

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

Various Routes  
D 4 OVD SIN STR REPL 2010-31  
Various Counties  
Sheet 1 of 30  
Contract Number 46095

# PLANS FOR PROPOSED FEDERAL AID HIGHWAY

Various Routes  
D 4 OVD SIN STR REPL 2010-31  
VARIOUS COUNTIES  
C-60-032-10

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701400-04  
701401-05  
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701901-01  
720021-02

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED JAN. 29 2010  
PASSED

[Signature]  
ENGINEER OF OPERATIONS

March 19, 2010  
Scott E. Still, P.E.  
acting ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED March 19, 2010  
Christine M. Reed  
DIRECTOR DIVISION OF HIGHWAYS

CONTRACT NO. 46095

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
Summary and Schedule of Quantities

Various Routes  
D 4 OVD SIN STR REPL 2010-31  
Various Counties  
Sheet 2 of 30  
Contract Number 46095

CODE NUMBER	PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	URBAN	RURAL
T9990710	REMOVE <sup>AND</sup> REINSTALL WALKWAY	FOOT	133.00		133.00
T9992530	REPLACE <sup>AND</sup> TIGHTEN <sup>SIGN MOUNTING</sup> CLIPS PER SIGN	EACH	13.00		13.00
T9992700	REMOVE <sup>AND</sup> REINSTALL SIGN PANEL	SQ FT	2,524.25		2,524.25
T9997700	FURNISH <sup>AND</sup> INSTALL SAFETY CHAIN	EACH	6.00		6.00
T9998815	REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	11.00		11.00
T9998995	DISCONNECT <sup>AND</sup> RECONNECT ELECTRIC SERVICE	EACH	3.00		3.00
X0324397	RELOCATE ELECTRIC SERVICE	EACH	3.00		3.00
X0325265	REMOVE ELECTRIC SERVICE	EACH	4.00		4.00
67100100	MOBILIZATION	L SUM	1.00		1.00
70101700	TRAFFIC CONTROL <sup>AND</sup> PROTECTION	L SUM	1.00		1.00
72100100	SIGN PANEL OVERLAY	SQ FT	824.00		824.00
73300100	OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-A (4'-0" X 4'-6")	FOOT	189.00		189.00
73300200	OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A (4'-6" X 5'-3")	FOOT	153.00		153.00
73302170	OVERHEAD SIGN STRUCTURE-CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	60.00		60.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	120.05		120.05
73600100	REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	5.00		5.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER	EACH	2.00		2.00
73600300	REMOVE OVERHEAD SIGN STRUCTURE-WALKWAY	FOOT	121.00		121.00
73700300	REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	16.00		16.00
73800100	STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE-SPAN	EACH	10.00		10.00

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
D 4 OVD SIN STR REPL 2010-31  
Various Counties  
Sheet 3 of 30  
Contract Number 46095

District 4  
Schedule of Overhead Sign Structure Replacement

Location No.:	4-01	State I.D. No.:	4S090I074R099.6				
County:	Tazewell	Route:	I-74	M.P.:	99.6	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A	FOOT	78.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	524.00					
REMOVE OVERHEAD SIGN STRUCTURE-WALKWAY	FOOT	42.00					
SIGN PANEL OVERLAY	SQ FT	504.00					
REMOVE ELECTRIC SERVICE	EACH	1.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	21.50					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	4.00					

Location No.:	4-02	State I.D. No.:	4S090U150L001.5				
County:	Tazewell	Route:	US-150	M.P.:	1.5	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-A	FOOT	68.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	399.00					
REMOVE & REINSTALL WALKWAY	FOOT	41.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	11.00					
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	20.40					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	2.00					

Location No.:	4-03	State I.D. No.:	4S090U024L001.3				
County:	Tazewell	Route:	US-24	M.P.:	1.3	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-A	FOOT	71.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	495.50					
REMOVE & REINSTALL WALKWAY	FOOT	45.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	3.00					
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	20.40					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	4.00					

Location No.:	4-04	State I.D. No.:	4S090S116L006.3				
County:	Tazewell	Route:	IL-116	M.P.:	6.3	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A	FOOT	75.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	594.25					
REMOVE & REINSTALL WALKWAY	FOOT	47.00					
DISCONNECT / RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	21.50					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	3.00					

Location No.:	4-05	State I.D. No.:	4C048U074L048.0				
County:	Knox	Route:	I-74	M.P.:	48.0	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER	EACH	1.00					
OVERHEAD SIGN STRUCTURE-CANTILEVER, TYPE II-C-A	FOOT	30.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	144.00					
REMOVE OVERHEAD SIGN STRUCTURE-WALKWAY	FOOT	21.50					
REMOVE ELECTRIC SERVICE	EACH	1.00					
SIGN PANEL OVERLAY	SQ FT	144.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	7.12					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	1.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	1.00					

Location No.:	4-06	State I.D. No.:	4C048U034R007.9				
County:	Knox	Route:	US-34	M.P.:	7.9	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-CANTILEVER	EACH	1.00					
OVERHEAD SIGN STRUCTURE-CANTILEVER, TYPE II-C-A	FOOT	30.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	176.00					
REMOVE OVERHEAD SIGN STRUCTURE-WALKWAY	FOOT	23.50					
REMOVE ELECTRIC SERVICE	EACH	1.00					
SIGN PANEL OVERLAY	SQ FT	176.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	8.73					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	1.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	1.00					

Location No.:	4-07	State I.D. No.:	4S072I474R004.9				
County:	Peoria	Route:	I-474	M.P.:	4.96	Direction:	NB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-A	FOOT	50.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	191.50					
REMOVE OVERHEAD SIGN STRUCTURE-WALKWAY	FOOT	34.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	2.00					
REMOVE ELECTRIC SERVICE	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	20.40					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					

GENERAL NOTES

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

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

LOADING: 90 M.P.H. WIND VELOCITY

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

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

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

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

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53.  
All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W\*. Stainless steel for shims, sleeves and handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer.  
The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

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

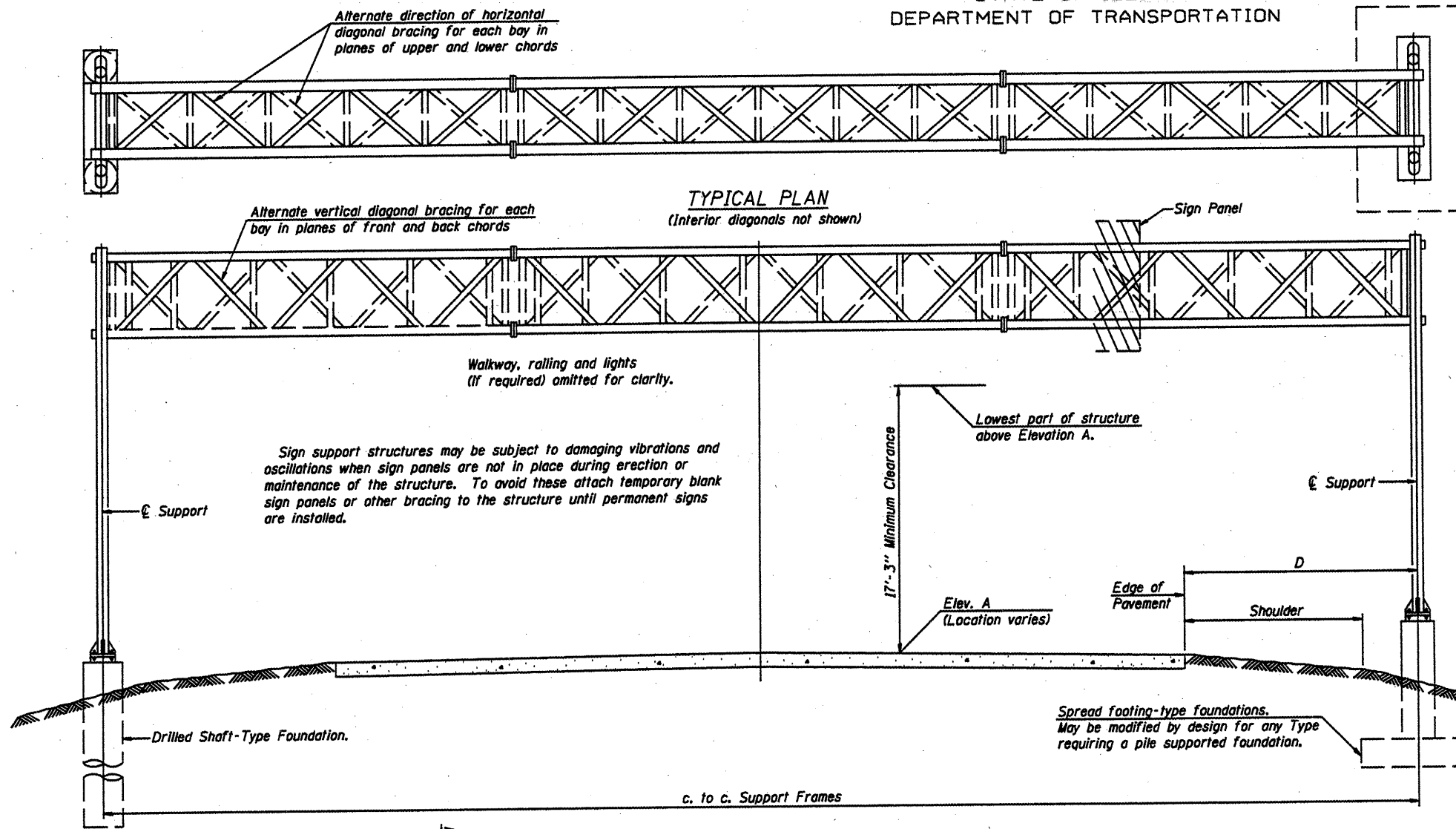
CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Bridge Seal Sealer in accordance with the Standard Specifications.

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  
Sign Structure Replacement



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

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

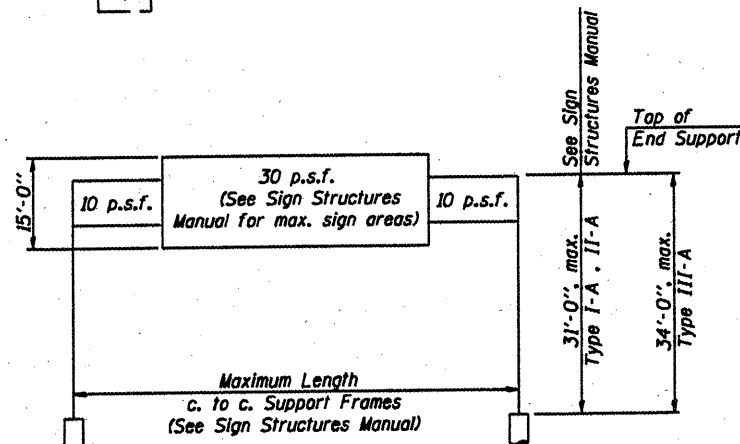
Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign	Total Sign Area
450901074R099.6	461 + 00	II-A	78' - 0"	728.54	21' - 0"	14' - 0"	504.00
45090U150L001.5	210 + 50	I-A	68' - 0"	100.00	15' - 0"	14' - 0"	399.00
45090U024L001.3	293 + 00	I-A	71' - 0"	100.00	19' - 6"	13' - 6"	495.50
45090S116L006.3	242 + 00	II-A	75' - 0"	100.00	23' - 0"	14' - 0"	594.25
450721474R004.9	191 + 20	I-A	50' - 0"	641.34	15' - 0"	11' - 6"	191.50

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

TOTAL BILL OF MATERIAL

NUMBER	REVISION	DATE

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

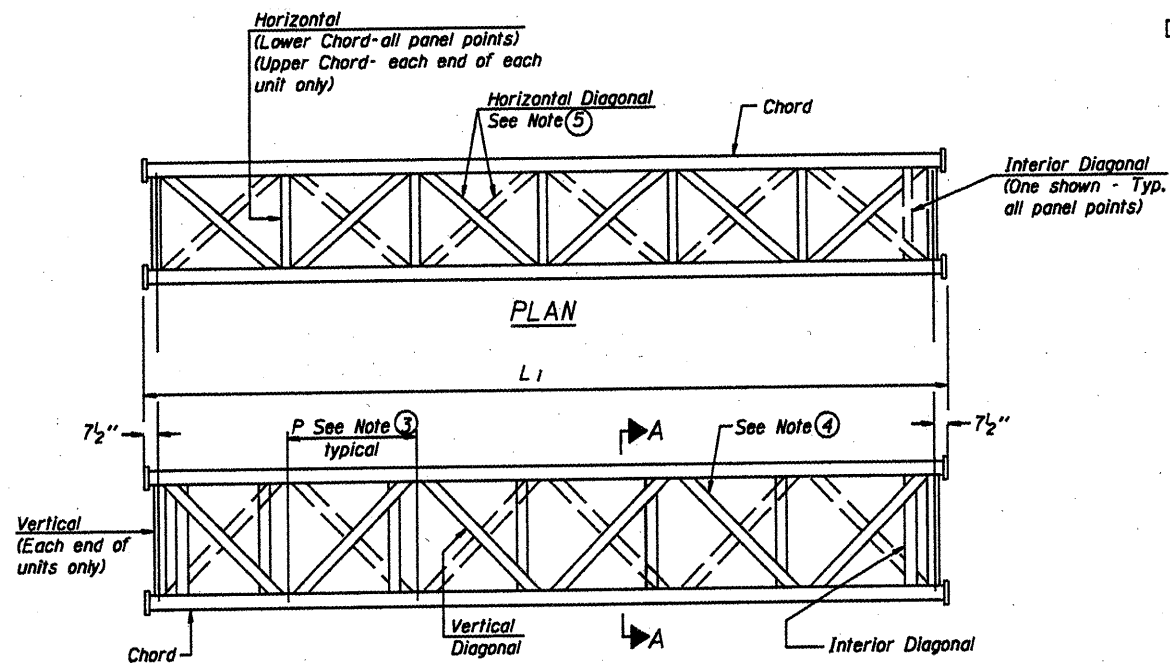


DESIGN WIND LOADING DIAGRAM

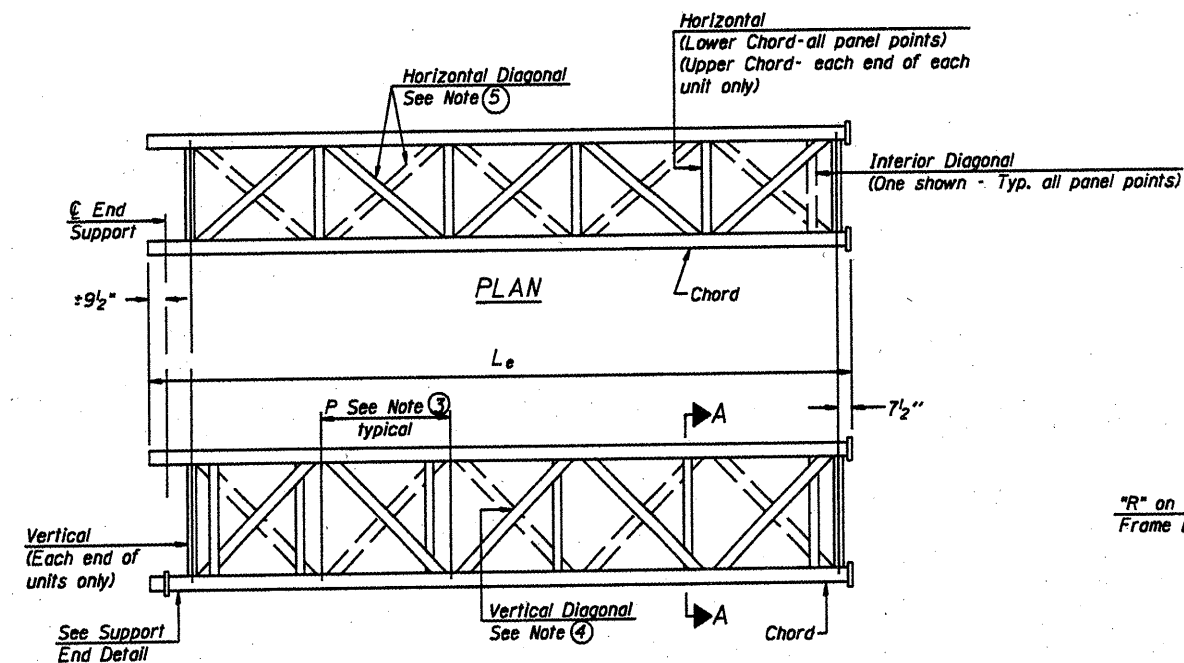
Parameters shown are basis for I.D.O.T. Standards and Sign Manual Tables. Installations not within dimensional limits shown require special analysis for all components.

