sign Structure  
Repair and Replacement

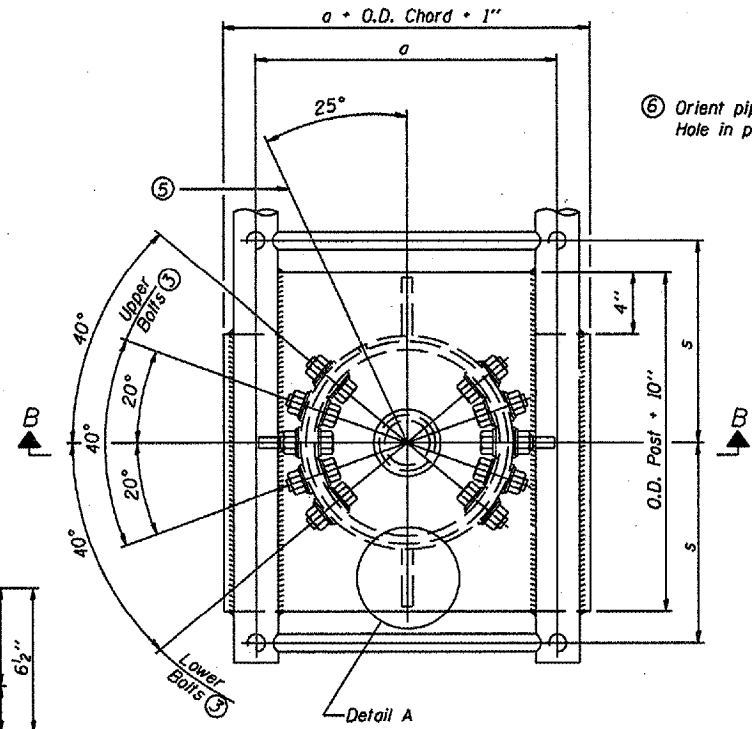
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OSC-A-2      1-7-05

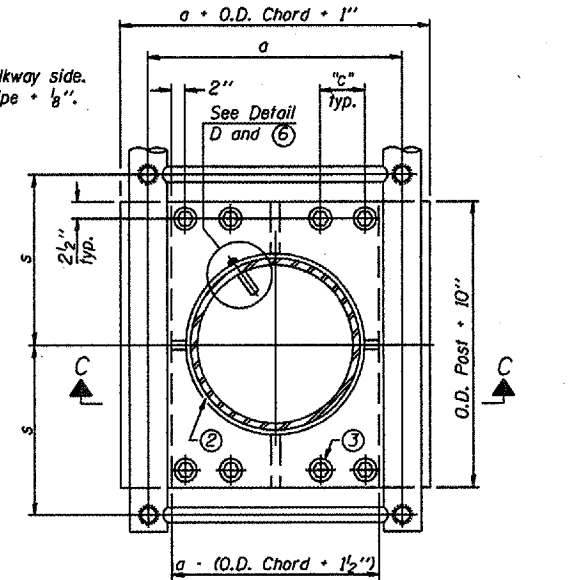


④ Collar I.D. shall be manufactured to correspond to O.D. of actual galvanized post and stainless steel sleeve plus 1/8" (+1/16"). Maximum gap between post and collar at any location equals 1/8" before tightening bolts.

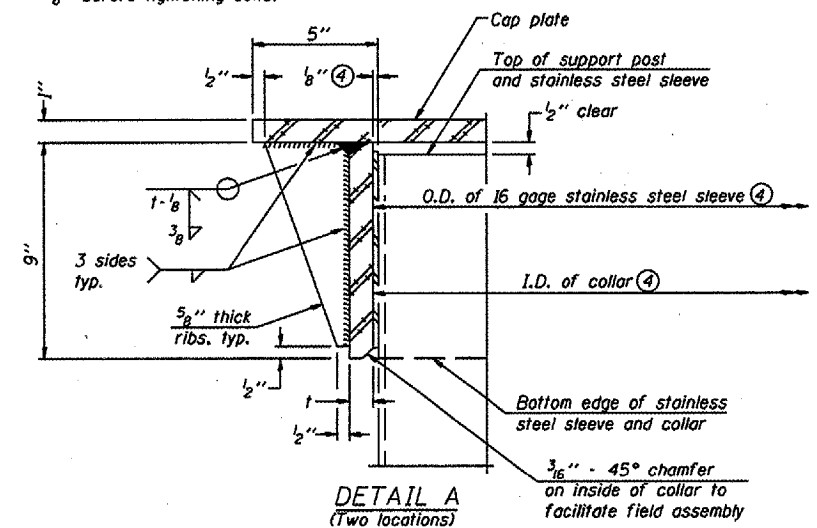
**SECTION B-B**  
Bolts, washers (including contoured washers), and locknuts shall be stainless steel.



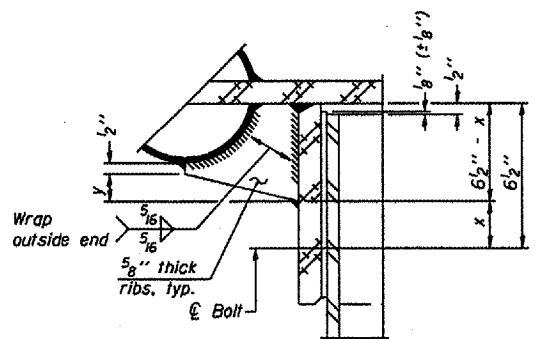
**PLAN VIEW - TOP OF COLUMN**  
⑤ Optional full penetration weld in collar. (Two locations maximum...180° apart)...X-ray or UT 100%



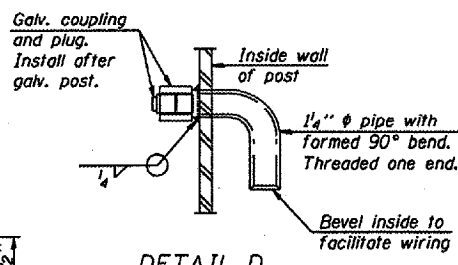
**SECTION THRU POST ABOVE LOWER CHORDS**



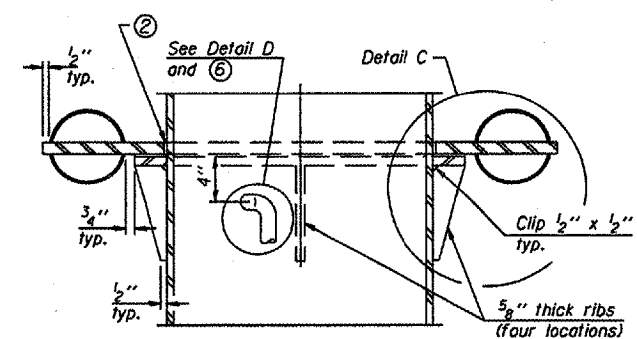
**DETAIL A**  
(Two locations)  
3/16" - 45° chamfer on inside of collar to facilitate field assembly



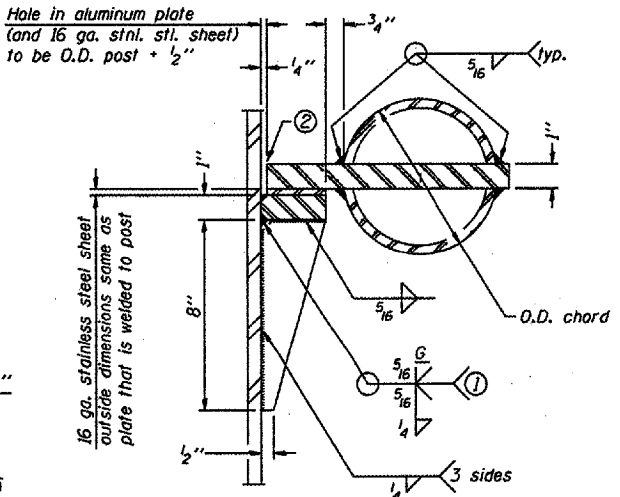
**DETAIL B**  
Two locations  
(For details not shown, see Detail C)



**DETAIL D**

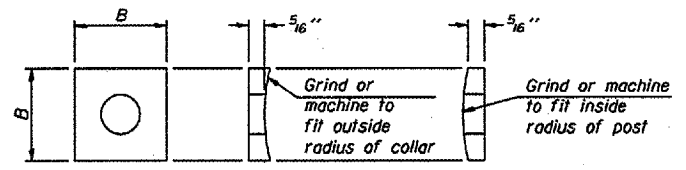


**SECTION C-C**



**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" phi (83#1)	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-A	24" phi (125#1)	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-A (35' max.)	24" phi (125#1)	1 1/4"	3 1/2"	12"	7/8"	2"	1"
III-C-A (35' to 40')	24" phi (171#1)	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.

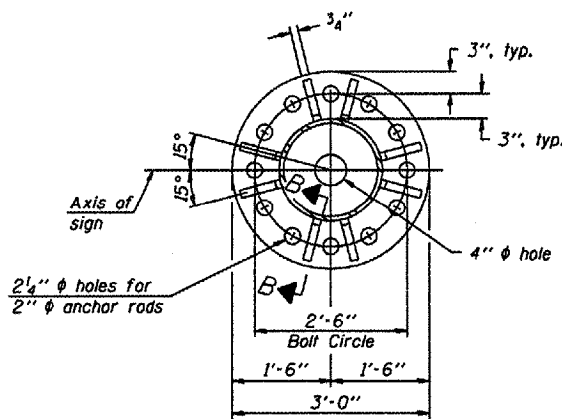
**CANTILEVER SIGN STRUCTURES  
JUNCTURE DETAILS  
ALUMINUM TRUSS & STEEL POST**

District 7  
Overhead Sign Structure  
Repair and Replacement

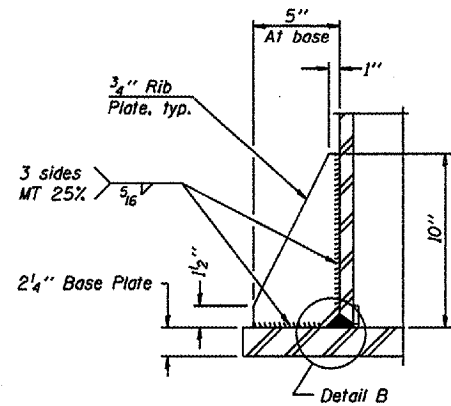
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

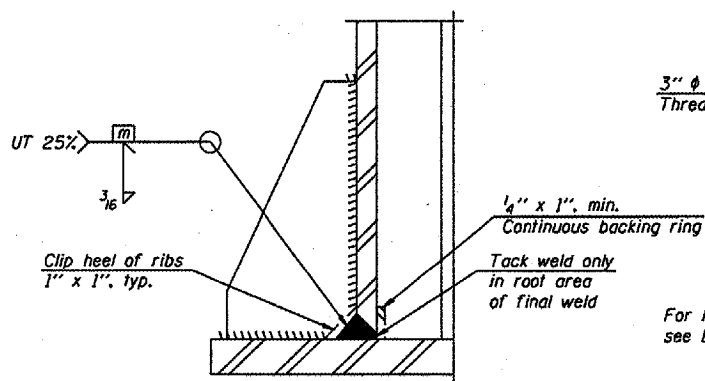
Various Routes  
OVD SIN STR REP & REPL 2006-9  
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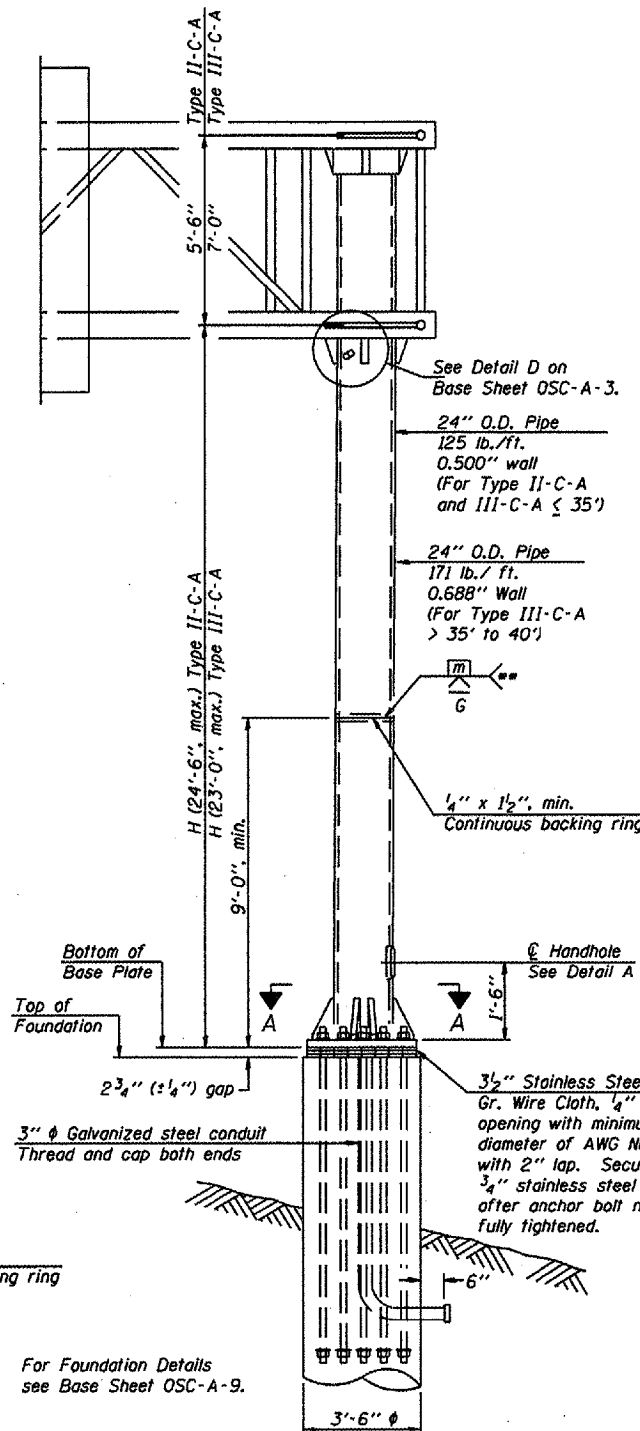
SECTION A-A



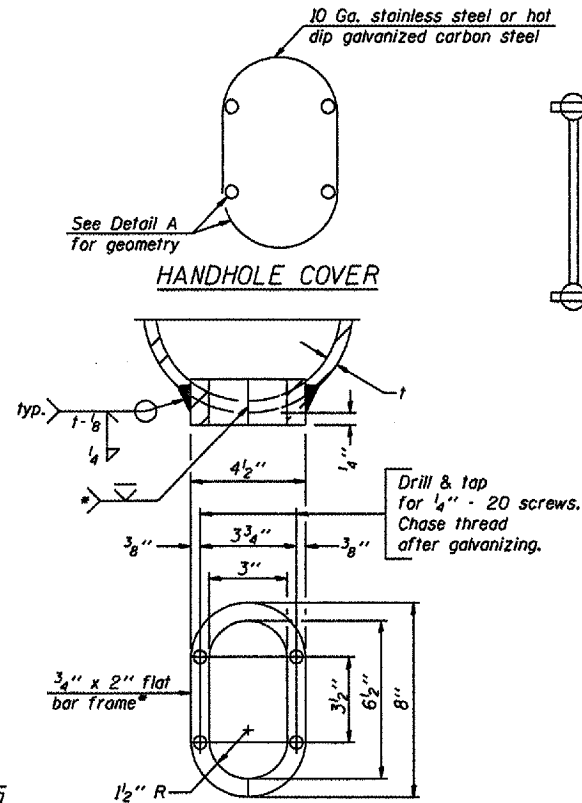
SECTION B-B



DETAIL B  
(Typical rib)



FRONT ELEVATION

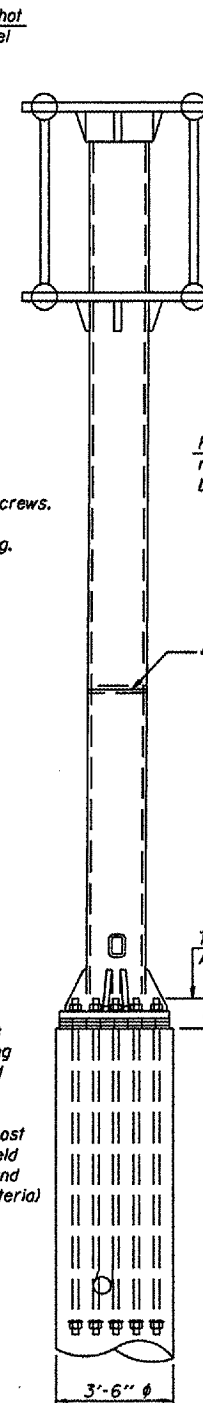


DETAIL A

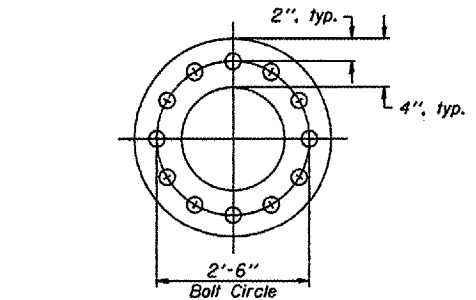
- Bent bars may be butt welded top and bottom or bottom only. In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.
- Butt welded joint in post is only allowed for post heights (H) over 20 ft. 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
7C0251057R166.1	5502 + 38	24' - 4"

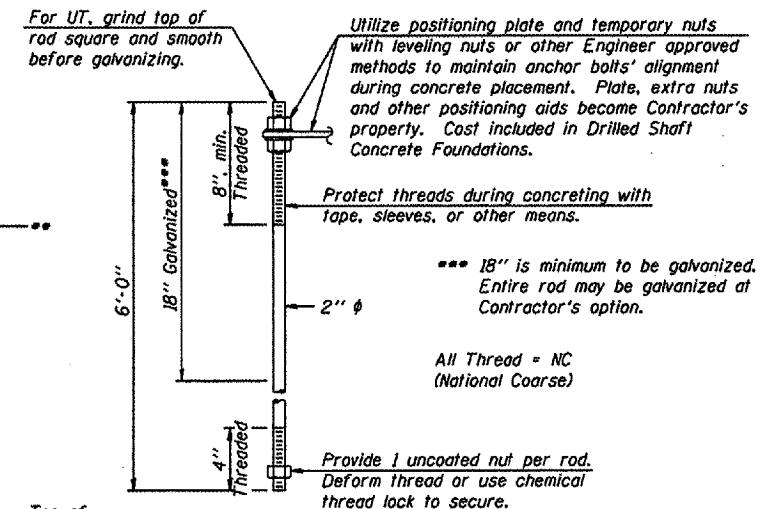
The Contractor shall field verify the height of the support.