DESIGNED	20
CHECKED	
DRAWN	
CHECKED	

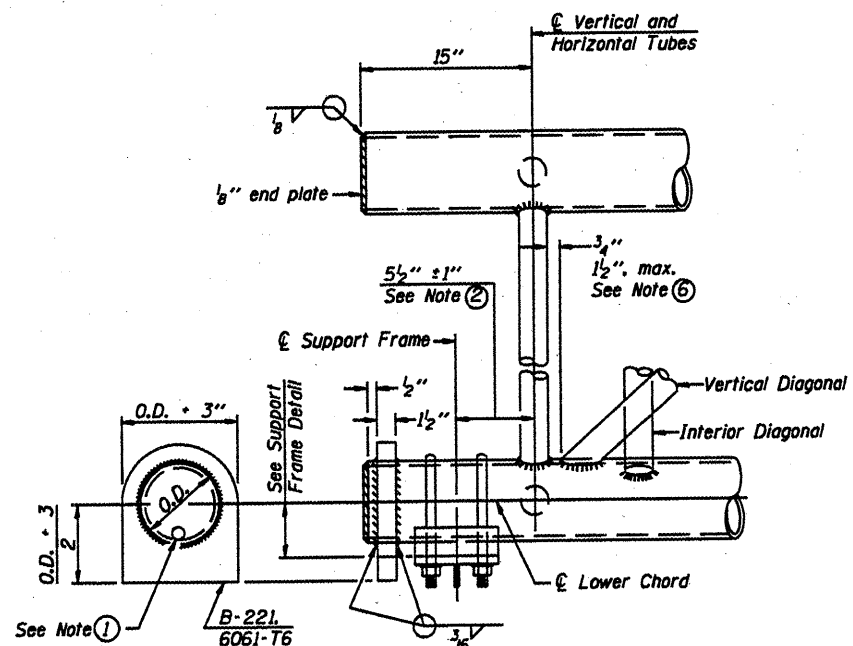




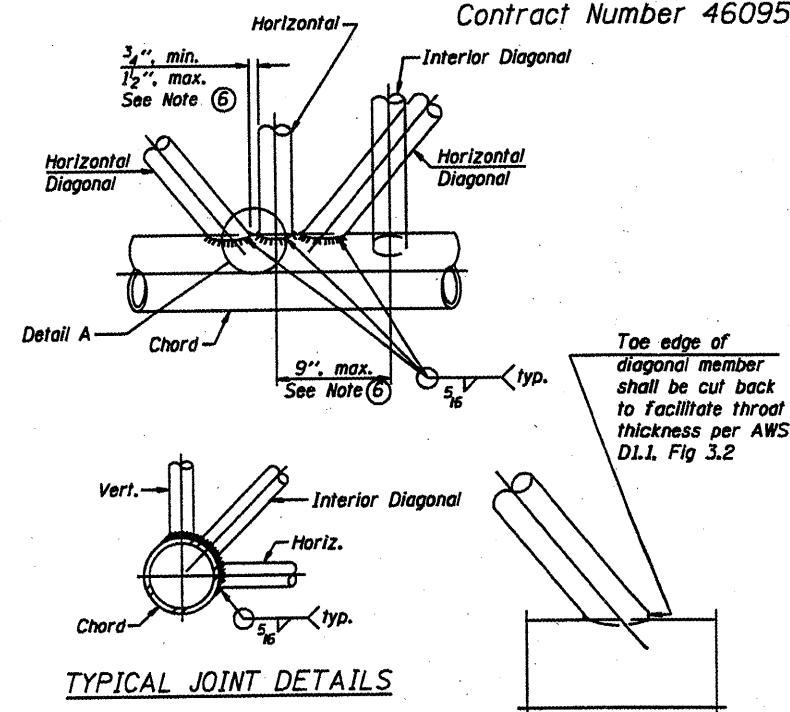
ELEVATION  
TYPICAL INTERIOR UNIT  
Even number of panels/interior unit required.



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



SUPPORT END DETAIL FOR EXTERIOR UNIT

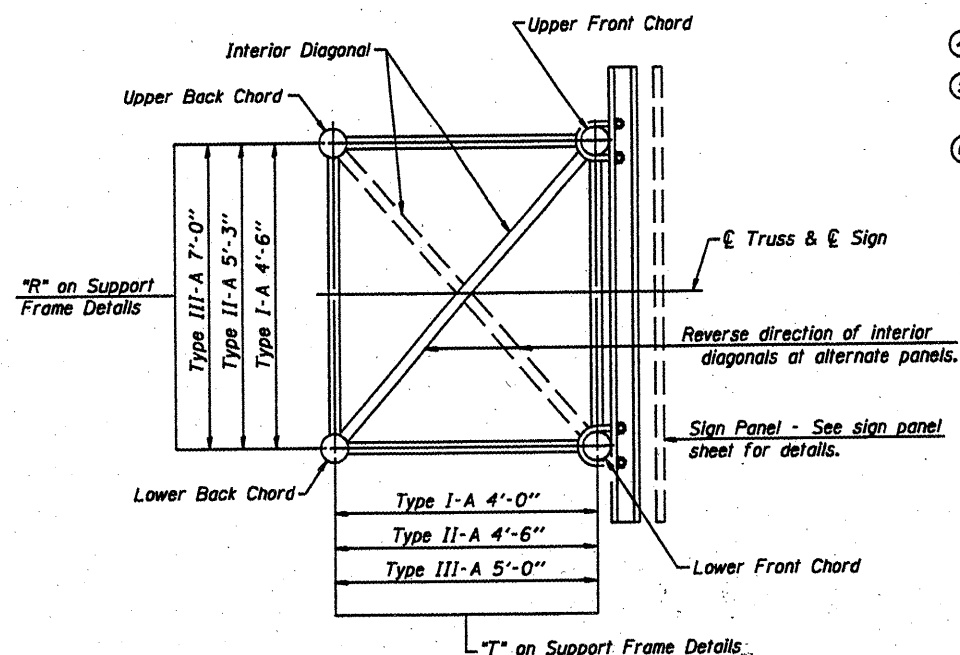


TYPICAL JOINT DETAILS

DETAIL A

NOTES

- ① Contractor may alternatively use standard aluminum drive-fit cap to close end. 1/2" Ø 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 1/2" 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 4  
Sign Structure Replacement

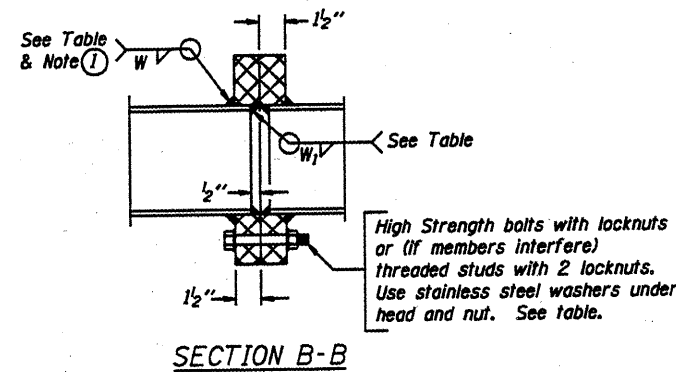
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CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

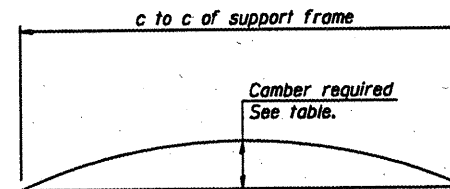
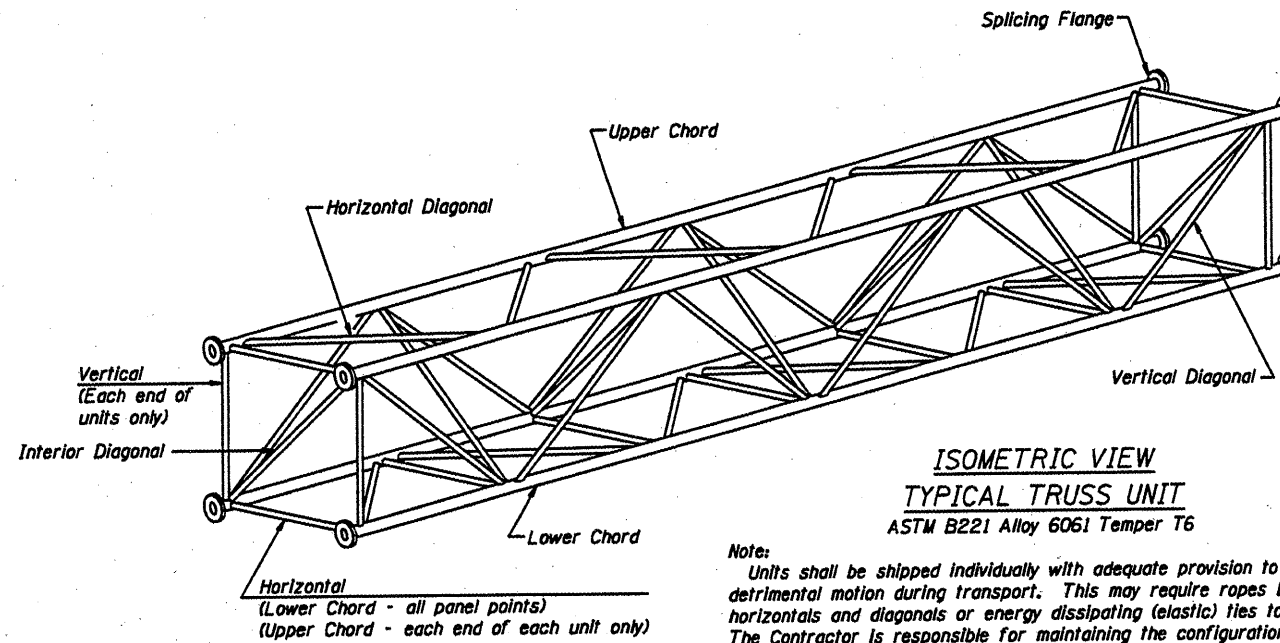
NUMBER	REVISION	DATE

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>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>i</sub>		
4S0901074R099.6	460 + 00	II-A	7	39'-9 1/2"	5' - 5"					5 1/2"	5/16"	3"	5/16"	1 3/4"	6	7/8"	3/8"	1/4"	9 1/4"	12 1/4"
4S090150L001.5	210 + 50	I-A	7	34' - 10"	4'-8 1/2"					5 1/2"	5/16"	2 1/2"	5/16"	1 3/4"	6	7/8"	3/8"	1/4"	9 1/4"	12 1/4"
4S09024L001.3	293 + 00	I-A	7	36'-3 1/2"	4' - 11"					5 1/2"	5/16"	2 1/2"	5/16"	1 3/4"	6	7/8"	3/8"	1/4"	9 1/4"	12 1/4"
4S0905116L006.3	242 + 00	II-A	7	38' - 4"	5'-2 1/2"					5 1/2"	5/16"	3"	5/16"	1 1/2"	6	7/8"	3/8"	1/4"	9 1/4"	12 1/4"
4S0721474R004.9	191 + 20	I-A	10	25' - 10"	4'-9 1/2"					5 1/2"	5/16"	2 1/2"	5/16"	1"	6	7/8"	3/8"	1/4"	9 1/4"	12 1/4"

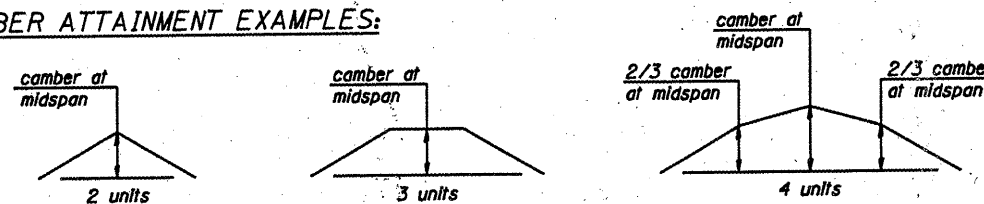


① Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining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

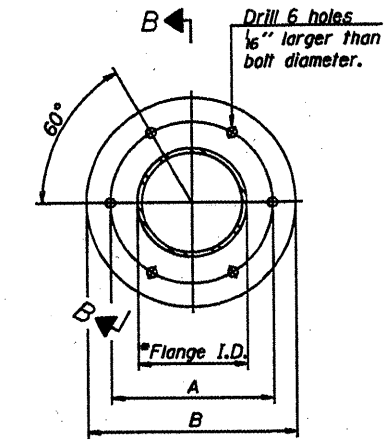


CAMBER DIAGRAM  
Camber curve shown is theoretical. Actual camber attained by slope changes at splices between units.

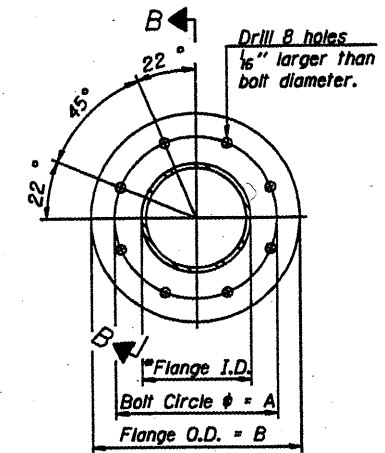
CAMBER ATTAINMENT EXAMPLES:



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

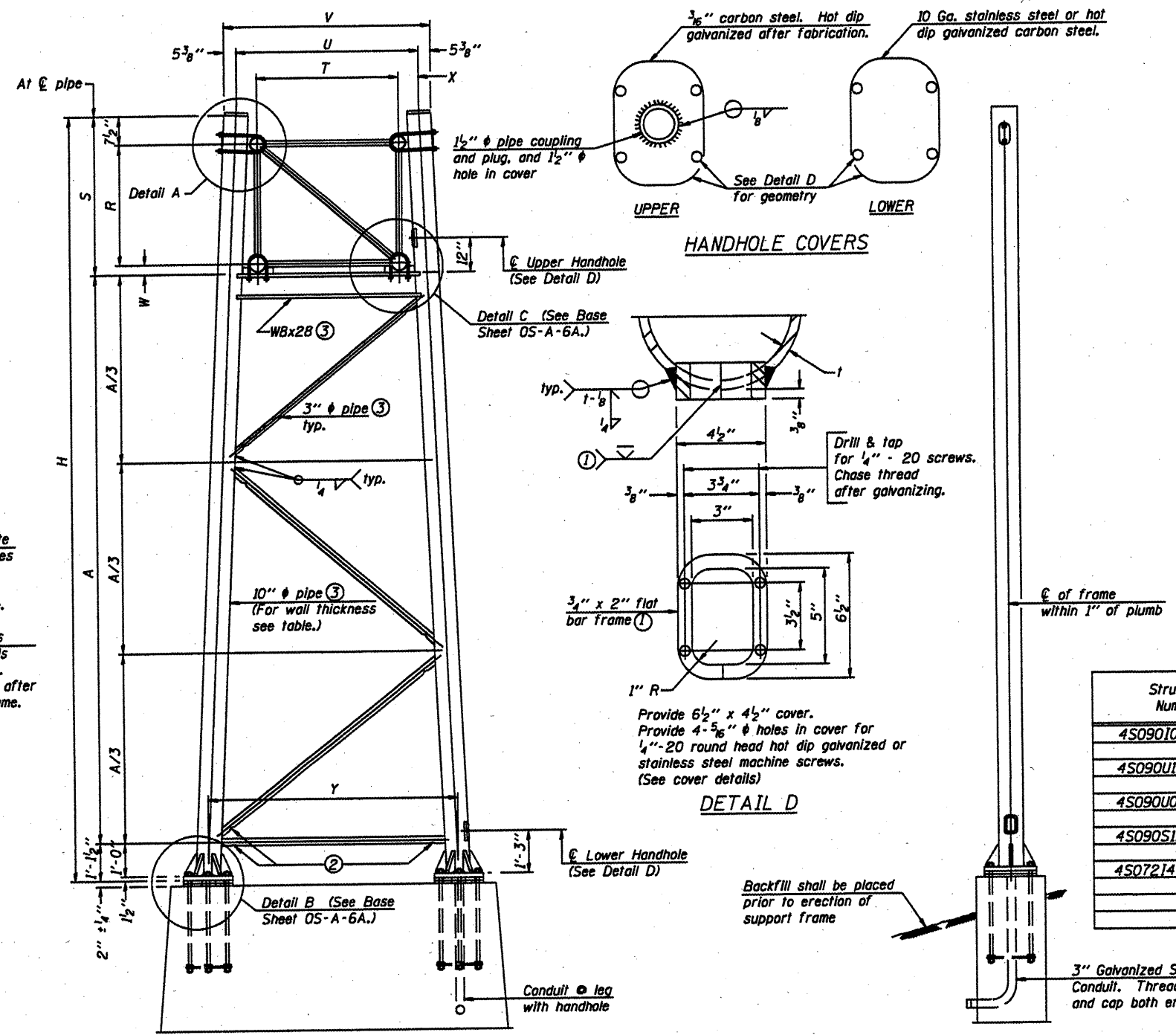
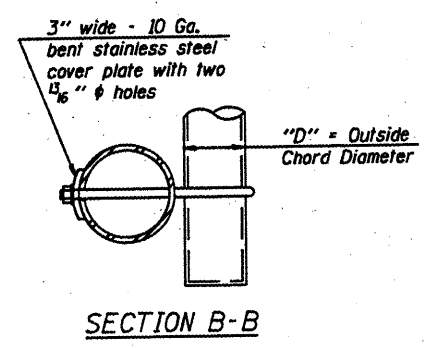
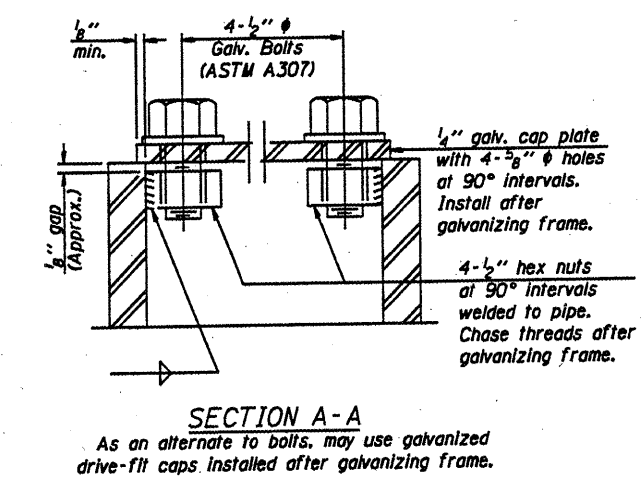
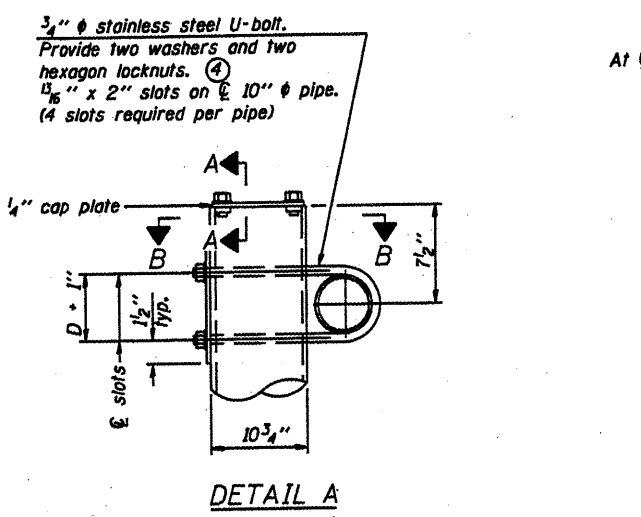
DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

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

District 4  
Sign Structure Replacement

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

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



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

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H ⑥	A
		Left	Right				
4S0901074R099.6	460 + 00	X	X	II-A	0.365(Std)	31'-0"	23'-7 1/4"
4S0901150L001.5	210 + 50	X	X	I-A	0.279	31'-0"	24'-5"
4S090024L001.3	293 + 00	X	X	I-A	0.279	30'-0"	24'-6 1/2"
4S090S116L006.3	242 + 00	X	X	II-A	0.365(Std)	29'-8 1/2"	26'-5 1/4"
4S0721474R004.9	191 + 20	X	X	I-A	0.279	27'-2 3/4"	22'-9 1/4"

The "H" and "A" dimensions shown were calculated from the information available for the existing end support details.