SIDE ELEVATION



SUGGESTED POSITIONING PLATE



ANCHOR ROD DETAIL

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.

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

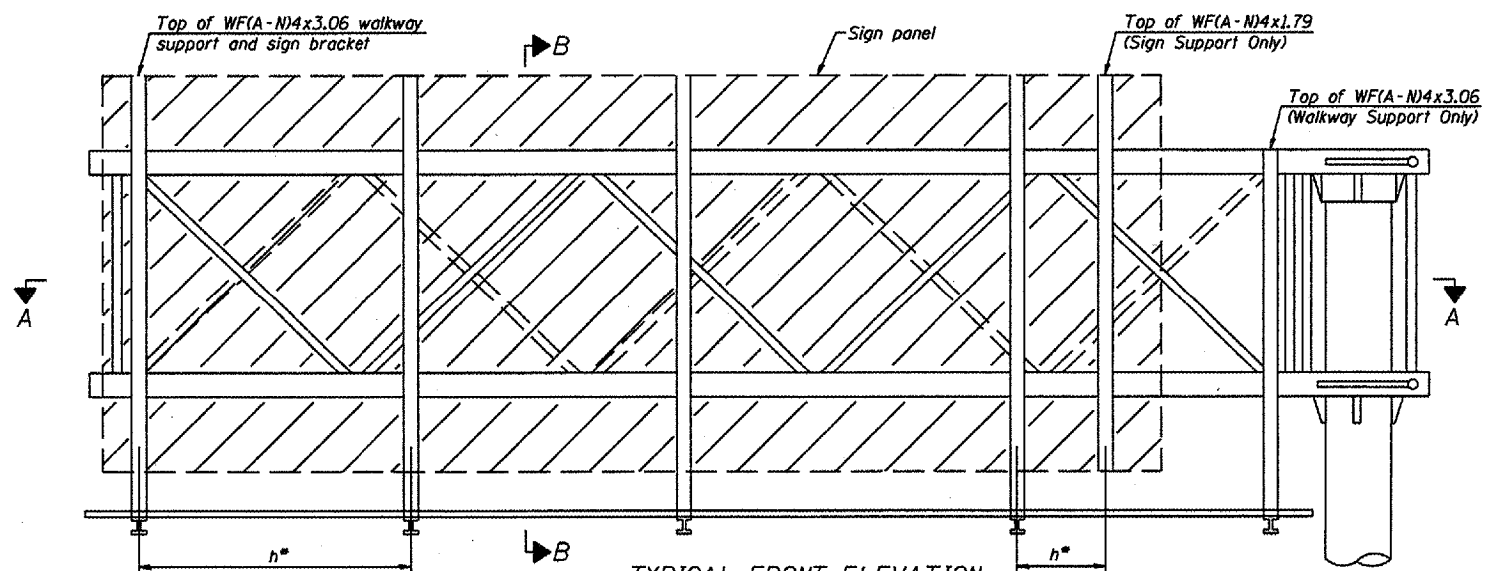
District 7  
Overhead Sign Structure  
Repair and Replacement

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

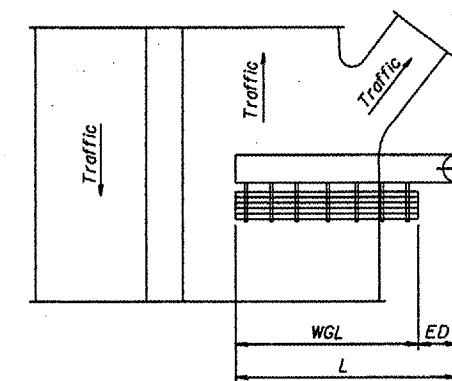
NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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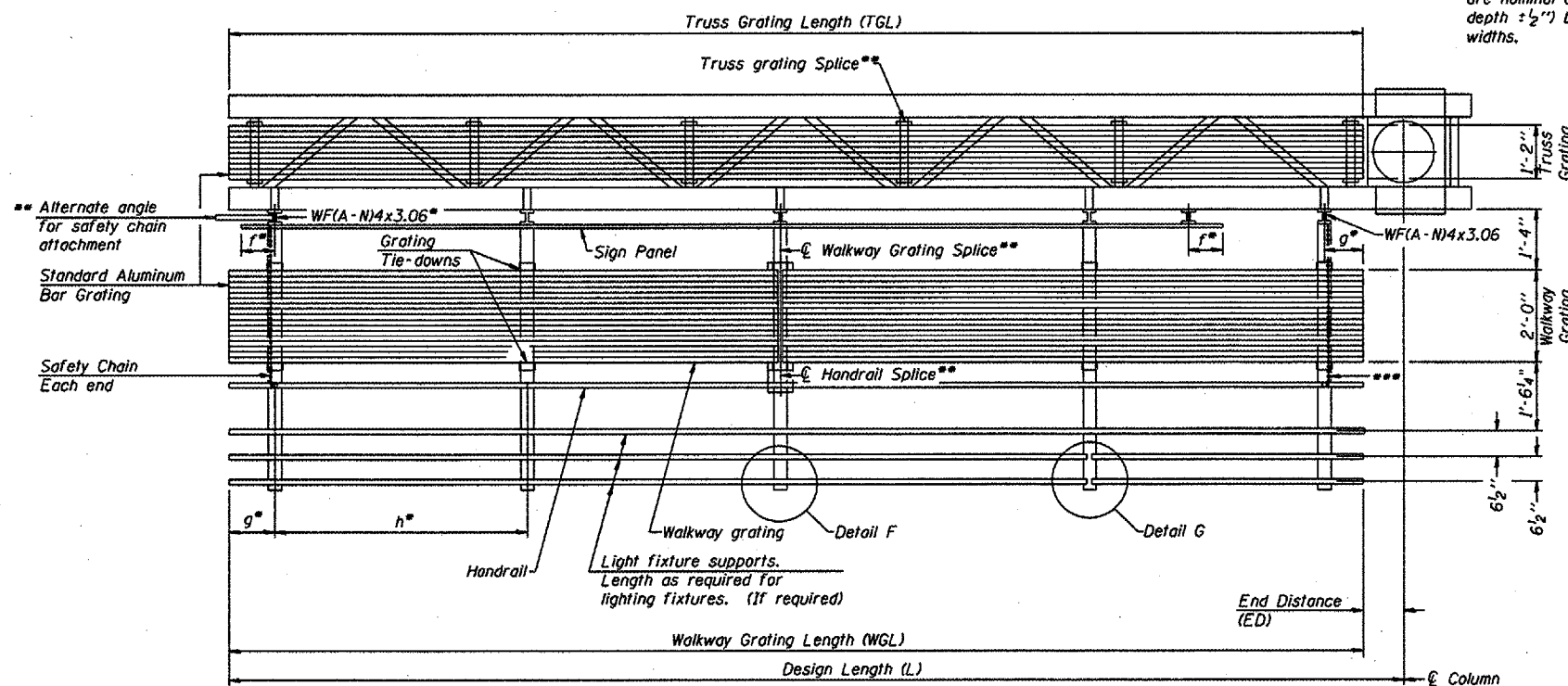


TYPICAL FRONT ELEVATION  
With lights and handrail omitted for clarity.



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.



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 or grating splices are optional, based on lengths needed and material availability.

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

NUMBER	REVISION	DATE

Structure Number	Station	WGL	ED	TGL
7C0251057R166.1	5502 + 38	*		28' - 6"

\* Reuse existing walkway and walkway support brackets.

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.

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 splice, 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

CANTILEVER SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS  
ALUMINUM TRUSS & STEEL POST

District 7  
Overhead Sign Structure  
Repair and Replacement

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

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

OSC-A-6

1-7-05

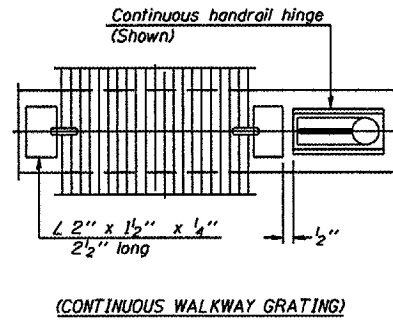
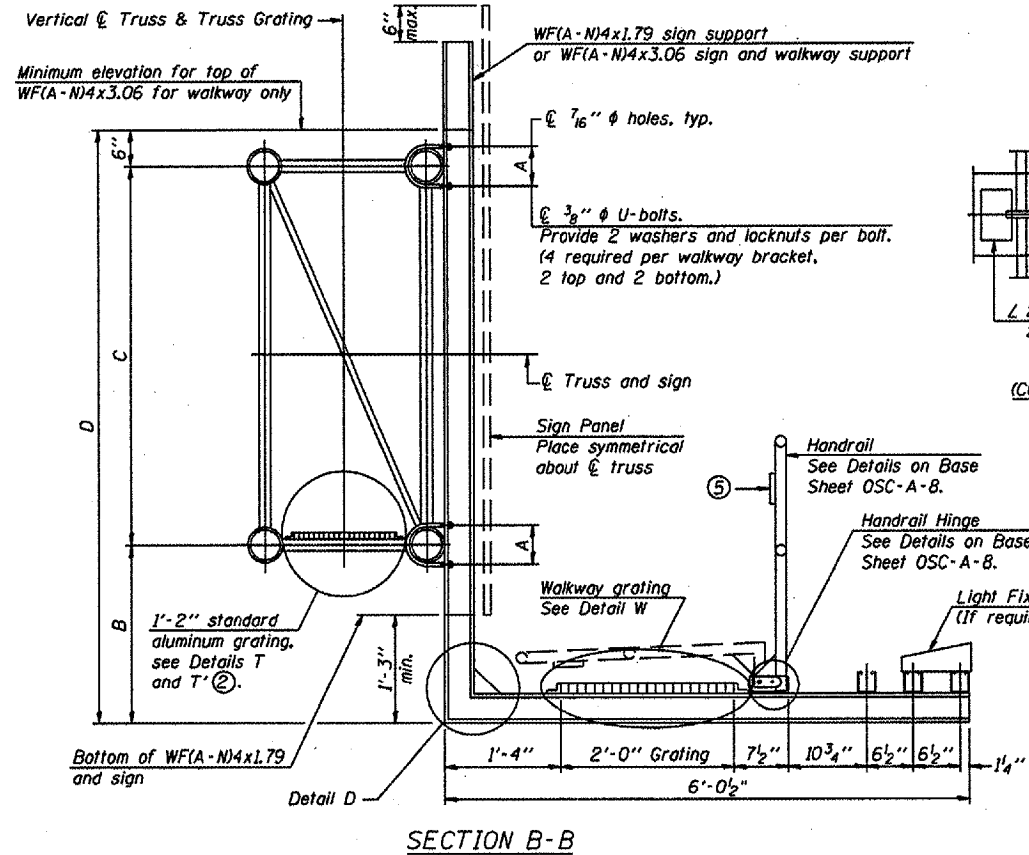


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

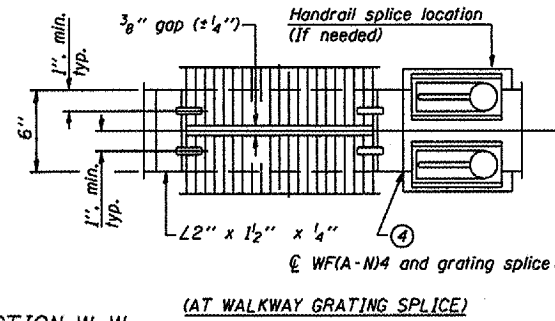
Various Routes  
OVD SIN STR REP & REPL 2006-9  
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**SPECIFICATIONS FOR STANDARD ALUMINUM GRATING**  
Main Bearing Bars (MBB) shall be  $\frac{3}{16}$ " x  $1\frac{1}{2}$ " on  $1\frac{3}{16}$ " centers and conform to ASTM B211 Alloy 6061-T6.  
Cross 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.

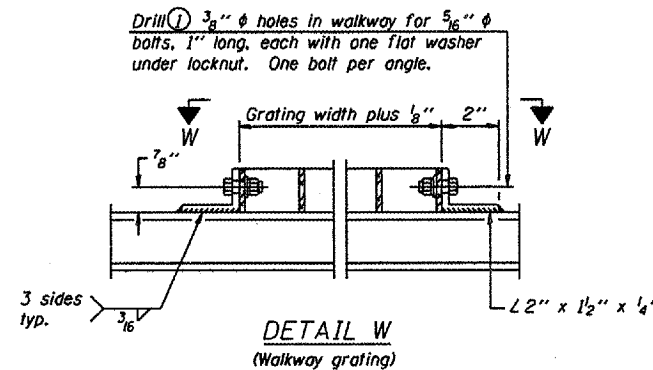
OR  
Aluminum Grating with modified "I" sections for main bearing bars shall meet the following requirements:  
Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.<sup>3</sup> per bar, a depth of  $1\frac{1}{2}$ ", spaced on  $1\frac{3}{16}$ " centers.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



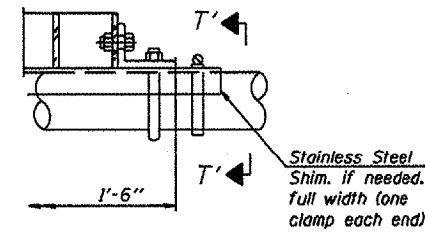
SECTION W-W



(AT WALKWAY GRATING SPLICE)

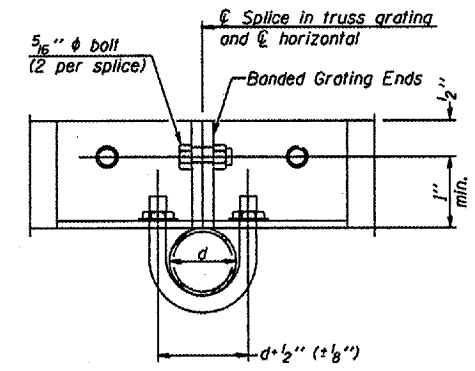


DETAIL W  
(Walkway grating)

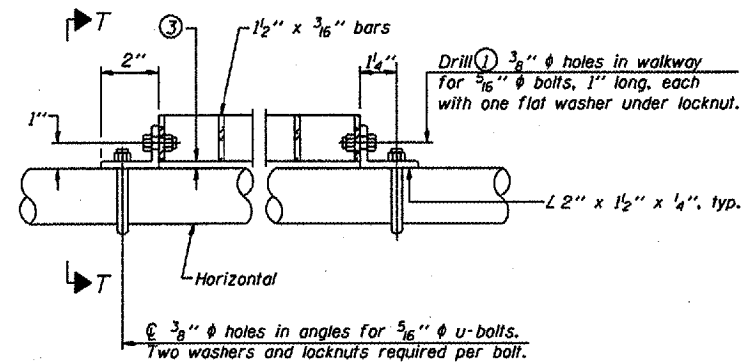


DETAIL T'

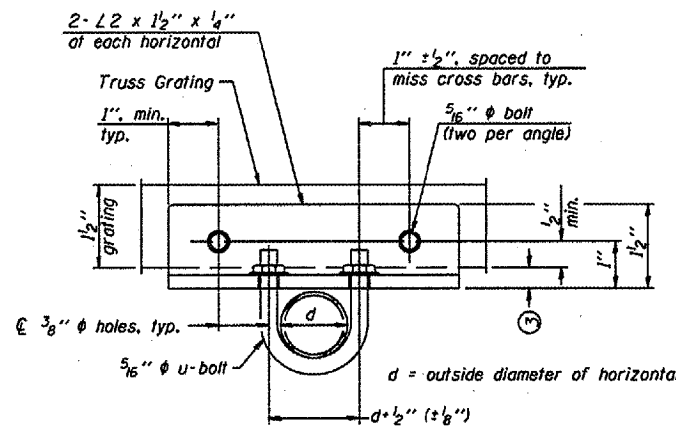
(Truss grating splice)  
Details not shown same as Detail T.  
Alternate materials may be used subject to the Engineer's review and approval.



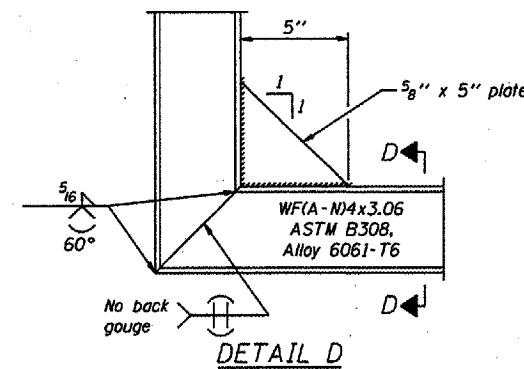
SECTION T'-T'



DETAIL T  
(Truss grating at horizontal)

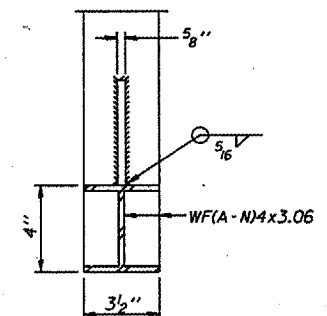


SECTION T-T



DETAIL D

(See Detail P, Base Sheet OSC-A-8.)