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for ALUMINUM TRUSS

District 4  
Sign Structure Replacement

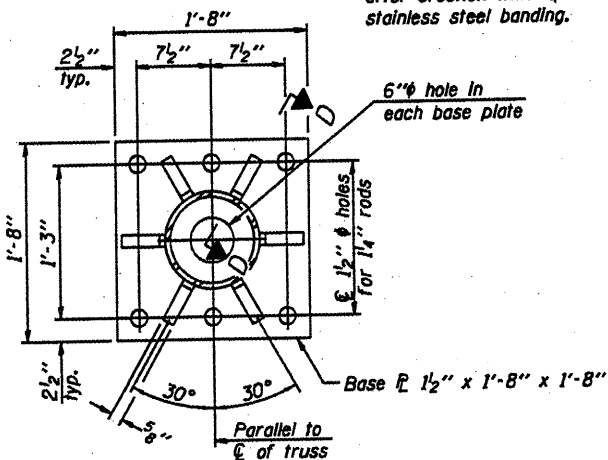
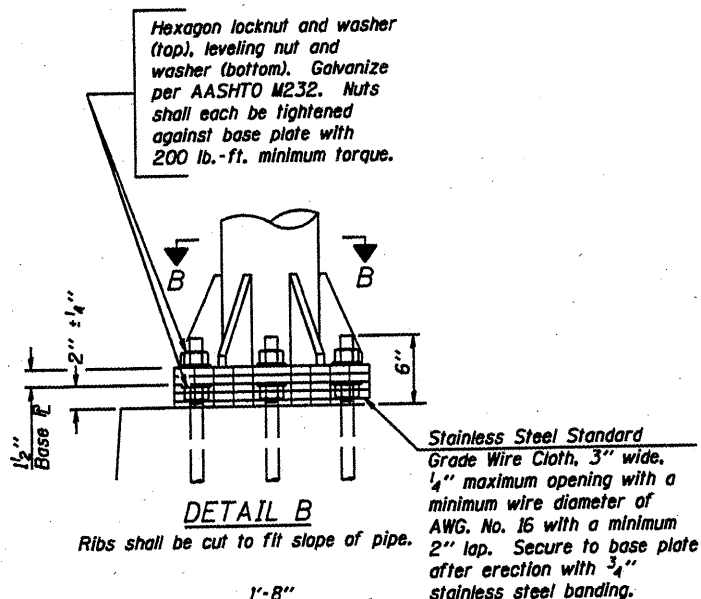
10"  $\phi$  PIPE TRUSS SUPPORT FRAME

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

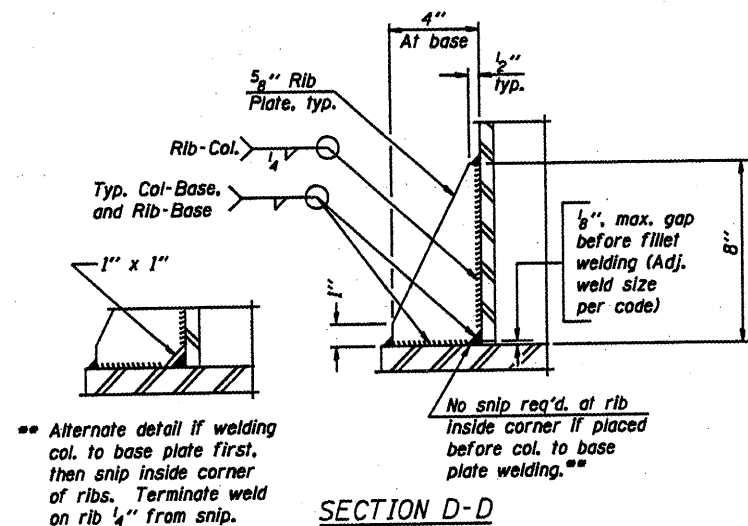
NUMBER	REVISION	DATE

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

OS-A-6 5/16/08

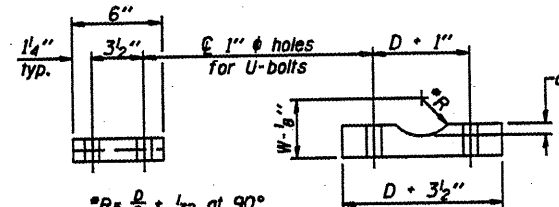


SECTION B-B



SECTION D-D

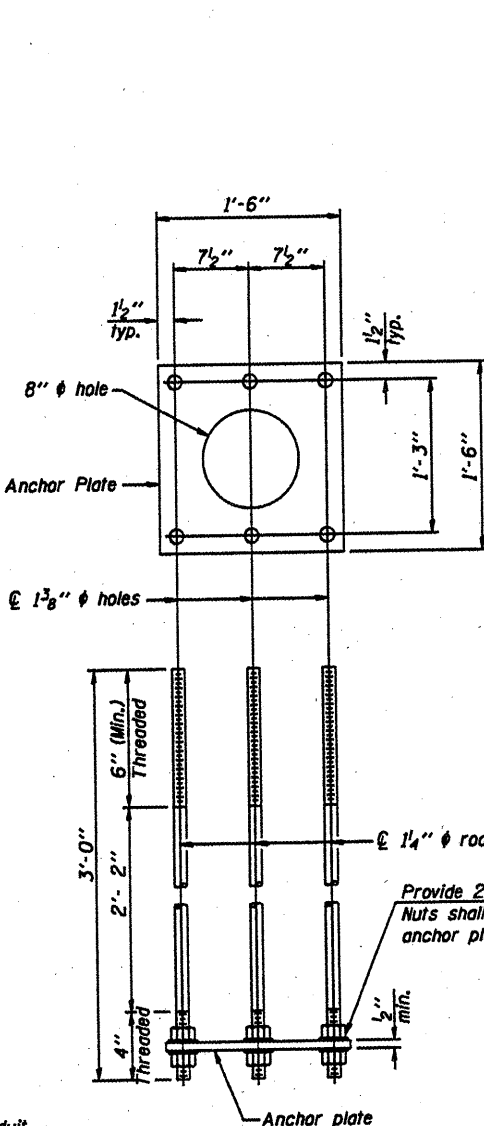
\*\* Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.



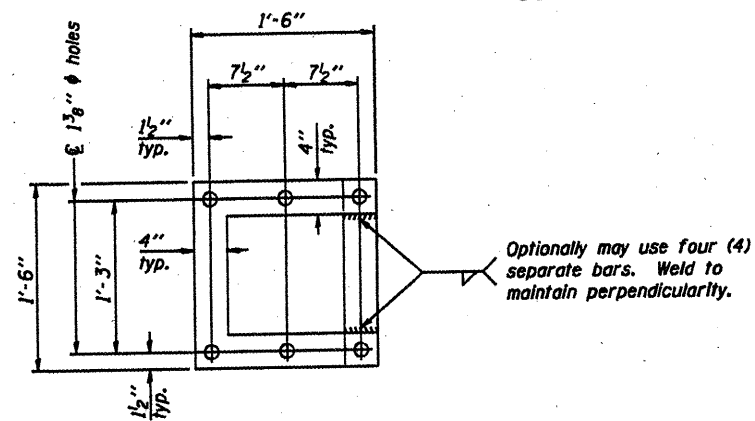
SADDLE SHIM DETAIL

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

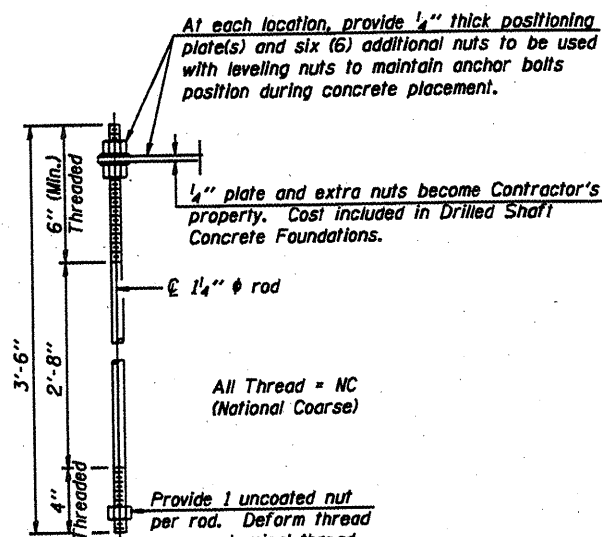
Truss Chord Nominal Dia.	a
5"	3 1/4"
5 1/2"	3 1/2"
6"	3 3/4"
6 1/2"	4"
7"	4 1/4"



ANCHOR ROD DETAIL  
Spread Footing Foundation



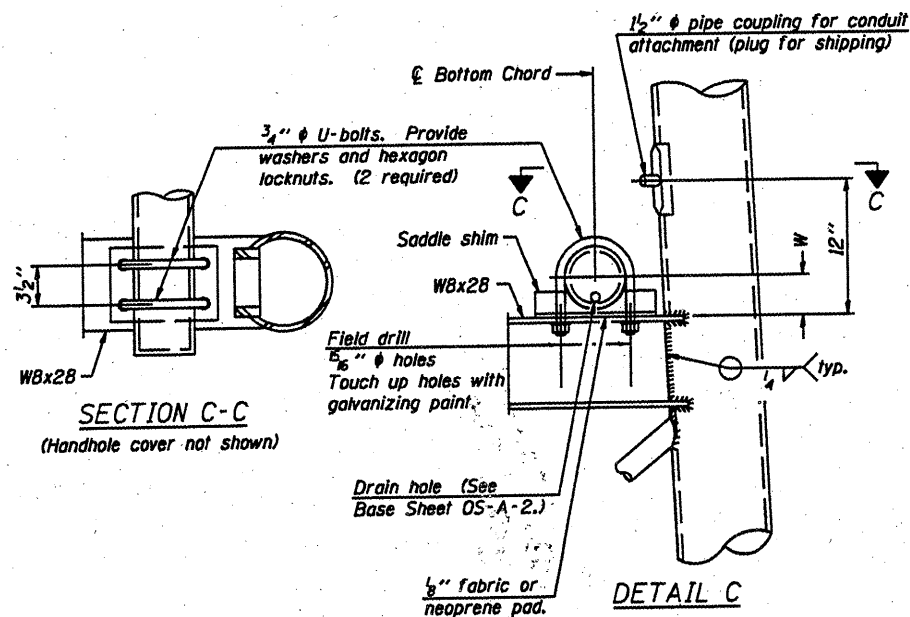
POSITIONING PLATE(S)



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" PIPE SUPPORT FRAME DETAILS



SECTION C-C  
(Handhole cover not shown)

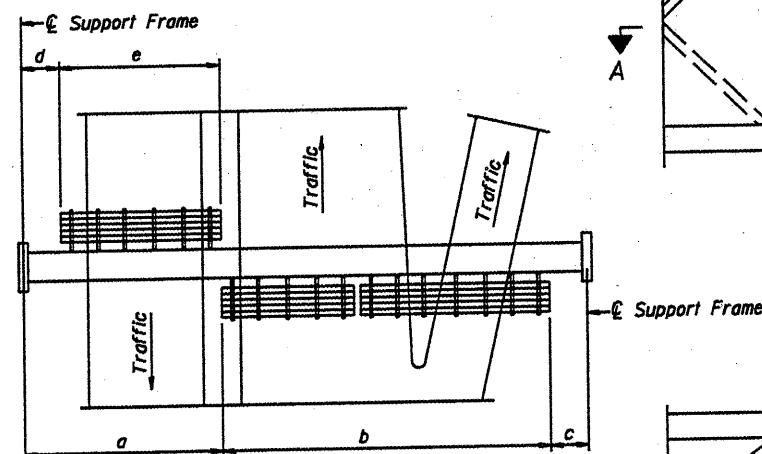
NUMBER	REVISION	DATE

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

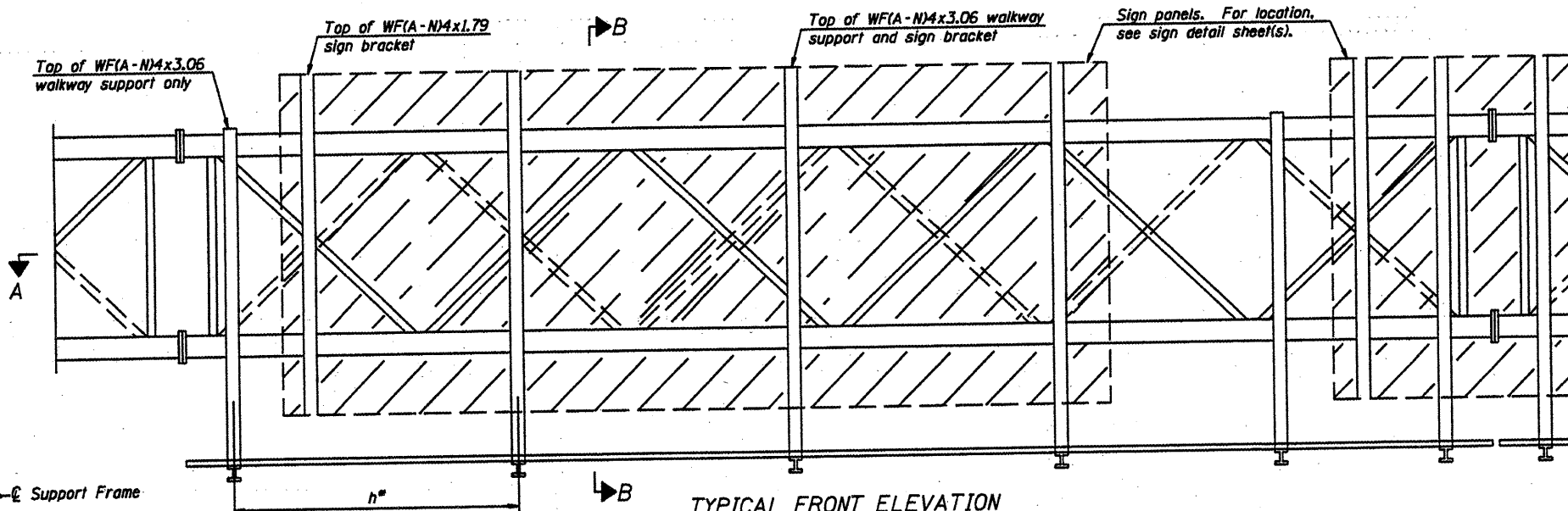
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 4  
Sign Structure Replacement

NUMBER	REVISION	DATE



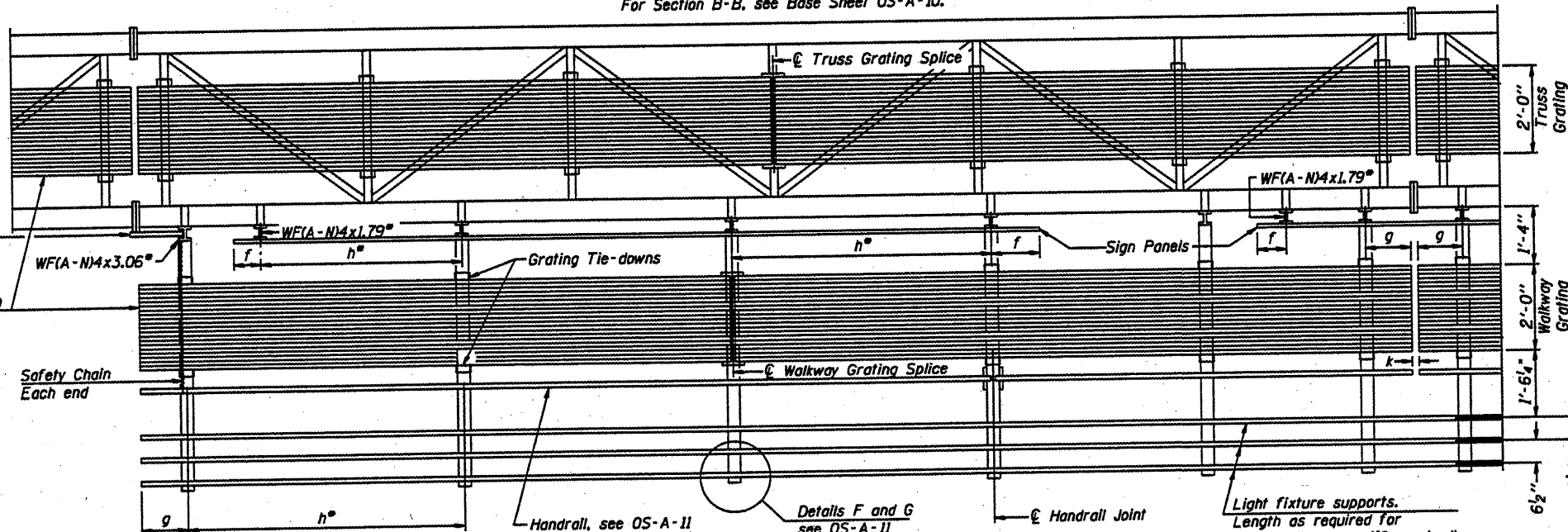
PLAN  
WALKWAY AND HANDRAIL SKETCH  
(Road plan beneath truss varies)



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

•• Alternate angle  
For safety chain  
attachment

Standard Aluminum  
Grating, see  
Details T and W



SECTION A-A

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

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

Walkway and Truss Grating  
width dimensions are nominal  
and may vary ±½" based on  
available standard widths.