SECTION D-D

NUMBER	REVISION	DATE

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

OSC-A-7 1-7-05

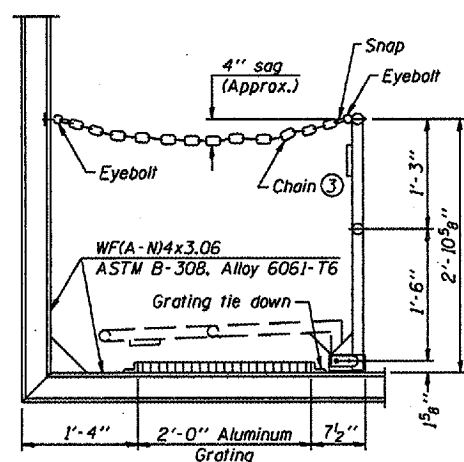
- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- When truss grating must be spliced, use suggested detail or other methods subject to the Engineer's review and approval. Locate splice to avoid interference between cross bars and bolt locations.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.
- If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OSC-A-8)
- 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.

Reuse Existing Walkway Support Brackets

Structure Number	Station	A	B	C	D

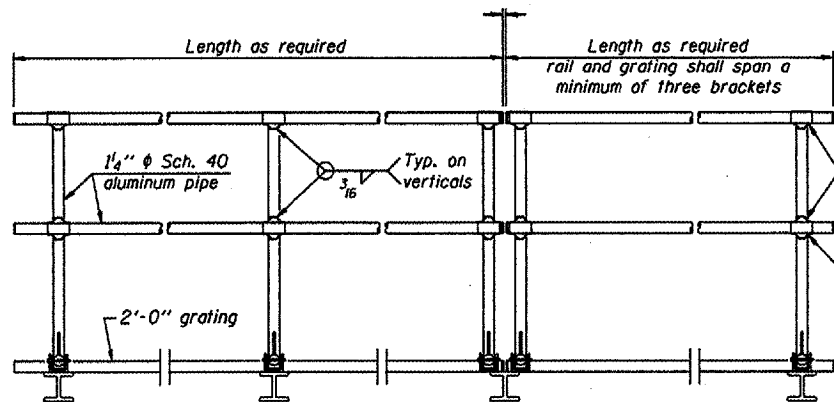
CANTILEVER SIGN STRUCTURES  
WALKWAY DETAILS  
ALUMINUM TRUSS & STEEL POST

District 7  
Overhead Sign Structure  
Repair and Replacement



**SIDE ELEVATION**

(Showing Safety Chain W/O Sign)



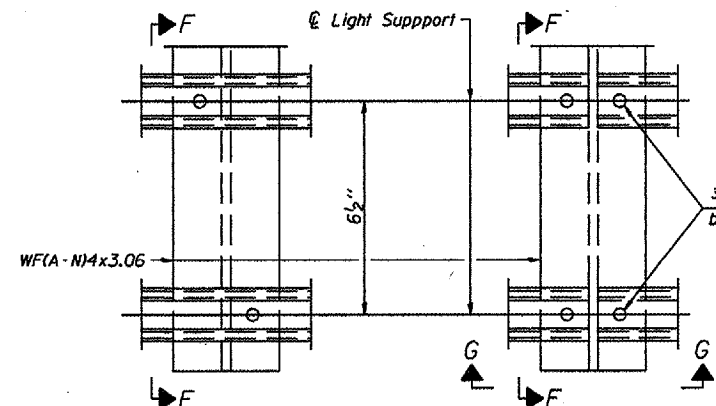
**FRONT ELEVATION**

**HANDRAIL DETAILS**

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

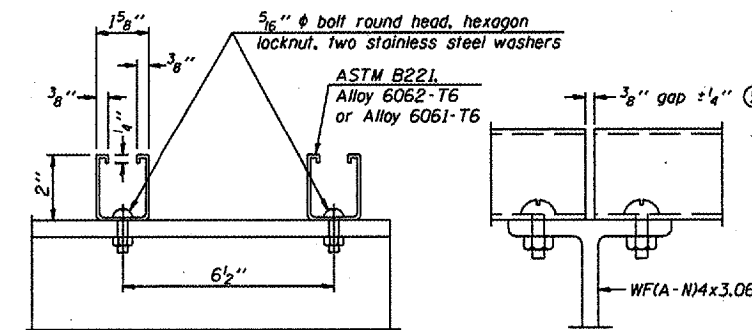
① Install standard force-fit end caps or weld 1/8" end plates with 1/8" c.f.w. and grind smooth. (All rail ends)

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**

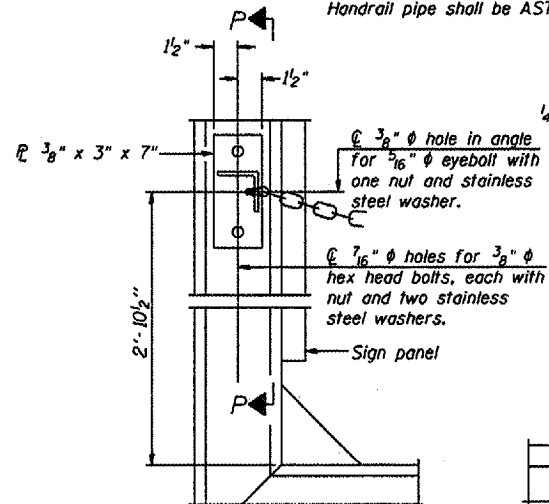


**SECTION F-F**

**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

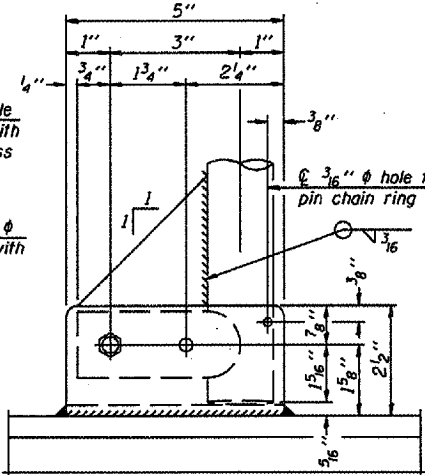
⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



**ALTERNATE SAFETY CHAIN ATTACHMENT**

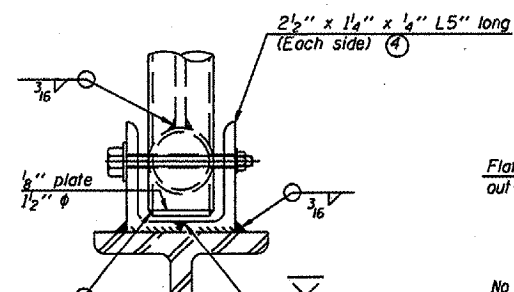
(With Sign Present)

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



**SIDE ELEVATION**

Drill and ream for 3/8" bolt with two hexagon locknuts and two stainless steel washers.

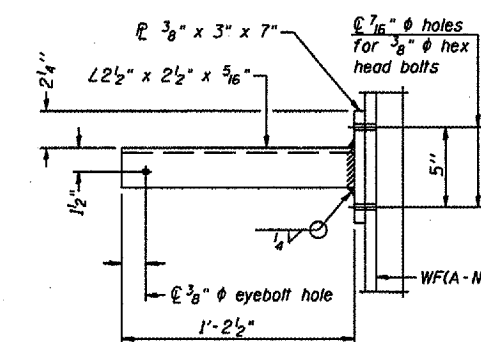


**FRONT ELEVATION**

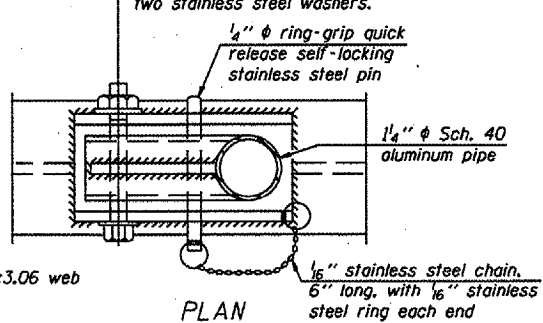
Details not shown same as "ELEVATION" at right.

**ELEVATION AT HANDRAIL JOINT**

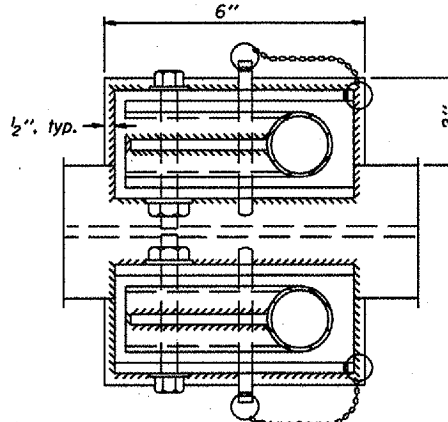
Details not shown same as "FRONT ELEVATION"



**SECTION P-P**

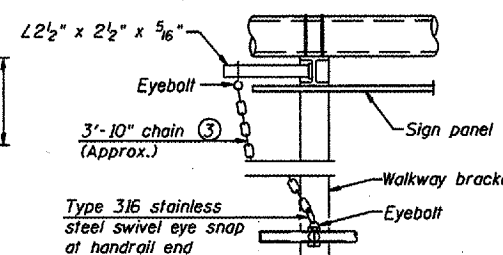


**DETAIL E HANDRAIL HINGE**



**PLAN AT HANDRAIL JOINT**

Details not shown same as "PLAN"

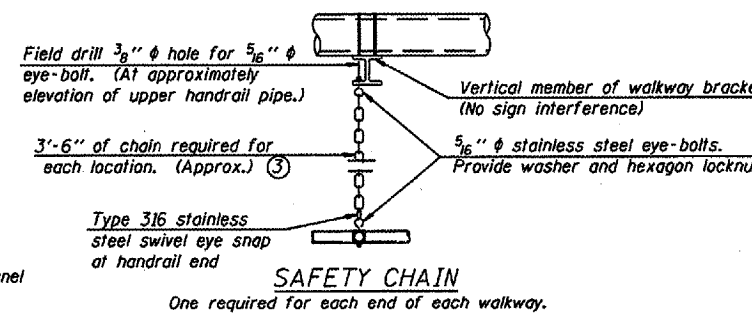


**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

③ 3/16" Type 304L or 316L Stainless Steel, 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.

**CANTILEVER SIGN STRUCTURES  
HANDRAIL DETAILS  
ALUMINUM TRUSS & STEEL POST**

District 7  
Overhead Sign Structure  
Repair and Replacement

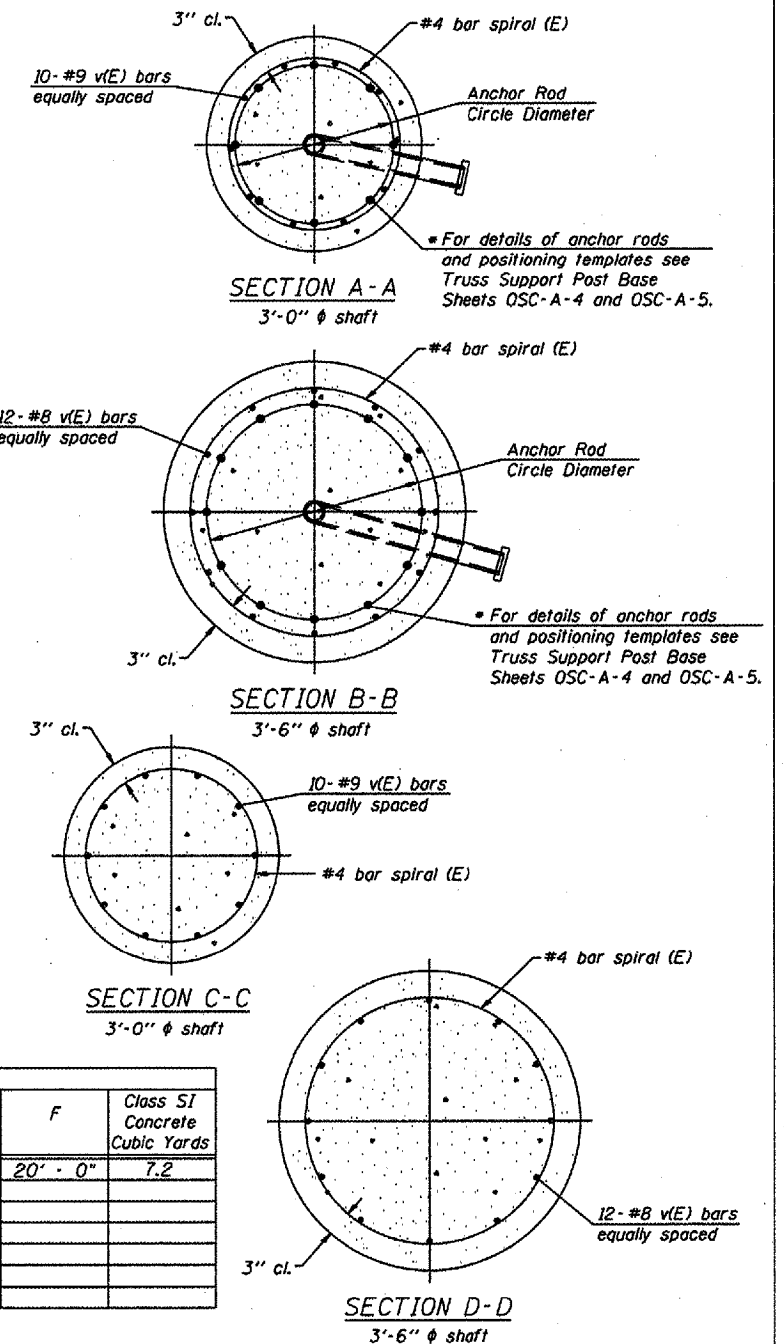
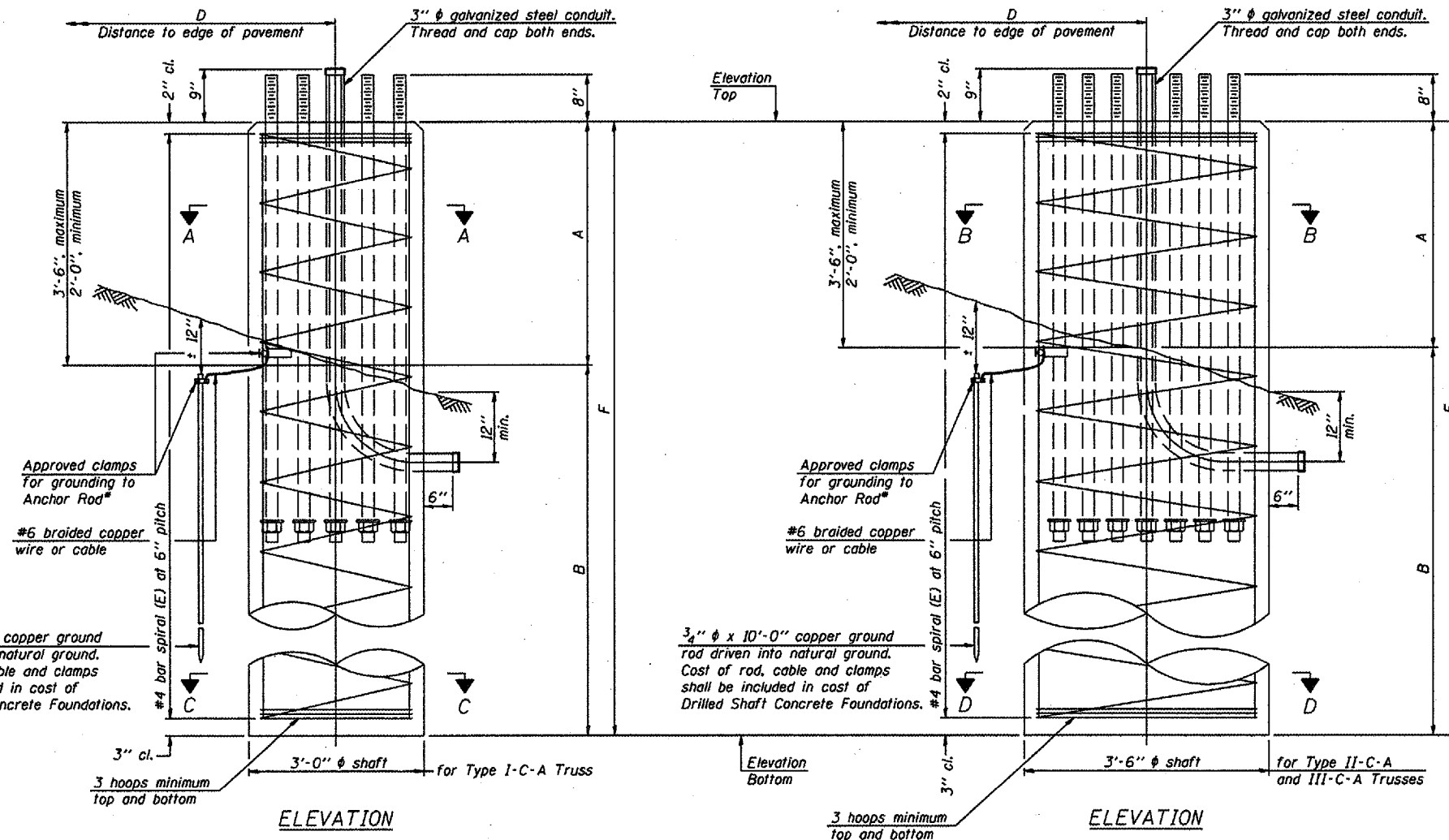
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 75 of 89  
Contract Number 44904

• 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 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 Bridge Seal 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
7C0251057R166.1	5502 + 38	II	3' - 6"	N/A	N/A		3' - 0"	17' - 0"	20' - 0"	7.2

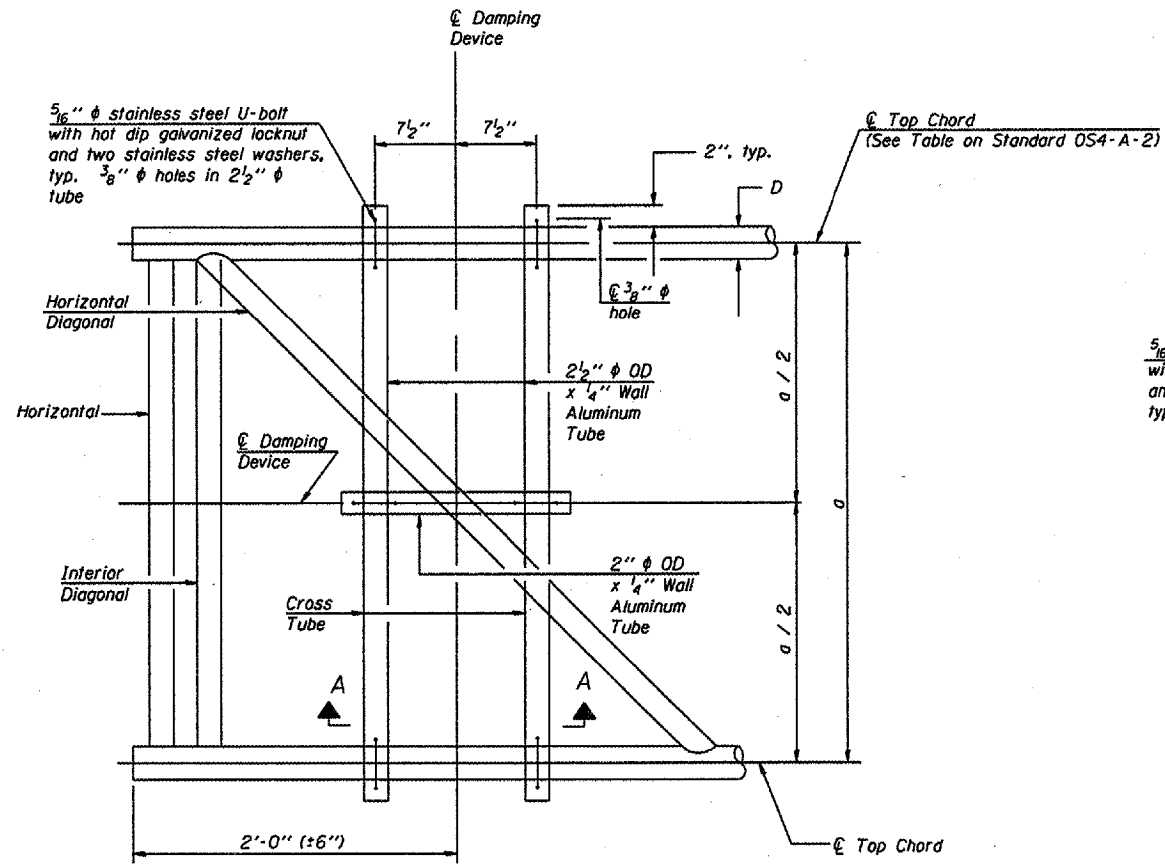
Truss Type	Post Base Sheet	Maximum Cantilever Length (ft)	Maximum Total Sign Area (sq ft)	Shaft Diameter (in)	"B" Depth (ft)	Anchor Rods		Anchor Rod Circle Diameter (in)
						No.	Diameter (in)	
I-C-A	OSC-A-4	25	170	3.0	16.0	8	2	22
II-C-A	OSC-A-5	30	170	3.5	17.0	12	2	30
II-C-A	OSC-A-5	30	340	3.5	21.5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

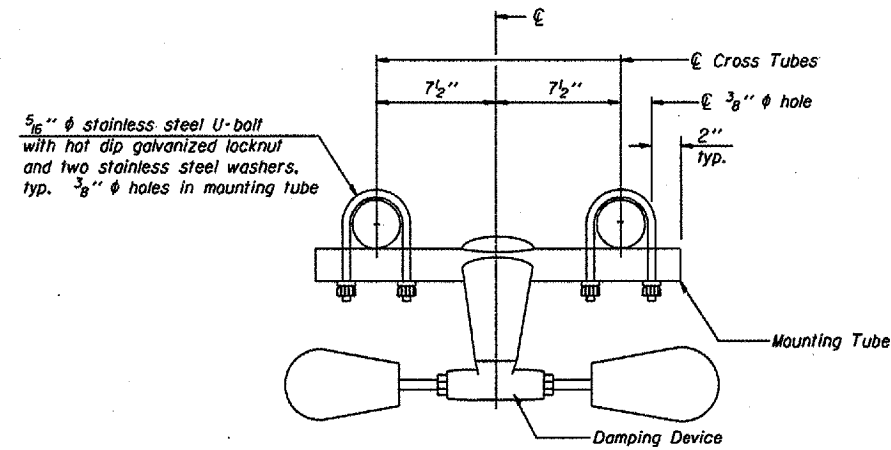
District 7  
Overhead Sign Structure  
Repair and Replacement

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

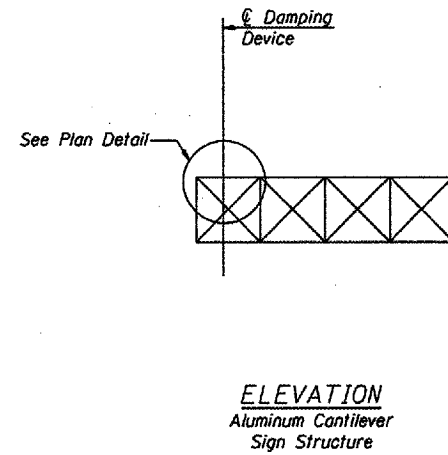
NUMBER	REVISION	DATE



PLAN DETAIL



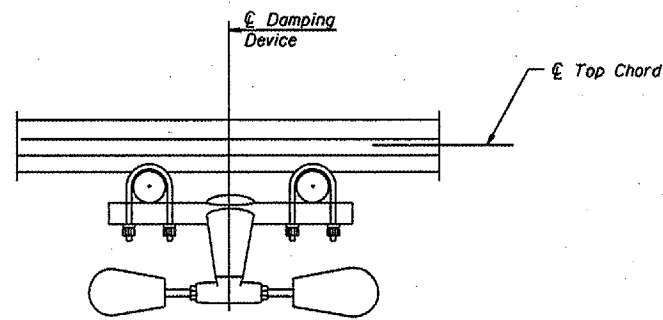
TRUSS DAMPING  
DEVICE CONNECTION DETAIL



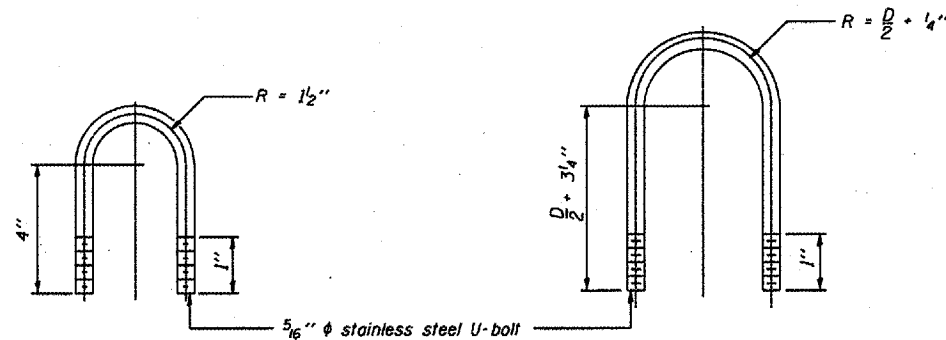
ELEVATION  
Aluminum Cantilever  
Sign Structure

GENERAL NOTES

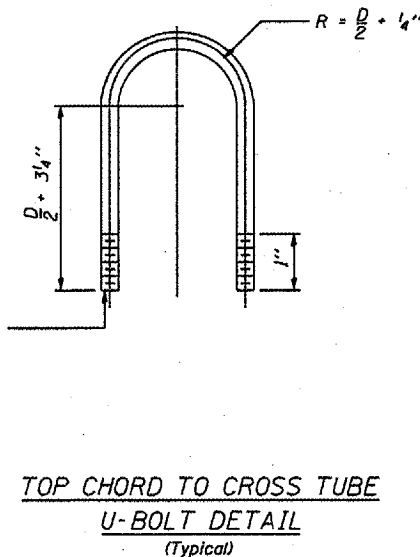
- Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum)
- Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6



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 7  
Overhead Sign Structure  
Repair and Replacement

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

OSC-A-D 1-7-05





LOCATION NO.: 7-05  
**SOIL BORING LOG**

Page 1 of 1

Date 5/18/05

ROUTE US 51 DESCRIPTION Mast Arm Foundation LOGGED BY E. Sandschafer

SECTION N/A LOCATION SEC. 9, TWP. 6 N, RNG. 1 E, 3 PM

COUNTY Favette DRILLING METHOD Hollow stem auger & split spoon HAMMER TYPE Auto 140#

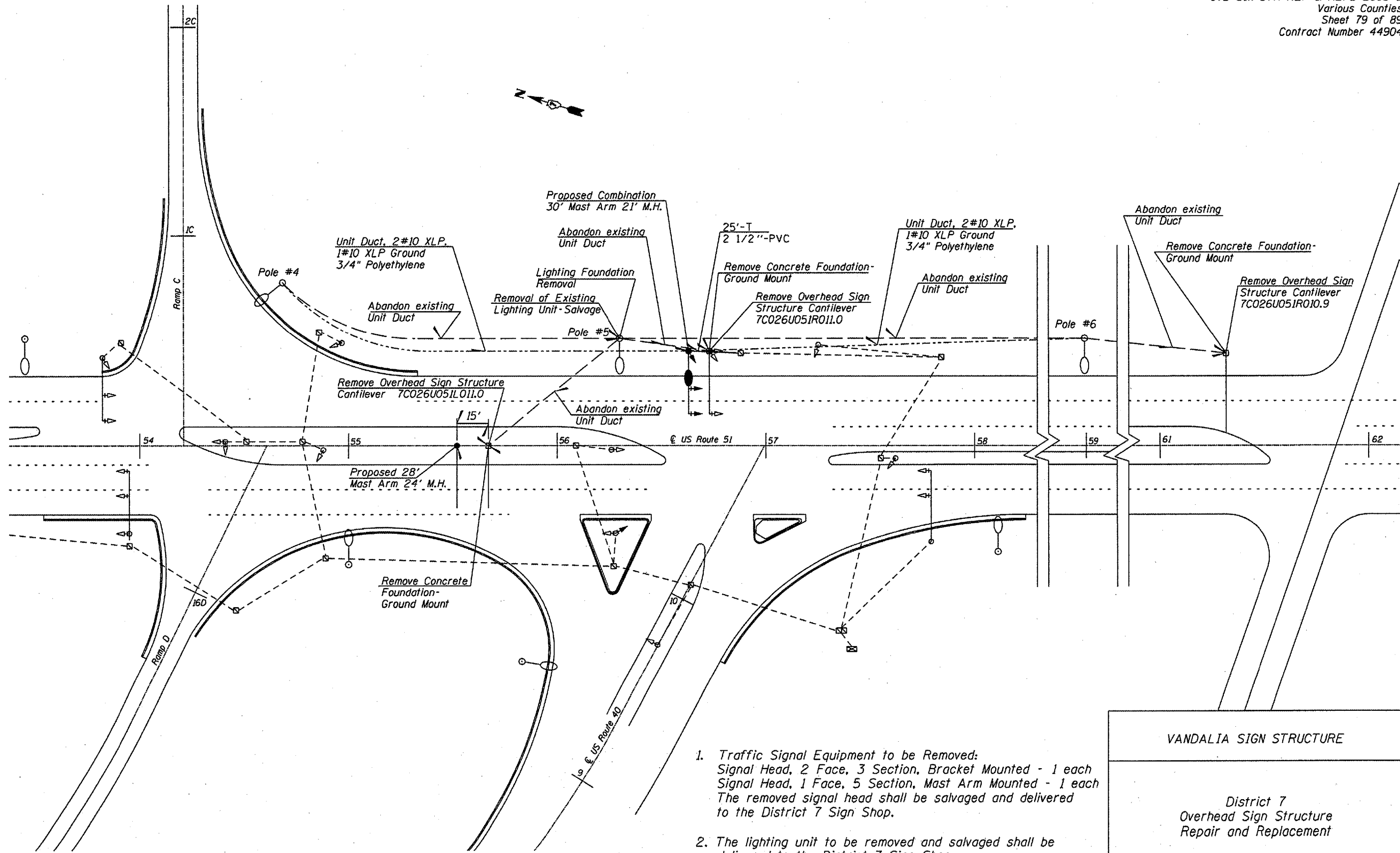
STRUCT. NO. N/A  
 Station

BORING NO. 2  
 Station 55+48  
 Offset 0.00ft  
 Ground Surface Elev. 196.07 ft

D E P T H S	B L O W S	U C S Qu	M O I S T %	Surface Water Elev. N/A ft		D E P T H S	B L O W S	U C S Qu	M O I S T %
				Stream Bed Elev. N/A ft	Groundwater Elev.:				
(ft)	(/16")	(tsf)	(%)			(ft)	(/16")	(tsf)	(%)
195.57				Concrete median surface		7		0.4	13
194.57				Sand median fill		8		S	
173.57	3			Stiff to very stiff, damp, gray, CLAY w/ trace silt.		0			
172.57	3	1.2	18	Red, SILTY LOAM.		0	0.1	21	
171.57	5	B		Hard, moist, brown, SANDY LOAM TILL		1	S		
170.57	2			Very soft, wet, red, SILTY LOAM w/ trace fine gravel.		0			
169.57	5	2.3	24	Very dense, moist, brown to red, SANDY LOAM TILL		14	0.1	24	
168.57	7	B				20	B		
167.57	4					50			
166.57	7	1.4	21			50/3"			6
165.57	7	B				50/2"			
164.57	3					42			
163.57	3	1.3	21	Brown, wet, SANDY LOAM.		50/4"			8
162.57	4	B		Very dense, moist, brown/gray, SANDY LOAM TILL		50/2"			
161.57	0					37			
160.57	2	0.8	15	Red, w/ trace fine gravel.		50/5"			6
159.57	3	S		Extent of exploration.		50/3"			
158.57	2			Benchmark: TBM top of bolt on NE corner existing overhead sign structure #7C026U051L011.0, Sta 55+67 on centerline US 51 = assumed 200.00'		35			
157.57	4	0.5	17						
156.57	5	S							
155.57	3			(Alternate TBM top of bolt on NW corner existing overhead sign structure #7C026U051R011.0, 45' Lt Sta 56+72, US 51 = assumed 198.58')					
154.57	4	0.1	12						
153.57	3	S							
152.57	4			Many fine gravel.					

Latitude N 38 deg 58.58 min, Longitude W 89 deg 05.73 min, Map Datum WGS 84

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 T205)  
 BBS, from 137 (Rev. 8-99)

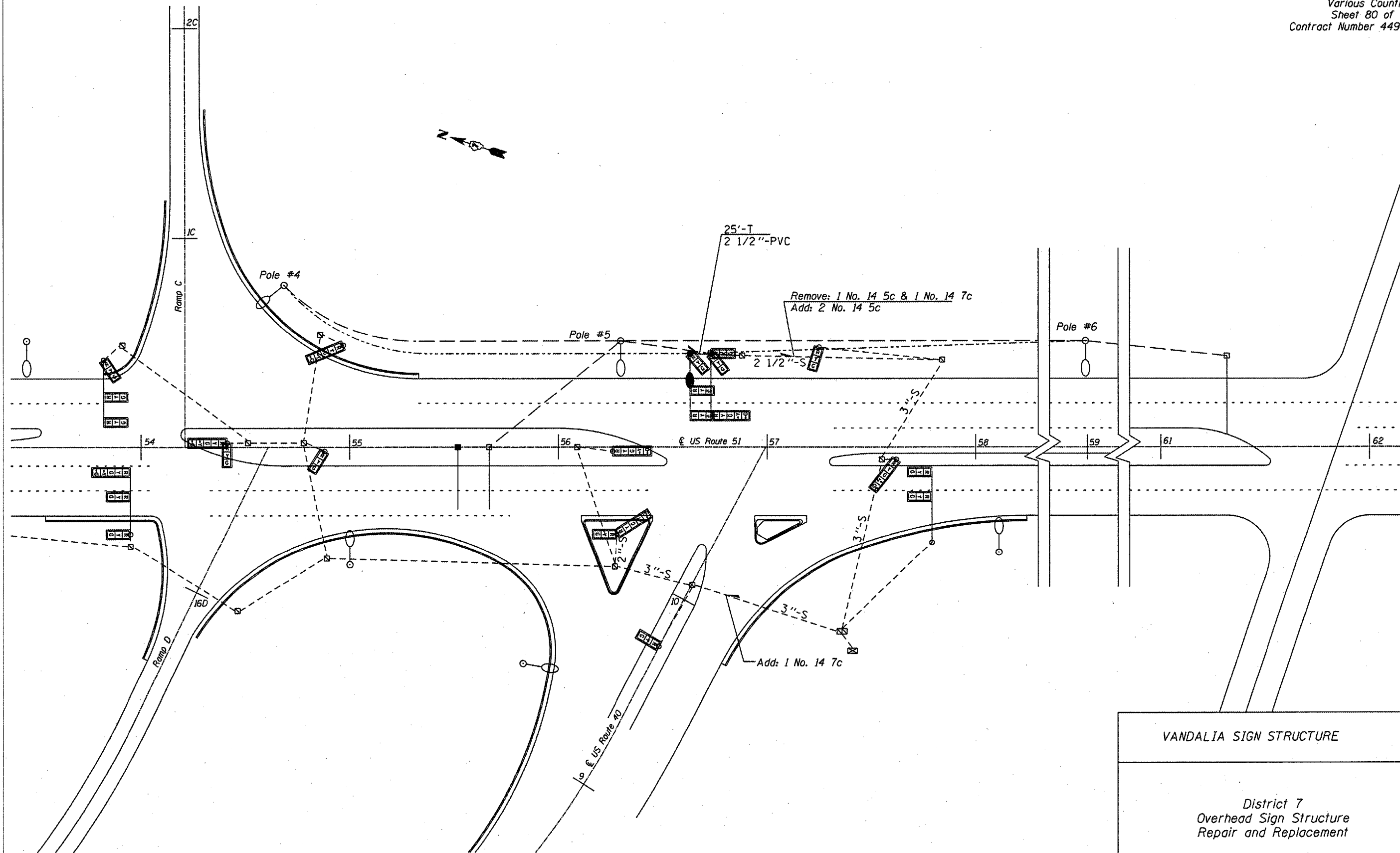


1. Traffic Signal Equipment to be Removed:  
 Signal Head, 2 Face, 3 Section, Bracket Mounted - 1 each  
 Signal Head, 1 Face, 5 Section, Mast Arm Mounted - 1 each  
 The removed signal head shall be salvaged and delivered to the District 7 Sign Shop.
2. The lighting unit to be removed and salvaged shall be delivered to the District 7 Sign Shop.