BRACKET TABLE

Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
8'-0"	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 C of nearest bracket)

g = 12" maximum, 4" minimum (End of walkway grating to C of nearest support bracket)

h = 6'-0" maximum (C to C 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 Handrail Details see Base Sheet OS-A-11.

DESIGNED	20
CHECKED	DESIGNED BY BRIDGE DESIGN
DRAWN	PASSED
CHECKED	DESIGNED BY BRIDGES AND STRUCTURES

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
4S0901074R099.6	461 + 00	N/A	N/A	N/A	N/A	N/A	80' - 0" *
4S0901150L001.5	210 + 50	N/A	N/A	N/A	N/A	N/A	70' - 0"
4S090024L001.3	293 + 00	N/A	N/A	N/A	N/A	N/A	72' - 6"
4S090S116L006.3	242 + 00	N/A	N/A	N/A	N/A	N/A	77' - 0"
4S0721474R004.9	191 + 20	N/A	N/A	N/A	N/A	N/A	51' - 8"

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

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

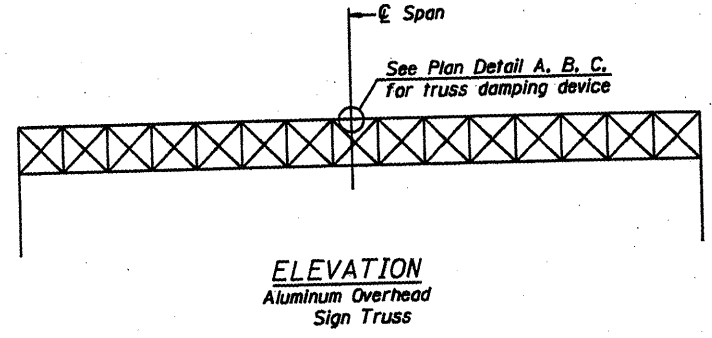
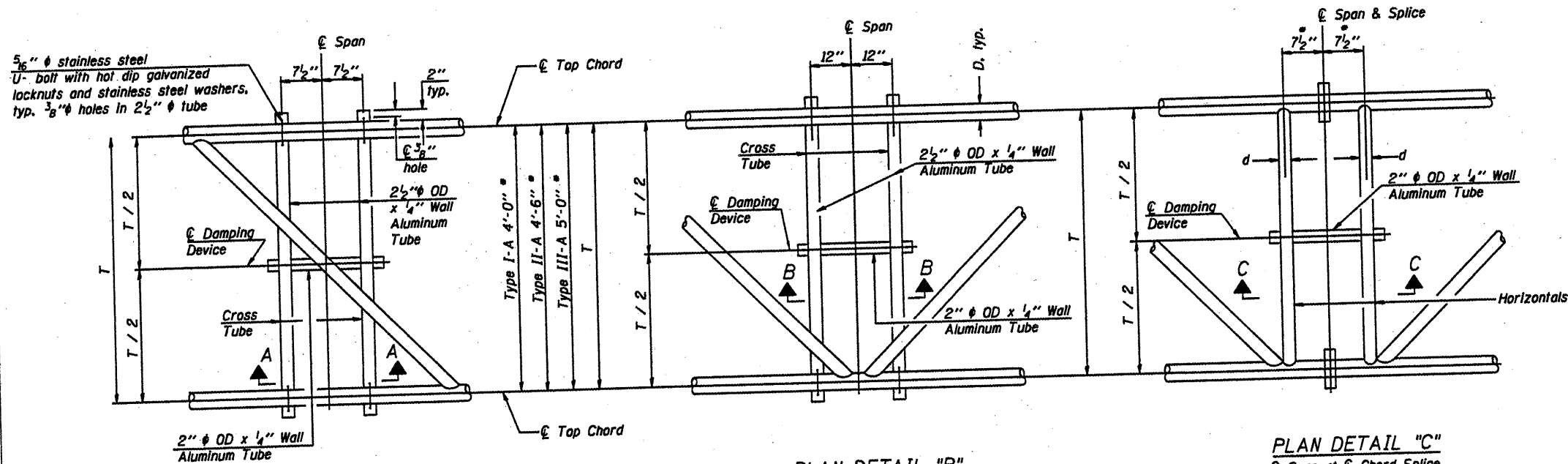
District 4  
Sign Structure Replacement







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

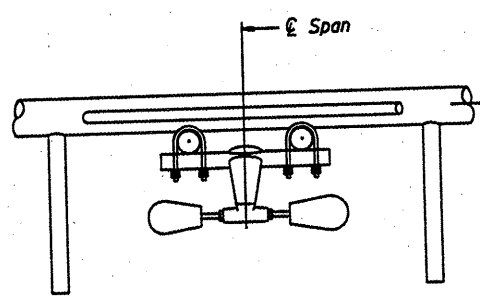


PLAN DETAIL "A"  
Span between Panel Points

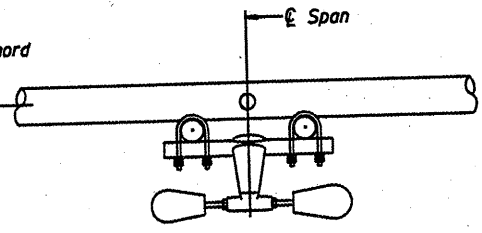
PLAN DETAIL "B"  
Span at Panel Point

PLAN DETAIL "C"  
Span at Chord Splice

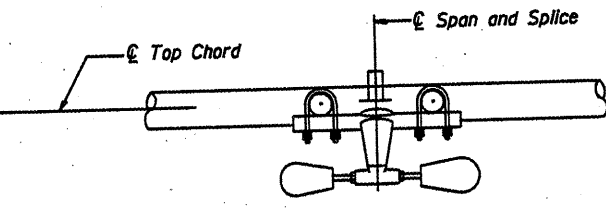
**NOTES**  
Damper: One damper per truss.  
(31 lbs. Stockbridge-Type Aluminum)  
Cost included in Overhead Sign Structure...  
  
Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...



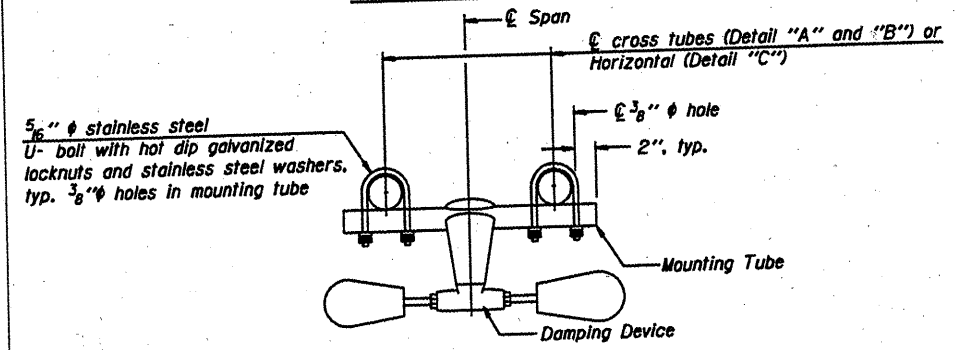
SECTION A-A



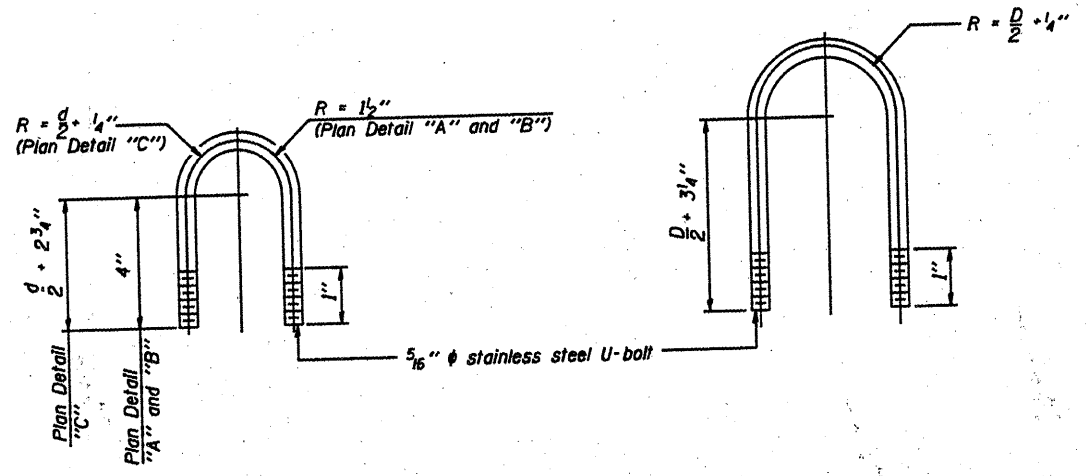
SECTION B-B



SECTION C-C



TRUSS DAMPING  
DEVICE CONNECTION DETAIL  
(Typical)



DAMPING DEVICE MOUNTING  
TUBE U-BOLT DETAIL  
(Typical)

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

OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE  
  
District 4  
Sign Structure Replacement

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

OS-A-D 5/16/08

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.

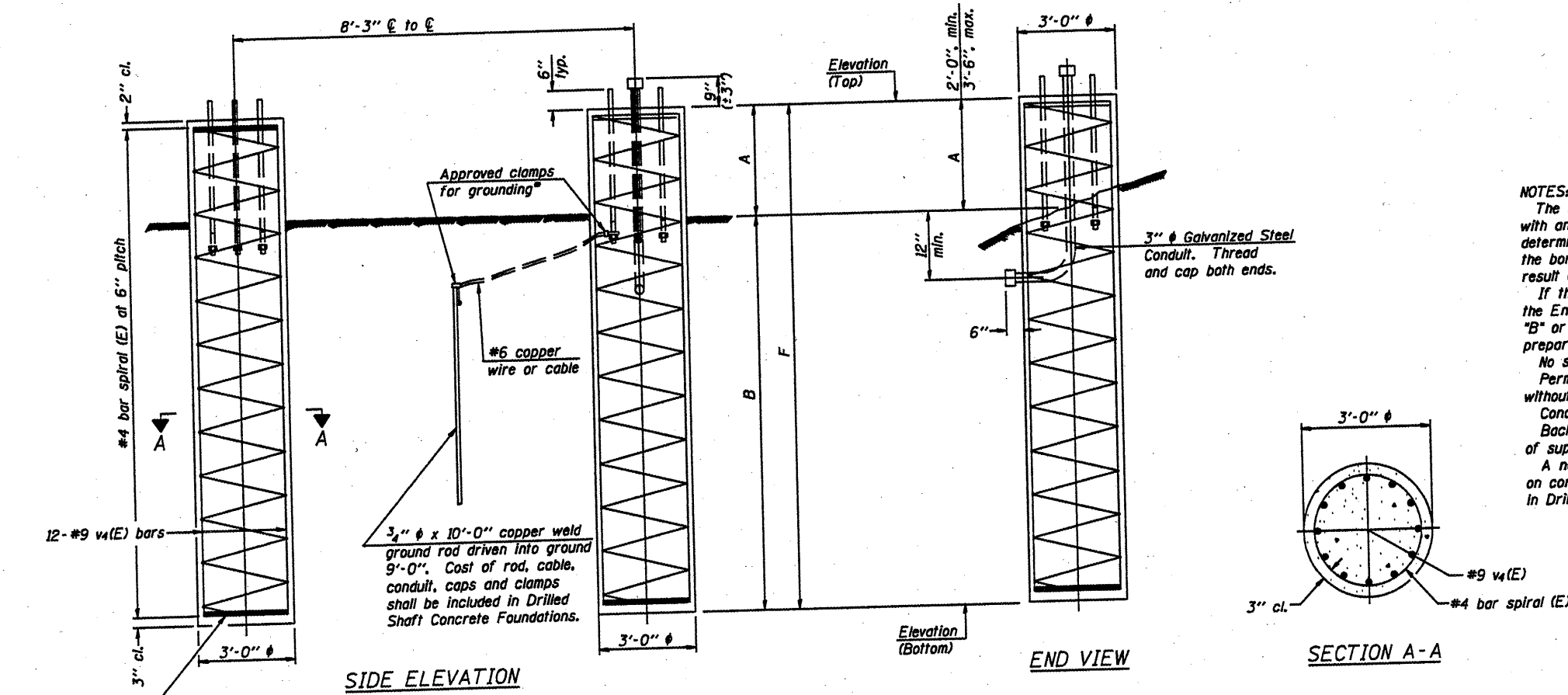
If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District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

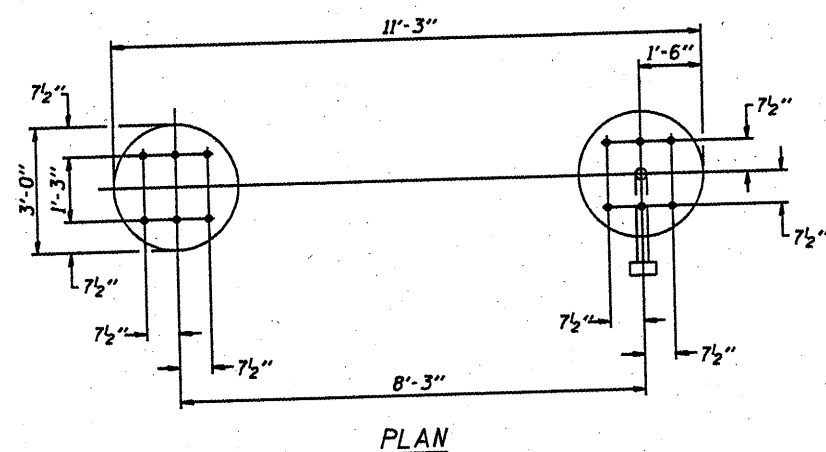
Concrete shall be placed monolithically, without construction joints.

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 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.



3 hoops minimum top and bottom



Structure Number	Station	Left Foundation						Right Foundation			Class DS Concrete (Cu. Yds.)	
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top	Elevation Bottom	A	B		F
4S0901074R099.6	461 + 00	N/A	N/A	3' - 0"	17' - 6"	20' - 6"	N/A	N/A	3' - 0"	17' - 6"	20' - 6"	21.50
4S090U150L001.5	210 + 50	N/A	N/A	3' - 0"	16' - 6"	19' - 6"	N/A	N/A	3' - 0"	16' - 6"	19' - 6"	20.40
4S090U024L001.3	293 + 00	N/A	N/A	3' - 0"	16' - 6"	19' - 6"	N/A	N/A	3' - 0"	16' - 6"	19' - 6"	20.40
4S090S116L006.3	242 + 00	N/A	N/A	3' - 0"	17' - 6"	20' - 6"	N/A	N/A	3' - 0"	17' - 6"	20' - 6"	21.40
4S0721474R004.9	191 + 20	N/A	N/A	3' - 0"	16' - 6"	19' - 6"	N/A	N/A	3' - 0"	16' - 6"	19' - 6"	20.40

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

EXAMINED	20
PASSED	

NUMBER	REVISION	DATE

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

OVERHEAD SIGN STRUCTURES  
DRILLED SHAFT DETAILS

District 4  
Sign Structure Replacement



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
D 4 OVD SIN STR REPL 2010-31  
Various Counties  
Sheet 14 of 30  
Contract Number 46095

GENERAL NOTES

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

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

LOADING: 90 M.P.H. WIND VELOCITY

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

DESIGN STRESSES:

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

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

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B 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.