VANDALIA SIGN STRUCTURE

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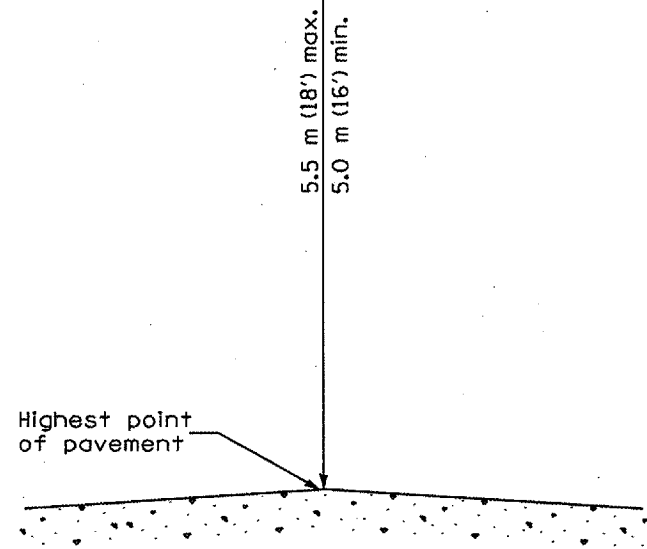
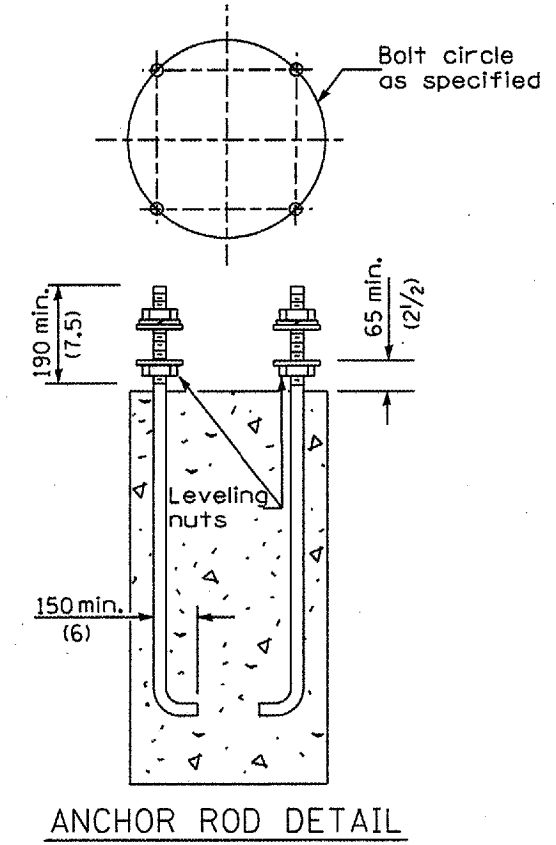
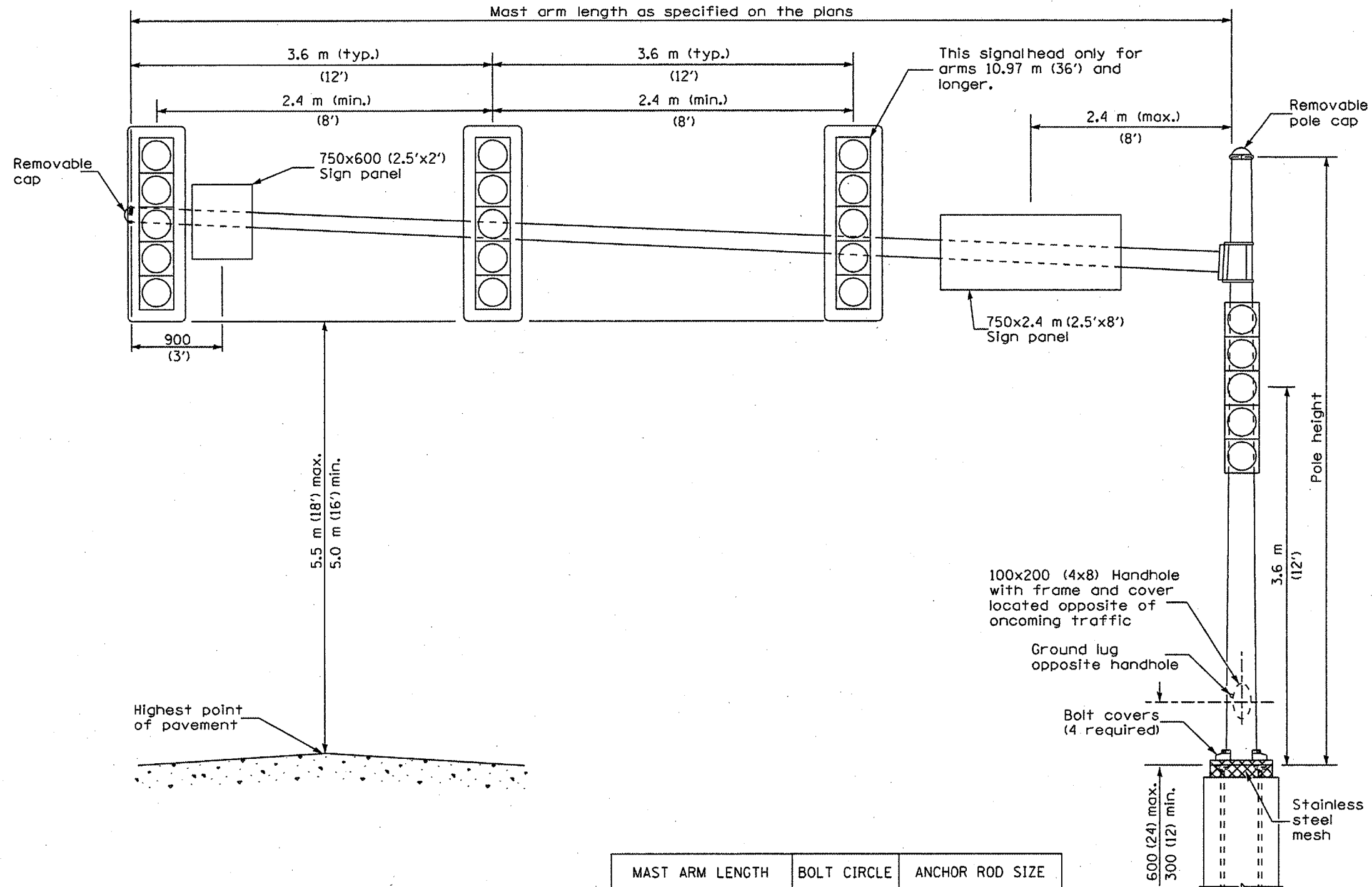
District 7  
 Overhead Sign Structure  
 Repair and Replacement



VANDALIA SIGN STRUCTURE

District 7  
Overhead Sign Structure  
Repair and Replacement

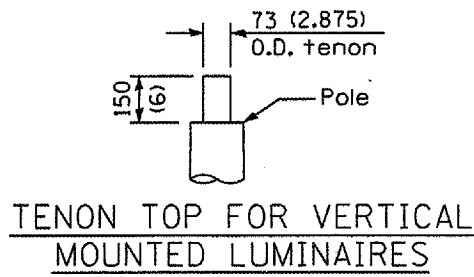




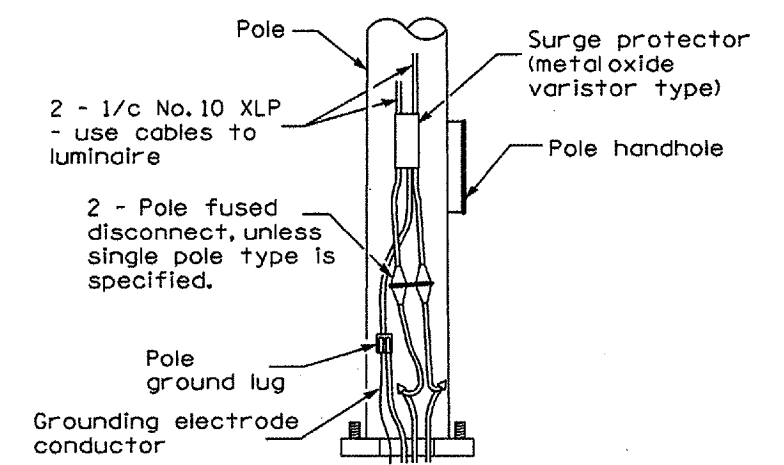
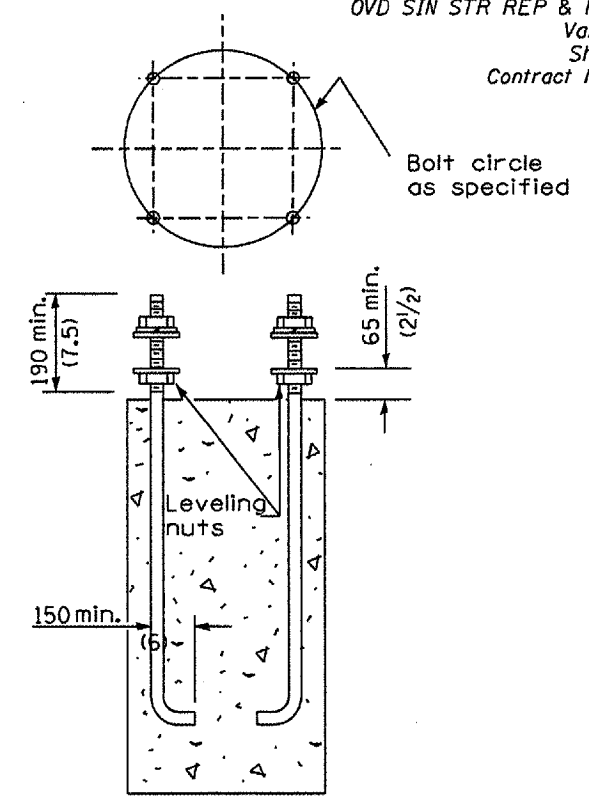
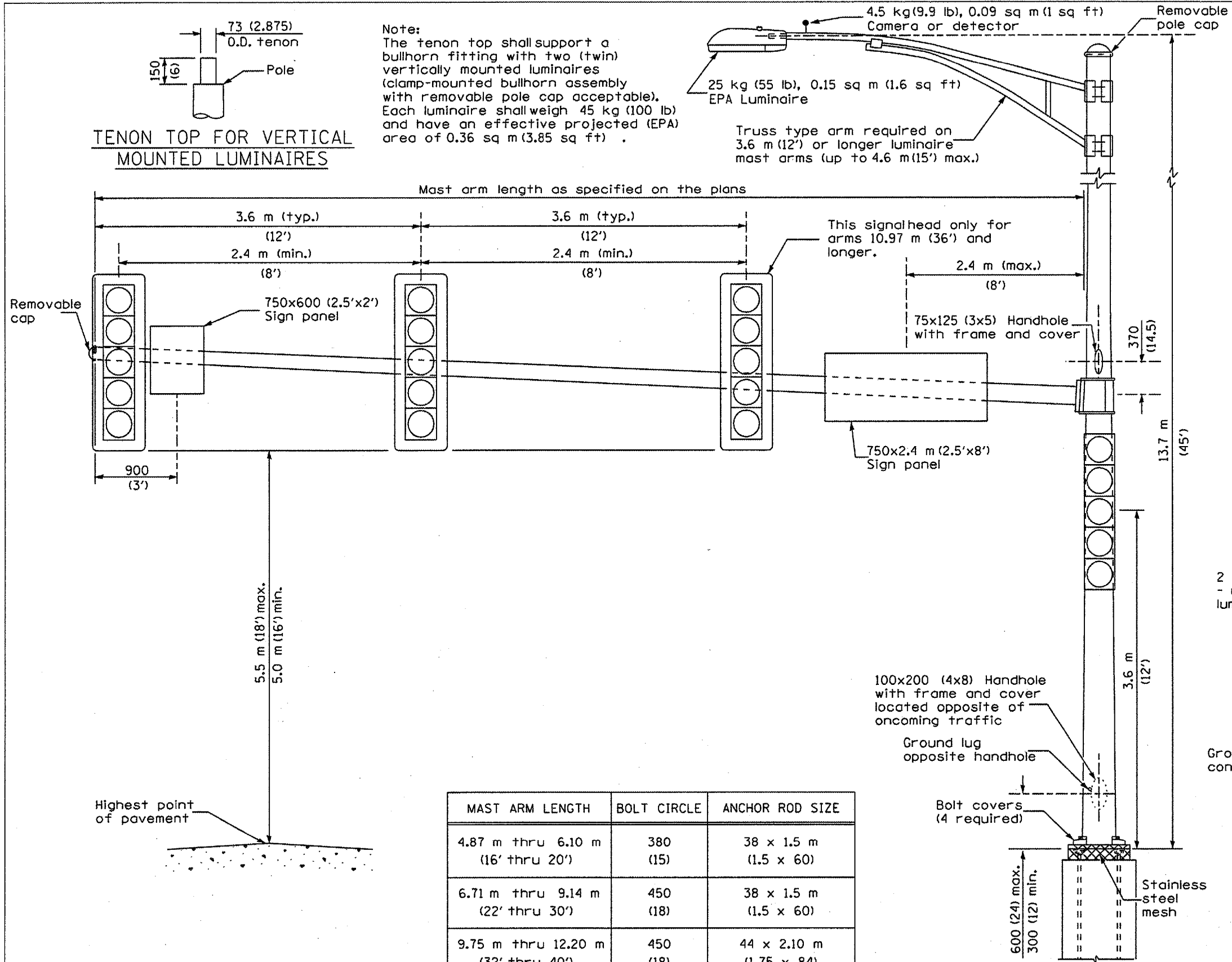
MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
4.87 m thru 6.10 m (16' thru 20')	380 (15)	38 x 1.5 m (1.5 x 60)
6.71 m thru 9.14 m (22' thru 30')	450 (18)	38 x 1.5 m (1.5 x 60)
9.75 m thru 12.20 m (32' thru 40')	450 (18)	44 x 2.10 m (1.75 x 84)
12.80 m thru 16.80 m (42' thru 55')	535 (21)	44 x 2.10 m (1.75 x 84)

**GENERAL NOTES**  
 Signalheads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signalhead shall weigh 36 kg (80 lb) and have a projected area of 1.37 sq m (14.7 sq ft).  
 All dimensions are in millimeters (inches) unless otherwise shown.

**STEEL MAST ARM  
 ASSEMBLY AND POLE**  
**STANDARD 877001-02**



**Note:**  
 The tenon top shall support a bullhorn fitting with two (two) vertically mounted luminaires (clamp-mounted bullhorn assembly with removable pole cap acceptable). Each luminaire shall weigh 45 kg (100 lb) and have an effective projected (EPA) area of 0.36 sq m (3.85 sq ft).



MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
4.87 m thru 6.10 m (16' thru 20')	380 (15)	38 x 1.5 m (1.5 x 60)
6.71 m thru 9.14 m (22' thru 30')	450 (18)	38 x 1.5 m (1.5 x 60)
9.75 m thru 12.20 m (32' thru 40')	450 (18)	44 x 2.10 m (1.75 x 84)
12.80 m thru 16.80 m (42' thru 55')	535 (21)	44 x 2.10 m (1.75 x 84)

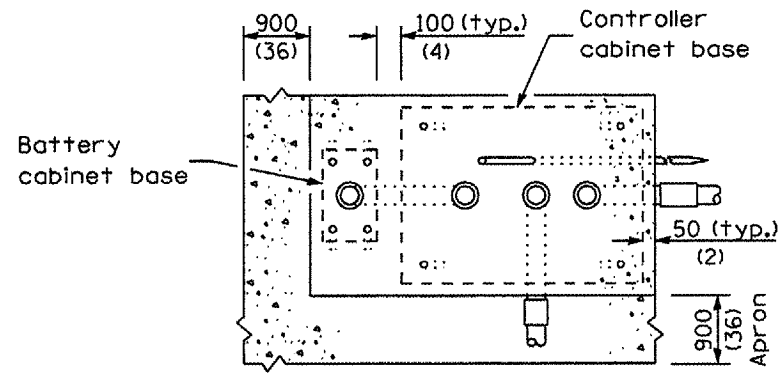
**GENERAL NOTES**

Signalheads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signalhead shall weigh 36 kg (80 lb) and have a projected area of 1.37 sq m (14.7 sq ft).

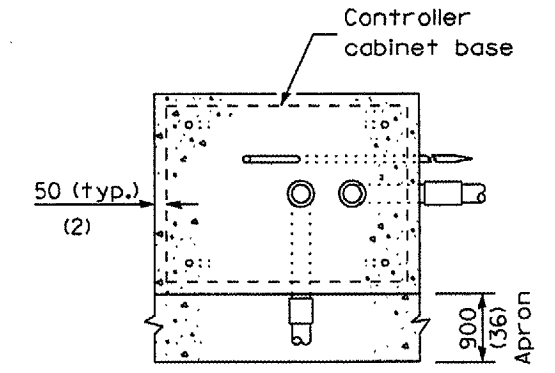
All dimensions are in millimeters (inches) unless otherwise shown.

**STEEL COMBINATION  
 MAST ARM ASSEMBLY  
 AND POLE**

**STANDARD 877011-02**

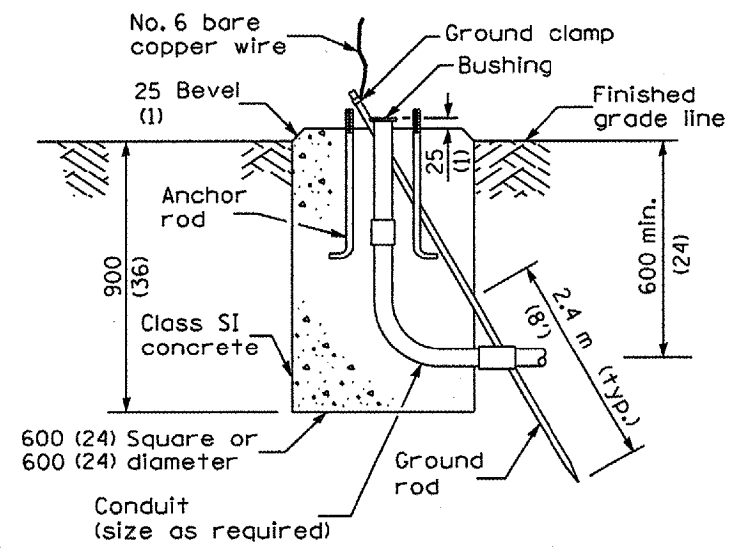


TOP VIEW

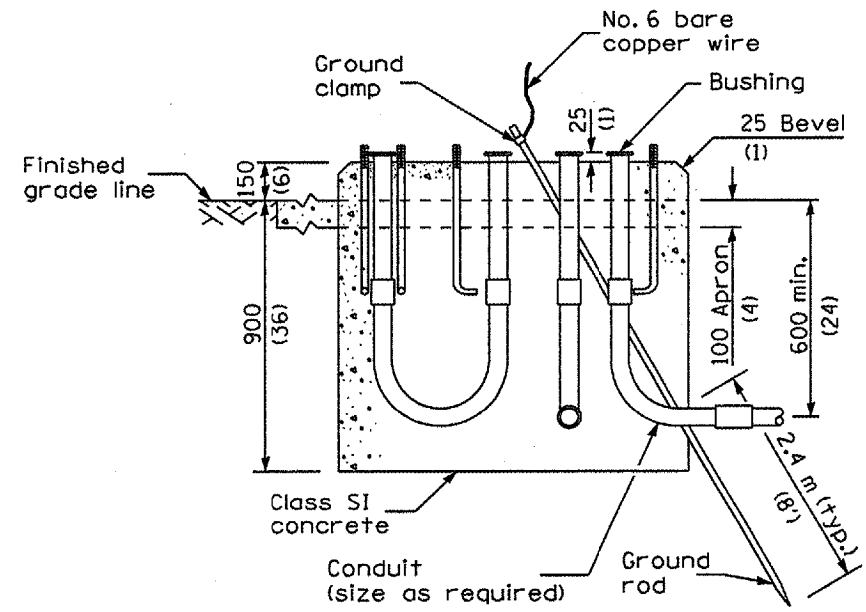


TOP VIEW

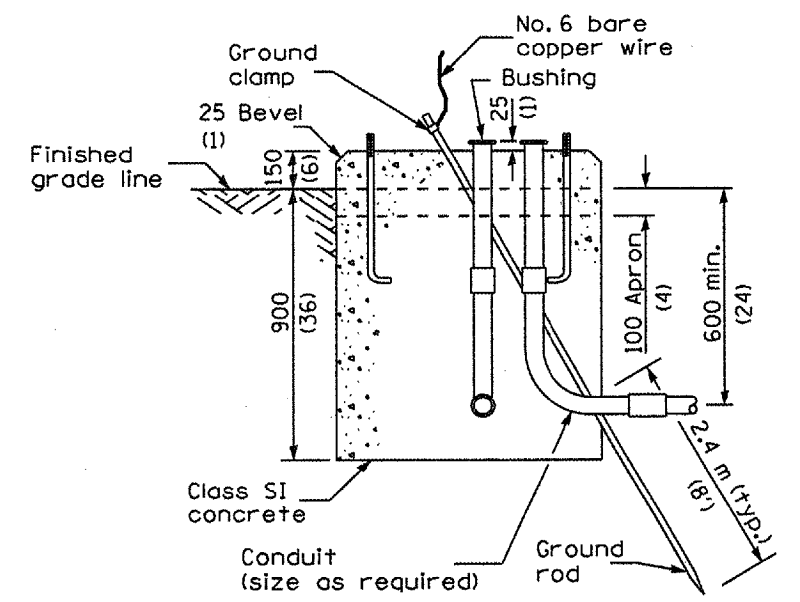
Dimensions are in millimeters unless otherwise shown.



TYPE A



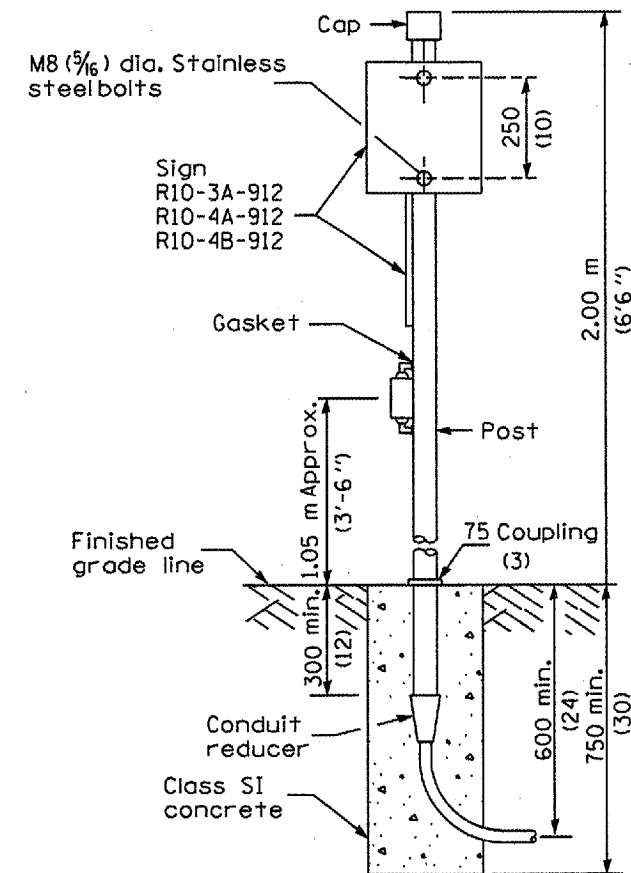
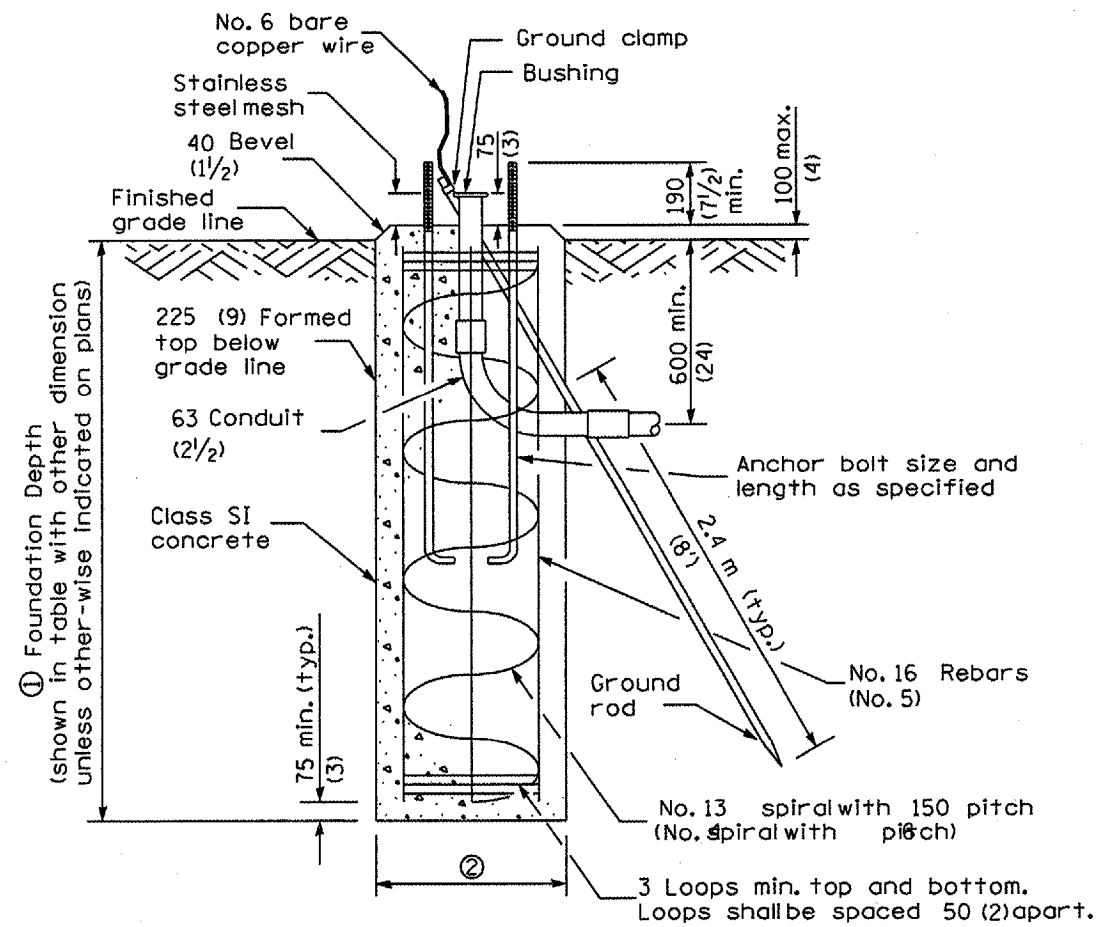
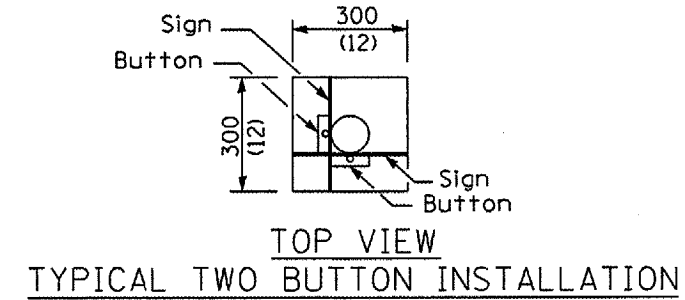
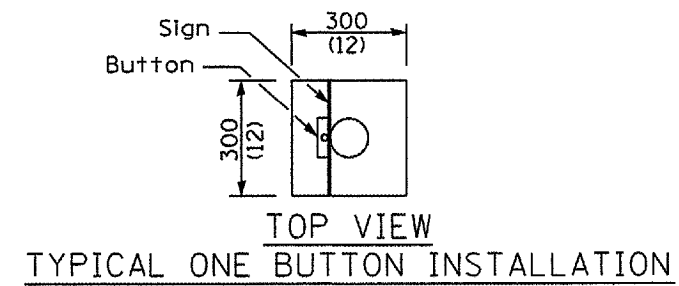
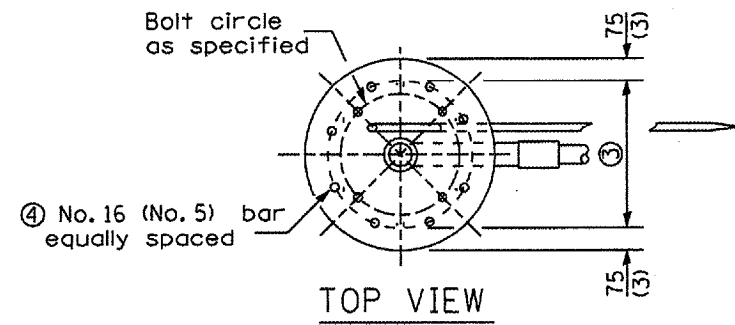
TYPE C  
 FOR GROUND MOUNTED  
 CONTROLLER CABINET  
 AND UPS BATTERY CABINET



TYPE D  
 FOR GROUND MOUNTED  
 CONTROLLER CABINET

DATE	REVISIONS
4-1-06	Added Type C foundation detail.
1-1-05	Revised Type E foundation detail.

CONCRETE  
 FOUNDATION DETAILS  
 (Sheet 1 of 2)  
**STANDARD 878001-04**



Mast Arm Length	① Foundation Depth*	② Foundation Diameter	③ Spiral Diameter	④ Quantity of No. 16 (No. 5) Bars
Less than 9.1 m (30')	3.0 m (10'-0")	750 (30)	600 (24)	8
Greater than or equal to 9.1 m (30') and less than 12.2 m (40')	4.1 m (13'-6")	750 (30)	600 (24)	8
	3.4 m (11'-0")	900 (36)	750 (30)	12
Greater than or equal to 12.2 m (40') and less than 15.2 m (50')	4.0 m (13'-0")	900 (36)	750 (30)	12
Greater than or equal to 15.2 m (50') and up to 16.8 m (55')	4.6 m (15'-0")	900 (36)	750 (30)	12

**TYPE E**

For standard and combination mast arm assemblies. Mast arm assemblies with dual arms require a special foundation design.

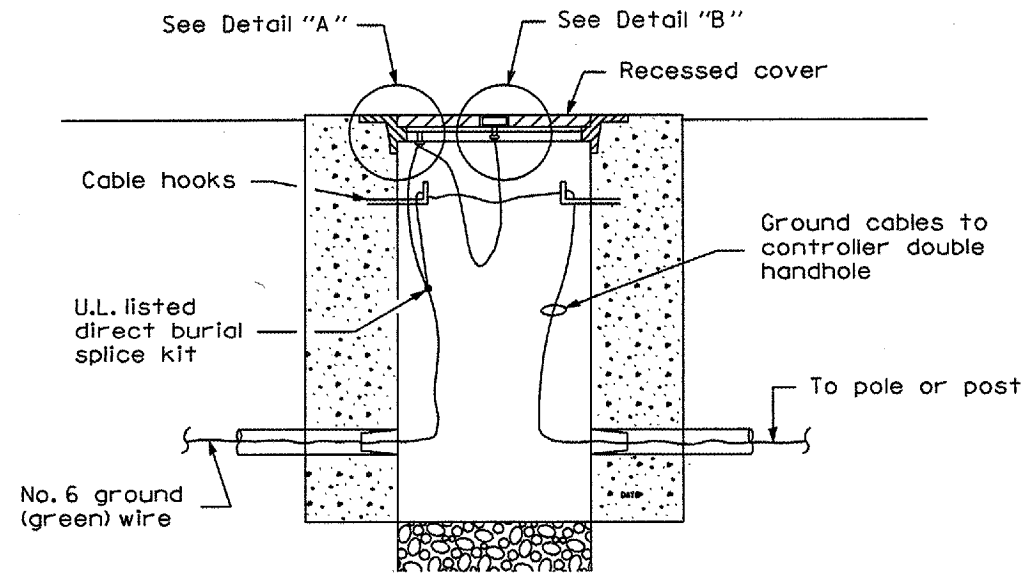
\* These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength ( $Q_u$ ) > 100 kPa (1.0 tsf). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.

All dimensions are in millimeters (inches) unless otherwise shown.