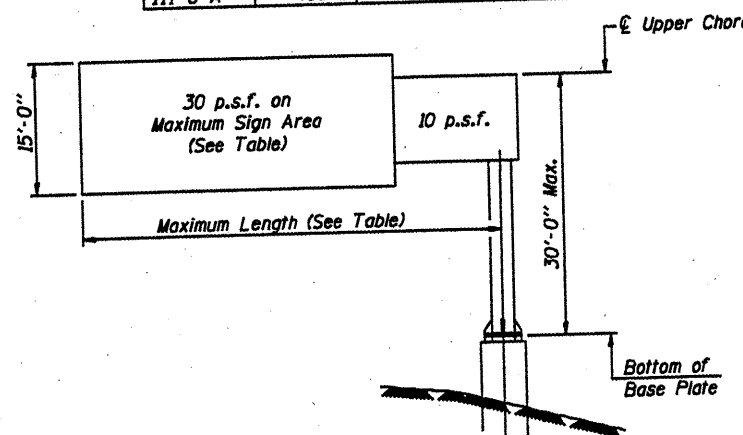
ANCHOR RODS: Shall conform to AASHTO M314 Gr. 55 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F.

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

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

Structure Number	Station	Design Truss Type	Cantilever Length (L)	Elev. A	Dim. D	D <sub>s</sub>	Total Sign Area
4C04B1074L048.0	RT 345+10	II-C-A	30'-0"	798.65	18'-6"	7'-6"	123.75
4C04B034R007.9	RT 631+00	II-C-A	30'-0"	824.40	16'-5"	9'-0"	175.50

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



DESIGN WIND LOADING DIAGRAM

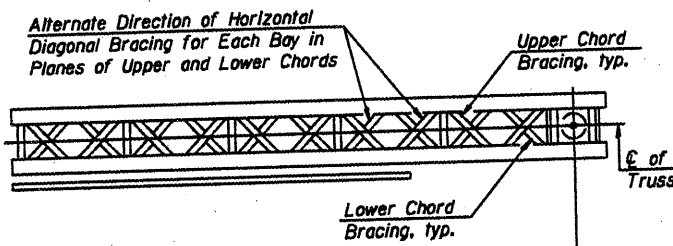
Parameters shown are basis for I.D.O.T. Standards. Installations not within dimensional limits shown require special analysis for all components.

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

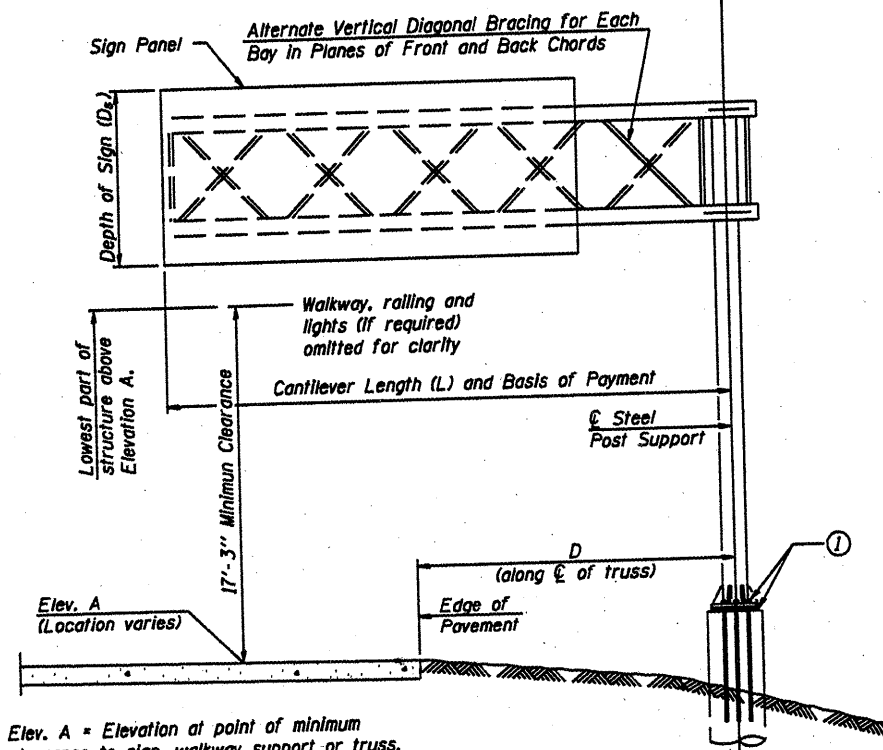
Note:  
Trusses shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The contractor is responsible for maintaining the configuration and protection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

TOTAL BILL OF MATERIAL

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



TYPICAL PLAN  
(Walkway not shown)



TYPICAL ELEVATION  
Looking in Direction of Traffic

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

\* 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.

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

OSC-A-1 5/16/08

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

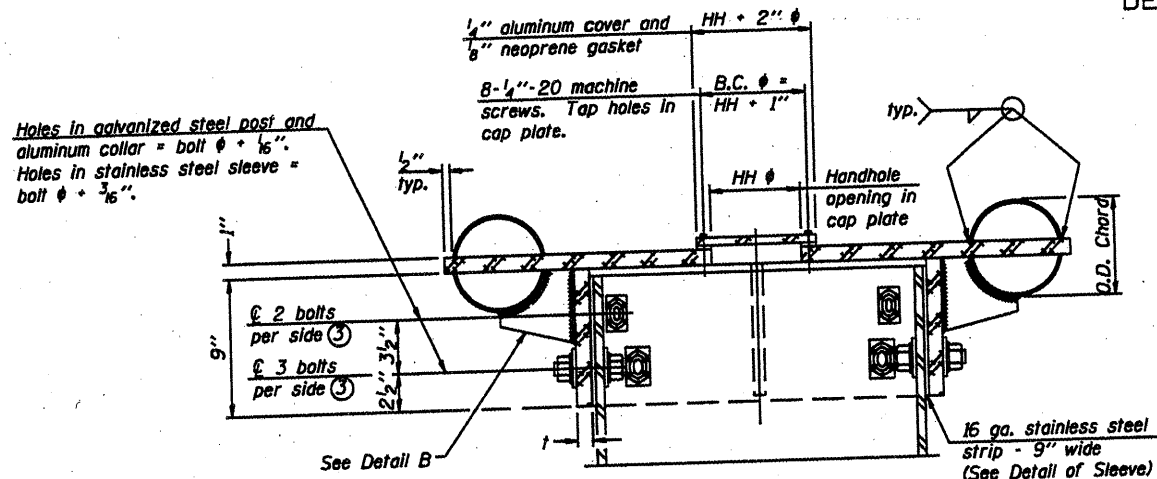
District 4  
Sign Structure Replacement





STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

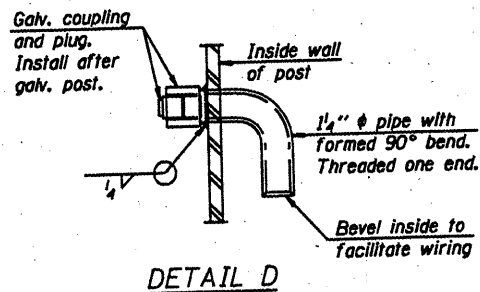
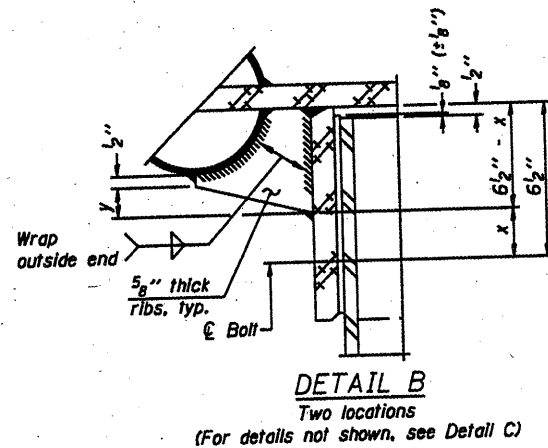
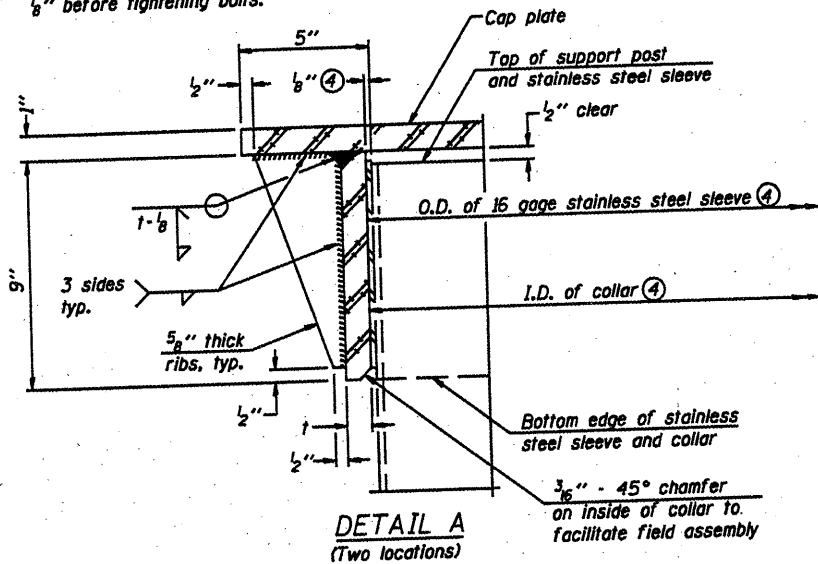
Various Routes  
D 4 OVD SIN STR REPL 2010-31  
Various Counties  
Sheet 16 of 30  
Contract Number 46095



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

SECTION B-B

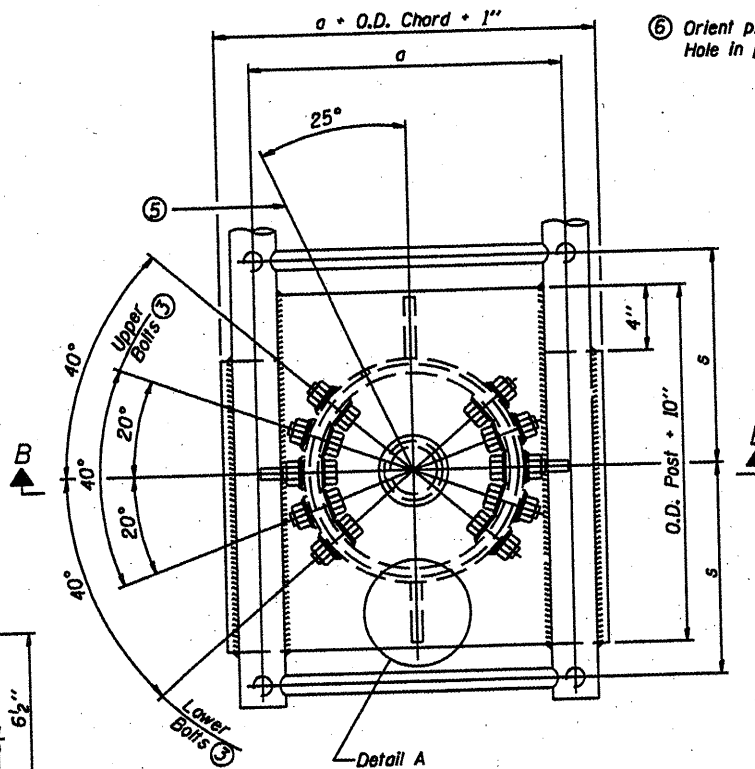
Bolts, washers (including contoured washers), and locknuts shall be stainless steel.



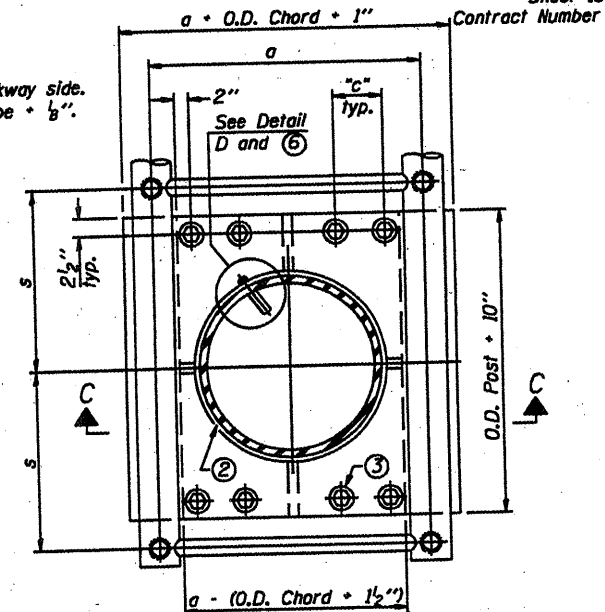
DETAIL OF STAINLESS STEEL SLEEVE

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

NUMBER	REVISION	DATE

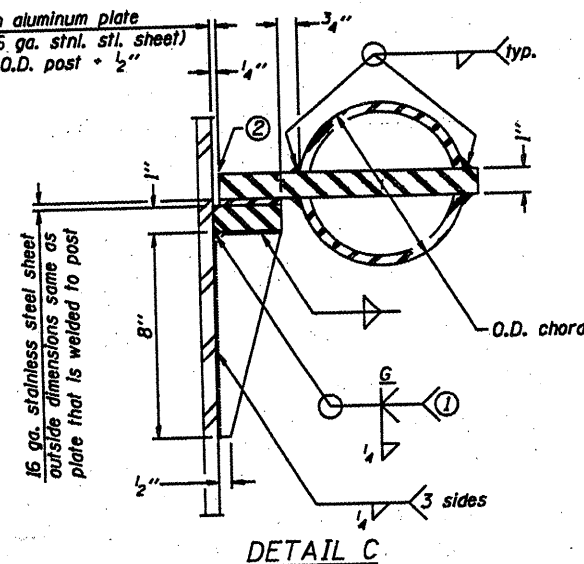


⑥ Orient pipe toward walkway side. Hole in post = O.D. pipe +  $\frac{1}{8}$ ".



SECTION THRU POST ABOVE LOWER CHORDS

Hole in aluminum plate (and 16 ga. stnl. stl. sheet) to be O.D. post +  $\frac{1}{2}$ "



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"

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" $\phi$ (183#/')	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-A	24" $\phi$ (125#/')	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-A (35' max.)	24" $\phi$ (125#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"
III-C-A (>35' to 40')	24" $\phi$ (171#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"

③ Upper and lower connection bolts in collar and bolts at lower chord connection shall be high strength with matching locknuts. Connection bolts shall have 2 stainless steel flat washers each.

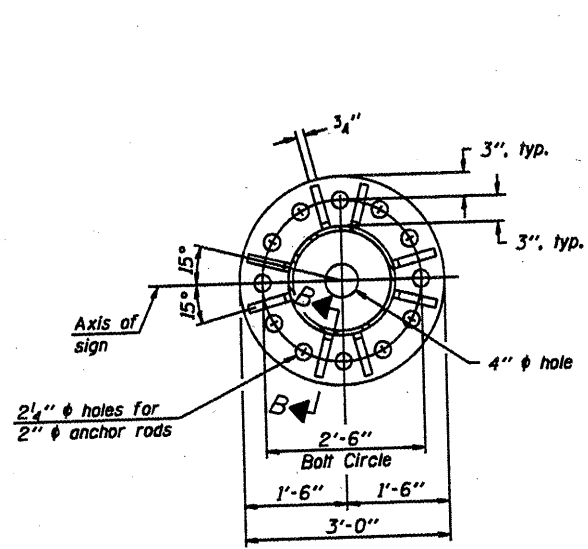
DESIGNED -	20
CHECKED -	ENGINEER OF BRIDGE DESIGN
DRAWN -	ENGINEER OF BRIDGES AND STRUCTURES
CHECKED -	

OSC-A-3

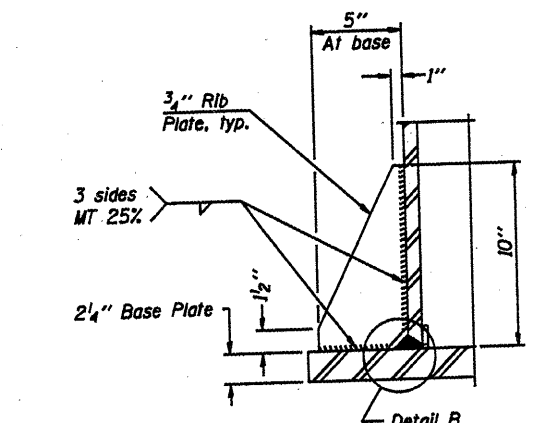
5/16/08

CANTILEVER SIGN STRUCTURES  
JUNCTURE DETAILS  
ALUMINUM TRUSS & STEEL POST

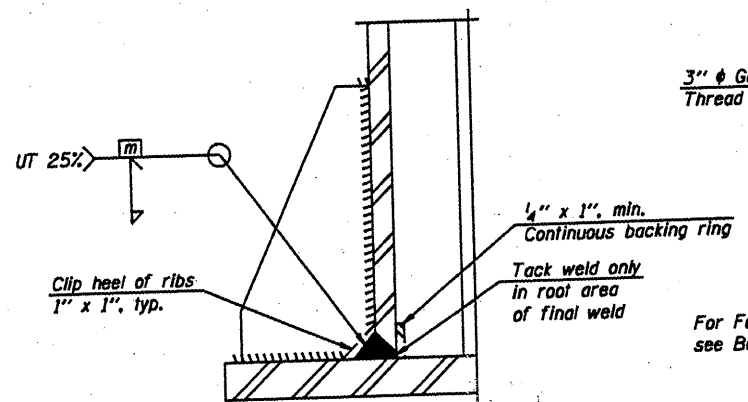
District 4  
Sign Structure Replacement



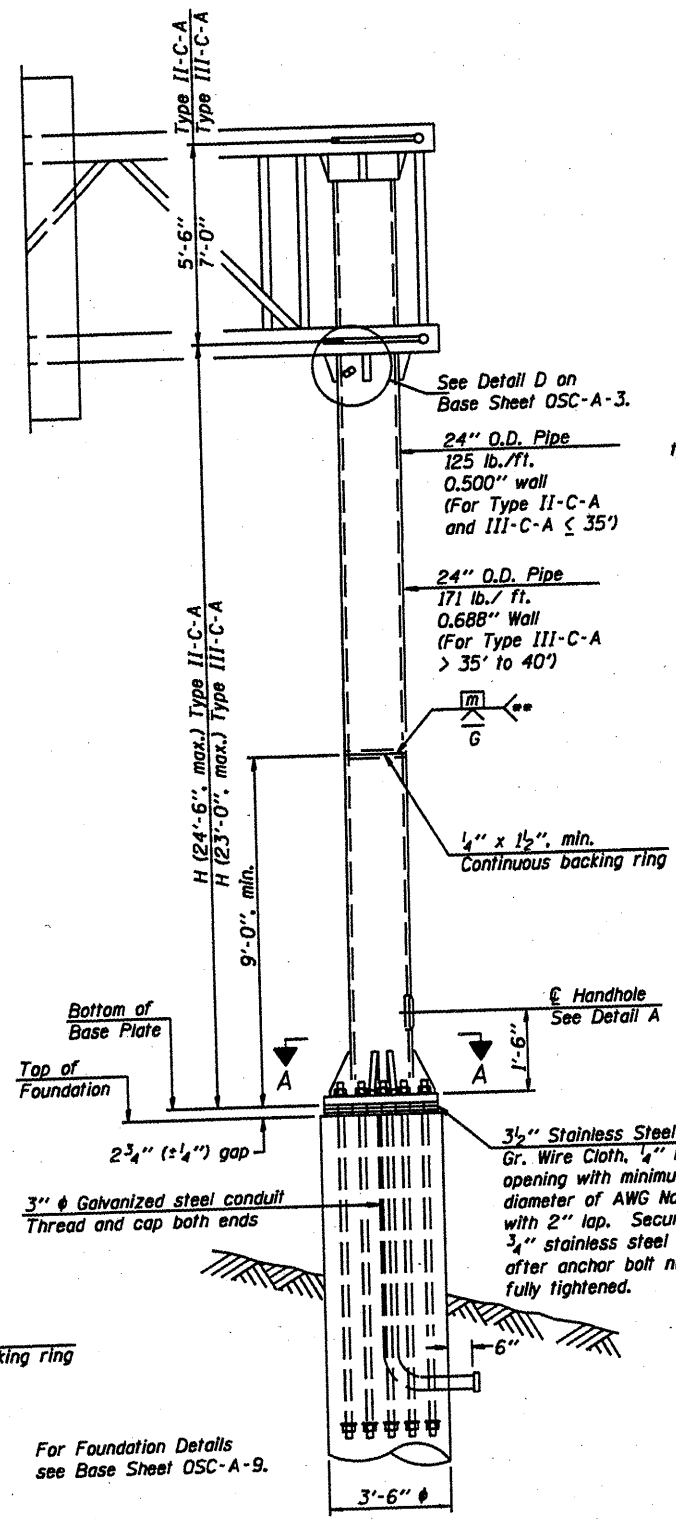
SECTION A-A



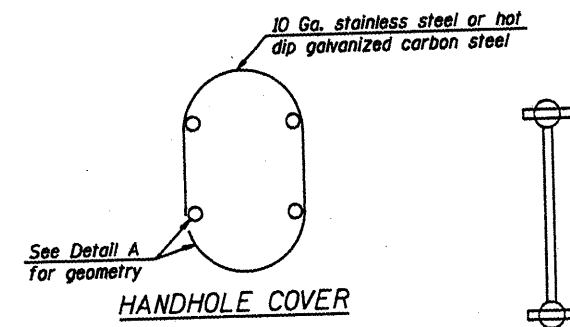
SECTION B-B



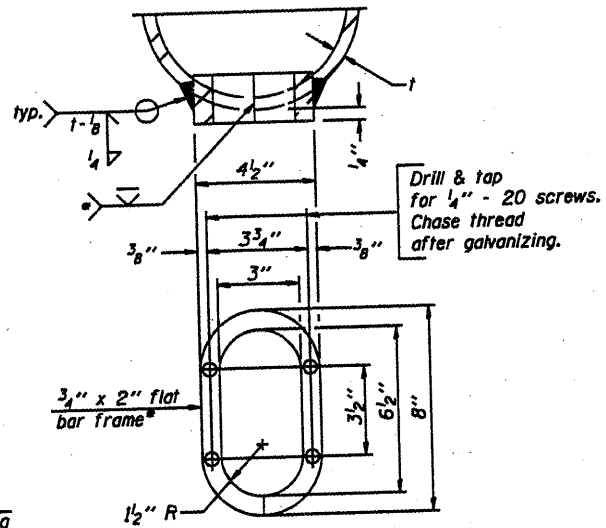
DETAIL B  
(Typical rib)



FRONT ELEVATION



HANDHOLE COVER



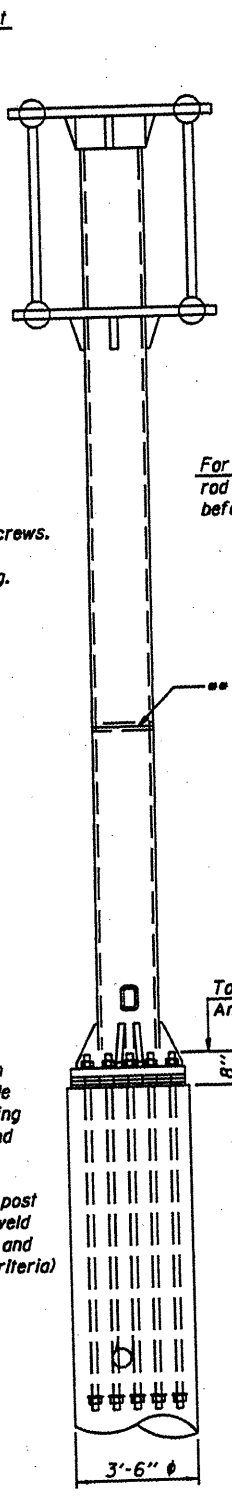
DETAIL A

Provide 8" x 4.5" cover. Outside corners = 2.5" radius. Provide 4 - 5/16" holes in cover for 1/4" - 20 round head hot dip galvanized or stainless steel machine screws. (See cover details.)

- \* Bent bars may be butt welded top and bottom or bottom only. In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.
- \*\* Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.

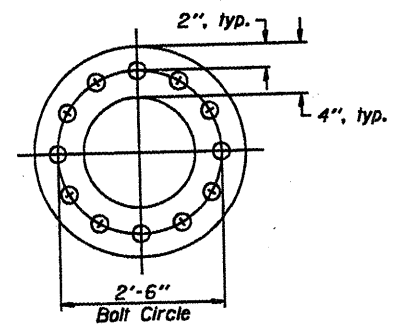
Structure Number	Station	H
4C0481074L048.0	RT 345+10	23' - 0"
4C048U034R007.9	RT 631+00	24' - 6"

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

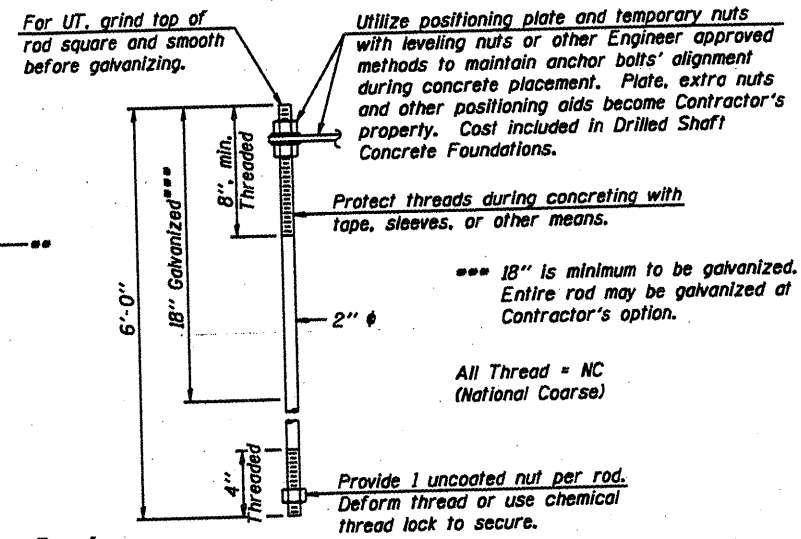


SIDE ELEVATION

"H" Dimension was taken from existing plans. The Contractor and the Engineer shall field verify the "H" dimension in order to maintain the proper clearance above the roadway.



SUGGESTED POSITIONING PLATE



ANCHOR ROD DETAIL

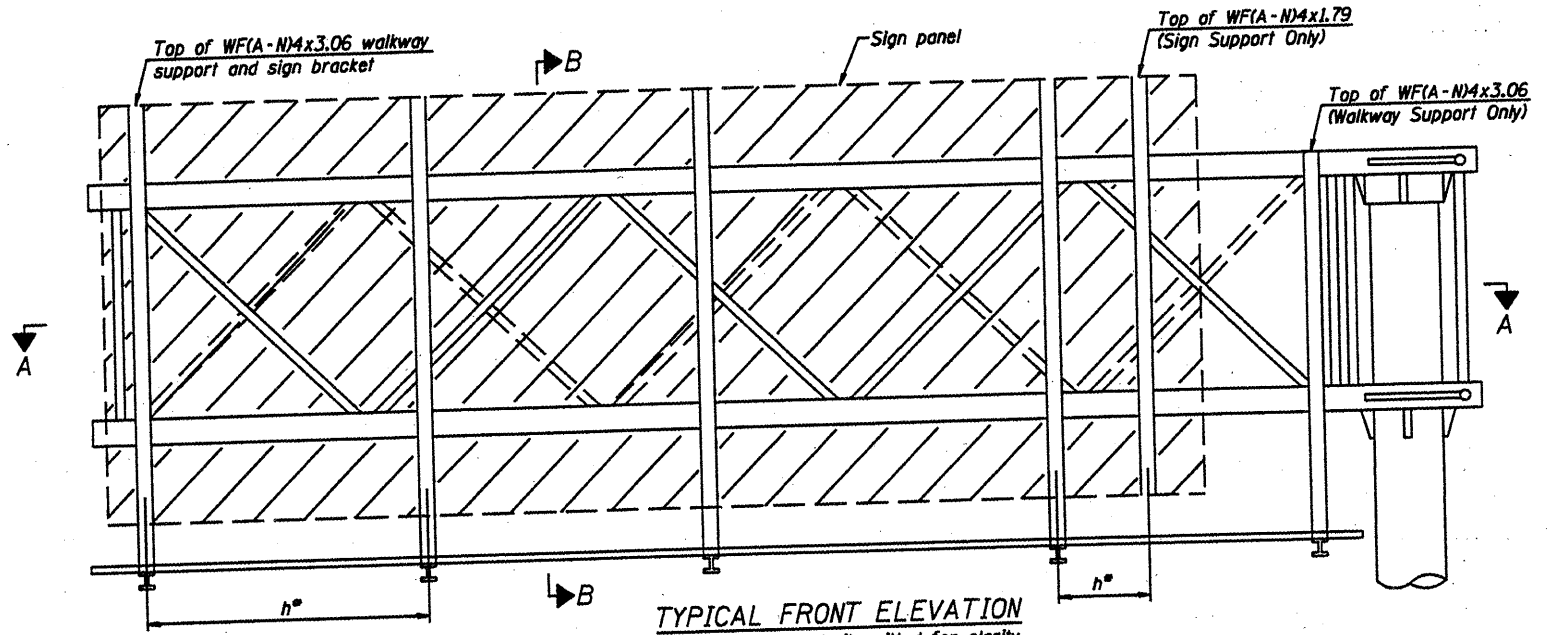
Anchor rods shall conform to AASHTO M314 Grade 55 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F. before galvanizing. Galvanize the upper 18" (minimum) and associated M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide 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" x 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

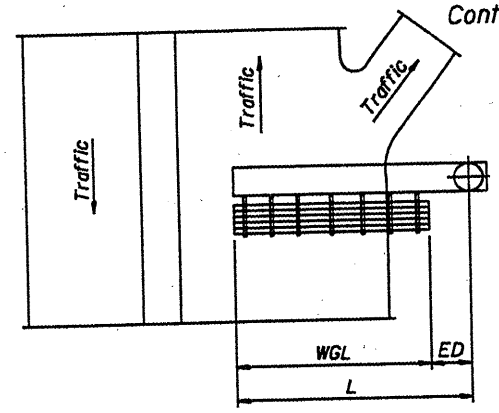
District 4  
Sign Structure Replacement

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

NUMBER	REVISION	DATE



TYPICAL FRONT ELEVATION  
With lights and handrail omitted for clarity.

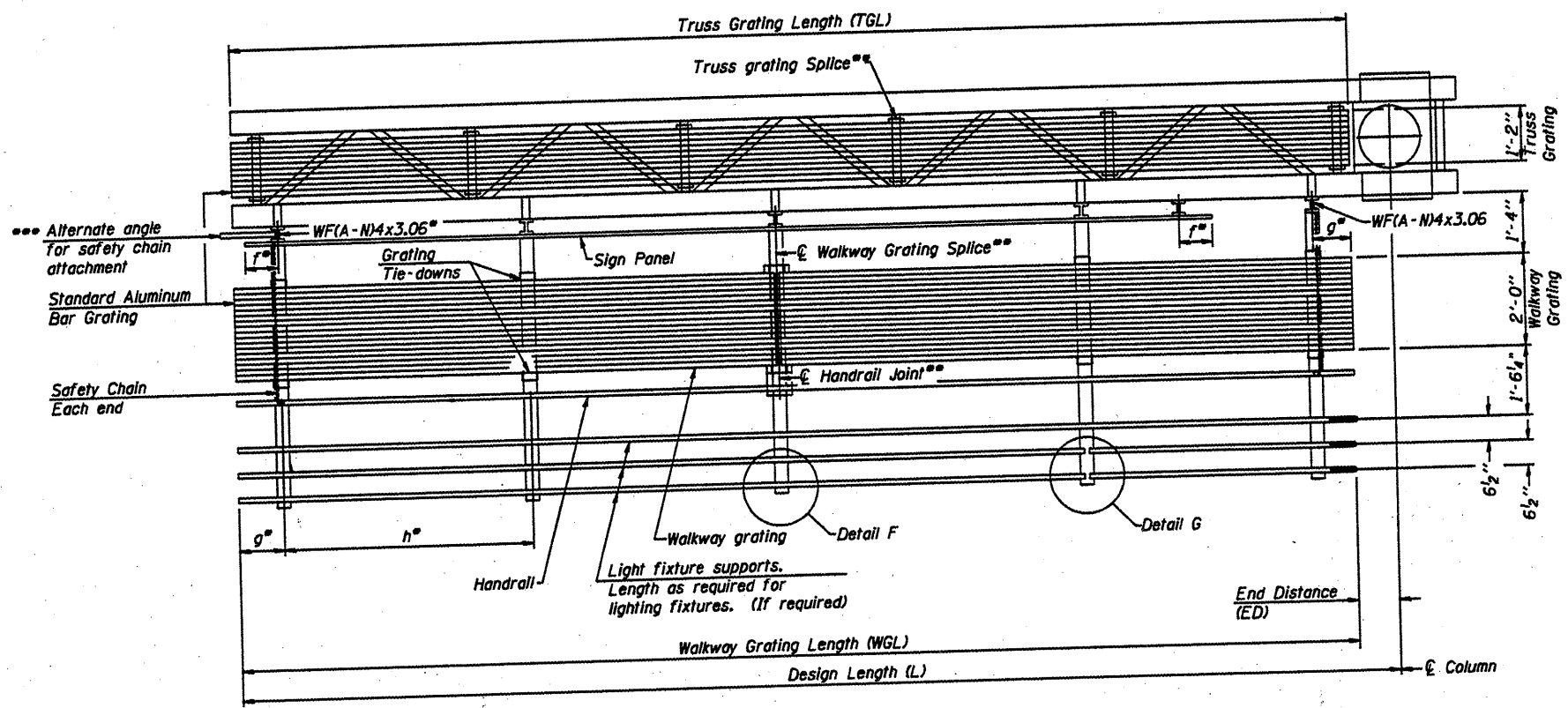


PLAN  
WALKWAY AND HANDRAIL SKETCH  
(Road plan beneath truss varies)

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

Structure Number	Station	WGL	ED	TGL
4C0481074L048.0	RT 345+10	N/A *	N/A	28' - 3"
4C048U034R007.9	RT 631+00	N/A	N/A	28' - 3"

\* Reuse existing walkway and walkway support brackets.



SECTION A-A

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

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

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

NUMBER	REVISION	DATE

BRACKET TABLE

Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
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-N4x3.06 and sign brackets WF(A-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 to center of nearest bracket)  
h = 6'-0" maximum (center to center of sign and/or walkway support brackets, WF(A-N4x1.79 or WF(A-N4x3.06)  
\*\*\* If walkway bracket at safety chain location is behind sign, add angle to bracket. See alternate safety chain attachment on base sheet OSC-A-8  
For details of sign placement, sign/walkway brackets, truss and walkway gratings, grating splices and Section B-B, see Base Sheet OSC-A-7.  
For details of handrail, handrail joint, safety chain and Details F and G, see Base Sheet OSC-A-8.

CANTILEVER SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS  
ALUMINUM TRUSS & STEEL POST  
  
District 4  
Sign Structure Replacement

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



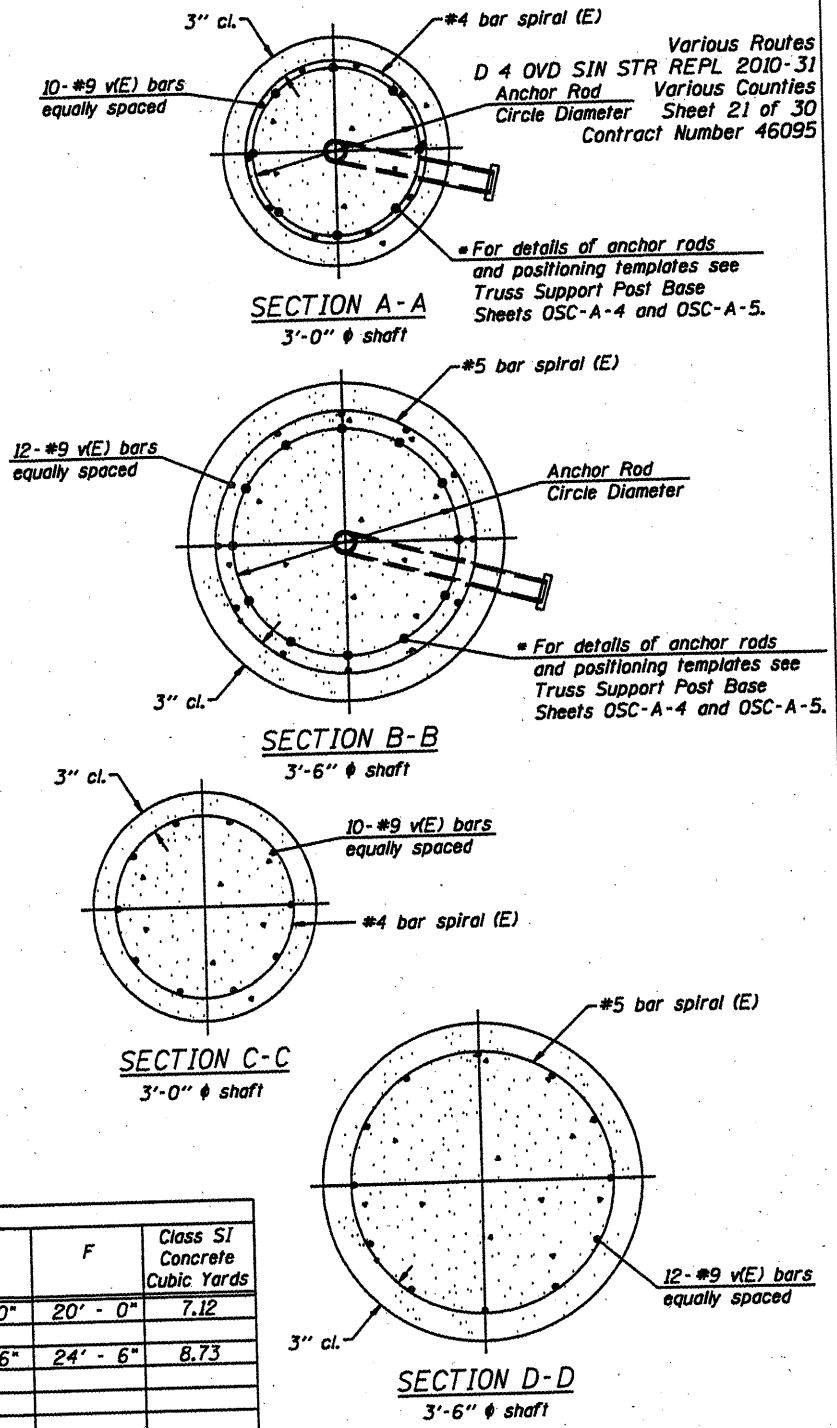
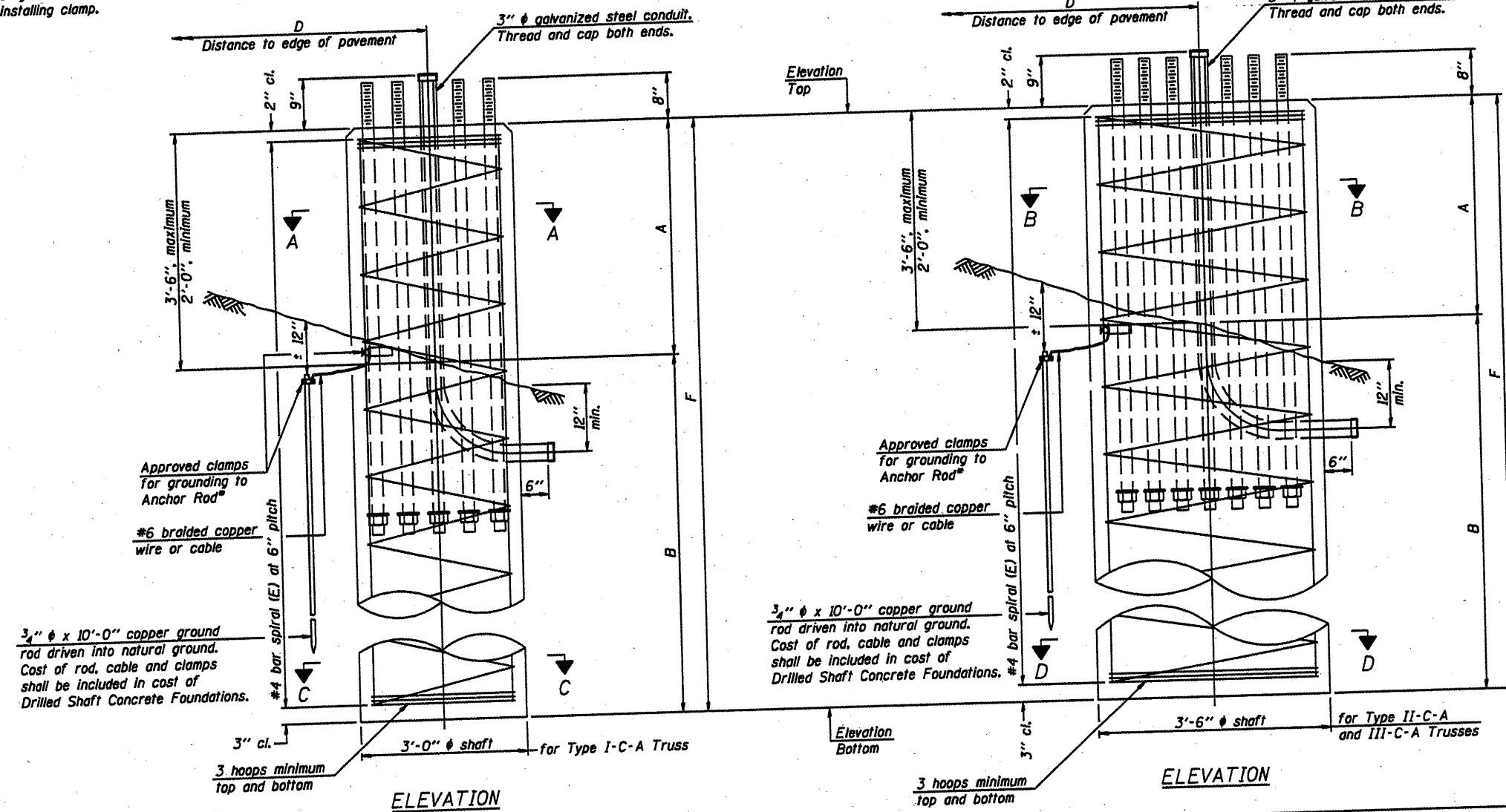






STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

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



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

Structure Number	Station	Truss Type	Shaft Diameter	Elevation Top	Elevation Bottom	Qu	A	B	F	Class SI Concrete Cubic Yards
4C04810741048.0	RT 345+10	II-C-A	3'-6"	798.90	N/A	*	3' - 0"	17' - 0"	20' - 0"	7.12
4C048U034R007.9	RT 631+00	II-C-A	3'-6"	822.90	N/A	*	3' - 0"	21' - 6"	24' - 6"	8.73

\* See Soil Boring Log.

Truss Type	Post Base Sheet	Maximum Cantilever length (ft)	Maximum Total Sign Area (sq ft)	Shaft Diameter (in)	"B" Depth (ft)	Anchor Rods No.	Anchor Rod Diameter (in)	Anchor Rod Circle 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

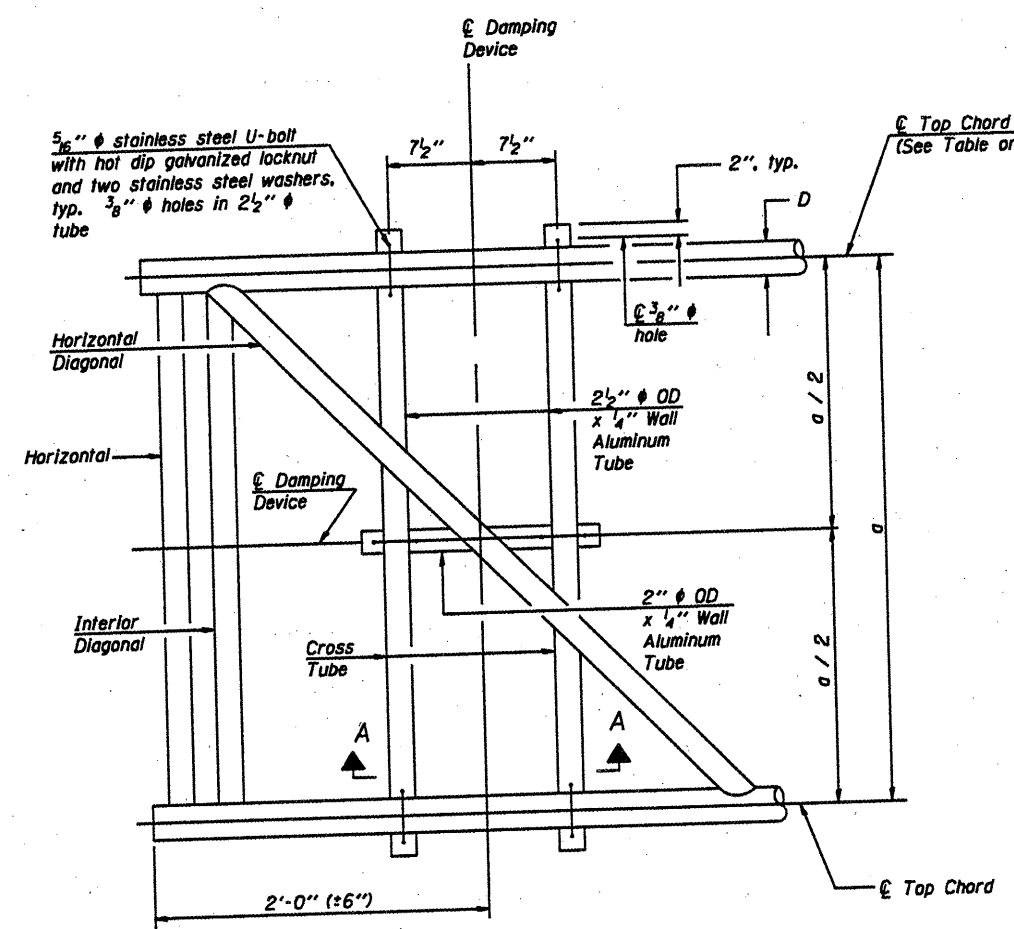
CANTILEVER SIGN STRUCTURES  
DRILLED SHAFT  
ALUMINUM TRUSS & STEEL POST

District 4  
Sign Structure Replacement

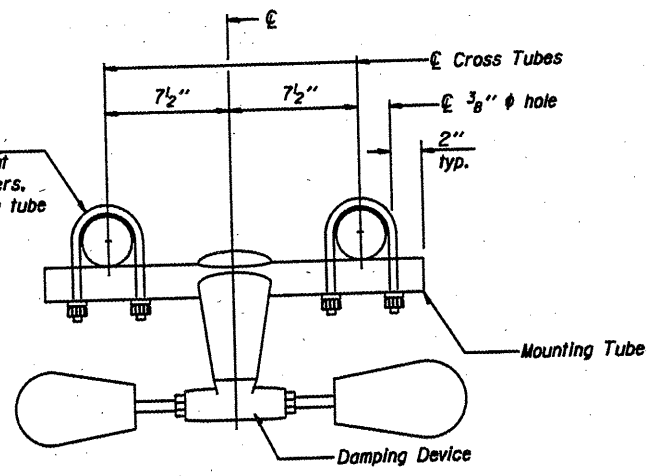
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CHECKED	
DRAWN	
CHECKED	

EXAMINED	
PASSED	

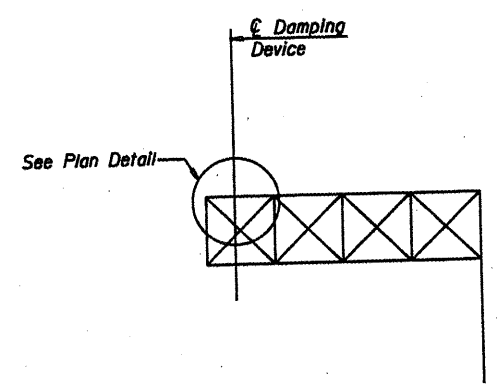
NUMBER	REVISION	DATE



PLAN DETAIL



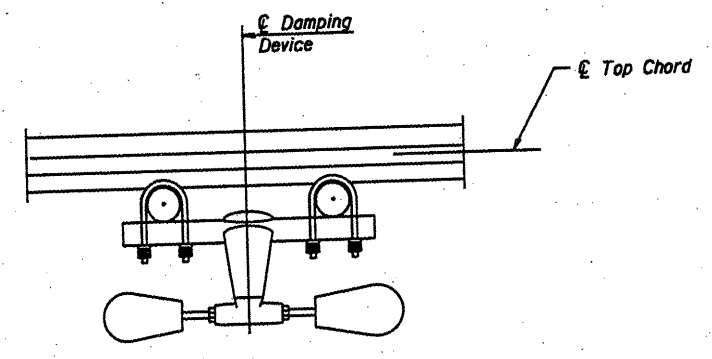
TRUSS DAMPING  
DEVICE CONNECTION DETAIL



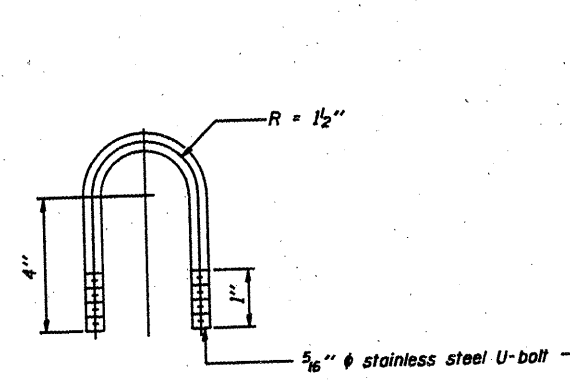
ELEVATION  
Aluminum Cantilever  
Sign Structure

GENERAL NOTES

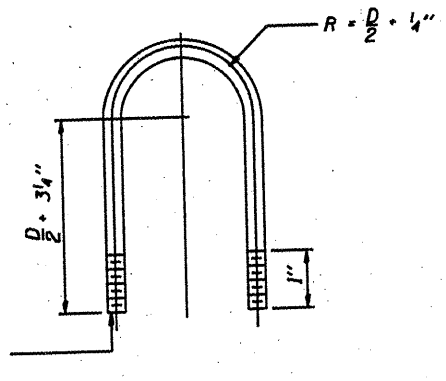
- Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum)
- Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6



SECTION A-A



DAMPING DEVICE MOUNTING  
TUBE U-BOLT DETAIL  
(Typical)



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

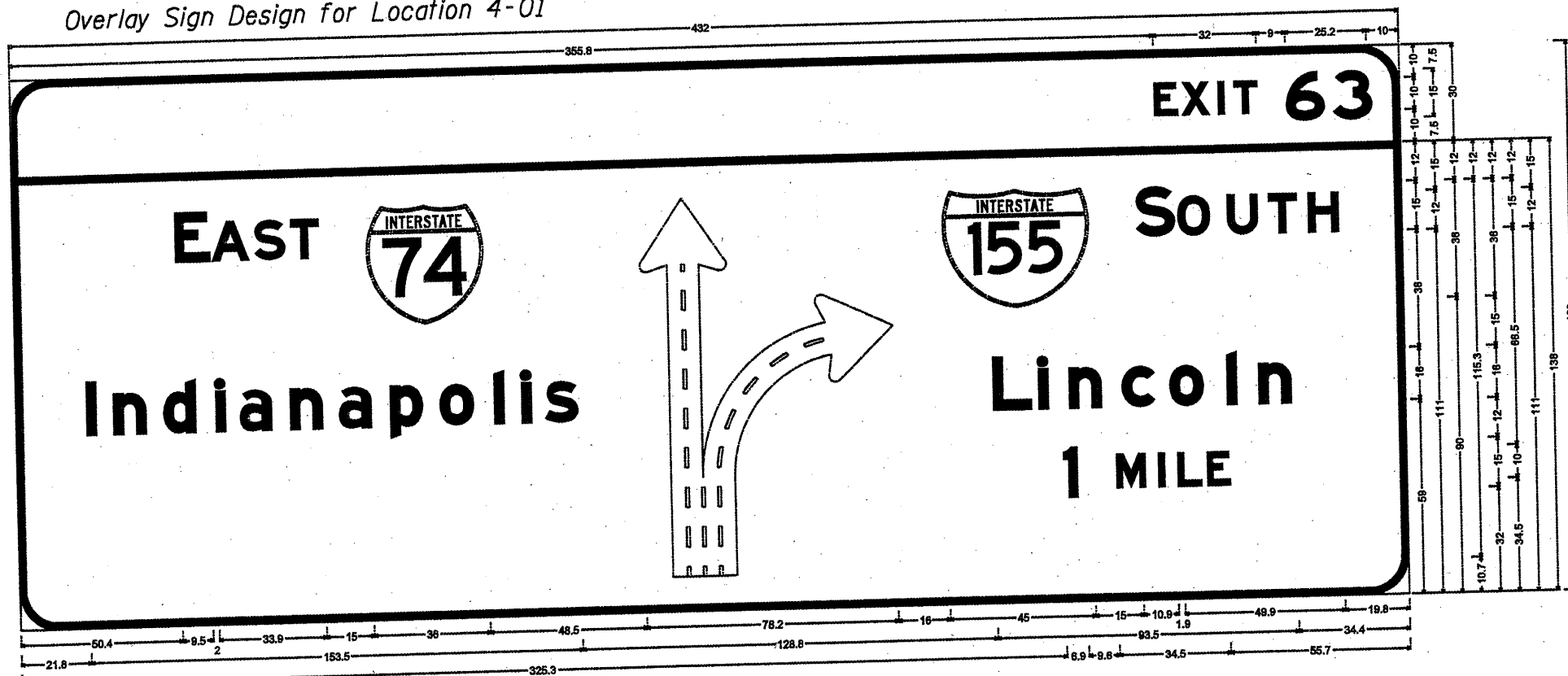
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

OSC-A-D 5/16/08

CANTILEVER SIGN STRUCTURE  
DAMPING DEVICE

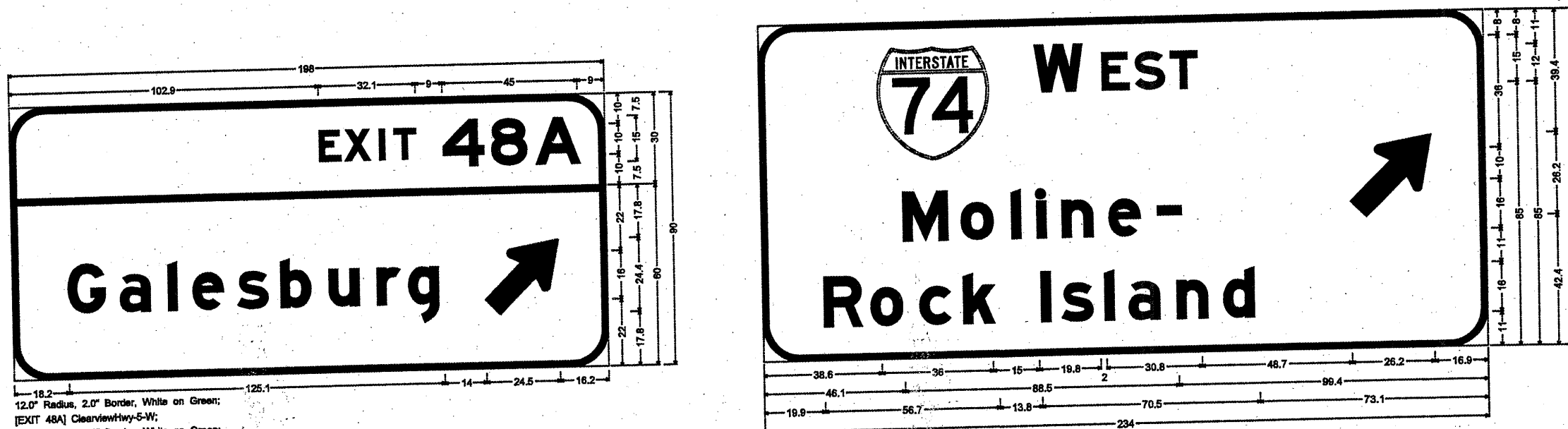
District 4  
Sign Structure Replacement

Overlay Sign Design for Location 4-01



12.0" Radius, 2.0" Border, White on Green;  
[EXIT 63] Clearview/hwy-5-W;  
12.0" Radius, 2.0" Border, White on Green;  
[E AST] Clearview/hwy-5-W; [Indianapolis] Clearview/hwy-5-W-R; Diagrammatic Arrow lane lines Black; Interstate 155 16.0" D; [S OUTH] Clearview/hwy-5-W; [Lincoln] Clearview/hwy-5-W; [1 MILE] Clearview/hwy-5-W;

Overlay Sign Design for Location 4-06



12.0" Radius, 2.0" Border, White on Green;  
[EXIT 48A] Clearview/hwy-5-W;  
12.0" Radius, 2.0" Border, White on Green;  
[Galesburg] Clearview/hwy-5-W-R; Standard Arrow Custom 31.1" X 18.8" 45";

IL 63 Should Have no Border;  
12.0" Radius, 2.0" Border, White on Green;  
[W EST] Clearview/hwy-5-W; [Moline] Clearview/hwy-5-W-R 90% spacing; [Rock Island] Clearview/hwy-5-W-R 90% spacing;  
Standard Arrow Custom 33.4" X 20.3" 45";

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

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

Overlay Sign Design for Location 4-05









Page 1 of 1

**SOIL BORING LOG**

Date 5/5/06

ROUTE US 150 DESCRIPTION Overhead Sign Truss US150 (Exist S.N. 45090U150L001.5) LOGGED BY JAR

SECTION \_\_\_\_\_ LOCATION \_\_\_\_\_ SEC. \_\_\_\_\_ TWP. \_\_\_\_\_ RNG. \_\_\_\_\_

COUNTY Tazewell DRILLING METHOD \_\_\_\_\_ HSA \_\_\_\_\_ HAMMER TYPE AUTO

STRUCT. NO. Exist 45090U150L001.5  
Station Exist 210+00

BORING NO. 20984  
Station 209+84  
Offset Off Driving Ln. Shoulder  
Ground Surface Elev. 100.00 ft

DEPTH (ft)	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	SOIL DESCRIPTION	DEPTH (ft)	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	SOIL DESCRIPTION
					Surface Water Elev. _____ ft						
					Stream Bed Elev. _____ ft						
					Groundwater Elev. _____ ft						
					First Encounter _____ ft						
					Upon Completion _____ ft						
					After _____ Hrs. _____ ft						
					Gr CLAY (continued)						
					Gr CLAY LOAM						
					Gr SILTY CLAY						
					Gr MEDIUM COARSE SAND & GRAVEL (11in CLAY @ 30ft)						
					**GROUND ELEV. @ BORING = 100.00 End of Boring						
					Gr CLAY						
					4in Fine-Med SAND @ 15ft						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT-IN value is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, form 137 (Rev. 8-99)

Page 1 of 1

**SOIL BORING LOG**

Date 5/6/06

ROUTE US 150 DESCRIPTION Overhead Sign Truss US150 (Exist S.N. 45090U150L001.5) LOGGED BY JAR

SECTION \_\_\_\_\_ LOCATION \_\_\_\_\_ SEC. \_\_\_\_\_ TWP. \_\_\_\_\_ RNG. \_\_\_\_\_

COUNTY Tazewell DRILLING METHOD \_\_\_\_\_ HSA \_\_\_\_\_ HAMMER TYPE AUTO

STRUCT. NO. Exist 45090U150L001.5  
Station Exist 210+00

BORING NO. 20988  
Station 209+88  
Offset 3ft Lt Median CL  
Ground Surface Elev. 100.00 ft

DEPTH (ft)	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	SOIL DESCRIPTION	DEPTH (ft)	BLOW COUNT (1/6")	BLOW COUNT (1/6")	BLOW COUNT (1/6")	SOIL DESCRIPTION
					Surface Water Elev. _____ ft					
					Stream Bed Elev. _____ ft					
					Groundwater Elev. _____ ft					
					First Encounter _____ ft					
					Upon Completion _____ ft					
					After _____ Hrs. _____ ft					
					Br Gr CLAY (3in SAND SEAM @ 19ft) (continued)					
					Br CLAY LOAM					
					Br Gr SILTY CLAY					
					Gr Br SANDY LOAM					
					Gr MEDIUM SAND AND GRAVEL					
					**GROUND ELEV. @ BORING = 100.00 End of Boring					
					Gr MEDIUM SAND AND GRAVEL					
					Gr CLAY LOAM (w/gravel)					
					Br Gr CLAY (3in SAND SEAM @ 19ft)					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT-IN value is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, form 137 (Rev. 8-99)

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



Page 1 of 1

**SOIL BORING LOG**

Date 7/28/08

ROUTE FAI 74 DESCRIPTION EB I 74 Overhead Sign Truss, In Advance of Exit 101, DL Shoulder near MM 99.6 LOGGED BY SCI(BCR)

SECTION 90-14 LOCATION Graveland Twp; SW 1/4, SEC. 12, TWP. 25N, RNG. 4W, 3rd PM.  
Latitude N40° 37' 48.4", Longitude W89° 30' 35.7"

COUNTY Tozowell DRILLING METHOD CME 45, HSA HAMMER TYPE AUTO

STRUCT. NO. 450901074R099.6(Exist) D E L C O M  
Station 461+00(Exist) P O S I  
BORING NO. 46124 T W S H S O U T  
Station 461+24 H S O U T  
Offset 78ft Rt (of Median CL)  
Ground Surface Elev. 726.20 (ft) (1/6") (1st) (2)

Surface Water Elev. - ft  
Stream Bed Elev. - ft

Groundwater Elev.:  
First Encounter 715.2 ft  
Upon Completion 705.7 ft  
After 19 Hrs. 718.7 ft

DEPTH (ft)	SOIL DESCRIPTION	DRILLING METHOD	BLOWS	REMARKS
0	FILL: Brown, Sand, soil & gravel mix			
2	FILL: Very Stiff, Brown, CLAY			
4			2.2	20
4			B	
723.20	Stiff to Medium Stiff, Dark Brown CLAY			
2			1.7	29
3	becomes grayish brown & brown		B	
3				
719.20	Medium Stiff to Soft, Gray & Brown SILTY CLAY			
2			0.7	26
2			B	
1				
1			0.3	33
1			B	
10				
715.70	Soft, Gray & Brown CLAY			
1		WR	0.3	35
2		B		
713.20	Soft to Medium Stiff, Brown SILTY CLAY LOAM			
1				
712.20	Medium Stiff, Brown SANDY CLAY LOAM			
4			0.6	18
6			B	
711.45	Brown SANDY LOAM (fine to medium grained sand)			
1				
710.20	Medium Stiff to Very Stiff, Brown CLAY LOAM w/ trace fine gravel			
2			0.9	17
4			B	
2				
4			2.2	14
6			B	
20				

Medium Stiff to Very Stiff, Brown CLAY LOAM w/ trace fine gravel (continued)

704.45

Very Stiff, Brown SILTY LOAM

702.95

Stiff to Very Stiff, Brown CLAY LOAM w/ trace fine gravel

696.20 -30

End of Boring

698.20 -30

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, form 137 (Rev. 8-99)

Page 1 of 1

**SOIL BORING LOG**

Date 7/29/08

ROUTE FAI 74 DESCRIPTION EB I 74 Overhead Sign Truss, In Advance of Exit 101, Median Shoulder near MM 99.6 LOGGED BY SCI(BCR)

SECTION 90-14 LOCATION Graveland Twp; SW 1/4, SEC. 12, TWP. 25N, RNG. 4W, 3rd PM.  
Latitude N40° 37' 48.8", Longitude W89° 30' 35.4"

COUNTY Tozowell DRILLING METHOD CME 45, HSA HAMMER TYPE AUTO

STRUCT. NO. 450901074R099.6(Exist) D E L C O M  
Station 461+00(Exist) P O S I  
BORING NO. 46130 T W S H S O U T  
Station 461+30 H S O U T  
Offset 14ft Rt (of Median CL)  
Ground Surface Elev. 728.11 (ft) (1/6") (1st) (2)

Surface Water Elev. - ft  
Stream Bed Elev. - ft

Groundwater Elev.:  
First Encounter 702.1 ft  
Upon Completion 705.1 ft  
After 24 Hrs. Not Taken ft

DEPTH (ft)	SOIL DESCRIPTION	DRILLING METHOD	BLOWS	REMARKS
0	FILL: Brown SANDY CLAY w/ trace gravel			
3	FILL: Very Stiff, Gray CLAY			
4			3.8	22
5			P	
725.11	Stiff to Very Stiff, Brown & Gray CLAY			
3			1.2	23
2			B	
5				
705.11	Stiff, Brown SILTY LOAM			
7				
10			1.5	15
14			S	
702.61	Very Stiff, Brown CLAY LOAM w/ trace fine gravel			
4				
6			2.2	22
7			B	
720.11	Medium Stiff to Soft, Gray & Brown SILTY CLAY			
2				
1			0.8	26
3			B	
10				
700.11	Stiff, Brown SILTY LOAM			
5				
12			1.4	13
11			S	
698.11 -30	2" sand seam @ 28.75'			
End of Boring				
716.11	Soft to Medium Stiff, Gray & Brown CLAY			
1			0.4	26
2			B	
1				
2			0.9	24
3			B	
15				
712.61	Stiff to Very Stiff, Brown CLAY LOAM w/ trace fine gravel			
2				
3			1.0	17
4			B	
2				
4			2.1	15
6			B	
20				

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, form 137 (Rev. 8-99)

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

20

EXAMINED \_\_\_\_\_  
ENGINEER OF BRIDGE DESIGN

PASSED \_\_\_\_\_  
ENGINEER OF BRIDGES AND STRUCTURES





Illinois Department  
of Transportation  
Division of Highways  
Illinois Department of Transportation

SOIL BORING LOG

Page 1 of 1

Date 12/15/09

ROUTE FAI 74 DESCRIPTION Overhead Sign on ramp from EB US 34 LOGGED BY Mike(GSG)  
To WB I-74

SECTION 48126-1,26,27)SG-1 LOCATION Colesburg East Quadrangle, SEC. 36, TWP. 12N, RNG. 1E, 4th PM.  
Latitude Longitude

COUNTY Knox DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO. 4C048U034R007.9 D E L C U M  
Station 631+45(exist) P O S I O  
BORING NO. 63150 T W S O U S T  
Station 631+50 H S Du T  
Offset 75.8ft Rt Median CL  
Ground Surface Elev. 822.20 †† (††) (1/6") (††) (2)

Soil Description	Depth (ft)	U	M	Soil Description	Depth (ft)	U	M
ASPHALT	821.87			Black & Gray SILTY CLAY LOAM, some organics (continued)	801.20		
Brown & Black SAND & GRAVEL				Brown & Gray SILTY CLAY LOAM			
	3				3		
Brown & Gray SILTY CLAY LOAM, trace organics	4		22		4	3.8	26
	6				5	P	
5" seam brown silty loam at 3.5'					2		
	3				3	1.4	25
	4		33		4	S	
	5				-25		
					3		
	3				4	2.0	25
	5	2.5	21		6	S	
	7	P					
					2		
	2				3	0.8	26
Black SILTY LOAM, trace organics	3	2.0	26		3	B	
	5	P			3		
Brown & Gray SILTY LOAM, trace organics	811.70			End of Boring	792.20	-30	
	3						
	4	3.0	21				
	6	P					
	3						
Black & Gray SILTY CLAY LOAM, trace organics	807.70		27				
	4						
	5						
	3						
Brown, Black & Gray CLAY, trace organics	806.20						
	6	3.8	20				
	8	P					
	3						
Brown & Gray SILTY LOAM	803.70						
	7	3.0	21				
		P					
	11						

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, form 137 (Rev. 8-99)

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