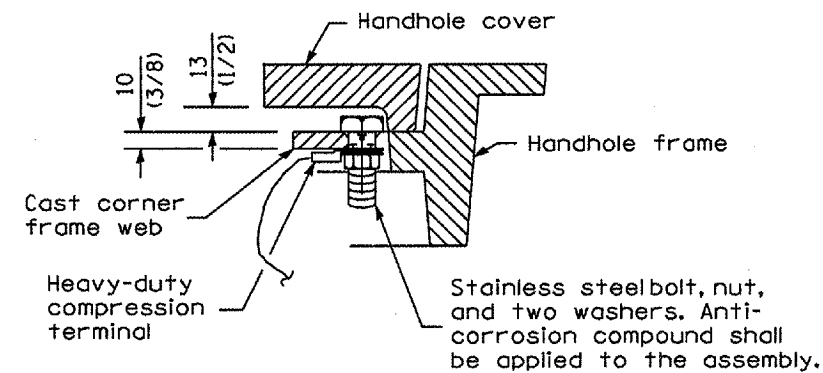
**CONCRETE FOUNDATION DETAILS**

(Sheet 2 of 2)

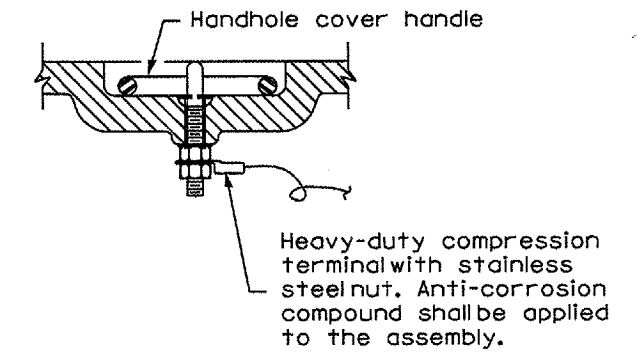
**STANDARD 878001-04**



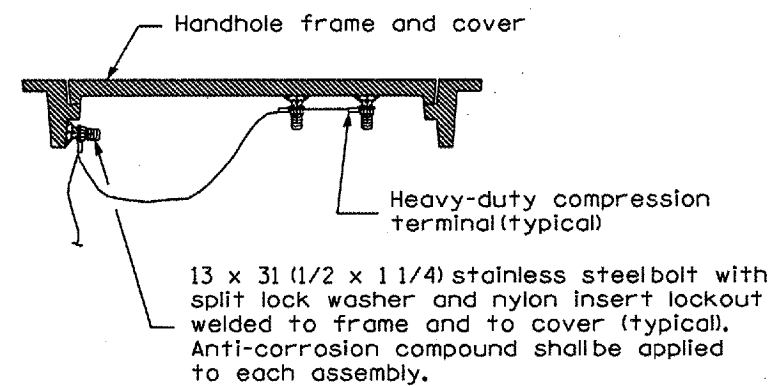
GROUNDING A HANDHOLE COVER & FRAME



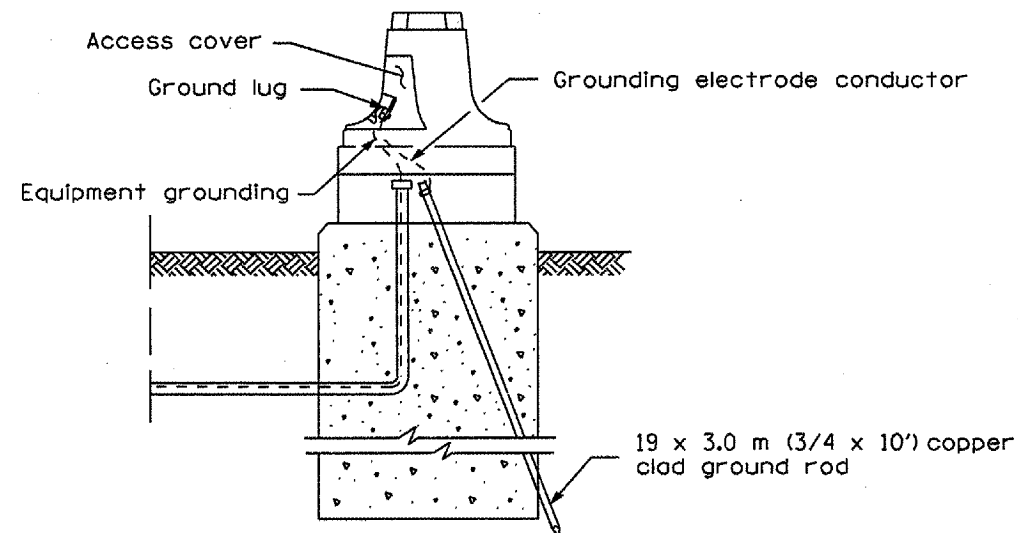
DETAIL "A"



DETAIL "B"



GROUNDING AN EXISTING HANDHOLE COVER & FRAME



GROUNDING A MAST ARM POLE/POST



HEAVY-DUTY COMPRESSION TERMINAL

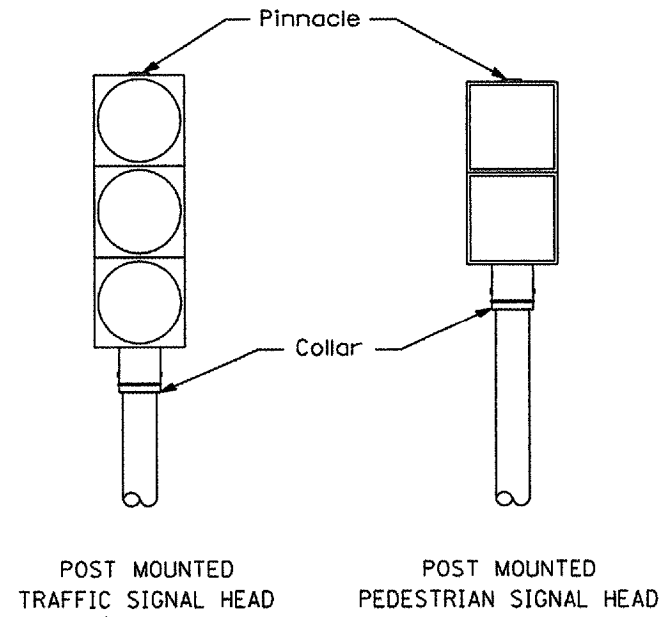


HEAVY-DUTY GROUND ROD CLAMP

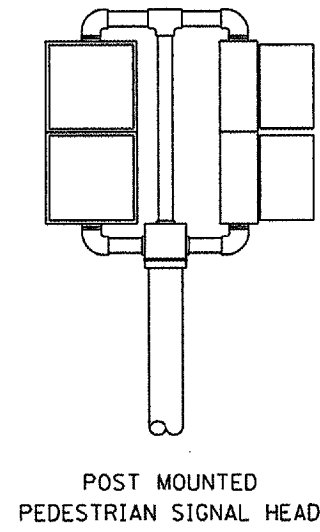
19 (3/4) Clamp Size

REVISIONS	
4-1-06	New standard.

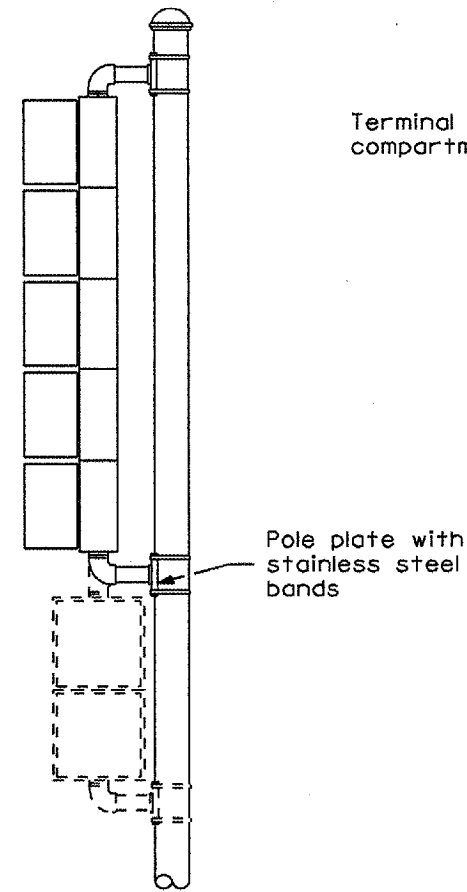
TRAFFIC SIGNAL GROUNDING



ONE WAY

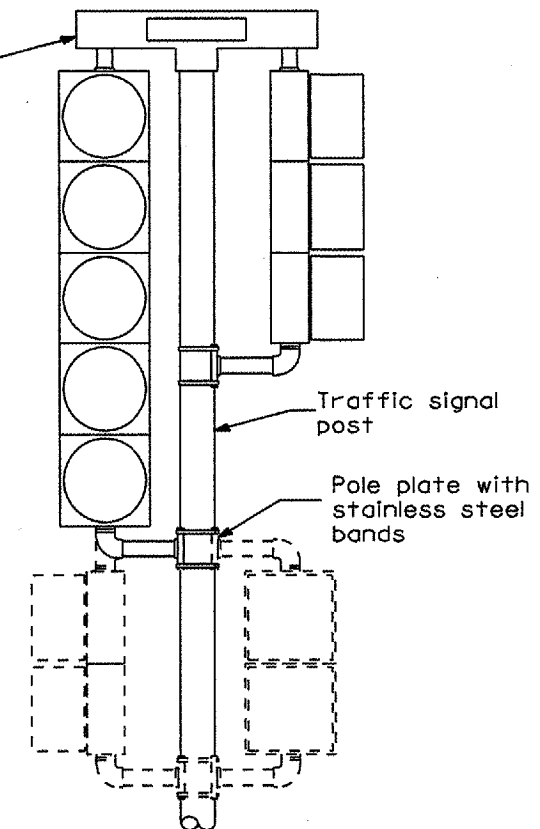


TWO WAY



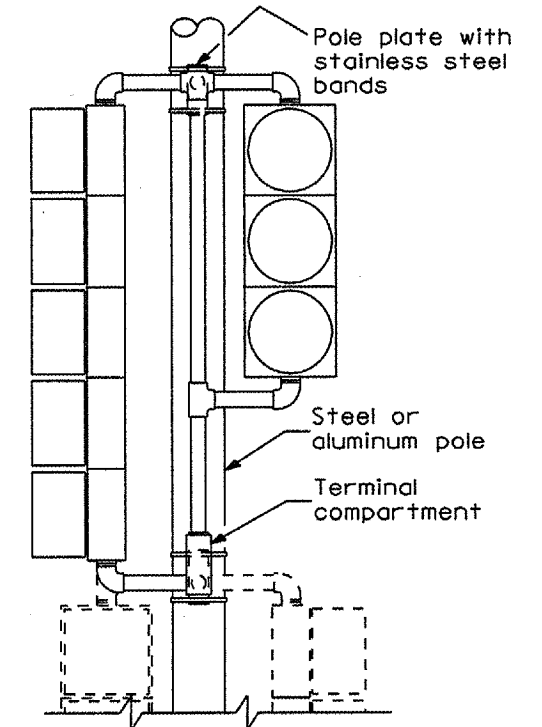
BRACKET MOUNTED TRAFFIC SIGNAL HEAD

ONE WAY

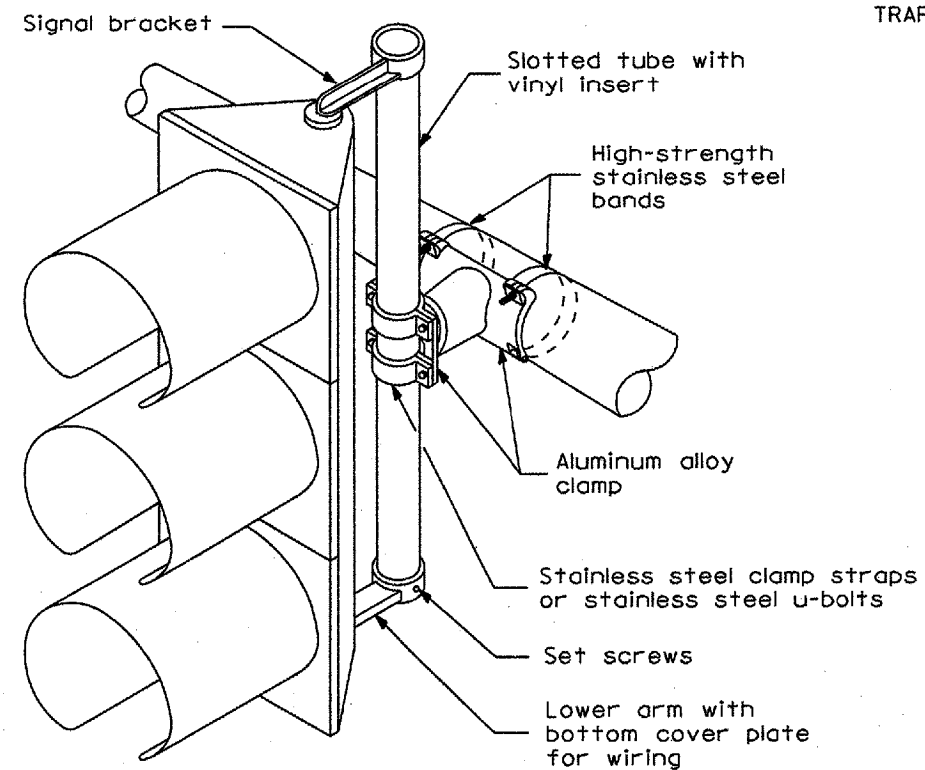


BRACKET MOUNTED TRAFFIC SIGNAL HEAD

TWO WAY



BRACKET MOUNTED TRAFFIC SIGNAL HEAD

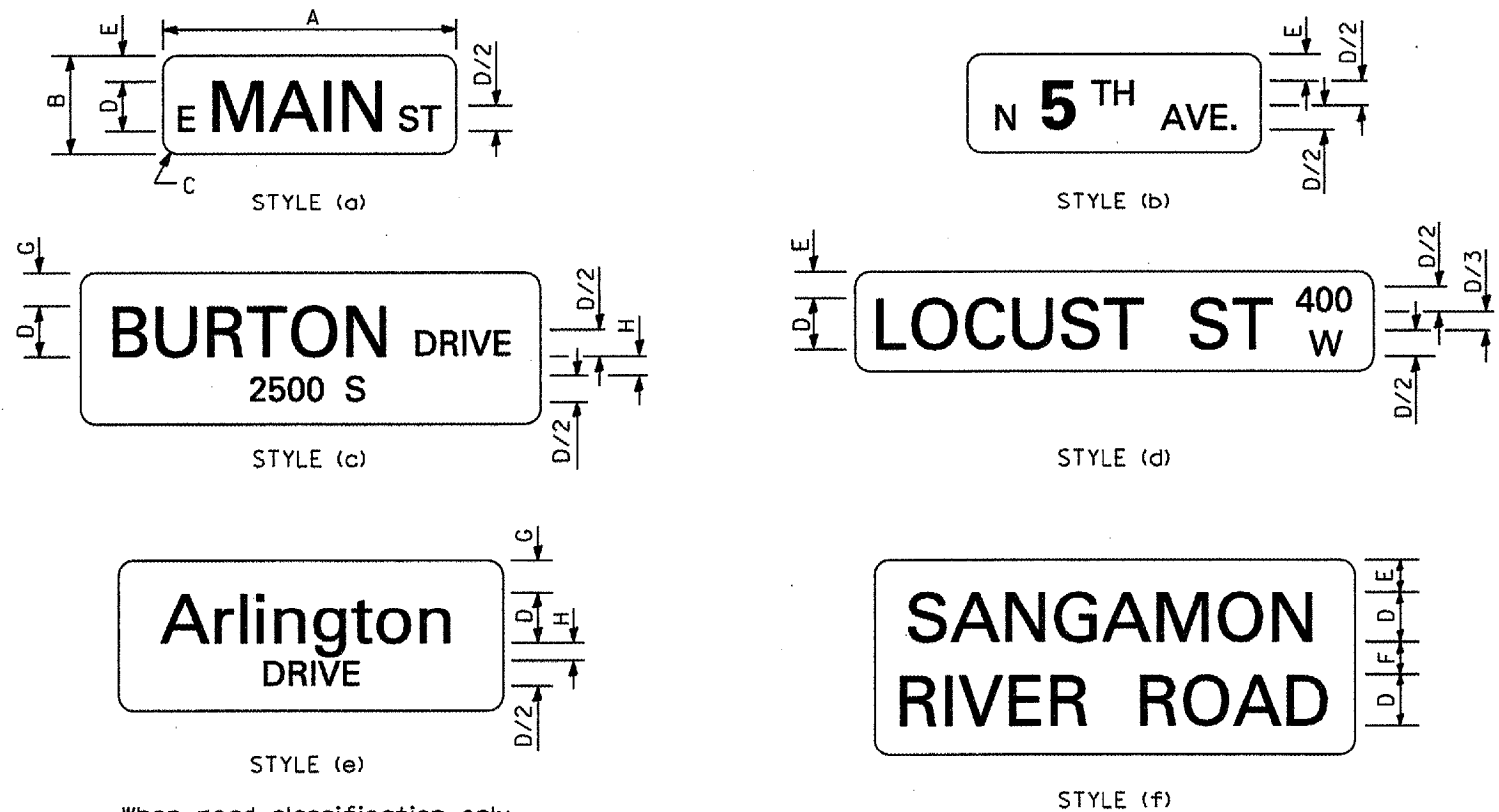


STEEL MAST ARM MOUNTING

All dimensions are in millimeters (inches) unless otherwise shown.

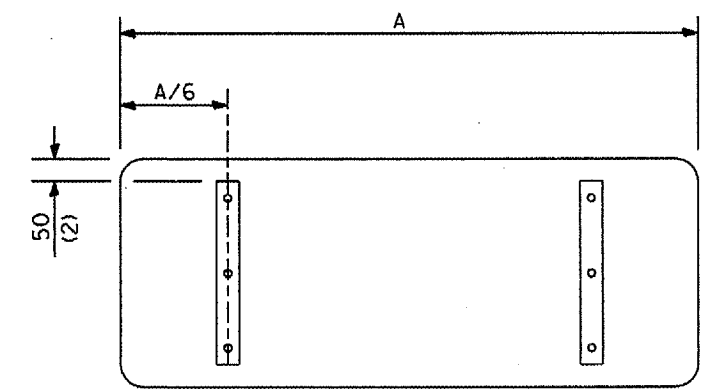
TRAFFIC SIGNAL MOUNTING DETAILS

**STANDARD 880006**

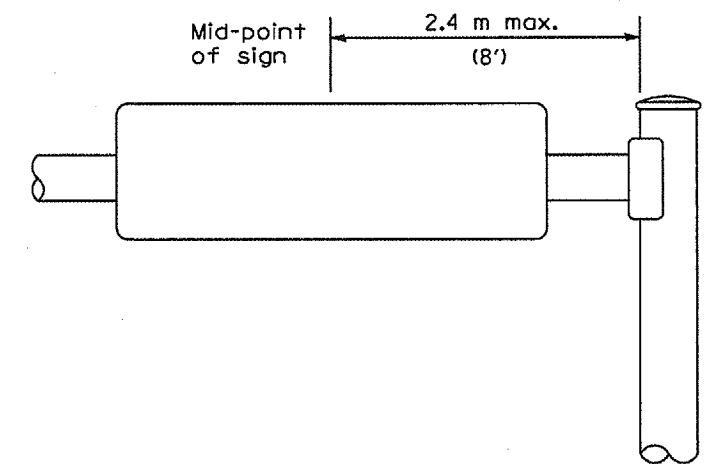


When road classification only is on the second line, it should not be abbreviated.

TYPICAL SIGN STYLES



SUPPORTING CHANNELS



MOUNTING LOCATION

GENERAL NOTES

All signs shall have a white reflectorized legend and border on a green reflectorized background.

The sign panels shall be mounted as shown on Standard 720001 or as specified in the plans.

All dimensions are in millimeters (inches) unless otherwise shown.

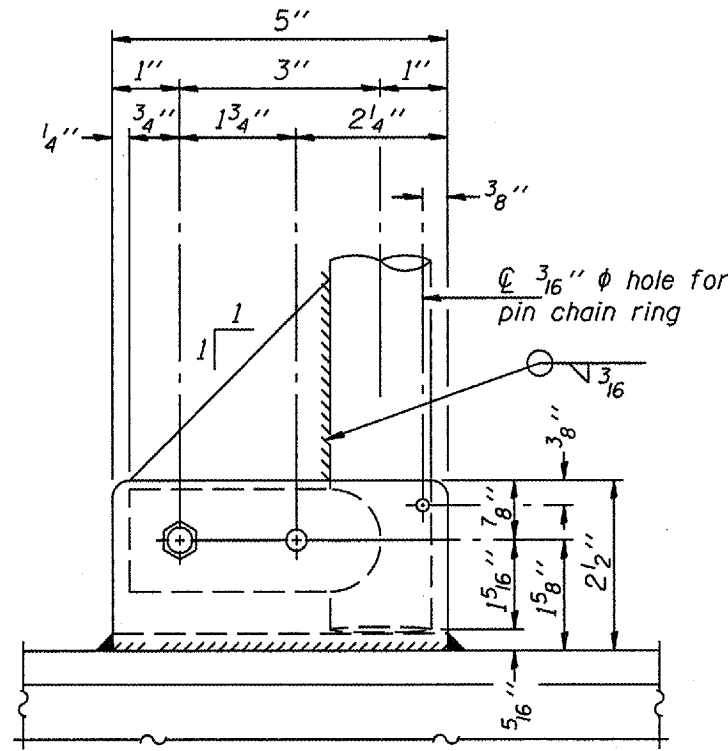
SIGN STYLE	DIMENSIONS								LETTER SIZE						BORDER
	A	B	C	D	E	F	G	H	UPPER CASE PRIMARY			UC / LC PRIMARY			
									1	2	*	1	2	*	
a,b,d	Var.	450 (18)	40 (1.50)	150 (6)	150 (6)	-	-	-	150D (6D)	-	-	150/115 (6/4.5)	-	-	15 (0.6)
c,e	Var.	600 (24)	40 (1.50)	150 (6)	-	-	175 (7)	100 (4)	150D (6D)	-	75D (3D)	150/115 (6/4.5)	-	75D (3D)	15 (0.6)
a,b,d	Var.	600 (24)	40 (1.50)	200 (8)	200 (8)	-	-	-	200D (8D)	-	-	200/150 (8/6)	-	-	15 (0.6)
f	Var.	750 (30)	60 (2.25)	150 (6)	165 (6.5)	125 (5)	-	-	150D (6D)	150D (6D)	-	150/115 (6/4.5)	150/115 (6/4.5)	-	20 (0.8)
c,e	Var.	750 (30)	60 (2.25)	200 (8)	-	-	230 (9)	115 (4.5)	200D (8D)	-	100D (4D)	200/150 (8/6)	-	100D (4D)	20 (0.8)
a,b,d	Var.	750 (30)	60 (2.25)	250 (10)	250 (10)	250 (10)	-	-	250D (10D)	-	-	250/190 (10/7.5)	-	-	20 (0.8)
c,e	Var.	900 (36)	60 (2.25)	250 (10)	-	-	280 (11)	125 (5)	250D (10D)	-	125D (5D)	250/190 (10/7.5)	-	125D (5D)	20 (0.8)
f	Var.	1000 (40)	75 (3.00)	200 (8)	215 (8.5)	120 (7)	-	-	200D (8D)	200D (8D)	-	200/150 (8/6)	200/150 (8/6)	-	20 (0.8)
f	Var.	1200 (48)	75 (3.00)	250 (10)	250 (10)	200 (8)	-	-	250D (10D)	250D (10D)	-	250/190 (10/7.5)	250/190 (10/7.5)	-	20 (0.8)

\* Supplemental Messages

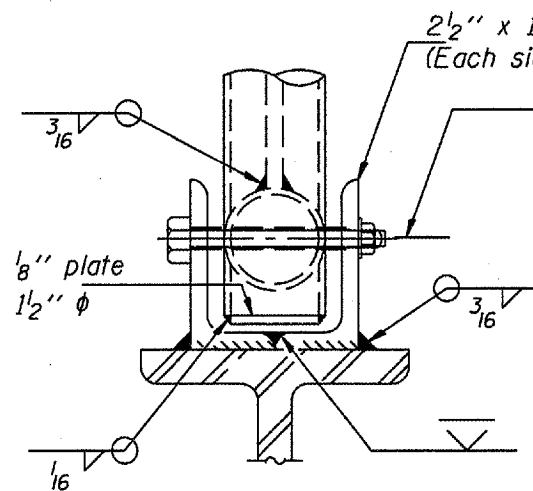
MAST ARM MOUNTED  
 STREET NAME SIGNS

STANDARD 720016-01

# STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

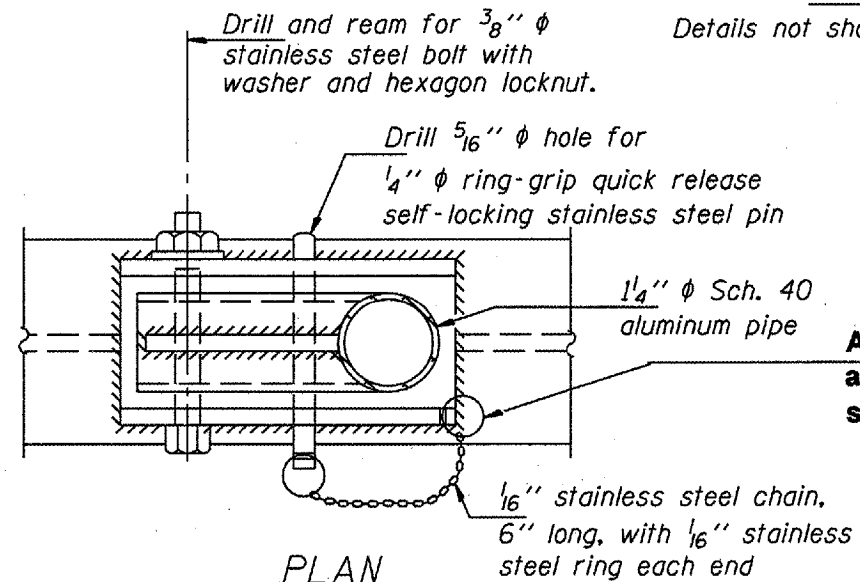


SIDE ELEVATION



FRONT ELEVATION

Details not shown same as "ELEVATION" at right.



PLAN  
DETAIL E HANDRAIL HINGE

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

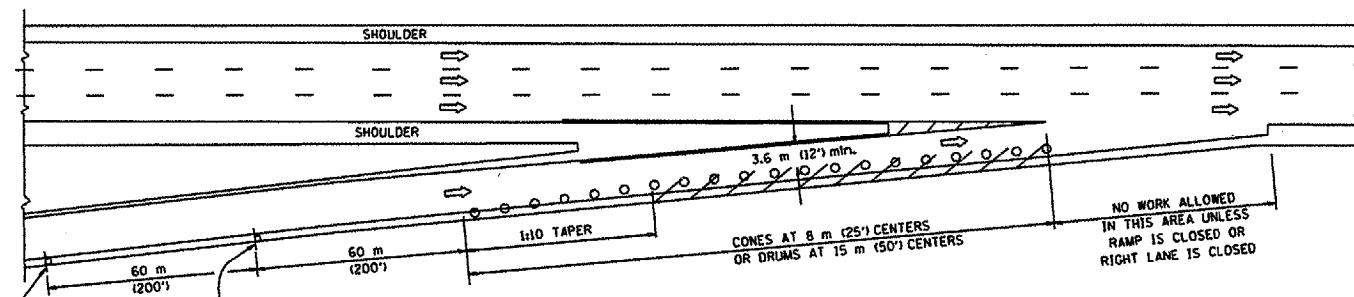
OVERHEAD SIGN STRUCTURES  
 HANDRAIL HINGE REPAIR DETAIL



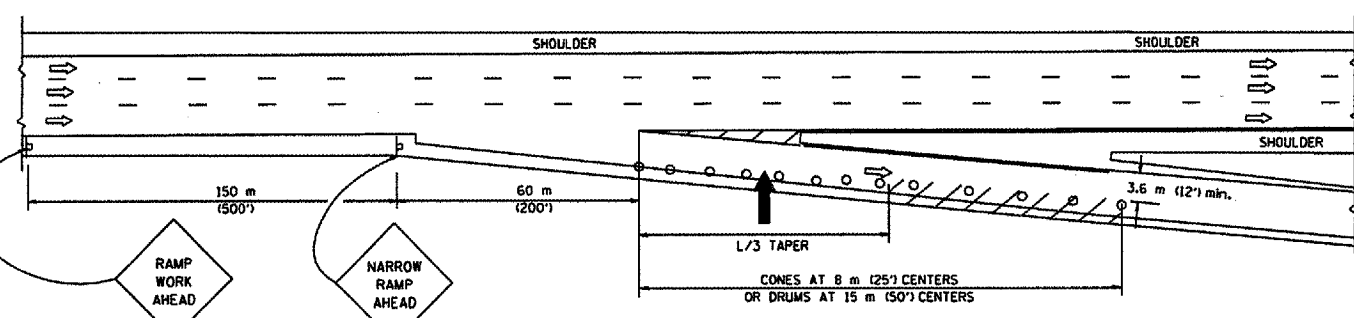
PARTIAL RAMP CLOSURE DETAILS

SHOULDER CLOSURE DETAILS

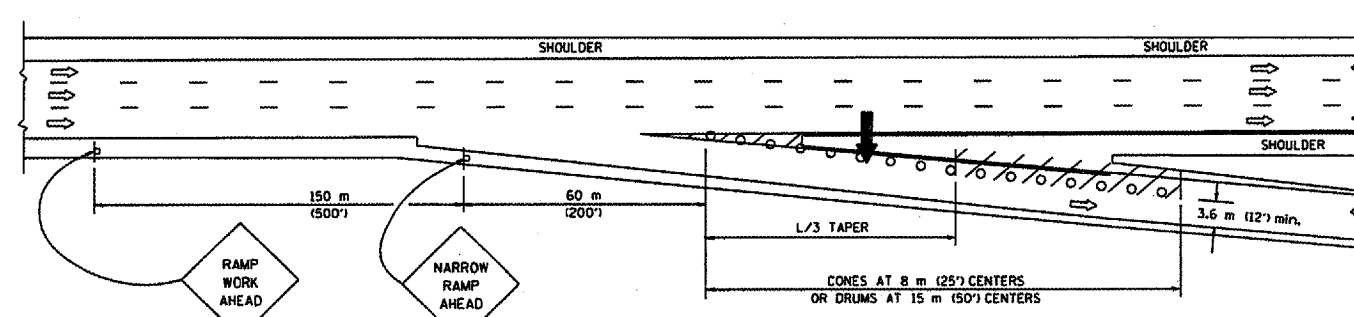
Various Routes  
OVD SIN STR REP & REPL 2006-9  
Various Counties  
Sheet 89 of 89  
Contract Number 44904



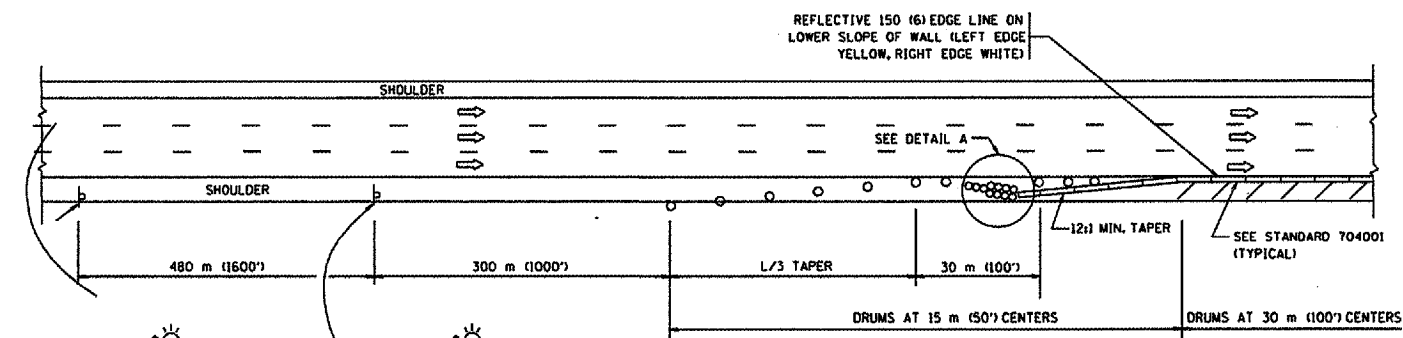
TYPICAL ENTRANCE RAMP



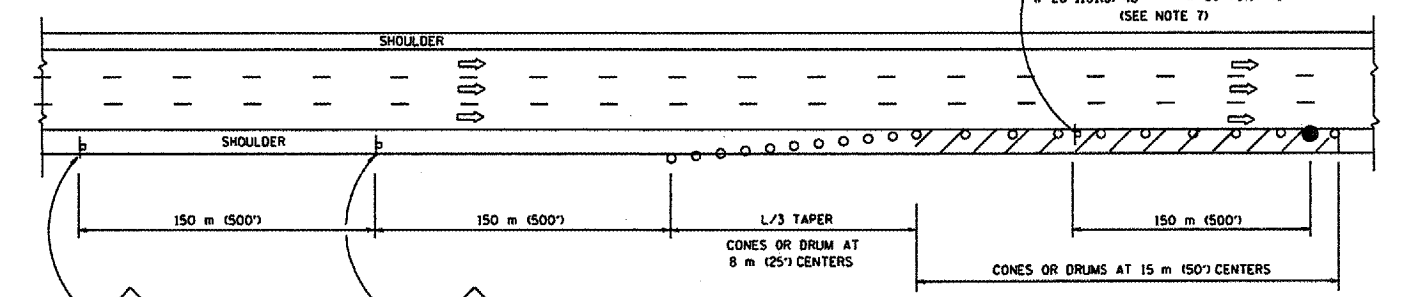
TYPICAL EXIT RAMP



TYPICAL EXIT RAMP



PERMANENT SHOULDER CLOSURE

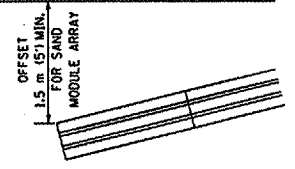


DAYTIME SHOULDER CLOSURE

REFLECTIVE 150 (6) EDGE LINE ON LOWER SLOPE OF WALL (LEFT EDGE YELLOW, RIGHT EDGE WHITE)  
SEE DETAIL A  
SEE STANDARD 704001 (TYPICAL)  
OR WHEN SPECIFIED INSTALL TEMPORARY CONCRETE BARRIER WALL WITH BARRIER WALL REFLECTORS PER STANDARD 701402, DETAIL A.

THIS DETAIL IS USED WHERE:  
1. VEHICLES, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCRUSH IN AN AREA CLOSER THAN 4.5 m (15') TO THE EDGE OF PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES.

ARRAY DESIGN PER MANUFACTURER TO BE NCHRP 350 COMPLIANT FOR POSTED SPEED.



DETAIL "A"  
IMPACT ATTENUATOR, TEMPORARY  
(SEE NOTE 5)

SYMBOLS

- ARROWBOARD
- WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- FLAGGER WITH CONTROL SIGN
- DRUM WITH MONO-DIRECTIONAL STEADY BURNING LIGHT
- CONES - 700 (28) IN HEIGHT

GENERAL NOTES

1. THE "L" DISTANCE EQUALS:  
SPEED LIMIT FORMULAS  
80 km/h (45 mph) METRIC ENGLISH  
OR GREATER:  $L=0.65(W/S)$   $L=(W/S)$   
W = WIDTH OF OFFSET IN METERS (FEET)  
S = NORMAL POSTED SPEED KM/H (MPH)
2. PLASTIC DRUMS WITH HIGH PERFORMANCE REFLECTIVE SHEETING AND STEADY BURNING LIGHTS ARE REQUIRED FOR ALL NIGHTTIME CLOSURES.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
4. FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.

5. THE IMPACT ATTENUATOR, TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS OUTSIDE THE CLEAR ZONE OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE "TRAFFIC BARRIER TERMINAL, TYPE III, TEMPORARY" DEVICE TO MEET NCHRP350 FOR POSTED SPEED.
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
7. THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
  - a. FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE HOUR PERIOD.
  - b. THE WORK ACTIVITY REQUIRES FREQUENT ENCRUSHMENT INTO THE LANE OPEN TO TRAFFIC.
 THE FLAGGER SHALL BE STATIONED APPROXIMATELY 30 m (100') TO 60 m (200') IN ADVANCE OF THE WORKERS.

REVISIONS	
NAME	DATE
DWS	11/96
JAF	12/02
NCHRP 350	04/03

ALL DIMENSIONS ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SHOWN.

ILLINOIS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS  
FOR FREEWAY  
SHOULDER CLOSURES  
PARTIAL RAMP CLOSURES

SCALE: NONE  
DATE: ##DATE##

DESIGNED BY: DWS  
CHECKED BY: