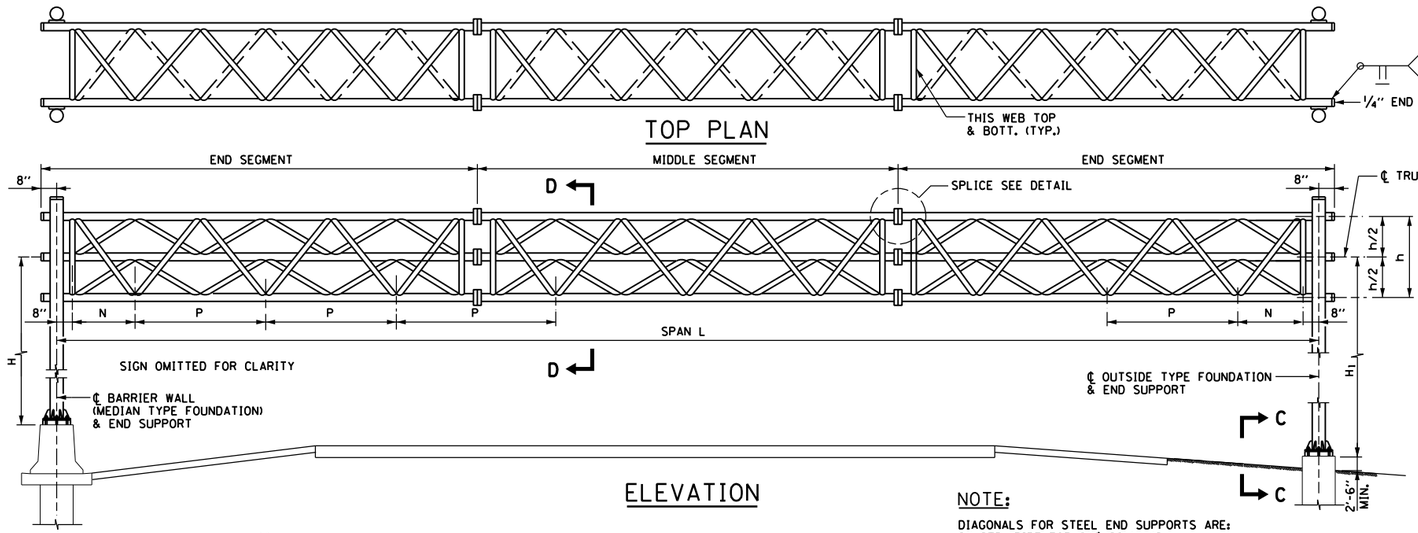
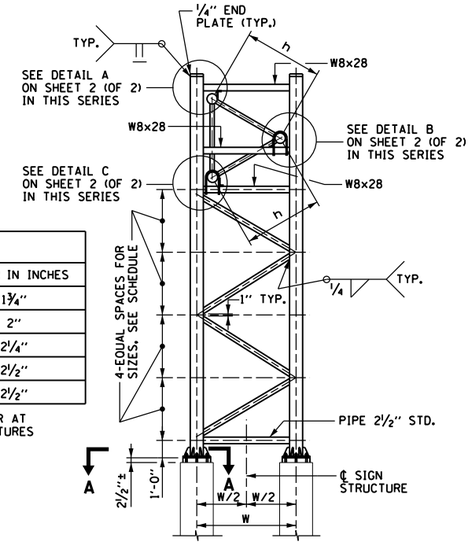




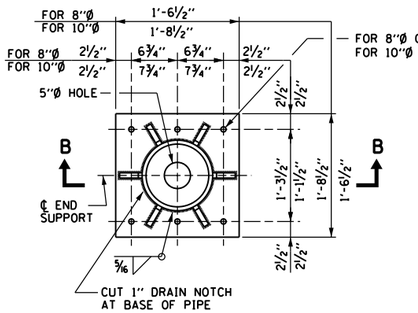
TYPICAL END SUPPORT ELEVATION

CAMBER	
SPAN IN FEET	CAMBER IN INCHES
60 THRU 70	1 3/4"
71 THRU 80	2"
81 THRU 100	2 1/4"
101 THRU 110	2 1/2"
111 THRU 120	2 1/2"

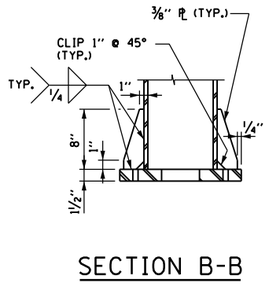
PROVIDE THE ABOVE CAMBER AT MIDDLE OF SPAN OF STRUCTURES

NOTE:

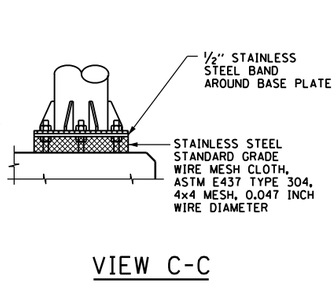
DIAGONALS FOR STEEL END SUPPORTS ARE:
2" STD. PIPE FOR 8"Ø COLUMNS
2 1/2" STD. PIPE FOR 10"Ø COLUMNS



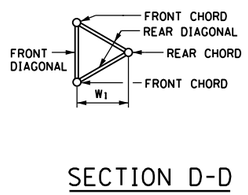
SECTION A-A



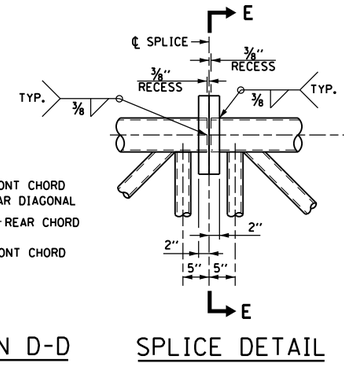
SECTION B-B



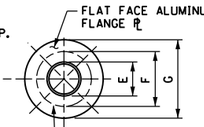
VIEW C-C



SECTION D-D



SPLICE DETAIL



N=MINIMUM NUMBER OF BOLTS

TABLE A			
CHORD SIZE E	F	G	N
3 1/2"Ø & 3 3/4"Ø	8 1/2"	11 1/2"	6
4 1/4"Ø, 4 3/4"Ø, 5"Ø	9 1/4"	12 1/4"	8
6"Ø & 6 1/2"Ø	11"	14"	10

BOLT CIRCLE FOR 15/16"Ø HOLES AND 7/8"Ø STAINLESS STEEL (S.S.) BOLTS WITH HEX LOCKNUTS & S.S WASHERS UNDER HEAD & NUT. FOR E, F, G & N, SEE TABLE A. REQUIRED MIN. BOLT TENSION IS 12,500#. 7/8"Ø STUDS SHALL BE SUBSTITUTED WHEN DIAGONALS INTERFERE WITH BOLT LOCATION.

SECTION E-E

SIGN STRUCTURE SCHEDULE

TRUSS NO.	DIMENSIONS						ALUMINUM TRUSS					STEEL END SUPPORT			FOUNDATION TYPE
	TRUSS SPAN L	P	N	h	W_1	W	DL (TRUSS) DEFLECTION	MIDDLE SEGMENT OR END SEGMENT				PIPE COLUMN (NOMINAL DIAMETER)			
								CHORD (O.D.)		DIAGONAL (O.D.)		H OR H_1	H OR H_1	H OR H_1	
								FRONT	REAR	FRONT	REAR	22'-0" TO 24'-0" (MAX.)	25'-0" TO 27'-0" (MAX.)	28'-0" TO 29'-0" (MAX.)	
T-60	60'-0"	6'-8"	2'-8"	3'-4"	2'-10 5/8"	4'-4 1/2"	1 1/16"	3 1/2"Ø x 1/4"	3 3/4"Ø x 1/4"	2"Ø x 3/16"	2"Ø x 3/16"	8" STD. (28.55#/FT.)	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	80
T-65	65'-0"	7'-4"	2'-6"	3'-8"	3'-2 1/8"	4'-8"	1 5/8"	3 1/2"Ø x 1/4"	3 3/4"Ø x 1/4"	2"Ø x 3/16"	2"Ø x 3/16"	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	80
T-70	70'-0"	8'-0"	2'-4"	4'-0"	3'-5 5/8"	5'-0"	1 11/16"	3 3/4"Ø x 1/4"	3 3/4"Ø x 1/4"	2"Ø x 3/16"	2"Ø x 3/16"	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	80
T-75	75'-0"	8'-6"	2'-10"	4'-3"	3'-8 1/4"	5'-3"	1 7/8"	4 1/4"Ø x 1/4"	4 3/4"Ø x 3/8"	2"Ø x 3/16"	2"Ø x 3/16"	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	80
T-80	80'-0"	9'-0"	3'-4"	4'-6"	3'-10 3/4"	5'-6"	2"	4 3/4"Ø x 3/8"	5"Ø x 1/4"	2 1/4"Ø x 3/16"	2"Ø x 3/16"	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	10" X.S. (54.74#/FT.)	80
T-85	85'-0"	9'-6"	3'-10"	4'-9"	4'-1 3/8"	5'-9"	2 1/16"	5"Ø x 1/4"	5"Ø x 5/16"	2 1/4"Ø x 3/16"	2 1/4"Ø x 3/16"	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	10" X.S. (54.74#/FT.)	100
T-90	90'-0"	10'-0"	4'-4"	5'-0"	4'-4"	5'-11 1/2"	2 1/8"	5"Ø x 5/16"	5"Ø x 5/16"	2 1/2"Ø x 3/16"	2 1/4"Ø x 3/16"	10" STD. (40.48#/FT.)	10" STD. (40.48#/FT.)	10" X.S. (54.74#/FT.)	100
T-95	95'-0"	10'-6"	4'-10"	5'-3"	4'-6 5/8"	6'-2"	2 3/16"	5"Ø x 5/16"	5"Ø x 5/16"	2 1/2"Ø x 3/16"	2 1/2"Ø x 3/16"	10" STD. (40.48#/FT.)	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	100
T-100	100'-0"	11'-4"	4'-0"	5'-8"	4'-10 7/8"	6'-7 1/2"	2 1/4"	6"Ø x 1/4"	6"Ø x 1/4"	2 3/4"Ø x 3/16"	2 1/2"Ø x 3/16"	10" STD. (40.48#/FT.)	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	100
T-105	105'-0"	12'-0"	3'-10"	6'-0"	5'-2 3/8"	6'-11"	2 5/16"	6"Ø x 5/16"	6"Ø x 5/16"	3"Ø x 3/16"	2 3/4"Ø x 3/16"	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	120
T-110	110'-0"	12'-6"	4'-4"	6'-3"	5'-5"	7'-1 1/2"	2 3/16"	6"Ø x 5/16"	6"Ø x 5/16"	3"Ø x 3/16"	2 3/4"Ø x 3/16"	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	120
T-115	115'-0"	13'-0"	4'-10"	6'-6"	5'-7 5/8"	7'-4 1/2"	2 1/8"	6 1/2"Ø x 3/8"	6"Ø x 5/16"	3 1/4"Ø x 1/4"	3"Ø x 3/16"	10" X.S. (54.74#/FT.)	10" X.S. (54.74#/FT.)	10" X.X.S. (104.13#/FT.)	120
T-120	120'-0"	13'-8"	4'-8"	6'-10"	5'-11"	7'-8"	2 5/16"	6 1/2"Ø x 3/8"	6 1/2"Ø x 3/8"	3 1/2"Ø x 3/16"	3"Ø x 3/16"	10" X.S. (54.74#/FT.)	10" X.X.S. (104.13#/FT.)	10" X.X.S. (104.13#/FT.)	120

NOTES:

DESIGN SPECIFICATIONS:

1. 2009 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 5TH EDITION WITH 2010 INTERIMS.

LOADING:

1. TRUSSES ARE DESIGNED FOR A NINE FOOT DEEP SIGN PANEL OVER 75% OF SPAN LENGTH, BOTH END SUPPORTS ARE DESIGNED FOR 60% OF THE TOTAL LOAD.
2. WIND LOADING SHALL BE A MINIMUM OF 35 PSF ON SIGN PANELS AND 10 PSF ON GROSS AREAS DEFINED BY THE PERIMETER OF TRUSS MEMBERS NOT COVERED BY SIGN PANEL AREAS.
3. THE AASHTO GROUP II AND III ALLOWABLE STRESS SHALL BE 133% (ALLOWABLE STRESS DESIGN).

CONSTRUCTION SPECIFICATIONS:

1. ALL MATERIALS, EXCEPT AS SHOWN, FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 733 OF THE LATEST IDOT STANDARD SPECIFICATIONS.

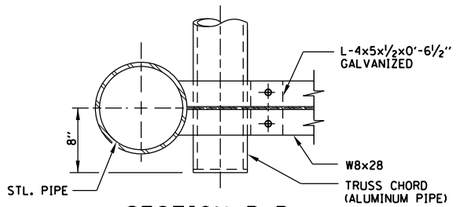
Illinois Tollway
Open Roads for a Faster Future

APPROVED Paul Kovacs CHIEF ENGINEER DATE 2-7-2012

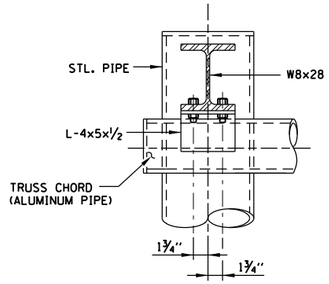
DATE	REVISIONS
2-7-2012	REVISED FOUNDATIONS AND REVISED NOTES.

OVERHEAD SIGN STRUCTURE
SPAN TYPE, ALUMINUM

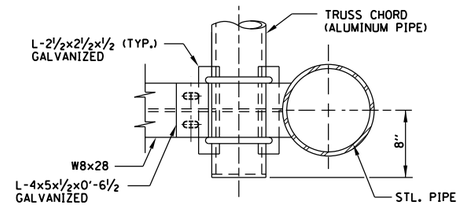
STANDARD F1-01



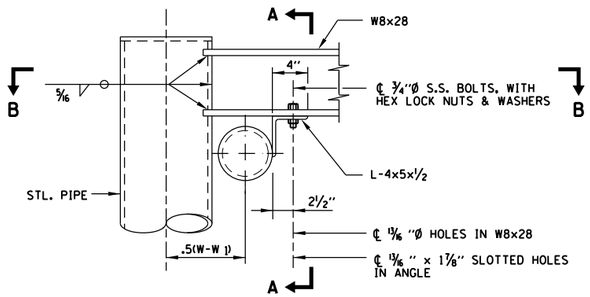
SECTION B-B



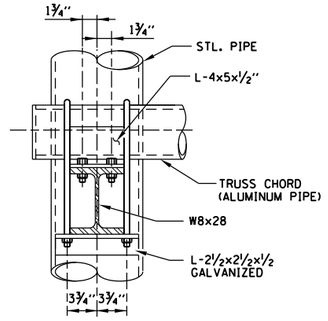
SECTION A-A



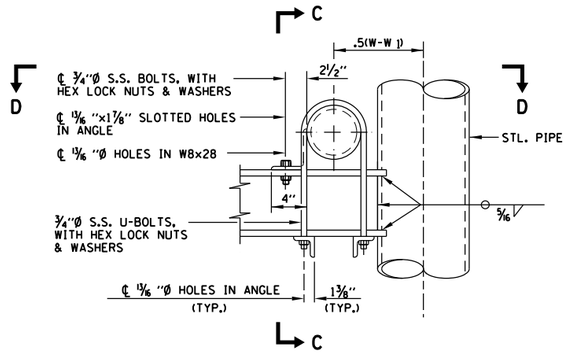
SECTION D-D



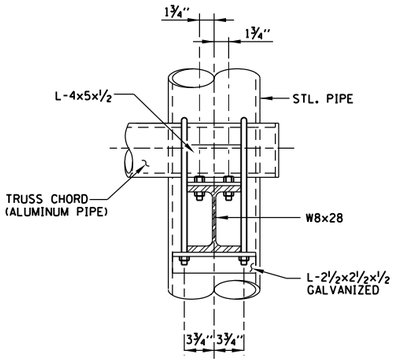
DETAIL A



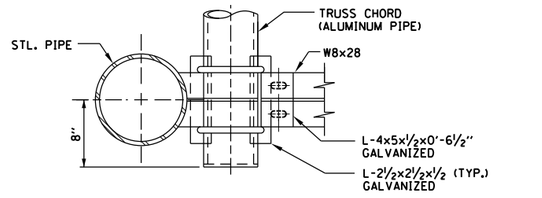
SECTION F-F



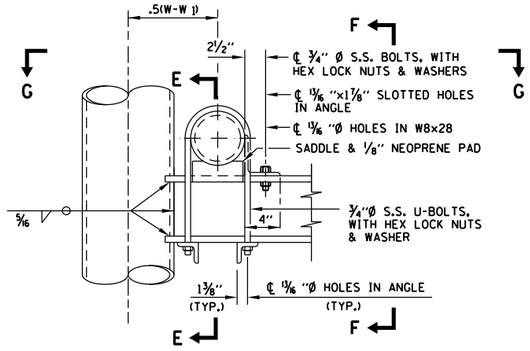
DETAIL B



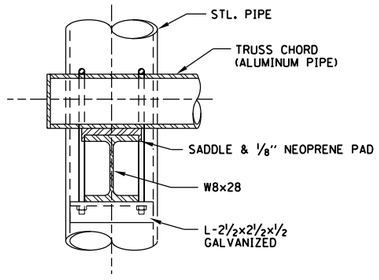
SECTION C-C



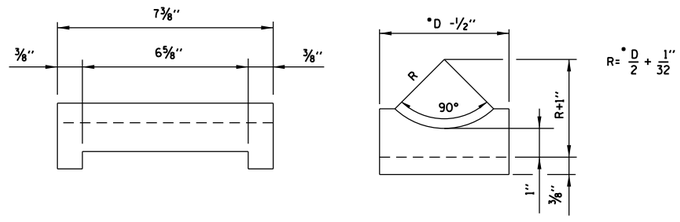
SECTION G-G



DETAIL C



SECTION E-E



SADDLE (SHIM) DETAIL
(ALUMINUM)

NOTES:

1. FOR LOCATION OF DETAILS A, B, & C, SEE SHEET 1 (OF 2) IN THIS SERIES.
2. *D=OUTSIDE DIAMETER OF CHORD

Paul Kovacs
APPROVED ..... DATE 2-7-2012 .....
CHIEF ENGINEER

Illinois Tollway
Open Roads for a Faster Future

OVERHEAD SIGN STRUCTURE
SPAN TYPE, ALUMINUM, DETAILS

STANDARD F1-01

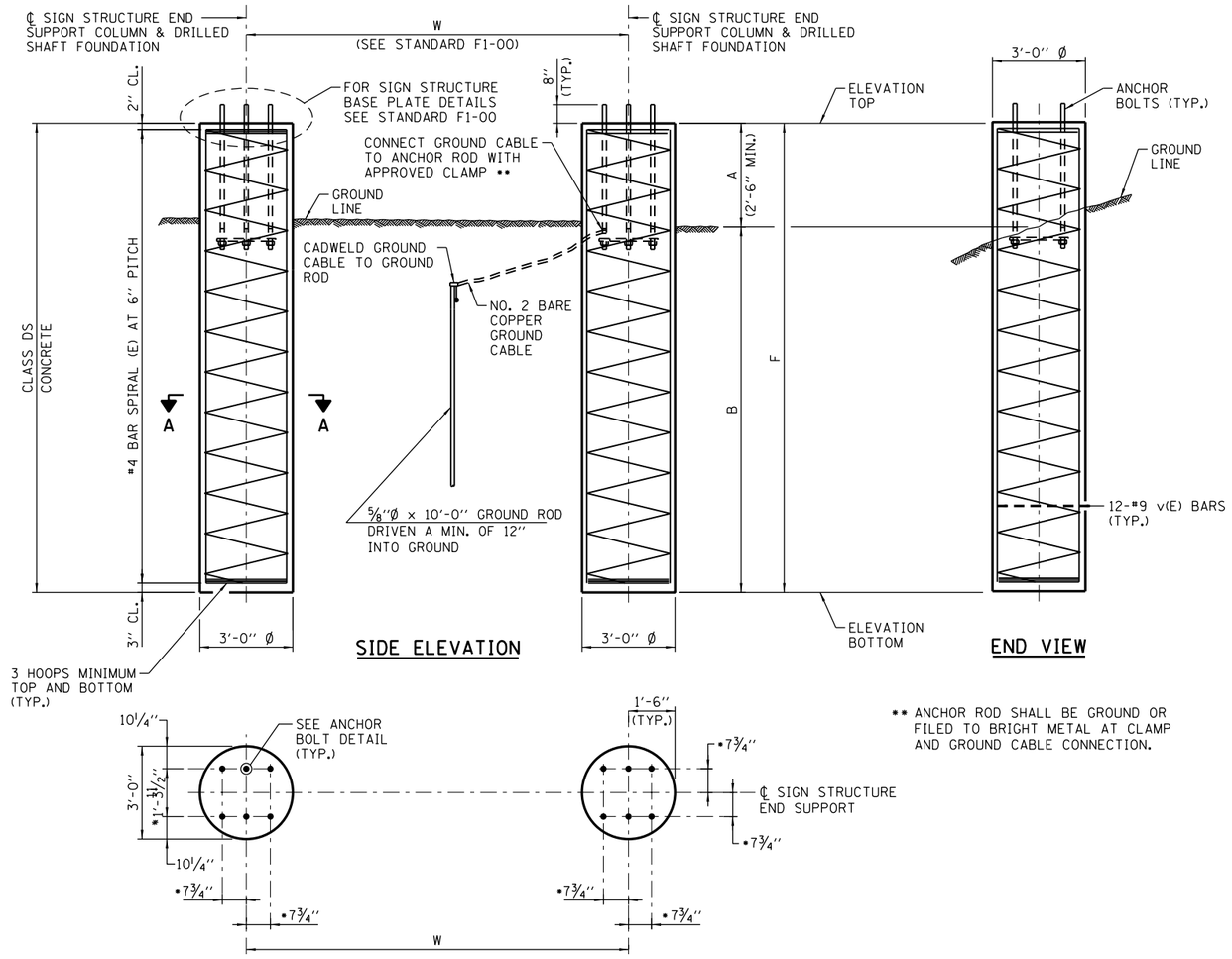
RESERVED

Paul Kovacs
APPROVED . . . . . DATE 2-7-2012 . . . . .
CHIEF ENGINEER

Illinois Tollway
Open Roads for a Faster Future

DATE	REVISIONS

STANDARD F2-00



** ANCHOR ROD SHALL BE GROUND OR FILED TO BRIGHT METAL AT CLAMP AND GROUND CABLE CONNECTION.

NOTES:

1. THE FOUNDATION DETAILS SHOWN ARE BASED ON COMMON COHESIVE SOIL CONDITIONS (SILTY OR SANDY CLAY), WITH AN AVERAGE Qu > 1.25 TON/SQ. FT. NO STANDARD DRILLED SHAFT FOUNDATIONS WERE DESIGNED OR DETAILED FOR COHESION LESS SOIL CONDITIONS. REGARDLESS THE DESIGN SECTION ENGINEER (DSE) MUST CONDUCT A SUBSURFACE INVESTIGATION AT EACH OVERHEAD SIGN FOUNDATION TO DETERMINE THE ACTUAL SOIL PROPERTIES. SHOULD THE INVESTIGATION REVEL THE PRESENCE OF COHESION LESS SOIL OR COHESIVE SOILS WITH PROPERTIES LESS THAN THE AVERAGES INDICATED HEREIN. THE DSE SHALL DESIGN AND DETAIL THE DRILLED SHAFT FOUNDATIONS TO MEET THE ACTUAL SOIL CONDITIONS.
2. ALL MATERIAL, FABRICATION, AND CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 734 OF THE IDOT STANDARD SPECIFICATIONS.
3. CONCRETE SHALL BE PLACED MONOLITHICALLY, WITHOUT CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.
4. BACKFILL SHALL BE PLACED PER SECTION 502 OF THE IDOT STANDARD SPECIFICATION AND PRIOR TO ERECTION OF SUPPORT COLUMN.
5. 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 THE COST OF THE FOUNDATION.
6. ALL REBAR DESIGNATED (E) SHALL BE EPOXY COATED. REBAR SHALL BE POSITIONED SO THAT THERE WILL BE NO INTERFERENCE BETWEEN VERTICAL REINFORCEMENT AND ANCHOR BOLTS.
7. FURNISHING AND INSTALLING ALL CONDUIT, FITTINGS AND GROUNDING SYSTEM IS INCLUDED IN THE COST OF THE FOUNDATION.
8. NO SONOTUBES OR DECOMPOSABLE FORMS SHALL BE USED 6" BELOW THE FINISHED GROUND LINE. PERMANENT METAL FORMS OR OTHER SHIELDING MAY NOT BE LEFT IN PLACE BELOW THE ELEVATION WITHOUT THE ENGINEER'S WRITTEN PERMISSION. EXCAVATIONS SHALL BE DEWATERED BEFORE CONCRETE PLACEMENT IF DIRECTED BY THE ENGINEER AT NO ADDITION COST.

DESIGN SPECIFICATIONS:

THESE FOUNDATIONS ARE DESIGNED TO SATISFY THE 2009 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, FIFTH EDITION.

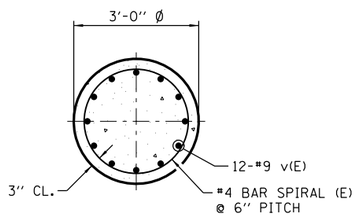
DESIGN TABLE FOR DRILLED SHAFTS IN COHESIVE SOILS

TRUSS No.	W	A	B	F	CLASS DS CONC. CY	REBAR POUNDS
T-60	4'-4 1/2"	2'-6"	25'-0"	27'-6"	14.4	2850
T-65	4'-8"	2'-6"	25'-0"	27'-6"	14.4	2850
T-70	5'-0"	2'-6"	25'-0"	27'-6"	14.4	2850
T-75	5'-3"	2'-6"	25'-0"	27'-6"	14.4	2850
T-80	5'-6"	2'-6"	25'-0"	27'-6"	14.4	2850
T-85	5'-9"	2'-6"	26'-0"	28'-6"	14.9	2950
T-90	5'-11 1/2"	2'-6"	26'-0"	28'-6"	14.9	2950
T-95	6'-2"	2'-6"	26'-0"	28'-6"	14.9	2950
T-100	6'-7 1/2"	2'-6"	26'-0"	28'-6"	14.9	2950
T-105	6'-11"	2'-6"	29'-0"	31'-6"	16.5	3260
T-110	7'-1 1/2"	2'-6"	29'-0"	31'-6"	16.5	3260
T-115	7'-4 1/2"	2'-6"	29'-0"	31'-6"	16.5	3260
T-120	7'-8"	2'-6"	29'-0"	31'-6"	16.5	3260

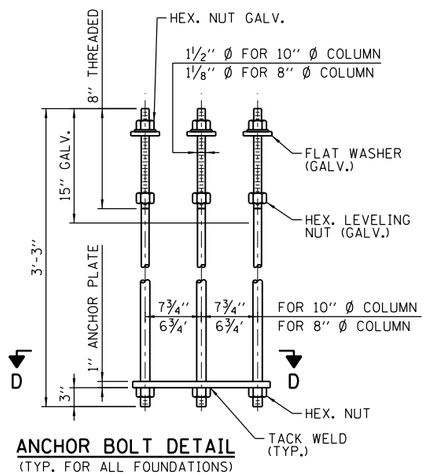
BAR LIST - EACH FOUNDATION

(2 SHAFTS)

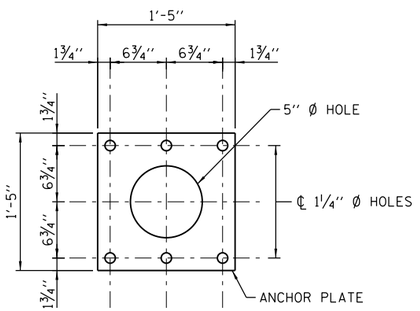
BAR	NUMBER	SIZE	LENGTH	SHAPE
v(E)	24	#9	F LESS 5"	——
#4 BAR SPIRAL (E) - SEE SIDE ELEVATION				



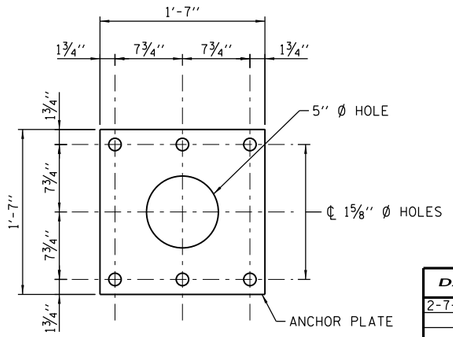
SECTION A-A
(TYPICAL BOTH SHAFTS)



ANCHOR BOLT DETAIL
(TYP. FOR ALL FOUNDATIONS)



SECTION D-D
(FOR 8" Ø COLUMN)



SECTION D-D
(FOR 10" Ø COLUMN)

SHEET 1 OF 3

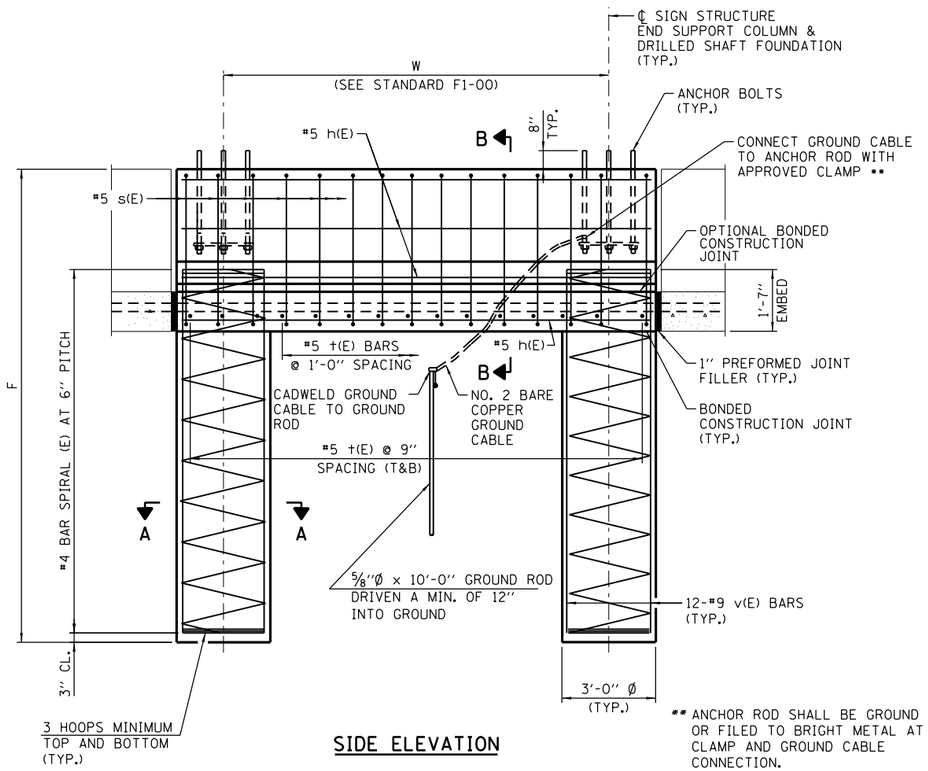
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

DATE	REVISIONS
2-7-2012	REVISED FDN DETAIL
	ADDED CONDUIT/GROUNDING
	DETAIL

Illinois Tollway
Open Roads for a Faster Future

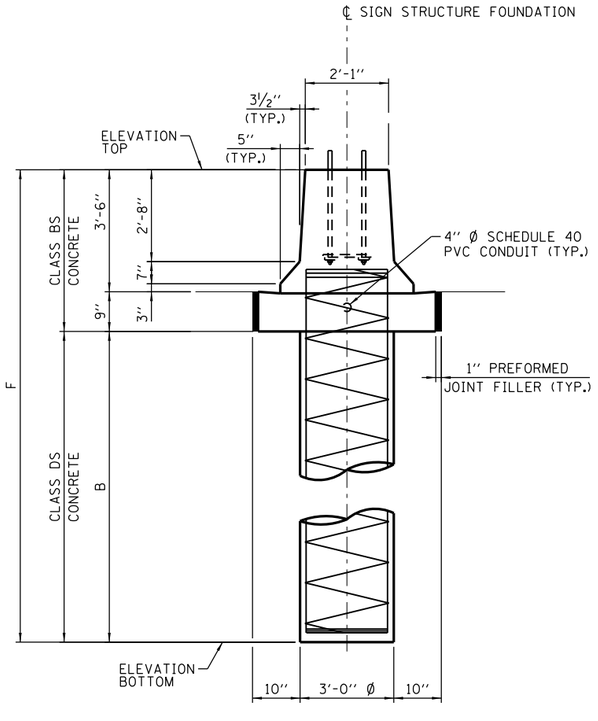
OVERHEAD SIGN STRUCTURES
SHOULDER FOUNDATION
DRILLED SHAFT DETAILS

STANDARD F3-01



SIDE ELEVATION

** ANCHOR ROD SHALL BE GROUND OR FILED TO BRIGHT METAL AT CLAMP AND GROUND CABLE CONNECTION.

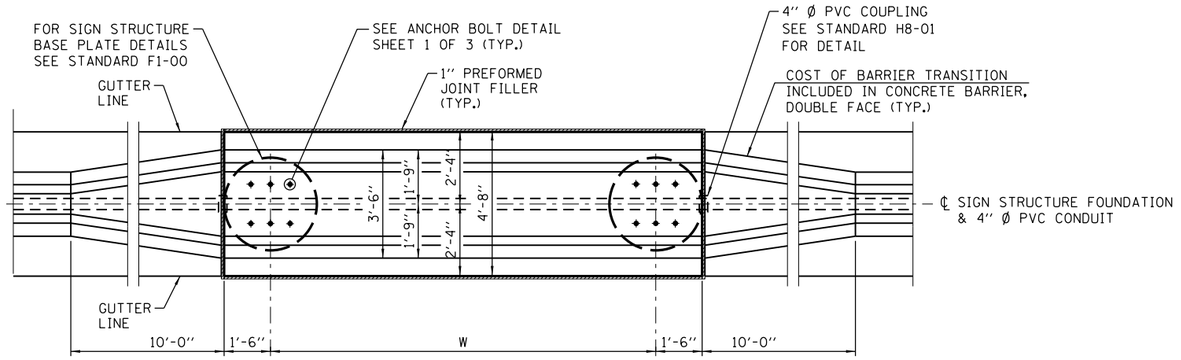


END VIEW

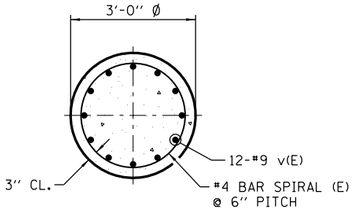
NOTES:

1. SEE SHEET 1 OF STANDARD F3-01 FOR GENERAL NOTES AND DESIGN CRITERA.

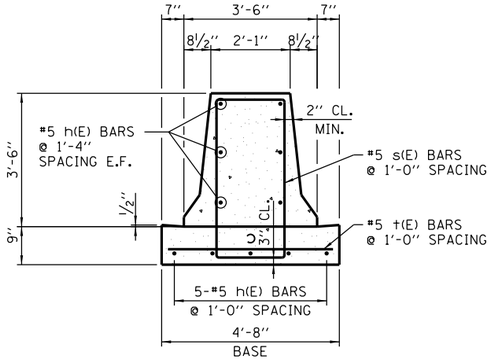
DESIGN TABLE FOR DRILLED SHAFTS IN COHESIVE SOILS					
TRUSS No.	W	B	CLASS BS CONC. CY	CLASS DS CONC. CY	REBAR POUNDS
T-60	4'-4 1/2"	25'-0"	3.7	13.1	2990
T-65	4'-8"	25'-0"	3.9	13.1	2990
T-70	5'-0"	25'-0"	4.1	13.1	3000
T-75	5'-3"	25'-0"	4.2	13.1	3020
T-80	5'-6"	25'-0"	4.3	13.1	3020
T-85	5'-9"	26'-0"	4.4	13.6	3130
T-90	5'-11 1/2"	26'-0"	4.5	13.6	3130
T-95	6'-2"	26'-0"	4.6	13.6	3150
T-100	6'-7 1/2"	26'-0"	4.9	13.6	3160
T-105	6'-11"	29'-0"	5.0	15.2	3470
T-110	7'-1 1/2"	29'-0"	5.1	15.2	3490
T-115	7'-4 1/2"	29'-0"	5.3	15.2	3490
T-120	7'-8"	29'-0"	5.4	15.2	3490



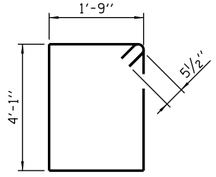
PLAN
(REINFORCEMENT NOT SHOWN FOR CLARITY)



SECTION A-A
(TYPICAL BOTH SHAFTS)



SECTION B-B



BAR s(E)

BAR LIST - EACH FOUNDATION

BAR	NUMBER	SIZE	LENGTH	SHAPE
h(E)	11	#5	W ADD 2'-8"	
s(E)	VARIES	#5	12'-7"	
t(E)	VARIES	#5	4'-4"	
v(E)	24	#9	F LESS 3'-2"	
#4 BAR SPIRAL (E) - SEE SIDE ELEVATION				

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

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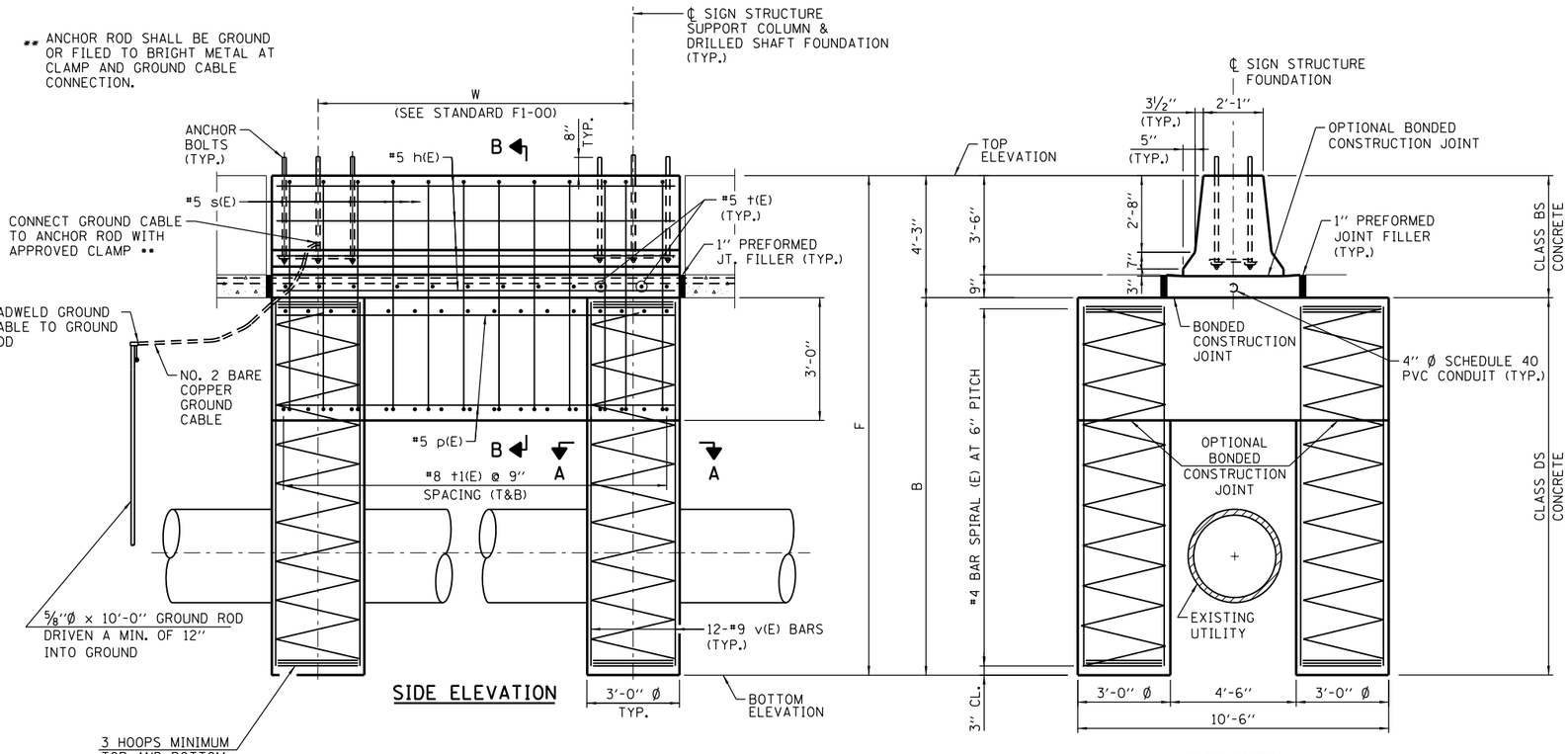
OVERHEAD SIGN STRUCTURES
MEDIAN FOUNDATION
DRILLED SHAFT DETAILS

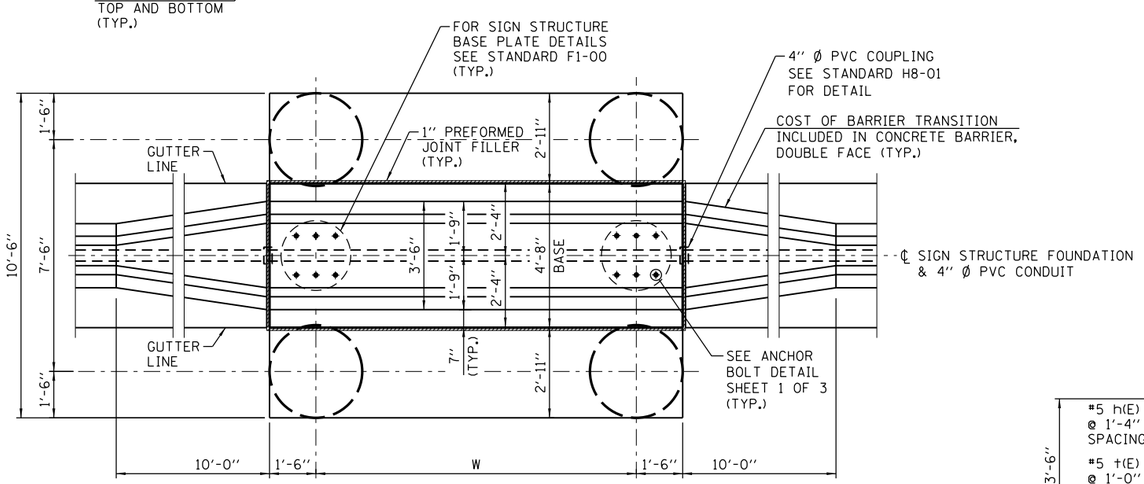
STANDARD F3-01



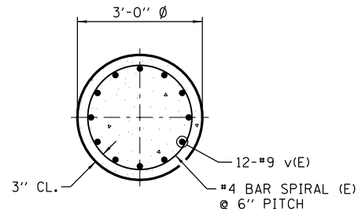
NOTES:

1. SEE SHEET 1 OF STANDARD F3-01 FOR GENERAL NOTES AND DESIGN CRITERA.

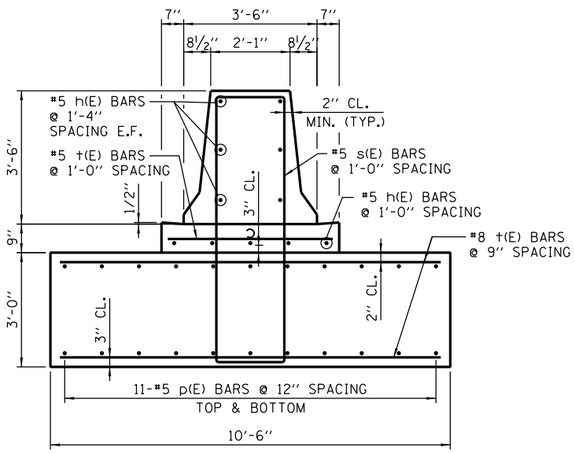
DESIGN TABLE FOR DRILLED SHAFTS IN COHESIVE SOILS					
TRUSS No.	W	B	CLASS BS CONC. CY	CLASS DS CONC. CY	REBAR POUNDS
T-60	4'-4 1/2"	25'-0"	3.4	31.6	5440
T-65	4'-8"	25'-0"	3.6	32.0	5450
T-70	5'-0"	25'-0"	3.7	32.4	5450
T-75	5'-3"	25'-0"	3.8	32.7	5480
T-80	5'-6"	25'-0"	3.9	33.0	5480
T-85	5'-9"	26'-0"	4.1	34.3	5690
T-90	5'-11 1/2"	26'-0"	4.2	34.5	5690
T-95	6'-2"	26'-0"	4.3	34.8	5720
T-100	6'-7 1/2"	26'-0"	4.5	35.3	5720
T-105	6'-11"	29'-0"	4.6	38.8	6340
T-110	7'-1 1/2"	29'-0"	4.7	39.0	6360
T-115	7'-4 1/2"	29'-0"	4.8	39.3	6370
T-120	7'-8"	29'-0"	4.9	39.7	6370



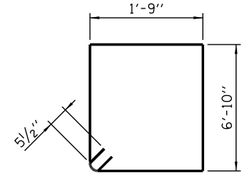
PLAN
(REINFORCEMENT NOT SHOWN FOR CLARITY)



SECTION A-A
(TYPICAL FOR 4 SHAFTS)



SECTION B-B



BAR s(E)

BAR LIST - EACH FOUNDATION

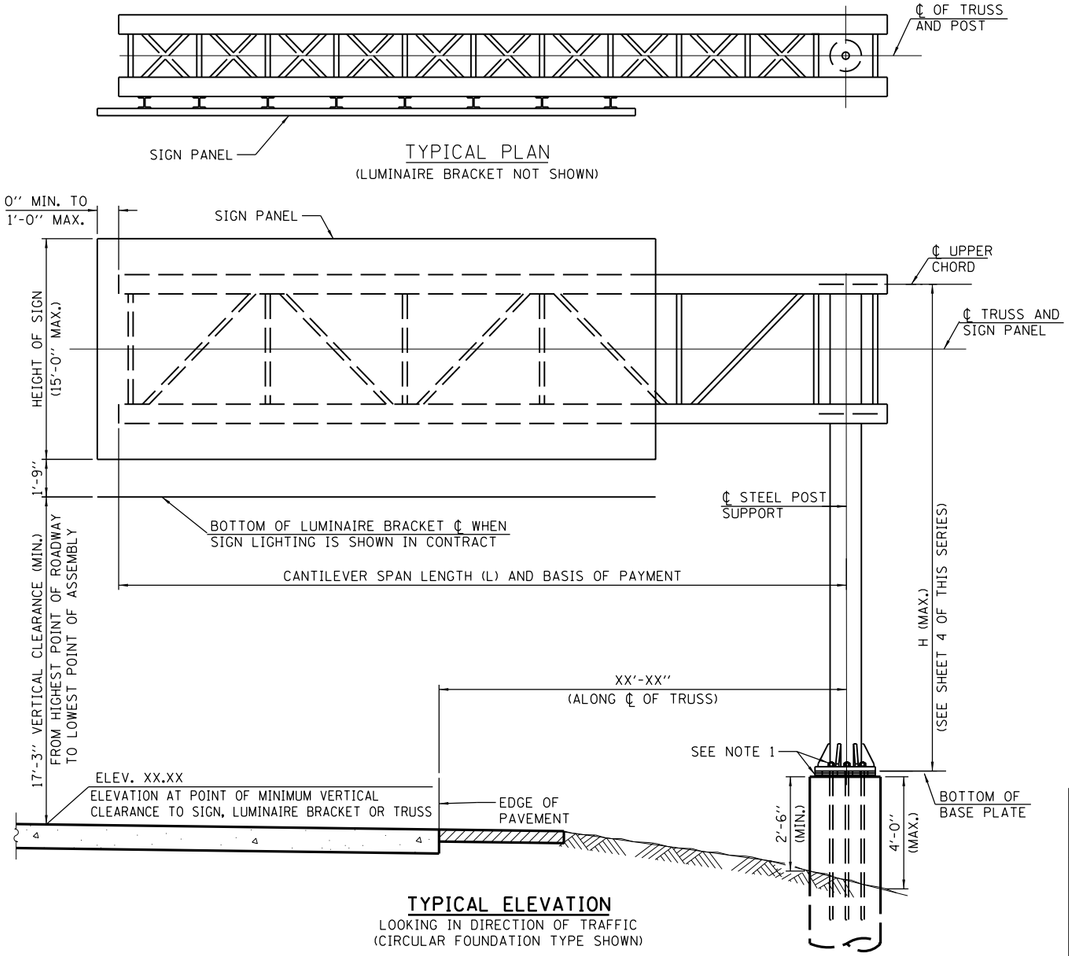
BAR	NUMBER	SIZE	LENGTH	SHAPE
h(E)	11	#5	W ADD 2'-8"	
p(E)	22	#5	W ADD 2'-8"	
s(E)	VARIES	#5	18'-1"	□
t(E)	VARIES	#5	4'-4"	
t1(E)	VARIES	#8	10'-2"	
v(E)	48	#9	B LESS 0'-5"	
#4 BAR SPIRAL (E) - SEE END VIEW				

APPROVED Paul Kovacs CHIEF ENGINEER DATE 2-7-2012

Illinois Tollway
Open Roads for a Faster Future

OVERHEAD SIGN STRUCTURES
MEDIAN FOUNDATION
DRILLED SHAFT DETAILS

STANDARD F3-01

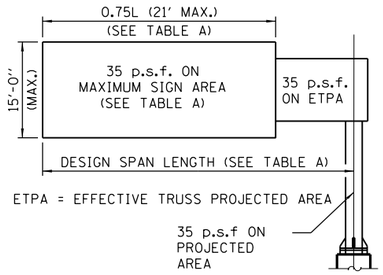


TYPICAL PLAN
(LUMINAIRE BRACKET NOT SHOWN)

TYPICAL ELEVATION
LOOKING IN DIRECTION OF TRAFFIC
(CIRCULAR FOUNDATION TYPE SHOWN)

TABLE A: MAXIMUM LIMITS FOR SIGNS

TRUSS TYPE	DESIGN SPAN LENGTH (FT.)	MAXIMUM SIGN AREA (SQ. FT.)	MAXIMUM SIGN LENGTH (FT.)
15-D	15	170	11.25
20-D	20	225	15
25-D	25	282	18.75
30-D	30	315	21
35-D	35	315	21
40-D	40	315	21
45-D	45	315	21
50-D	50	315	21



DESIGN WIND LOADING DIAGRAM

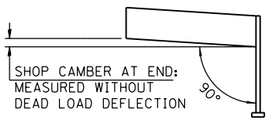
INSTALLATIONS NOT WITHIN DIMENSIONAL LIMITS SHOWN REQUIRE SPECIAL ANALYSIS FOR ALL COMPONENTS.

TABLE B: MATERIAL SPECIFICATIONS

ELEMENT OF STRUCTURE	SPECIFICATION	MINIMUM YIELD STRENGTH (k.s.i.)	MINIMUM ULTIMATE STRENGTH (k.s.i.)
STRUCTURAL STEEL PIPE	ASTM A53, TYPE E OR S, GRADE B	35	60
STRUCTURAL STEEL TUBE	ASTM A500 GRADE B	46	58
STEEL BAR AND STEEL PLATES	ASTM A36	36	58
STAINLESS STEEL BOLTS	ASTM A193, CLASS 1, GRADE B8	30	75
STAINLESS STEEL LOCKNUTS	ASTM A194, GRADE 8F	60	100
STAINLESS STEEL WASHERS	ASTM A240, TYPE 302	60	100
STEEL ANCHOR BOLTS	AASHTO M314 OR ASTM F 1554	55	75

SHOP CAMBER TABLE

CANTILEVER LENGTH (L)	SHOP CAMBER AT END
15'	1''
20'	1½''
25'	1½''
30'	2''
35'	2½''
40'	2½''
45'	3''
50'	3½''



CAMBER DIAGRAM
(FOR FABRICATION ONLY)

GENERAL NOTES:

1. AFTER ADJUSTMENTS TO LEVEL TRUSS AND ENSURE 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.
2. 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, ATTACH TEMPORARY BLANK SIGN PANELS OR OTHER BRACING TO THE STRUCTURE UNTIL PERMANENT SIGNS ARE INSTALLED.
3. TRUSSES SHALL BE SHIPPED INDIVIDUALLY WITH ADEQUATE PROVISON TO PREVENT DETRIMENTAL MOTION DURING TRANSPORT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONFIGURATION AND PROTECTION OF THE TRUSSES.
4. ALL CANTILEVER TRUSSES ARE DESIGNED FOR 35 PSF WIND PRESURE ON TRUSS MEMBERS AND SIGN PANEL.
5. FOR MATERIAL SPECIFICATIONS FOR CANTILEVER SIGN STRUCTURES, SEE TABLE B.
6. ALL WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CURRENT AWS D1.1 STRUCTURE WELDING CODE AND THE STANDARD SPECIFICATIONS.
7. ALL STEEL PLATES, SHAPES AND PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111.
8. ALL CONCRETE SURFACES ABOVE AN ELEVATION 6'' BELOW THE LOWEST FINAL GROUND LINE AT EACH FOUNDATION SHALL BE CLEANED AND COATED BRIDGE SEAT SEALER IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
9. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

DESIGN SPECIFICATIONS:

THESE STRUCTURES ARE DESIGNED TO SATISFY THE 2009 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 5th EDITION. TRUSSES ARE DESIGNED FOR A SIGN PANEL HEIGHT OF 15'-0'' OVER A LENGTH OF 75% OF THE DESIGN SPAN LENGTH NOT TO EXCEED 21''-0''.

ALLOWABLE UNIT STRESSES:

STRUCTURAL STEEL - 20,000 p.s.i. (SEE TABLE B)
REINFORCING STEEL - 20,000 p.s.i. (fy = 60,000 p.s.i)
CLASS DS CONCRETE - 1,600 p.s.i. (f'c = 4,000 p.s.i)

ALLOWABLE UNIT STRESSES DUE TO WIND LOAD IN COMBINATION WITH OTHER FORCES, ARE INCREASED 33%.

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

Illinois Tollway
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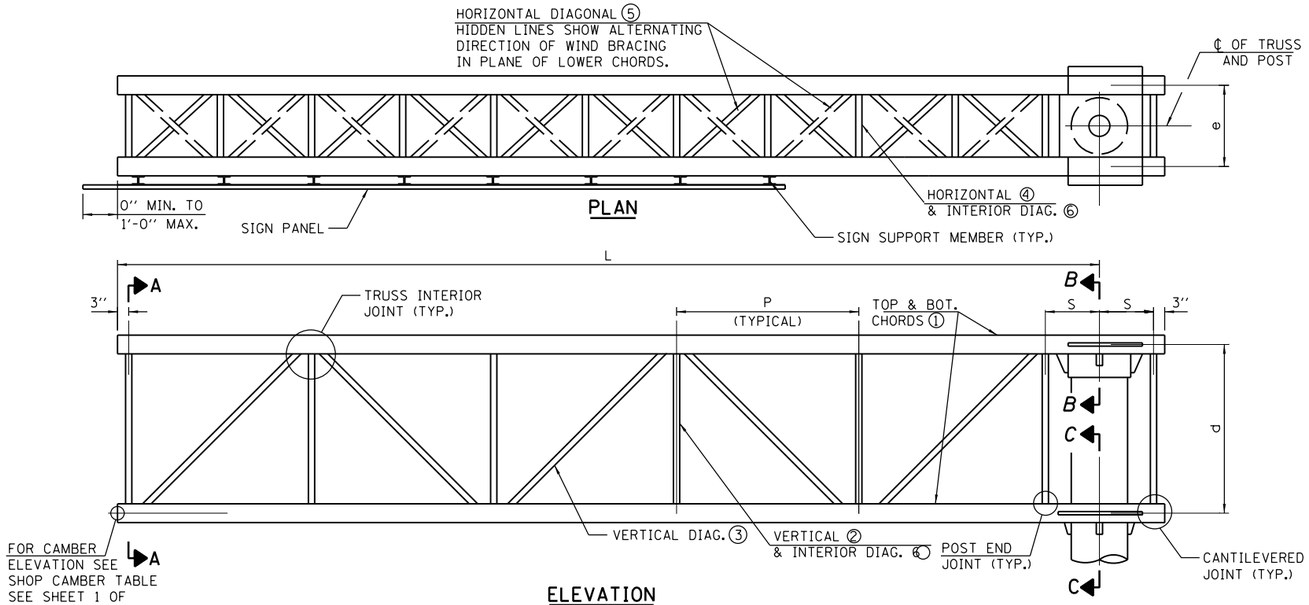
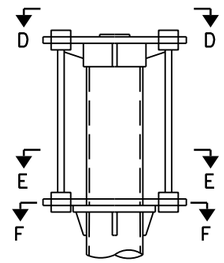
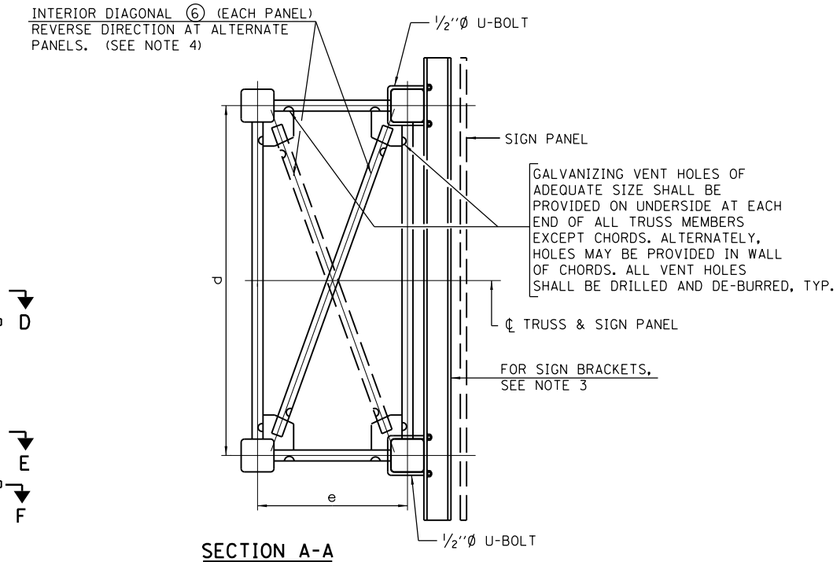
DATE	REVISIONS
2-7-2012	REDESIGNED TO 2009 AASHTO

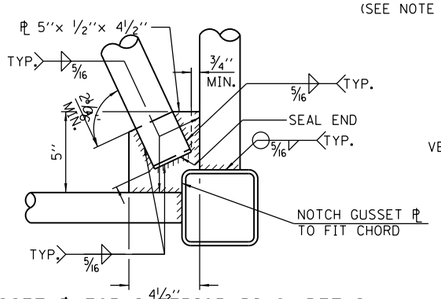
OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE, STEEL

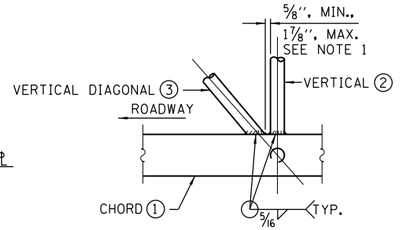
STANDARD F4-01

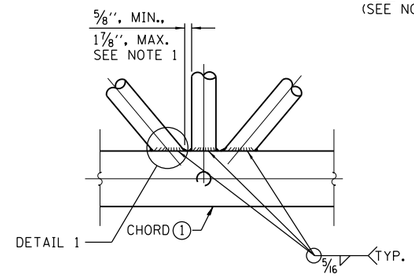


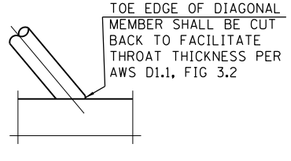












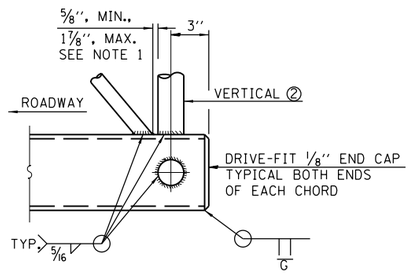


TABLE C: TRUSS AND POST DETAILS FOR 15'-0'' (MAX.) SIGN HEIGHT

DESIGN SPAN LENGTH (L)	TRUSS TYPE	TRUSS SIZE		ACTUAL SPAN LENGTH	MAXIMUM SIGN LENGTH	STEEL SUPPORT POST (COLUMN)				TRUSS MEMBERS AND DETAILS													FOUNDATION TYPE	
		e	d			DIAMETER	WEIGHT	WALL THICKNESS	H (MAX.)	TOP & BOTTOM CHORD ①	VERTICAL ②		VERTICAL DIAG. ③		HORIZONTAL ④		HORIZONTAL DIAG. ⑤		INTERIOR DIAG. ⑥		PANELS				
											PIPE	WALL	PIPE	WALL	PIPE	WALL	PIPE	WALL	PIPE	WALL	NO.	P	S	CIRCULAR	BARRIER
15'	15-D	2'-0''	5'-6''	15'-1''	11'-3''	16''	160.35 (#/FT)	1''	28'-6''	HSS 4x4x1/4	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.514''	1 1/4''Ø X.S	0.178''	1 1/2''Ø X.S	0.186''	1 1/4''Ø X.S	0.178''	3	4'-6''	1'-4''	I-C	I-BW
20'	20-D	2'-6''	5'-6''	20'-1''	15'-0''	20''	203.11 (#/FT)	1''	28'-6''	HSS 5x5x1/4	2 1/2''Ø X.S	0.257''	3''Ø X.X.S	0.559''	1 1/2''Ø X.S	0.186''	2 1/2''Ø X.S	0.257''	1 1/2''Ø X.S	0.186''	4	4'-7''	1'-6''	II-C	II-BW
25'	25-D	3'-0''	5'-6''	24'-11''	18'-9''	24''	245.87 (#/FT)	1''	28'-6''	HSS 5x5x1/4	2 1/2''Ø X.S	0.257''	3''Ø X.X.S	0.559''	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.257''	2''Ø X.S	0.204''	5	4'-7''	1'-9''	III-C	III-BW
30'	30-D	3'-6''	7'-0''	30'-2''	21'-0''	28''	288.63 (#/FT)	1''	30'-0''	HSS 6x6x1/4	3''Ø X.S	0.280''	4''Ø X.X.S	0.628''	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.257''	2''Ø X.S	0.204''	5	5'-7''	2'-0''	IV-C	IV-BW
35'	35-D	4'-0''	7'-0''	35'-0''	21'-0''	32''	331.39 (#/FT)	1''	30'-0''	HSS 6x6x1/4	3''Ø X.S	0.280''	4''Ø X.X.S	0.628''	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.257''	2''Ø X.S	0.204''	5	6'-6''	2'-3''	V-C	V-BW
40'	40-D	4'-0''	7'-0''	40'-0''	21'-0''	36''	374.15 (#/FT)	1''	30'-0''	HSS 6x6x1/4	3''Ø X.S	0.280''	4''Ø X.X.S	0.628''	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.257''	2''Ø X.S	0.204''	6	6'-3''	2'-3''	VI-C	VI-BW
45'	45-D	4'-6''	7'-0''	45'-0 1/2''	21'-0''	38''	395.53 (#/FT)	1''	30'-0''	HSS 6x6x1/4	3''Ø X.S	0.280''	4''Ø X.X.S	0.628''	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.257''	2''Ø X.S	0.204''	7	6'-0 1/2''	2'-6''	VII-C	VII-BW
50'	50-D	4'-6''	7'-0''	50'-1''	21'-0''	40''	416.91 (#/FT)	1''	30'-0''	HSS 6x6x1/4	3''Ø X.S	0.280''	4''Ø X.X.S	0.628''	2''Ø X.S	0.204''	2 1/2''Ø X.S	0.257''	2''Ø X.S	0.204''	8	5'-11''	2'-6''	VIII-C	VIII-BW

NOTES:

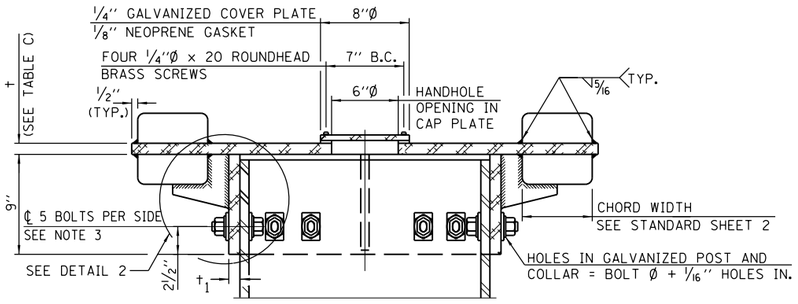
1. SPACE TRUSS MEMBERS SHALL BE SPACED A MINIMUM OF 3 TIMES THE WALL THICKNESS OF THE LARGEST CONNECTING MEMBERS TO ENSURE PROPER WELD SPACING .
2. FOR SECTIONS B-B, C-C, D-D, E-E AND F-F SEE SHEET 3 OF THIS SERIES.
3. FOR SIGN AND LUMINAIRE SUPPORT DETAILS, SEE STANDARD F8.
4. DIRECTION OF INTERIOR DIAGONALS SHOWN IN SECTION A-A CORRECTLY DEPICTS TRUSSES HAVING AN ODD NUMBER OF PANELS. TRUSSES WITH AN EVEN NUMBER OF PANELS WILL HAVE DIAGONALS IN A REVERSED DIRECTION THAN AS SHOWN.
5. FOR ANY DESIGN SPAN LENGTH THAT FALL BETWEEN TWO CONSECUTIVE SPANS, PROVIDED IN COLUMN 1 OF TABLE C, THE LARGER DESIGN SPAN LENGTH SHALL BE USED (I.E. FOR A 32' SPAN LENGTH FALLING BETWEEN 30' AND 35' DESIGN SPAN LENGTHS IN TABLE C, THE 35' DESIGN SPAN LENGTH TRUSS AND POST DETAILS SHALL BE USED).

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

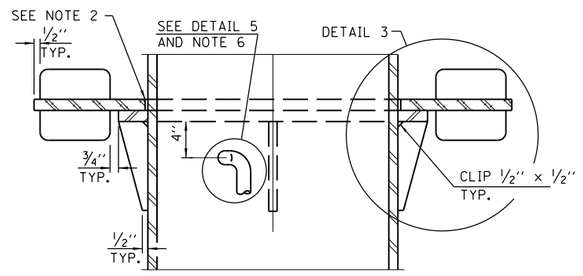
Illinois Tollway
Open Roads for a Faster Future

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE, STEEL

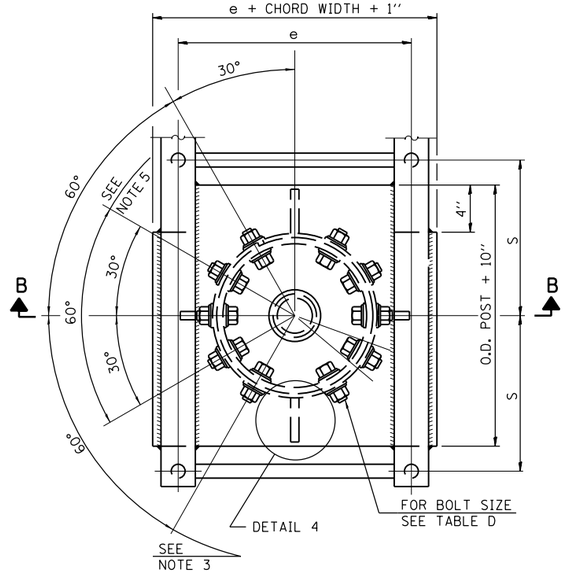
STANDARD F4-01



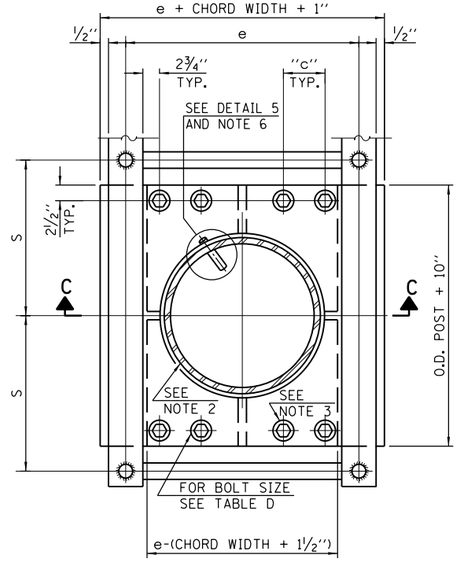
SECTION B-B



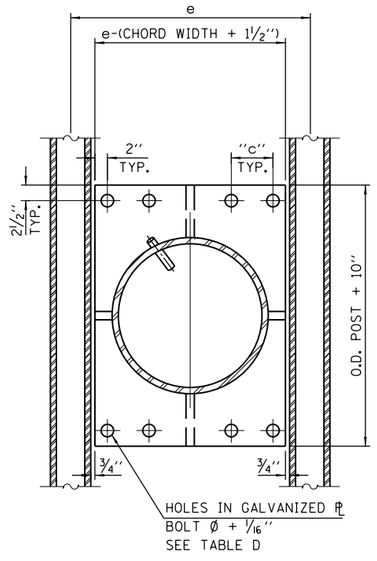
SECTION C-C



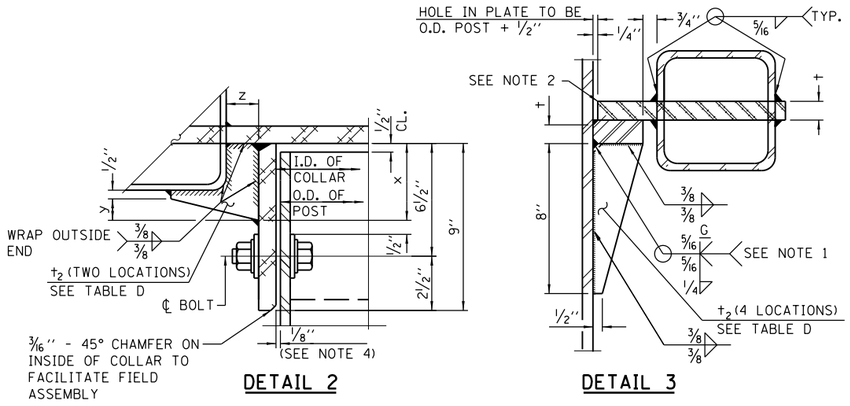
VIEW D-D
(Cap Plate)



SECTION E-E
(Juncture Plate)

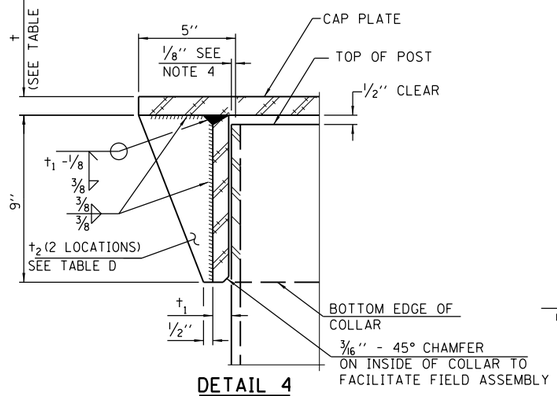


SECTION F-F
(SETTING PLATE)

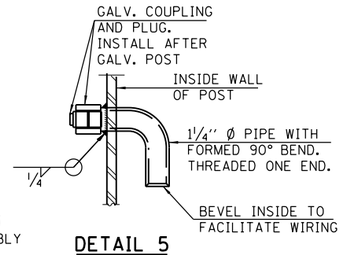


DETAIL 2

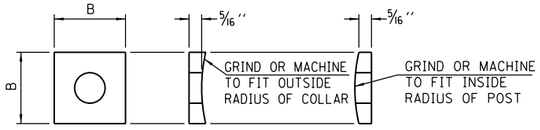
DETAIL 3



DETAIL 4
(TWO LOCATIONS)



DETAIL 5



BOLT SIZE	CONTOURED WASHERS	
	HOLE DIA.	B
1 1/8''Ø	1 1/4''Ø	2 1/4''
1 1/4''Ø	1 3/8''Ø	2 1/4''
1 1/2''Ø	1 5/8''Ø	2 1/4''

CONTOURED WASHERS

NOTES:

1. GRIND TOP IF REQUIRED TO FULLY SEAT PLATE. REPAIR DAMAGED GALVANIZING BEFORE ASSEMBLY.
2. AFTER TIGHTENING LOWER CONNECTION BOLTS, FILL GAP WITH NON-HARDENING SILICONE CAULK SUITABLE FOR EXTERIOR EXPOSURE AND ACCEPTABLE TO THE ENGINEER. COST IS INCLUDED IN OVERHEAD SIGN STRUCTURE CANTILEVER.
3. CONNECTION BOLTS IN COLLAR AND BOLTS AT LOWER CHORD CONNECTION MUST BE HIGH STRENGTH WITH MATCHING LOCK NUTS. LOWER CONNECTION BOLTS MUST HAVE 2 FLATWASHERS EACH.
4. AFTER GALVANIZING, COLLAR I.D. SHALL EQUAL O.D. OF GALVANIZED POST PLUS 1/8'' (±1/16'') MAXIMUM GAP BETWEEN POST AND COLLAR AT ANY LOCATION SHALL BE 1/8'' BEFORE TIGHTENING BOLTS.
5. OPTIONAL FULL PENETRATION WELD IN COLLAR. (TWO LOCATIONS MAXIMUM (180° APART) X-RAY OR UT 100%) ALL BOLTS SHOWN ARE HIGH STRENGTH.
6. ORIENT PIPE TOWARD SIGN PANEL SIDE. HOLE IN POST = O.D. PIPE + 1/8''.

B.C. = BOLT CIRCLE

TABLE D: BOLT SCHEDULE

TRUSS TYPE	POST OUTSIDE DIAMETER	JUNCTURE & COLLAR CONNECTION BOLT DIAMETER	LOWER JUNCTURE BOLT SPACING DIMENSION ''c''	PLATE THICKNESS		STIFFENER THICKNESS	SIDE RIBS		
				(t)	(t_1)	(t_2)	x	y	z
15-D	16''	1 1/8''	3 1/8''	3/4''	1/2''	1/2''	4 7/8''	2 5/8''	1 1/2''
20-D	20''	1 1/8''	3 1/8''	1 ''	3/4''	1/2''	4 7/8''	2 1/4''	1 5/8''
25-D	24''	1 1/4''	3 3/4''	1''	3/4''	1/2''	4 7/8''	2 1/4''	2 5/8''
30-D	28''	1 1/4''	3 3/4''	1 1/8''	7/8''	3/4''	4 7/8''	1 13/16 ''	3''
35-D	32''	1 1/4''	3 3/4''	1 1/8''	7/8''	3/4''	4 7/8''	1 13/16 ''	4''
40-D	36''	1 1/2''	4 1/2''	1 1/4''	1''	3/4''	4 13/16 ''	1 13/16 ''	1 7/8''
45-D	38''	1 1/2''	4 1/2''	1 1/4''	1''	3/4''	4 13/16 ''	1 13/16 ''	3 7/8''
50-D	40''	1 1/2''	4 1/2''	1 1/4''	1''	3/4''	4 13/16 ''	1 13/16 ''	2 7/8''

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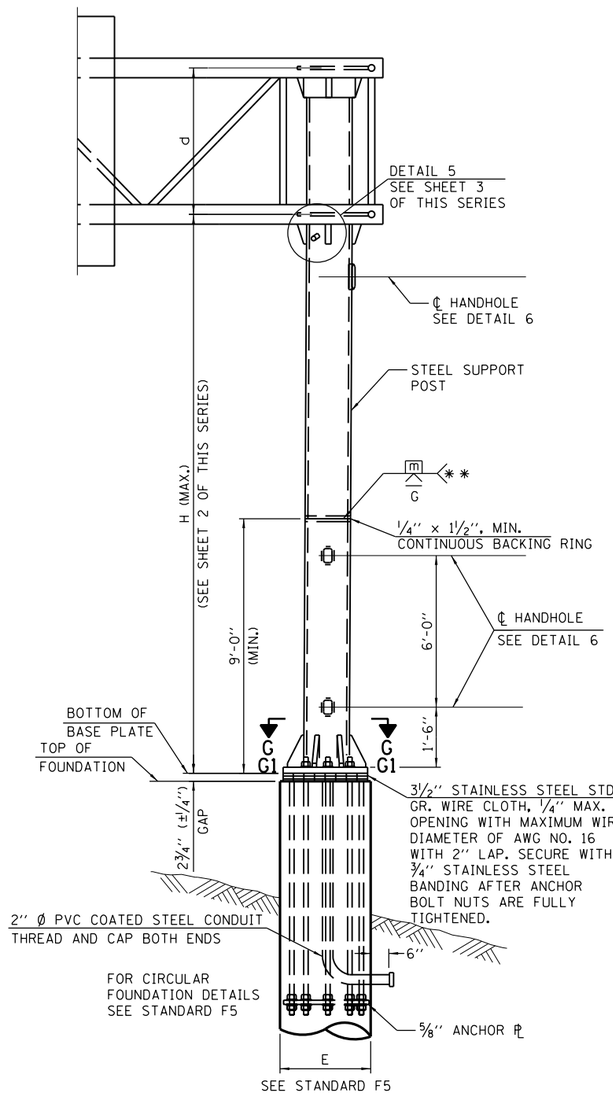
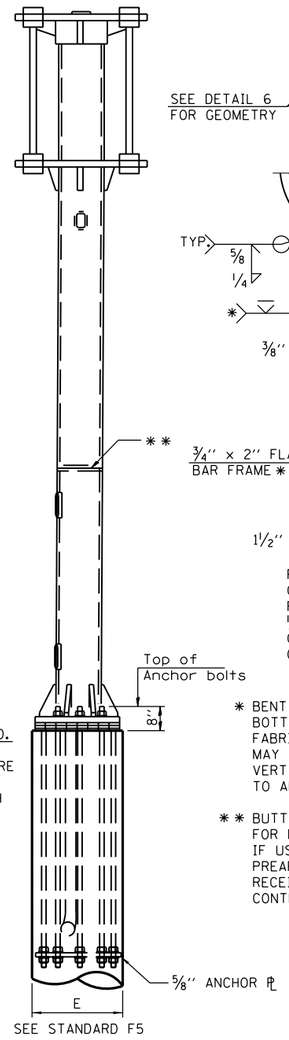
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE, STEEL

STANDARD F4-01



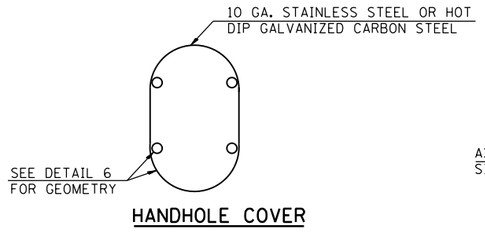
FRONT ELEVATION

(BOLT CONFIGURATION FOR
15-D IS SHOWN IN ELEVATION)

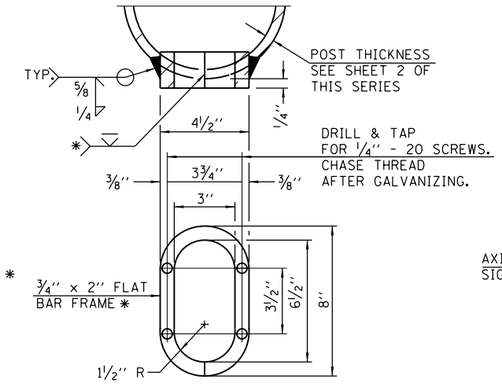


SIDE ELEVATION

(BOLT CONFIGURATION FOR
15-D IS SHOWN IN ELEVATION)



HANDHOLE COVER

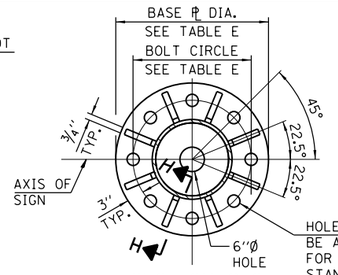


PROVIDE 8'' x 4 1/2'' COVER.
OUTSIDE CORNERS = 2 1/4'' RADIUS.
PROVIDE 4-5/16'' Ø HOLES IN COVER FOR
1/4'' - 20 ROUND HEAD HOT DIP GALVANIZED
OR STAINLESS STEEL MACHINE SCREWS.
(SEE COVER DETAILS.)

DETAIL 6

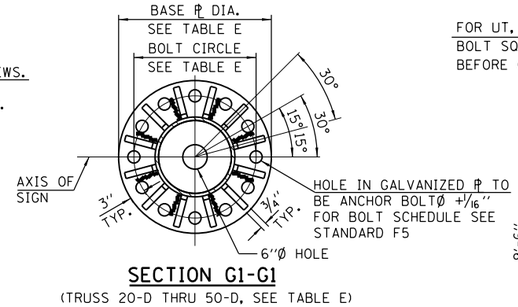
* BENT BARS MAY BE BUTT WELDED TOP AND BOTTOM OR BOTTOM ONLY. IN LIEU OF FABRICATED HANDHOLE FRAME AS SHOWN, MAY CUT FROM 2'' PLATE (ROLLING DIRECTION VERTICAL). ALL CUT FACES TO BE GROUND TO ANSI ROUGHNESS OF 500 μIN OR LESS.

** 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.



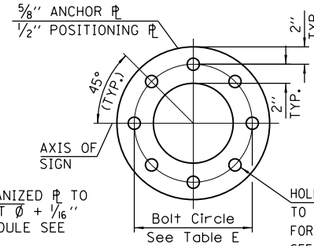
SECTION G-G

(TRUSS 15-D, SEE TABLE E)



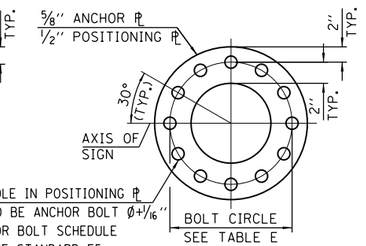
SECTION G1-G1

(TRUSS 20-D THRU 50-D, SEE TABLE E)



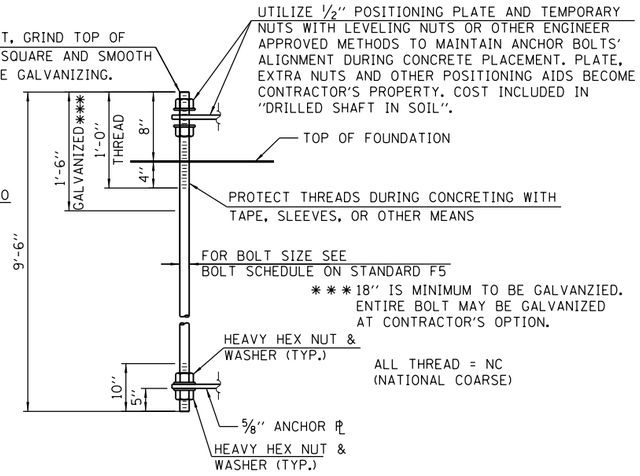
POSITIONING ℄ / ANCHOR ℄

(Truss 15-D, See Table E)

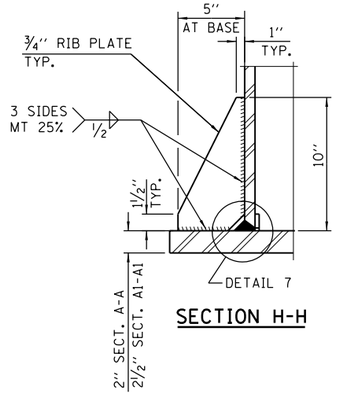


POSITIONING ℄ / ANCHOR ℄

(TRUSS 20-D THRU 50-D, SEE TABLE E)



ANCHOR BOLT DETAIL



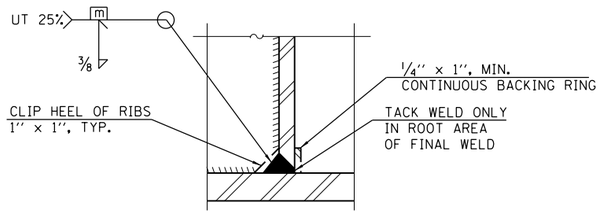
SECTION H-H

NOTE:

ANCHOR BOLTS SHALL CONFORM TO AASHTO M314 OR ASTM F 1554 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 BOLTS. 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 BOLT SHALL BE ULTRASONICALLY TESTED (UT) BY A LEVEL II OR III INSPECTOR, QUALIFIED IN ACCORDANCE WITH ANSI GUIDELINES, USING A STRAIGHT BEAM, 1/2'' Ø 3.5 MHZ. TRANSDUCER, TO INSURE NO REJECTABLE FLAWS EXIST IN THE UPPER 18'' (TENSION CRITERIA). COST OF TESTING INCLUDED IN DRILLED SHAFT IN SOIL.

TABLE E: BASE PLATE DETAIL

TRUSS TYPE	POST OUTSIDE DIAMETER	BASE PLATE		BOLT CIRCLE
		DIAMETER	SECTION	
15-D	16''	28''	A-A	22''
20-D	20''	32''	A1-A1	26''
25-D	24''	36''	A1-A1	30''
30-D	28''	40''	A1-A1	34''
35-D	32''	44''	A1-A1	38''
40-D	36''	48''	A1-A1	42''
45-D	38''	50''	A1-A1	44''
50-D	40''	52''	A1-A1	46''



DETAIL 7

(TYPICAL RIB)

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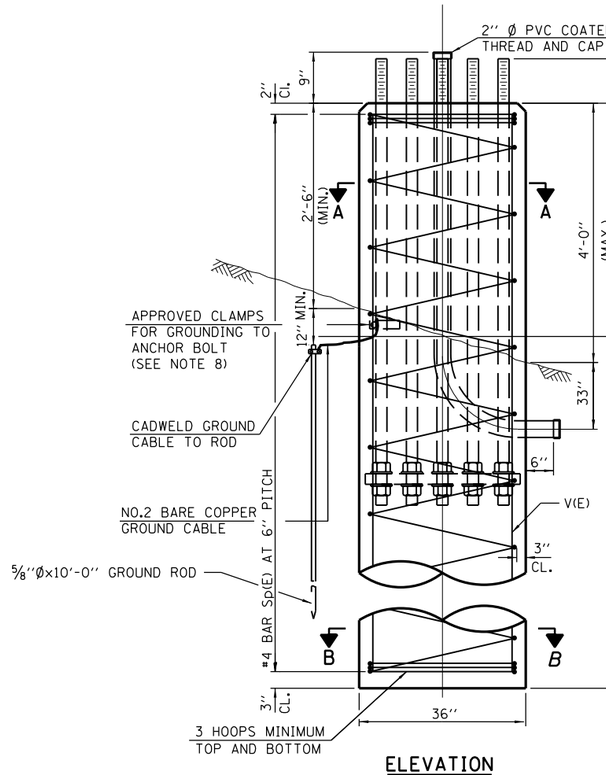
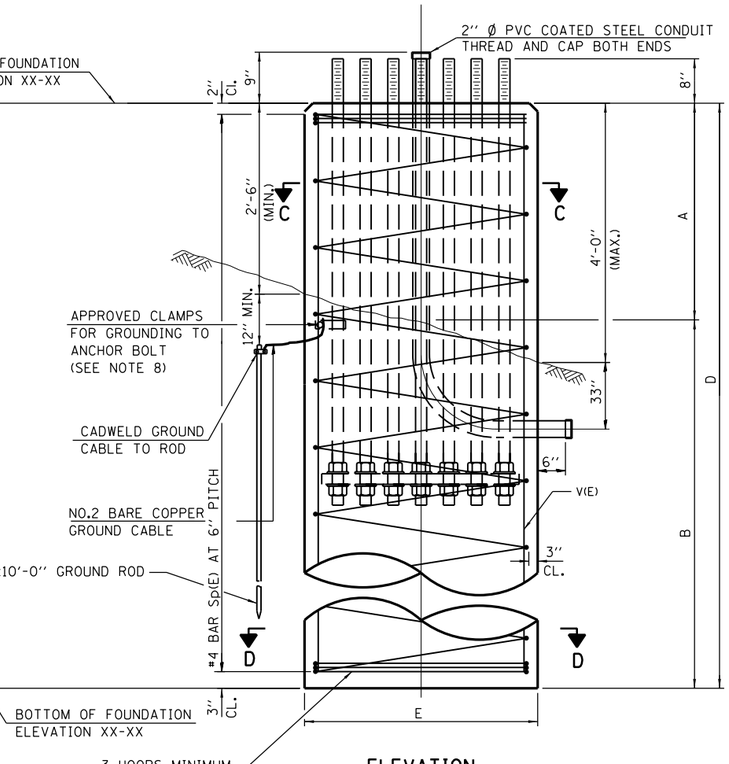
OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE, STEEL

STANDARD F4-01



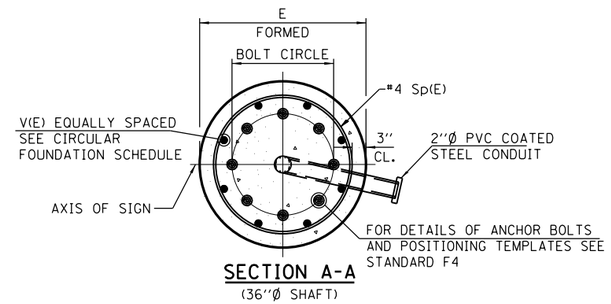
ELEVATION

(36''Ø SHAFT SHOWN IN ELEVATION)



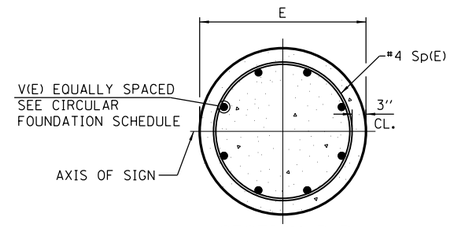
ELEVATION

(42''Ø THRU 60''Ø SHAFT SHOWN IN ELEVATION)



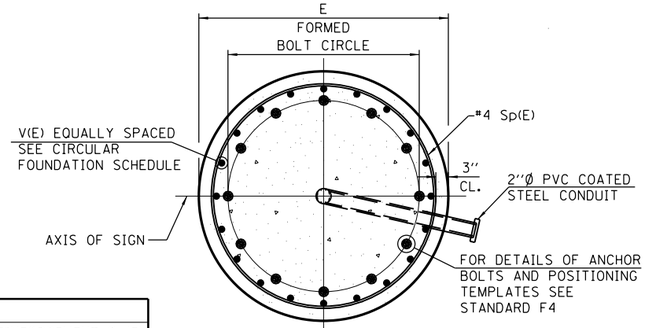
SECTION A-A

(36''Ø SHAFT)



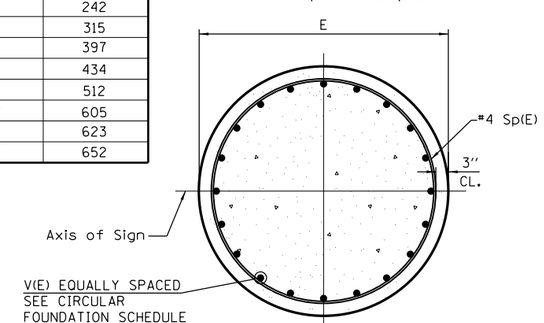
SECTION B-B

(36''Ø SHAFT)



SECTION C-C

(TYP. FOR 42''Ø THRU 60''Ø SHAFT)



SECTION D-D

(TYP. FOR 42''Ø THRU 60''Ø SHAFT)

NOTES:

1. THE FOUNDATION DETAILS SHOWN ARE BASED ON COMMON COHESIVE SOIL CONDITIONS (SILTY OR SANDY CLAY), WITH AN AVERAGE Qu > 1.25 TON/SQ. FT. AND GRANULAR SOIL CONDITIONS WITH MINIMUM STANDARD PENETRATION TEST VALUE, N > 10 BLOWS PER FOOT, FOR ALL STRATA WITHIN THE "B" PORTION OF THE FOUNDATION. THE SOILS DATA SHALL BE DETERMINED BY THE ENGINEER BY FIELD TESTING CONSTRUCTION OR FROM PREVIOUS SOIL INVESTIGATIONS AT THE SITE. FOR LOWER SOIL STRENGTHS OR DIFFERENT SOIL TYPES, THE ENGINEER SHALL REVIEW PERTINENT DATA AND DETERMINE ANY REQUIRED REVISIONS TO THE DIAMETER, DEPTH, REINFORCEMENT OR CONFIGURATION OF THE FOUNDATION. IF CHANGES ARE REQUIRED BY THE ENGINEER, OR IF DIMENSIONS "B" AND "D" ARE INCREASED MORE THAN 12" BY THE CONTRACTOR, "AS-BUILT" PLANS SHALL BE PREPARED AND SUBMITTED TO THE TOLLWAY FOR FUTURE REFERENCE. ACTUAL "B", "ELEVATION BOTTOM", AND "Qu" OR "N" VALUES SHALL ALSO BE ENTERED ON THIS SHEET FOR PERMANENT REFERENCE.
2. FOR SIZE AND NUMBER OF PVC COATED STEEL CONDUITS, SEE ELECTRICAL CONSTRUCTION DRAWINGS.
3. 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 THE ELEVATION WITHOUT THE ENGINEERS' WRITTEN PERMISSION. EXCAVATIONS SHALL BE DEWATERED BEFORE CONCRETE PLACEMENT IF DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
4. CONCRETE SHALL BE PLACED MONOLITHICALLY, WITHOUT CONSTRUCTION JOINTS.
5. BACKFILL SHALL BE PLACED PER ARTICLE 502 OF STANDARD SPECIFICATIONS AND PRIOR TO ERECTION OF SUPPORT COLUMN.
6. A NORMAL SURFACE FINISH FOLLOWED BY A PROTECTIVE COAT APPLICATION WILL BE REQUIRED ON CONCRETE SURFACE ABOVE THE LOWEST ELEVATION 6" BELOW FINISHED GROUND LINE.
7. REBAR SHALL BE POSITIONED SO THAT THERE WILL BE NO INTERFERENCE BETWEEN VERTICAL REINFORCEMENT AND ANCHOR BOLTS.
8. GRIND ANCHOR OR BOLT TO BRIGHT FINISH AT GROUND CLAMP LOCATION BEFORE INSTALLING CLAMP.

CIRCULAR FOUNDATION SCHEDULE

FOUNDATION DETAILS														
FOUNDATION TYPE	POST OUTSIDE DIAMETER	DRILLED SHAFT				ANCHOR BOLTS			VERTICAL REINFORCEMENT V(E)				SPIRAL REINFORCEMENT Sp(E)	
		E	B	D (MAX)	CONC. CY.	DIA.	NO.	BOLT CIRCLE	NO.	BAR SIZE	LENGTH	POUNDS	LENGTH	POUNDS
I-C	16''	36''	19'-6''	23'-6''	6.2	2½''	8	22''	8	#11	23'-1''	981	362'	242
II-C	20''	42''	21'-6''	25'-6''	9.1	2''	12	26''	10	#11	25'-1''	1333	471'	315
III-C	24''	48''	23'-6''	27'-6''	12.8	2¼''	12	30''	12	#11	27'-1''	1726	594'	397
IV-C	28''	48''	26'-0''	30'-0''	14.0	2¼''	12	34''	12	#11	29'-7''	1886	649'	434
V-C	32''	54''	27'-0''	31'-0''	18.3	2¼''	12	38''	16	#11	30'-7''	2600	767'	512
VI-C	36''	60''	27'-6''	31'-6''	22.9	2¼''	12	42''	20	#11	31'-1''	3303	905'	605
VII-C	38''	60''	29'-6''	33'-6''	24.4	2½''	12	44''	20	#11	33'-1''	3515	933'	623
VIII-C	40''	60''	31'-0''	35'-0''	25.5	2½''	12	46''	20	#11	34'-7''	3675	976'	652

* THE DRILLED SHAFT LENGTH (D (MAX.)) PROVIDED IN CIRCULAR FOUNDATION SCHEDULE TABLE IS BASED ON THE MAXIMUM ALLOWED EXPOSED LENGTH OF THE DRILLED SHAFT, "A" of 4'-0". ALL QUANTITIES ARE BASED OFF THIS ASSUMPTION. IT SHALL BE UP TO THE CONTRACTOR TO PROVIDE AS-BUILT QUANTITIES PROVIDED IN STANDARD F4 FOLLOWING INSTALLATION. PLEASE SEE NOTE 1 FOR OTHER SPECIFICATION REGARDING DRILLED SHAFT REQUIREMENTS.

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

Illinois Tollway
Open Roads for a Faster Future

DATE	REVISIONS
4-25-2007	DIMENSION CHANGE
1-01-2009	DELETED BONDED CONST. JOINT
	REVISED NOTES
2-7-2012	REDESIGNED TO 2009 AASHTO

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE,
CIRCULAR FOUNDATION

STANDARD F5-03

RESERVED

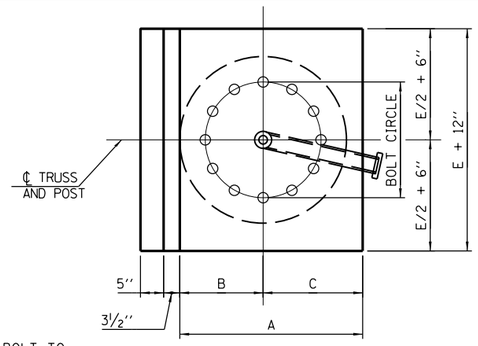
Illinois Tollway
Open Roads for a Faster Future

DATE	REVISIONS

APPROVED Paul Kovacs
CHIEF ENGINEER

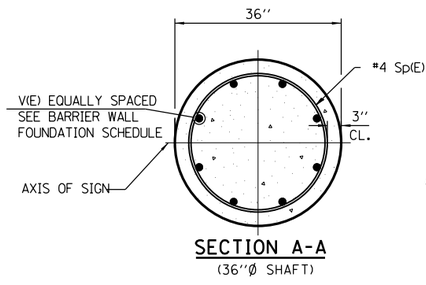
DATE 2-7-2012

STANDARD F6-00

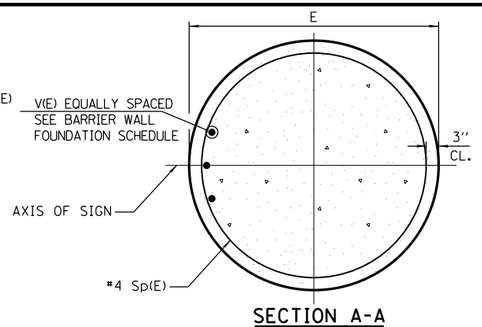


*GRIND ANCHOR BOLT TO BRIGHT FINISH AT GROUND CLAMP LOCATION BEFORE INSTALLING CLAMPS

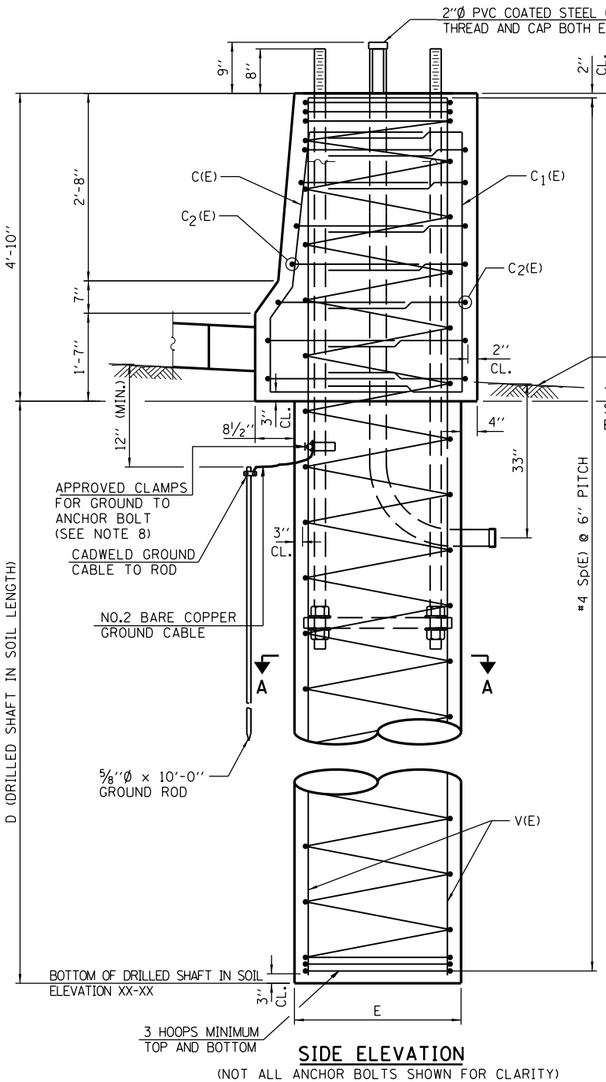
PLAN



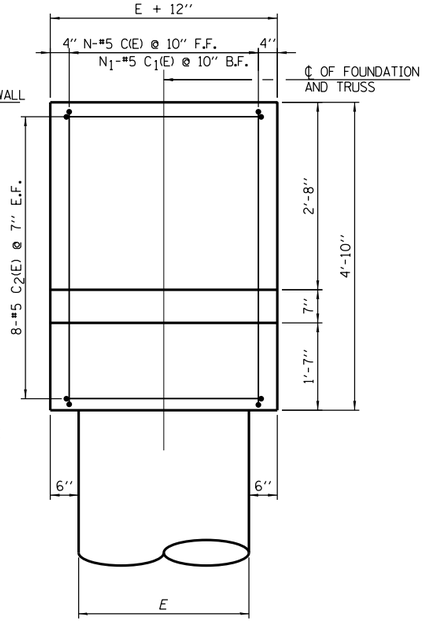
SECTION A-A
(36''Ø SHAFT)



SECTION A-A
(TYP. FOR 42''Ø THRU 60''Ø SHAFT)



SIDE ELEVATION
(NOT ALL ANCHOR BOLTS SHOWN FOR CLARITY)



FRONT ELEVATION
(ANCHOR BOLTS NOT SHOWN FOR CLARITY)

MARK TABLE BAR C(E)

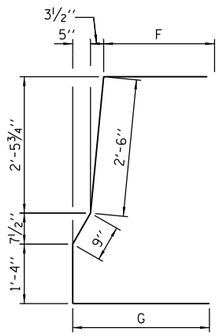
FOUNDATION TYPE	Bar C(E) F	G	LENGTH	N	POUNDS
I - BW	2'-5''	2'-9''	9'-9''	5	51
II - BW	2'-8''	3'-0''	10'-3''	6	65
III - BW	2'-11''	3'-3''	10'-9''	7	79
IV -BW	2'-11''	3'-3''	10'-9''	7	79
V- BW	3'-2''	3'-6''	11'-3''	7	83
VI- BW	3'-5''	3'-9''	11'-9''	8	98
VII- BW	3'-5''	3'-9''	11'-9''	8	98
VIII- BW	3'-5''	3'-9''	11'-9''	8	98

MARK TABLE BAR C (E)

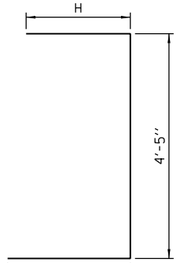
FOUNDATION TYPE	BAR C_1(E) H	I	LENGTH	N_1	POUNDS
I - BW	2'-9''	2'-5''	9'-7''	5	50
II - BW	3'-0''	2'-8''	10'-1''	6	64
III - BW	3'-3''	2'-11''	10'-7''	7	78
IV -BW	3'-3''	2'-11''	10'-7''	7	78
V- BW	3'-6''	3'-2''	11'-1''	7	81
VI- BW	3'-9''	3'-5''	11'-7''	8	97
VII- BW	3'-9''	3'-5''	11'-7''	8	97
VIII- BW	3'-9''	3'-5''	11'-7''	8	97

MARK TABLE BAR C ₂(E)

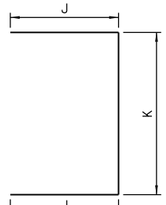
FOUNDATION TYPE	BAR C_2(E) J	K	LENGTH	N	POUNDS
I - BW	2'-9''	3'-4''	8'-10''	16	148
II - BW	3'-0''	3'-10''	9'-10''	16	165
III - BW	3'-3''	4'-4''	10'-10''	16	181
IV -BW	3'-3''	4'-4''	10'-10''	16	181
V- BW	3'-6''	4'-10''	11'-10''	16	198
VI- BW	3'-9''	5'-4''	12'-10''	16	215
VII- BW	3'-9''	5'-4''	12'-10''	16	215
VIII- BW	3'-9''	5'-4''	12'-10''	16	215



BAR C(E)



BAR C_1(E)



BAR C_2(E)

BARRIER WALL FOUNDATION SCHEDULE

FOUNDATION TYPE	POST OUTSIDE DIAMETER	FOUNDATION DATA: DRILLED SHAFT IN SOIL E	D	CONC. CY.	ANCHOR BOLTS DIA.	NO.	BOLT CIRCLE	VERTICAL REINFORCEMENT V(E) NO.	BAR SIZE	LENGTH	POUNDS	SPIRAL REINFORCEMENT Sp(E) LENGTH	POUNDS	BARRIER DIMENSIONS A	B	C	CONC. CY.	* STRUCTURE EXCAVATION CY.
I-BW	16''	36''	19'-6''	5.1	2½''	8	22''	8	#11	23'-11''	1020	377'	252	3'-4''	1'-6''	1'-10''	2.6	2.4
II-BW	20''	42''	21'-6''	7.7	2''	12	26''	10	#11	25'-11''	1377	491'	328	3'-10''	1'-9''	2'-1''	3.4	2.7
III-BW	24''	48''	23'-6''	10.9	2¼''	12	30''	12	#11	27'-11''	1780	616'	411	4'-4''	2'-0''	2'-4''	4.2	3.0
IV-BW	28''	48''	26'-0''	12.1	2¼''	12	34''	12	#11	30'-5''	1938	671'	448	4'-4''	2'-0''	2'-4''	4.2	3.0
V-BW	32''	54''	27'-0''	15.9	2¼''	12	38''	16	#11	31'-5''	2671	792'	529	4'-10''	2'-3''	2'-7''	5.1	3.4
VI-BW	36''	60''	27'-6''	20.0	2¼''	12	42''	20	#11	32'-11''	3498	903'	604	5'-4''	2'-6''	2'-10''	6.1	3.8
VII-BW	38''	60''	29'-6''	21.5	2½''	12	44''	20	#11	33'-11''	3604	961'	642	5'-4''	2'-6''	2'-10''	6.1	3.8
VIII-BW	40''	60''	31'-0''	22.5	2½''	12	46''	20	#11	35'-5''	3763	1004'	671	5'-4''	2'-6''	2'-10''	6.1	3.8

*QUANTITY FOR STRUCTURE EXCAVATION IS CALCULATED ASSUMING A 1'-0''BURIED DEPTH OF BARRIER.

NOTES:

1. THE FOUNDATION DETAILS SHOWN ARE BASED ON COMMON COHESIVE SOIL CONDITIONS (SILTY OR SANDT CLAY), WITH AN AVERAGE Qu > 1.25 TON/SQ. FT. AND GRANDULAR SOIL CONDITIONS WITH MINIMUM STANDARD PENETRATION TEST VALUE, N > 10 BLOWS PER FOOT, FOR ALL STRATA WITHING THE ''B'' PORTION OF THE FOUNDATION. THE SOILS DATA SHALL BE DETERMINED BY THE ENGINEER BY FIELD TESTING DURING CONSTRUCTION OR FROM PREVIOUS SOIL INVESTIGATIONS AT THE SITE. FOR LOWER SOIL STRENGTHS OR DIFFERENT SOIL TYPES, THE ENGINEER SHALL REVIEW PERTINENT DATA AND DETERMINE ANY REQUIRED REVISIONS TO THE DIAMETER, DEPTH, REINFORCEMENT OR CONFIGURATION OF THE FOUNDATION. IF CHANGES ARE REQUIRED BY THE ENGINEER, OR IF DIMENSIONS ''B'' AND ''D'' ARE INCREASED MORE THAN 12'' BY THE CONTRACTOR, ''AS-BUILT'' PLANS SHALL BE PREPARED AND SUBMITTED TO THE TOLLWAY FOR FUTURE REFERENCE. ACTUAL ''D'', ''ELEVATION BOTTOM'', and ''Qu'' or ''N'' VALUES SHALL ALSO BE ENTERED ON THIS SHEET FOR PERMENENT REFERENCE.
2. FOR SIZE AND NUMBER OF PVC COATED STEEL CONDUITS, SEE ELECTRICAL CONSTRUCTION DRAWINGS.
3. NO SONOTUBES OR DECOMPOSABLE FORMS SHALL BE USED BELOW THE LOWER CONDUIT ENTRANCE. PERMANENT METAL FORMS OF OTHER SHIELDING MAY NOT BE LEFT IN PLACE BELOW THAT ELEVATION WITHOUT THE ENGINEER'S WRITTEN PERMISSION. EXCAVATIONS SHALL BE DEWATERED BEFORE CONCRETE PLACEMENT IF DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
4. CONCRETE SHALL BE PLACED MONOLITHICALLY WITHOUT CONSTRUCTION JOINTS.
5. BACKFILL SHALL BE PLACED PER ARTICLE 502 OF STANDARD SPECIFICATION AND PRIOR TO ERECTION OF SUPPORT COLUMN.
6. A NORMAL SURFACE FINISH FOLLOWED BY A PROTECTIVE COAT APPLICATION SHALL BE REQUIRED ON CONCRETE SURFACES ABOVE THE LOWEST ELEVATION 6'' BELOW FINISHED GROUND LINE. COST INCLUDED IN DRILLED SHAFT IN SOIL.
7. REBAR CAGE SHALL BE POSITIONED SO THERE WILL BE NO INTERFERENCE BETWEEN VERTICAL REINFORCEMENT AND ANCHOR BOLTS.
8. GRIND ANCHOR BOLT TO BRIGHT FINISH AT GROUND CLAMP LOCATION BEFORE INSTALLING CLAMP.

LEGEND

E.F - EACH FACE

F.F - FRONT FACE

B.F - BACK FACE

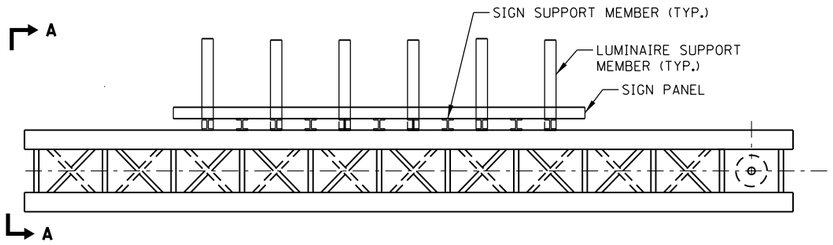
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

Illinois Tollway
Open Roads for a Faster Future

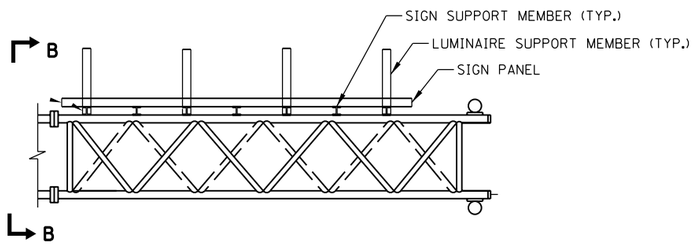
DATE	REVISIONS
2-7-2012	REDESIGNED TO 2009 AASHTO

OVERHEAD SIGN STRUCTURE CANTILEVER TYPE, STEEL DRILLED SHAFT IN SOIL, BARRIER WALL

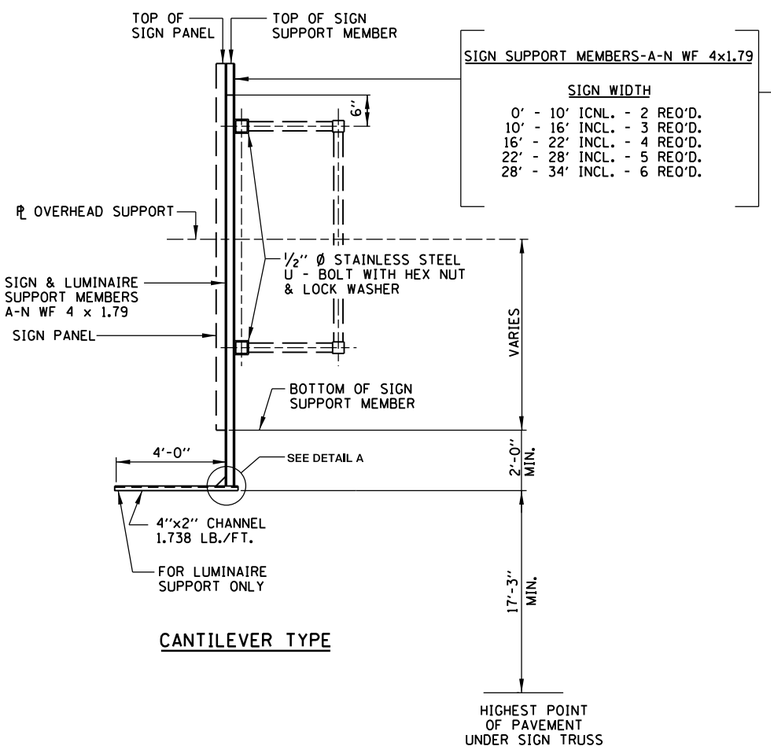
STANDARD F7-01



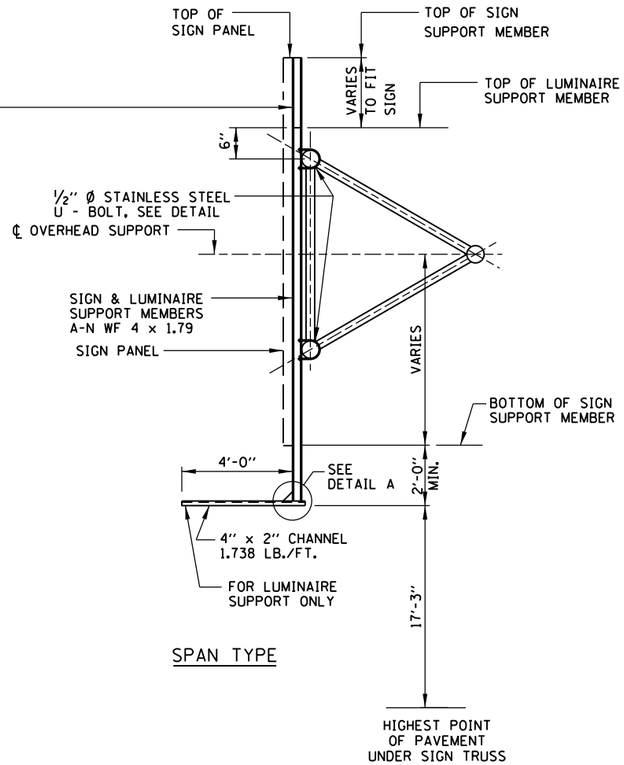
PLAN



PLAN



CANTILEVER TYPE



SPAN TYPE

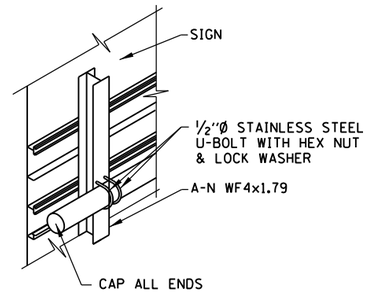
SECTION A-A

SECTION B-B

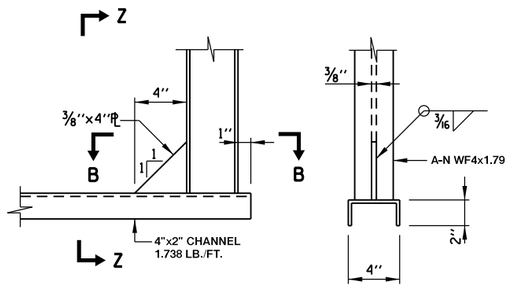
SIGN AND LUMINAIRE SUPPORT DETAIL

NOTE:

1. SIGN PANEL SHALL BE ATTACHED TO TRUSS AS CLOSE TO PANEL JOINTS AS POSSIBLE.
2. LUMINAIRE SUPPORT MEMBERS TO BE INSTALLED ONLY WHEN SIGN STRUCTURE IS TO BE ILLUMINATED. DESIGNER TO DETERMINE REQUIREMENTS BASED ON ROADWAY GEOMETRY.

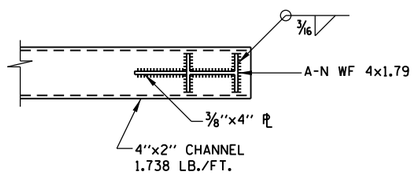


STAINLESS STEEL U-BOLT DETAIL



DETAIL A

SECTION Z-Z



SECTION B-B

NOTES:

ALL MATERIAL IS ALUMINUM (UNLESS OTHERWISE NOTED).

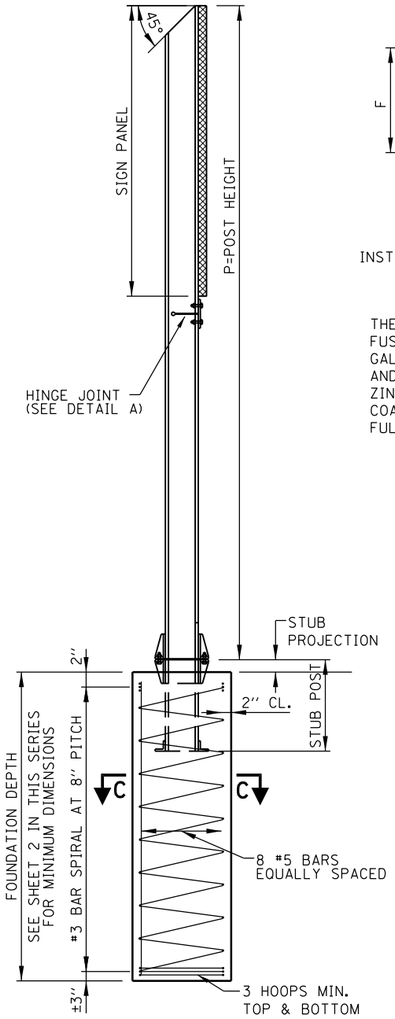
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

Illinois Tollway
Open Roads for a Faster Future

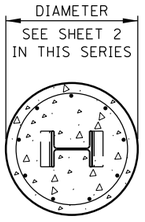
DATE	REVISIONS
1-1-2009	ADDED PLAN VIEWS FOR SIGN STRUCTURES
2-7-2012	REVISED OVERHEAD SIGN STRUCTURE
	CANTILEVER DIAGONALS

OVERHEAD SIGN STRUCTURE SIGN AND LUMINAIRE SUPPORTS

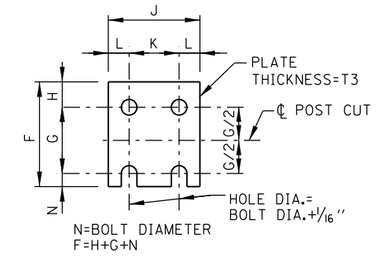
STANDARD F8-02



SIDE ELEVATION
POST & FOUNDATION



SEC. C-C

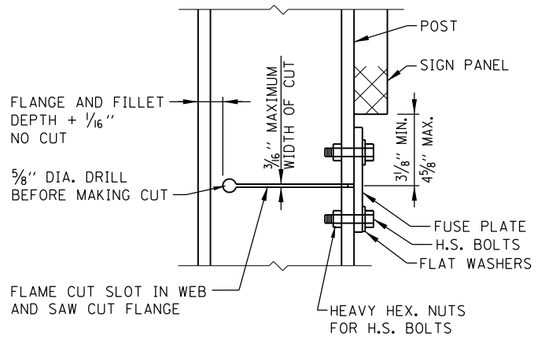


FUSE PLATE DETAIL
INSTALL WITH NOTCHES TOWARDS BASE

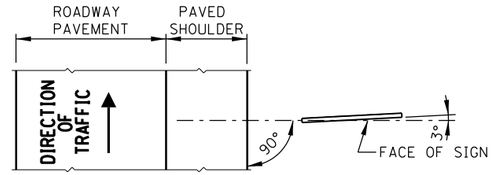
G & H DIM. TABLE		
BOLT DIA.	G	H
1/2"	2"	1 1/8"
5/8"	2 1/4"	1 1/4"
3/4"	2 1/2"	1 3/8"
7/8"	2 3/4"	1 1/2"
1"	3"	1 5/8"
1 1/8"	3 1/4"	1 3/4"
1 1/4"	3 1/2"	1 7/8"

FABRICATORS NOTES

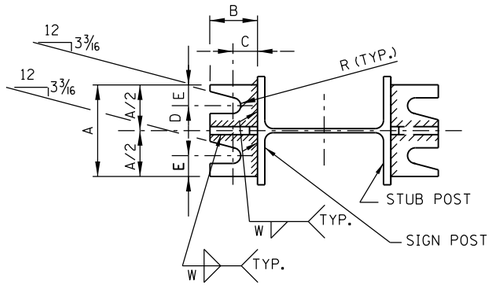
THE SLOT AND THE 5/8" DIA. HOLE IN THE WEB AND THE FUSE PLATE BOLT HOLES IN THE FLANGE SHALL BE MADE BEFORE GALVANIZING. POST FLANGE SHALL BE SAW CUT AFTER GALVANIZING AND BARE METAL SURFACES SHALL BE COATED WITH AN APPROVED ZINC SOLDER OR ZINC-RICH PAINT. THESE SURFACES SHALL NOT BE COATED UNTIL THE FUSE PLATE IS INSTALLED AND BOLTS FULLY TIGHTENED.



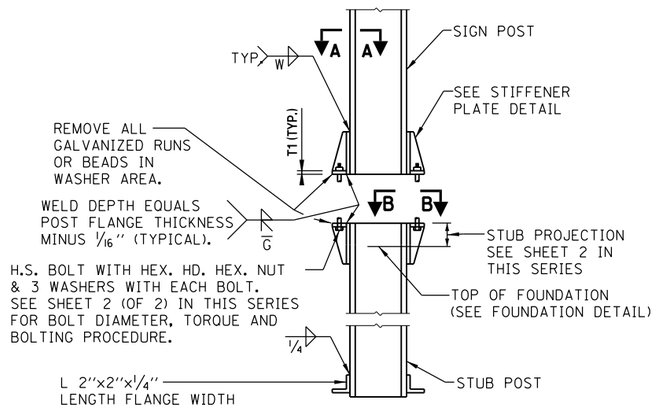
HINGE JOINT
DETAIL A



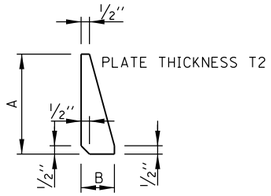
LOCATION SKETCH



SEC. A-A SEC. B-B

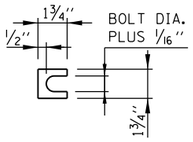


SIGN POST & STUB POST
ELEVATION



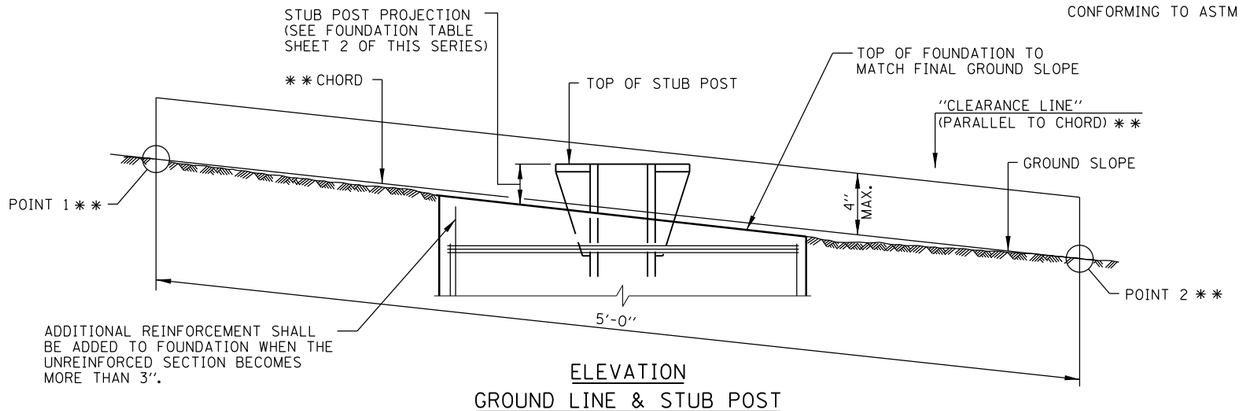
STIFFENER PLATE
DETAIL

SEE SHEET 2 IN THIS
SERIES FOR DIMENSIONS



SHIM DETAIL

FURNISH 2-.012" THICK AND 2-.032" THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO ASTM B36.



ELEVATION
GROUND LINE & STUB POST

** FOR ALL "POINT 1" AND "POINT 2"LOCATIONS, "CLEARANCE LINE" MUST BE AT OR ABOVE TOP OF STUB POST.

GENERAL NOTES

DESIGN: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRE AND TRAFFIC SIGNALS-DATED 1994 OR LATEST EDITION.

CONSTRUCTION: IDOT STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.

LOADING: FOR 80 MPH WIND VELOCITY PLUS 30% GUST FACTOR NORMAL TO SIGN.

UNIT STRESSES:
STRUCTURAL STEEL - PER AASHTO
REINFORCING STEEL - 24,000 P.S.I.
CLASS SP CONCRETE - 1,400 P.S.I.
MINIMUM SOIL PRESSURE - 1.25 TONS/SQ. FT.

WELDING: ALL WELDING TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING TO BE DONE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS, AND IDOT STANDARD SPECIFICATIONS.

MATERIALS: ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 AND IDOT STANDARD SPECIFICATIONS.

ALL HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO IDOT STANDARD SPECIFICATIONS.

HIGH STRENGTH STEEL BOLTS, NUTS AND HARDENED WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.

HIGH STRENGTH BOLTS IN BASE PLATES SHALL BE TIGHTENED TO THE TORQUE SHOWN ON SHEET 2 IN THIS SERIES.

AFTER FABRICATION, THE POST, FUSE PLATE, BASE PLATE AND UPPER 6" OF STUB POST SHALL BE HOT-DIP GALVANIZED ACCORDING TO ASTM M111, EXCEPT AS NOTED UNDER FABRICATOR NOTES.

Paul Kovacs
APPROVED ..... DATE 1-1-2010
CHIEF ENGINEER

DATE	REVISIONS
1-1-2009	REVISED NOTES
1-1-2010	ADDED DETAIL FOR GROUND LINE AND STUB POST
2-7-2012	ADDED STUB POST CLEARANCE DIMENSIONS, REVISED SIGN INSTALLATION CLEARANCE DIMENSIONS

Illinois Tollway
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BREAKAWAY SIGN SUPPORT DETAILS

STANDARD F9-03

FOUNDATION TABLE

POST	FOUNDATION			REINFORCEMENT							STUB POST		
	DIA.	MIN. DEPTH	CY.* CONC.	VERTICAL BARS NO.	VERTICAL BARS SIZE	VERTICAL BARS LGTH.	BAR SPIRALS SIZE	BAR SPIRALS O.D.	BAR SPIRALS LGTH.	LBS.**	STUB LGTH.	STUB PROJECTION	LBS.***
W6x9	2'-0"	6'-0"	.70	8	#5	5'-9"	#3	20½"	79'	78	2'-3"	3"	44
W6x15	2'-0"	6'-0"	.70	8	#5	5'-9"	#3	20½"	79'	78	2'-6"	3"	71
W8x18	2'-0"	6'-0"	.70	8	#5	5'-9"	#3	20½"	79'	78	2'-6"	3"	85
W10x22	2'-6"	6'-6"	1.18	8	#5	6'-3"	#3	26½"	105'	92	3'-0"	2½"	110
W10x26	2'-6"	7'-0"	1.27	8	#5	6'-9"	#3	26½"	112'	98	3'-0"	2½"	137
W12x26	2'-6"	7'-9"	1.41	8	#5	7'-6"	#3	26½"	119'	107	3'-0"	2½"	140
W14x30	3'-0"	7'-3"	1.90	8	#5	7'-0"	#3	32½"	145'	113	3'-0"	2½"	150
W14x38	3'-0"	8'-0"	2.09	8	#5	7'-9"	#3	32½"	153'	122	3'-6"	2½"	208
W16x45	3'-0"	8'-6"	2.23	8	#5	8'-3"	#3	32½"	162'	130	3'-6"	2½"	233

BASE CONNECTION DATA TABLE

BOLT SIZE AND TORQUE	A	B	C	D	E	T1	T2	W	R
⅝" Ø x 3¼" LG. TORQUE = 450" #	6"	2¼"	1¼"	3½"	1¼"	¾"	½"	¼"	11/32 "
¾" Ø x 3¾" LG. TORQUE = 750" #	6"	2½"	1⅜"	3¼"	1⅜"	1"	½"	5/16 "	13/32 "
⅞" Ø x 4" LG. TORQUE = 950" #	7"	2¾"	1½"	4"	1½"	1"	¾"	⅜"	15/32 "
1" Ø x 4½" LG. TORQUE = 1100" #	7½"	3"	1¾"	4"	1¾"	1¼"	¾"	⅜"	17/32 "

- QUANTITY OF IDOT CLASS DS CONCRETE CONSISTS OF ALL CONCRETE NECESSARY FOR ONE FOUNDATION. (CUBIC YARDS)

** THIS INCLUDES REINFORCEMENT BARS AND SPIRAL HOOPING REQUIRED FOR ONE FOUNDATION.

*** INCLUDES WEIGHT OF STUB POST WITH ANGLES, GUSSETS, BASE PLATES, BOLTS, NUTS, WASHERS, PLUS BASE PLATES AND GUSSETS ON MAIN POST, PLUS FUSE PLATE (IF ANY) WITH BOLTS, NUTS AND WASHERS. (ONE POST)

EQUIVALENT TORQUE VALUES

450" # = 37.5' #
750" # = 62.5' #
950" # = 79.2' #
1100" # = 91.7' #

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. ASSEMBLE POST TO STUB WITH H.S. BOLTS AND ONE OF THE THREE FLAT WASHERS ON EACH BOLT BETWEEN PLATES AS SHOWN.
2. SHIMS MAY BE USED BETWEEN PLATES TO LEVEL POST.
3. TIGHTEN BOLTS IN BASE PLATE IN A SYSTEMATIC ORDER TO THE REQUIRED TORQUE.
4. LOOSEN EACH BOLT AND RETIGHTEN TO THE REQUIRED TORQUE IN SAME ORDER AS INITIAL TIGHTENING.
5. BURR OR CENTER PUNCH THREADS AT JUNCTURE OF BOLT AND NUT TO PREVENT NUT FROM LOOSENING.

FUSE PLATE BOLT SIZE TABLE

POST	FUSE PLATE DATA TABLE J	K	L	T3	SIGN DEPTH 4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
W6x9	4"	2¼"	⅞"	¼"	½"Øx1½"	½"Øx1½"	½"Øx1½"	⅝"Øx1¾"	⅝"Øx1¾"	⅝"Øx1¾"	---	---	---	---	---
W6x15	6"	3½"	1¼"	⅜"	½"Øx1¾"	½"Øx1¾"	⅝"Øx2"	⅝"Øx2"	¾"Øx2"	¾"Øx2"	¾"Øx2"	¾"Øx2"	⅞"Øx2"	⅞"Øx2"	---
W8x18	5¼"	2¾"	1¼"	⅜"	½"Øx1¾"	½"Øx1¾"	½"Øx1¾"	⅝"Øx2"	⅝"Øx2"	¾"Øx2"	¾"Øx2"	⅞"Øx2¼"	⅞"Øx2¼"	⅞"Øx2¼"	⅞"Øx2¼"
W10x22	5¾"	2¾"	1½"	½"	½"Øx2"	½"Øx2"	½"Øx2"	⅝"Øx2"	⅝"Øx2"	¾"Øx2¼"	¾"Øx2¼"	⅞"Øx2¼"	¾"Øx2¼"	⅞"Øx2½"	1"Øx2½"
W10x26	5¾"	2¾"	1½"	⅝"	½"Øx2"	½"Øx2"	½"Øx2"	⅝"Øx2¼"	⅝"Øx2¼"	¾"Øx2½"	¾"Øx2½"	⅞"Øx2½"	⅞"Øx2½"	1"Øx2¾"	1"Øx2¾"
W12x26	6½"	3½"	1½"	⅝"	---	---	---	---	---	⅝"Øx 2¼"	---	---	⅞"Øx2½"	⅞"Øx2½"	1"Øx2½"
W14x30	6¾"	3½"	1⅝"	½"	½"Øx2"	½"Øx2"	½"Øx2"	½"Øx2"	½"Øx2"	⅝"Øx2"	⅝"Øx2¼"	¾"Øx2¼"	¾"Øx2¼"	⅞"Øx2½"	1"Øx2½"
W14x38	6¾"	3½"	1⅝"	½"	---	½"Øx2"	½"Øx2"	½"Øx2"	½"Øx2"	⅝"Øx2¼"	⅝"Øx2¼"	¾"Øx2½"	¾"Øx2½"	⅞"Øx2½"	⅞"Øx2½"
W16x45	7"	3½"	1¾"	½"	---	---	---	½"Øx2"	½"Øx2"	⅝"Øx2¼"	⅝"Øx2¼"	⅝"Øx2¼"	¾"Øx2½"	¾"Øx2½"	⅞"Øx2½"

POST	FUSE PLATE DATA TABLE J	K	L	T3	SIGN DEPTH 15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	---
W6x9	4"	2¼"	⅞"	¼"	---	---	---	---	---	---	---	---	---	---	---
W6x15	6"	3½"	1¼"	⅜"	---	---	---	---	---	---	---	---	---	---	---
W8x18	5¼"	2¾"	1¼"	⅜"	⅞"Øx2¼"	⅞"Øx2¼"	---	---	---	---	---	---	---	---	---
W10x22	5¾"	2¾"	1½"	½"	1"Øx2¾"	1"Øx2¾"	1"Øx2¾"	1"Øx2¾"	1"Øx2¾"	1"Øx2¾"	---	---	---	---	---
W10x26	5¾"	2¾"	1½"	⅝"	1"Øx2¾"	1⅛"Øx3"	1⅛"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	---
W12x26	6½"	3½"	1½"	⅝"	1"Øx2¾"	1"Øx2¾"	1⅛"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	---
W14x30	6¾"	3½"	1⅝"	½"	1"Øx2¾"	1"Øx2¾"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	---
W14x38	6¾"	3½"	1⅝"	½"	1"Øx2½"	1"Øx2¾"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	---
W16x45	7"	3½"	1¾"	½"	⅞"Øx2½"	1"Øx2¾"	1"Øx2¾"	1⅛"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	1¼"Øx3"	---

PROCEDURE FOR FUSE PLATE BOLT TIGHTENING:

ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP AS APPROVED BY THE ENGINEER ACCORDING TO ONE OF THE FOLLOWING METHODS:

1. TURN-OF-NUT TIGHTENING,
2. TIGHTENING BY USE OF A DIRECT TENSION INDICATOR.

THE ABOVE METHODS OF INSTALLATION AND TIGHTENING SHALL CONFORM TO THE LATEST ISSUE OF THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A-325 OR A-490 BOLTS, FOR SLIP-CRITICAL CONNECTIONS AS ISSUED BY THE RESEARCH COUNCIL ON RIVETED AND BOLTED STRUCTURAL JOINTS OF THE ENGINEERING FOUNDATION.

TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN THE FOLLOWING MINIMUM RESIDUAL TENSION IN EACH BOLT.

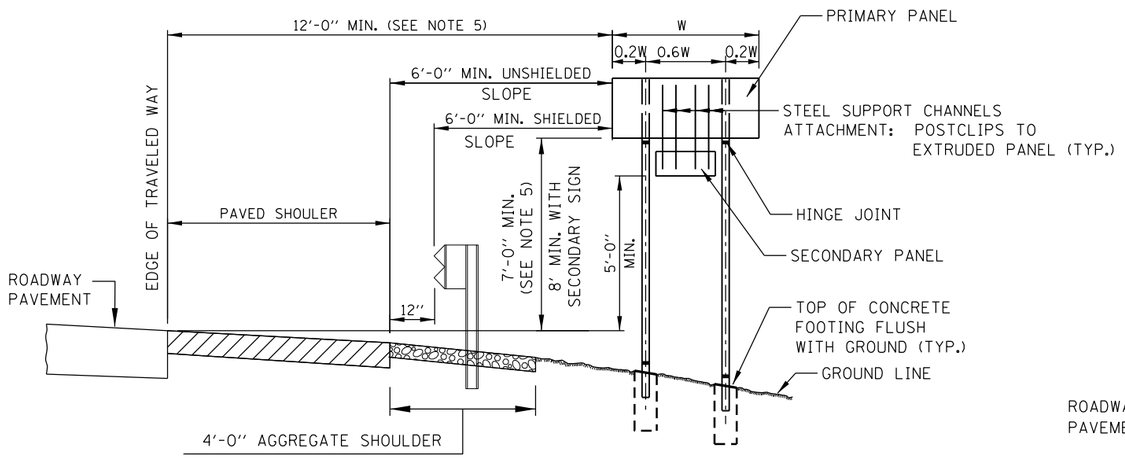
BOLT DIA.	MIN. RESIDUAL BOLT TENSION	BOLT DIA.	MIN. RESIDUAL BOLT TENSION	BOLT DIA.	MIN. RESIDUAL BOLT TENSION
½"	12,050	⅞"	39,250	1¼"	71,700
⅝"	19,200	1"	51,500		
¾"	28,400	1⅛"	56,450		

Paul Kovacs
APPROVED ..... DATE 1-1-2010
CHIEF ENGINEER

Illinois Tollway
Open Roads for a Faster Future

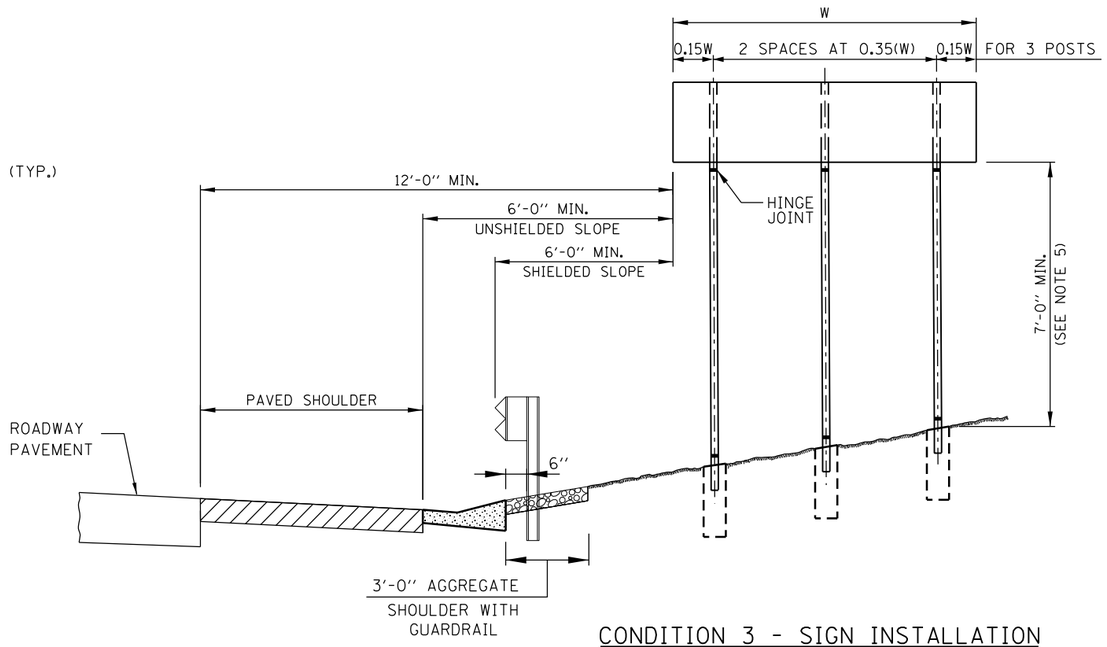
BREAKAWAY SIGN SUPPORT DETAILS

STANDARD F9-03



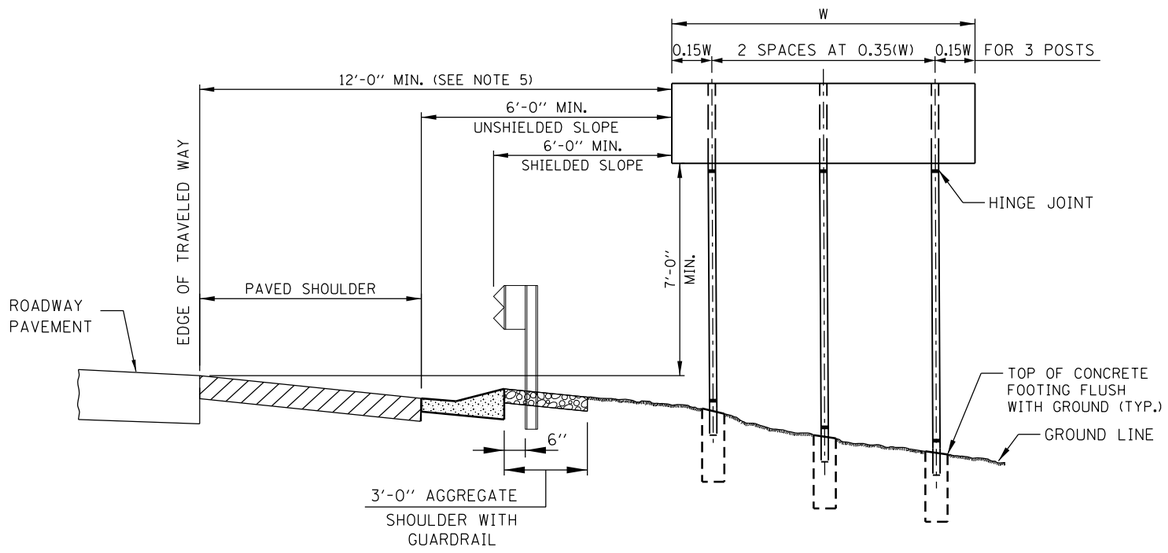
CONDITION 1 - SIGN INSTALLATION

1a.) WITHOUT GUTTER - UNSHIELDED SLOPE
1b.) WITHOUT GUTTER - SHIELDED SLOPE



CONDITION 3 - SIGN INSTALLATION

3a.) WITH GUTTER - UNSHIELDED SLOPE
3b.) WITH GUTTER - SHIELDED SLOPE



CONDITION 2 - SIGN INSTALLATION

2a.) WITH GUTTER - UNSHIELDED SLOPE
2b.) WITH GUTTER - SHIELDED SLOPE

NOTES:

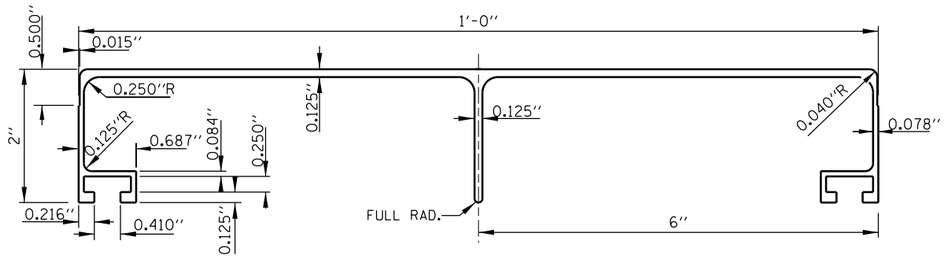
1. SEE SIGN INSTALLATION SCHEDULE IN CONTRACT PLANS FOR DIMENSIONS.
2. THE DIMENSIONS OF ALL POSTS FOR GROUND MOUNTED SIGNS ARE BASED ON DESIGN CROSS SECTIONS. THE CONTRACTOR SHALL VERIFY REQUIRED POST LENGTHS IN THE FIELD, PRIOR TO SUBMITTING SHOP DRAWINGS AND POST FABRICATION TO MAINTAIN THE CLEARANCES SHOWN.
3. SIGN FOUNDATION ELEVATIONS TO BE BASED ON FINISHED SLOPES.
4. ANY ADDITIONAL SIGN TO BE ADDED LATER MUST BE SUPPORTED BY THE EXISTING SIGN PANEL AND NOT THE SIGN POST. MINIMUM CLEARANCES SHALL BE MAINTAINED.
5. SIGNS THAT ARE PLACED WELL OUTSIDE THE CLEAR ZONE MAY BE INSTALLED WITH A MINIMUM HEIGHT OF 5 FEET, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE HORIZONTAL ELEVATION OF THE NEAR EDGE OF TRAVELED ROADWAY.
6. MINIMUM HEIGHT OF LOWEST POST SHALL BE 7'-0'' MEASURED BETWEEN STUB PROJECTION AND HINGE JOINT.
7. FOR TWO POSTS SPACED LESS THAN 7 FEET APART, EACH POST SHALL HAVE A MASS LESS THAN 18 lb/ft.
8. WHEN THE TOTAL COMBINED WEIGHT WEIGHT OF THE TWO POSTS LOCATED WITHIN 7 FEET OF EACH OTHER EXCEEDS 600 lbs., THE SIGN SHALL BE PLACED WELL OUTSIDE THE CLEAR ZONE OR BE SHIELDED FROM VEHICULAR IMPACT.

Paul Kovacs
APPROVED ..... DATE 1-1-2010
CHIEF ENGINEER

Illinois Tollway
Open Roads for a Faster Future

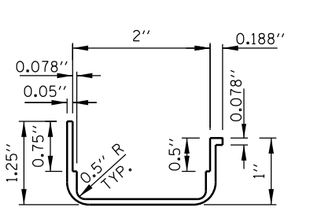
BREAKAWAY SIGN SUPPORT DETAILS

STANDARD F9-03

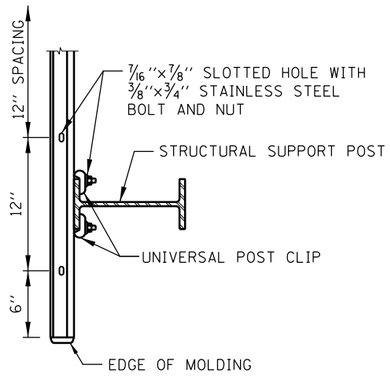


12'' PANEL

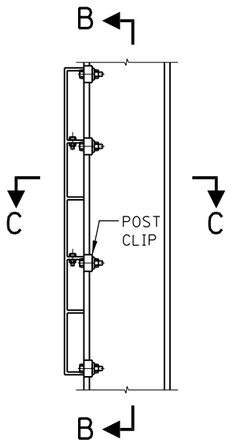
TYPE B SIGN PANEL EXTRUSIONS



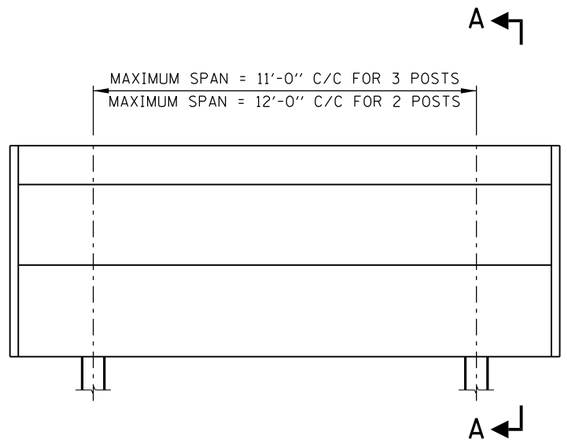
EDGE MOLDING SECTION FOR SIGN PANEL



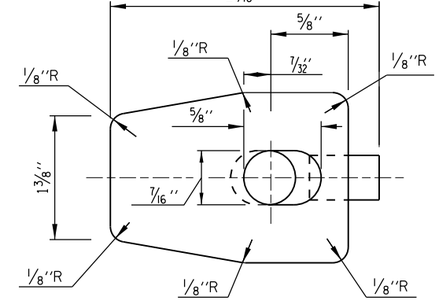
SECTION C-C



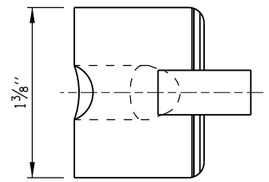
SECTION A-A



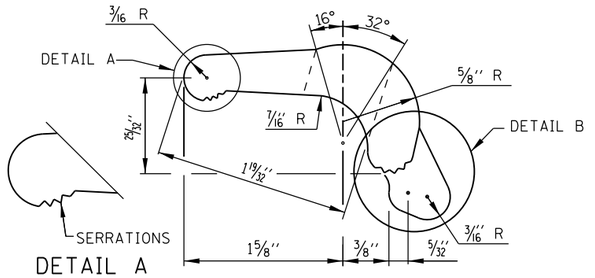
FACE OF SIGN PANEL



PLAN VIEW

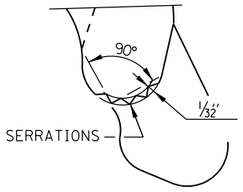


END VIEW



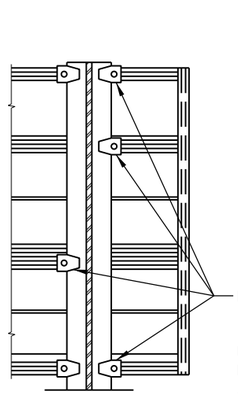
ELEVATION VIEW

DETAIL A
(ENLARGED VIEW OF SERRATIONS)



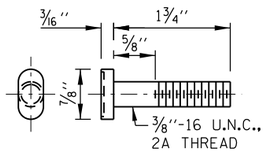
DETAIL B
(ENLARGED DETAIL OF SERRATIONS)

ALUMINUM CLIP DETAIL



PROVIDE TWO (2) POST CLIPS AT TOP AND BOTTOM. ALTERNATE INTERIOR POST CLIPS ON SIGNS UNDER 24 FEET LONG AND OVER HEAD MOUNTED SIGNS. DO NOT ALTERNATE INTERIOR CLIPS ON OTHER SIGNS.

SECTION B-B



POST CLIP BOLT STAINLESS STEEL

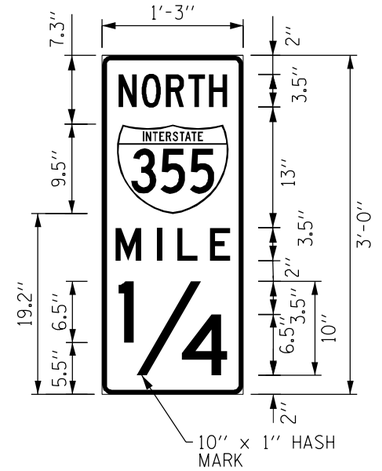
Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 2-7-2012

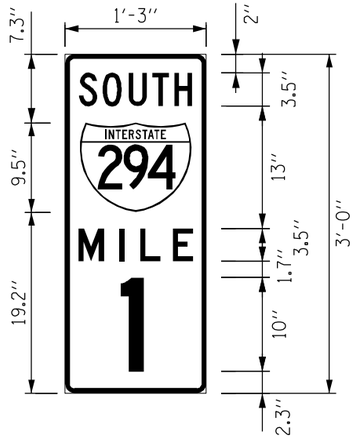
Illinois Tollway
Open Roads for a Faster Future

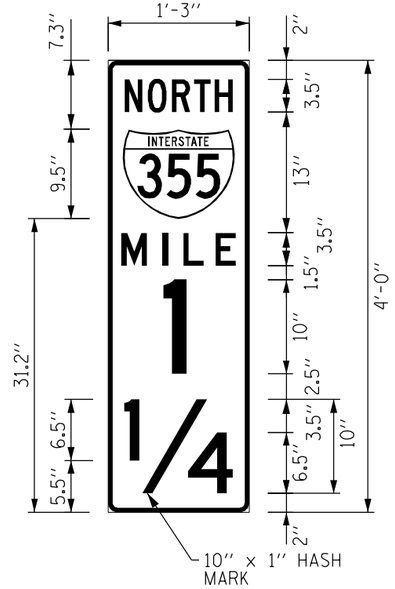
DATE	REVISIONS
1-1-2009	MODIFIED TYPE B SIGN PANEL DIM.
	MODIFIED POST CLIP DETAIL
2-7-2012	REMOVED DETAIL FOR MOUNTING 2 PANEL SIGN

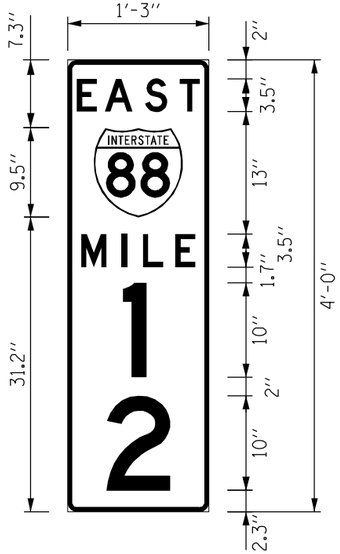
MISCELLANEOUS DETAILS AND ALUMINUM SIGN PANELS

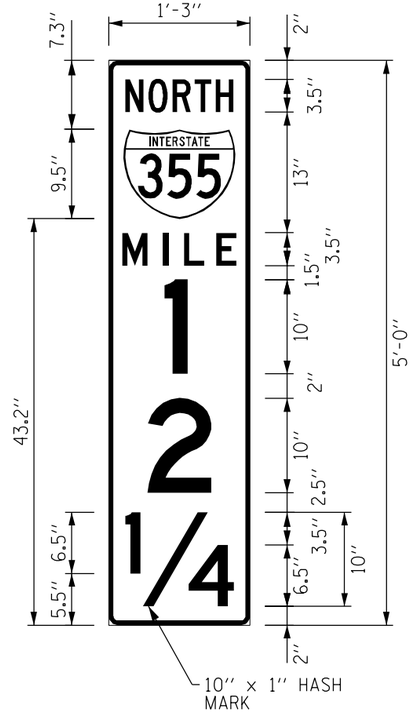
STANDARD F10-02

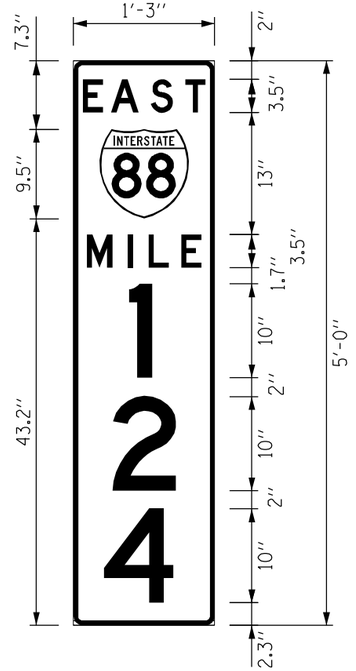


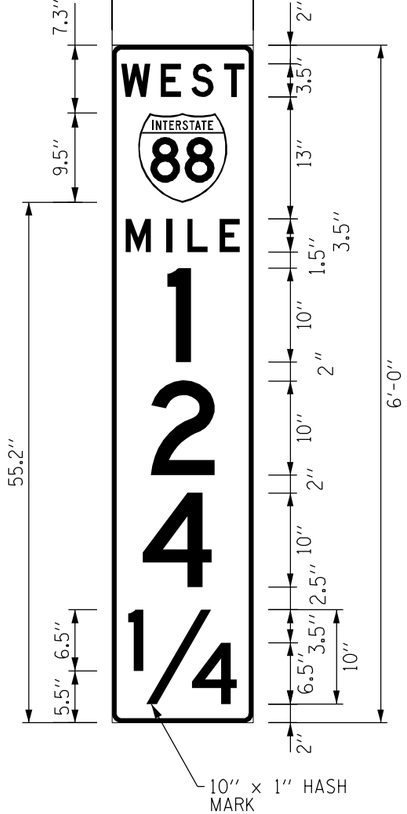












GENERAL NOTES:

1. 1" TYPICAL RADIUS FOR SIGN BORDER.
2. CLEARVIEW 5 (CV5) SHALL BE USED FOR THE WORD "MILE" AND NUMBERS BELOW "MILE".
3. HWY D, WITH REDUCED LETTER SPACING, SHALL BE USED FOR THE WORD "NORTH", "SOUTH", "EAST" AND "WEST".
4. BORDER SHALL BE WHITE AND ½" WIDE AND LOCATED ½" FROM THE EDGE OF SIGN.
5. SIGN SHALL BE WHITE LETTERS ON A GREEN BACKGROUND EXCEPT FOR INTERSTATE SHIELD WHICH SHALL HAVE A RED (TOP) AND BLUE (BOTTOM) BACKGROUND.
6. DG3 SHEETING SHALL BE USED.

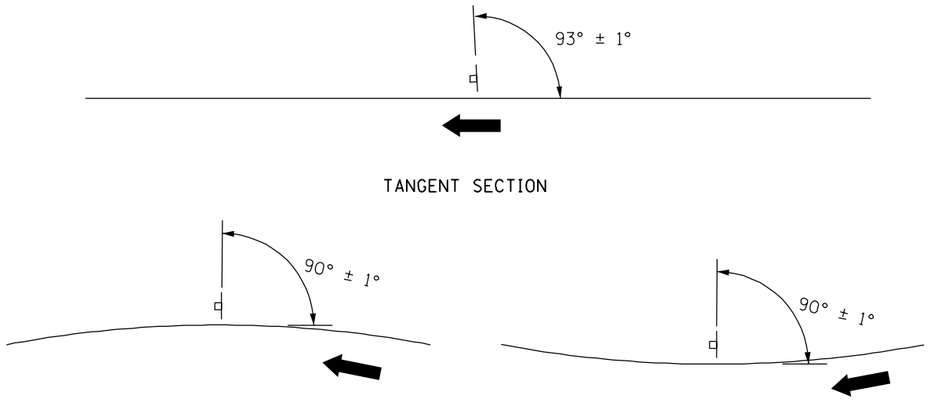
APPROVED Paul Kovacs CHIEF ENGINEER DATE 4-6-2009

Illinois Tollway
Open Roads for a Faster Future

DATE	REVISIONS
5-8-2009	POSITIONING DETAILS
8-1-2009	REVISED BARRIER WALL MOUNT

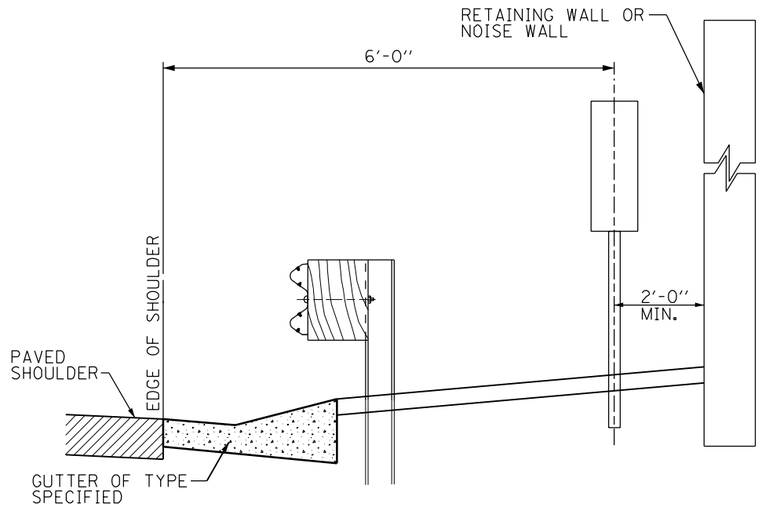
MILEPOST MARKER

STANDARD F11-02



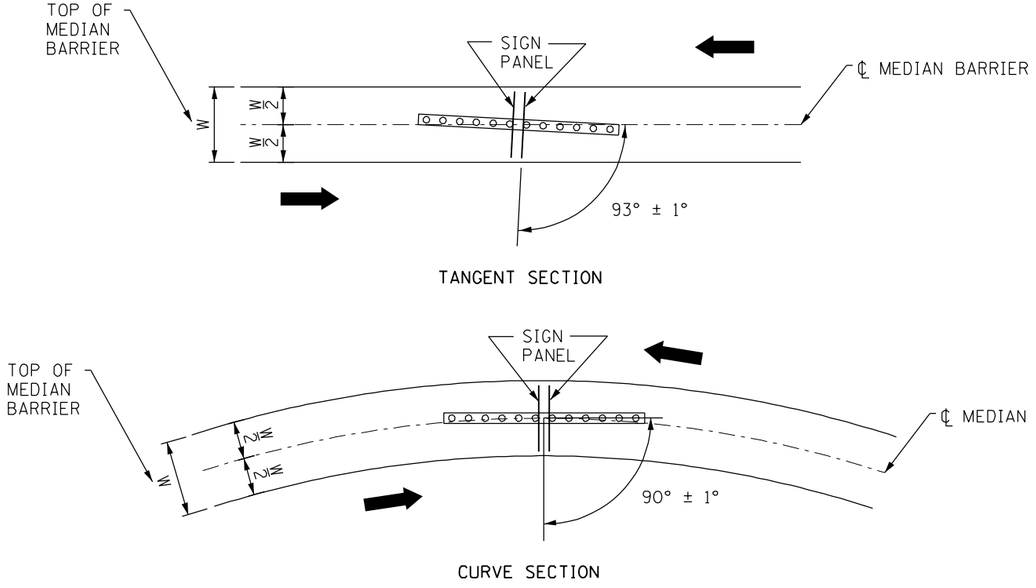
GROUND MOUNT SIGN POSITIONING

NOT TO SCALE



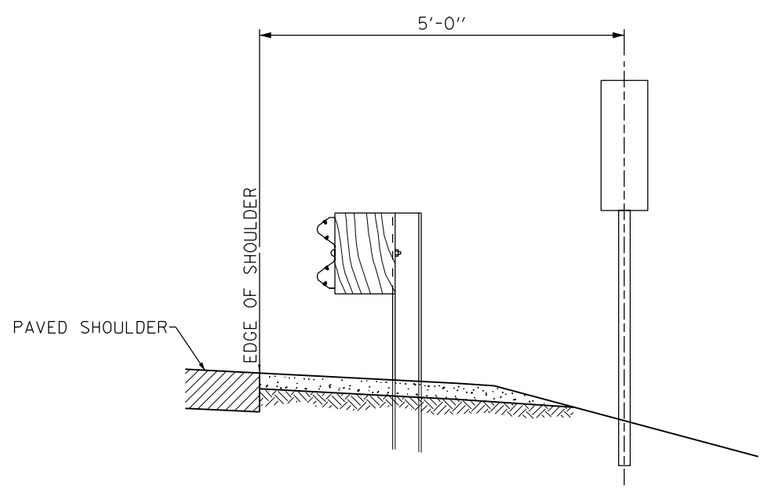
SECTION WITH GUTTER

NOT TO SCALE



MEDIAN BARRIER SIGN POSITIONING

NOT TO SCALE



SECTION WITHOUT GUTTER

NOT TO SCALE

DIRECTION OF TRAFFIC

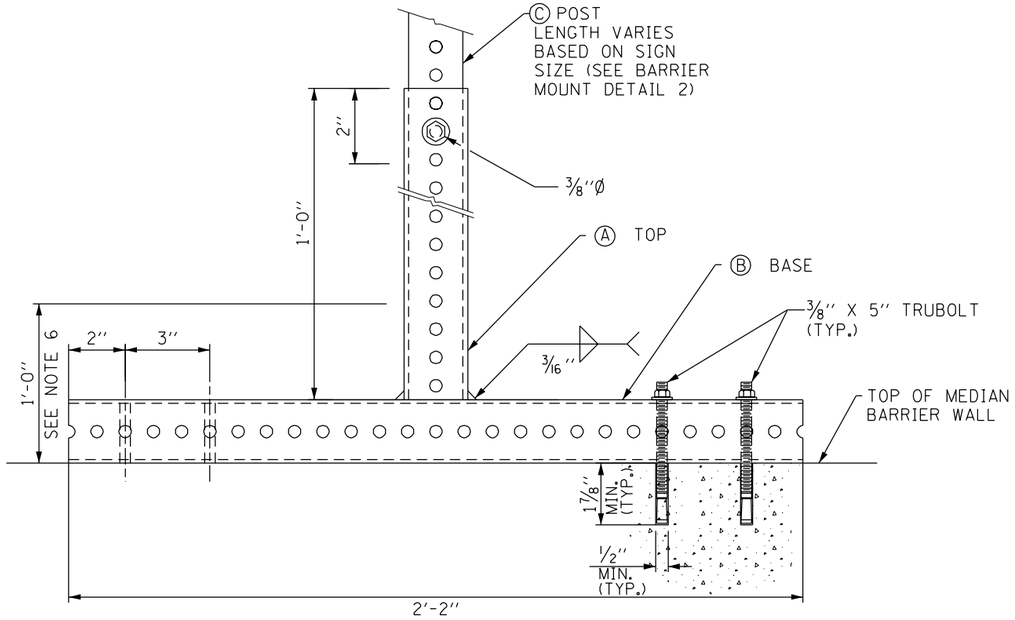
SHEET 2 OF 3

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 4-6-2009

Illinois Tollway
Open Roads for a Faster Future

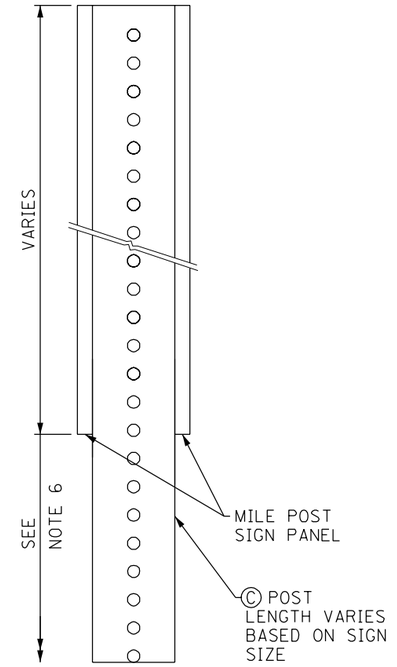
MILEPOST MARKER

STANDARD F11-02



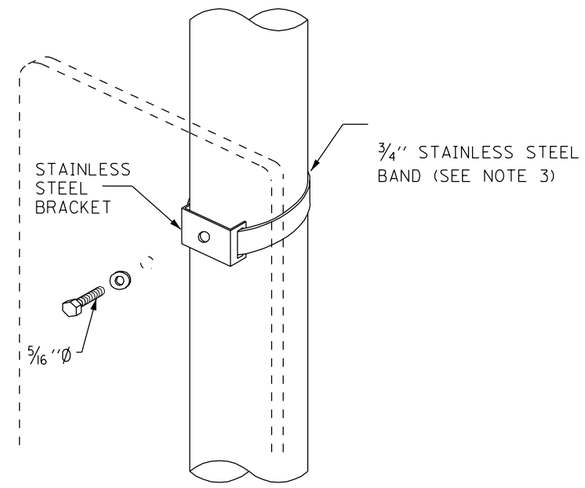
BARRIER WALL MOUNT DETAIL

NOT TO SCALE



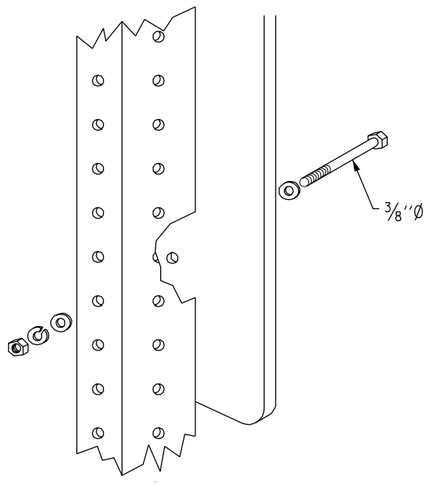
BARRIER WALL MOUNT DETAIL 2

NOT TO SCALE



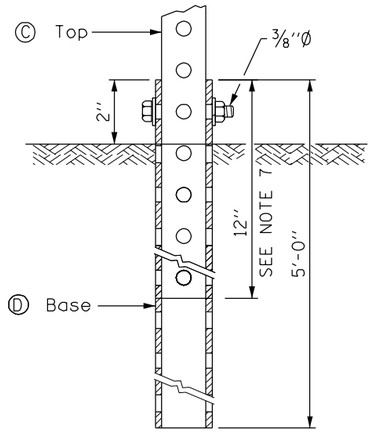
LIGHT POLE/SIGN STRUCTURE
MOUNT DETAIL

NOT TO SCALE



TELESCOPING STEEL POSTS

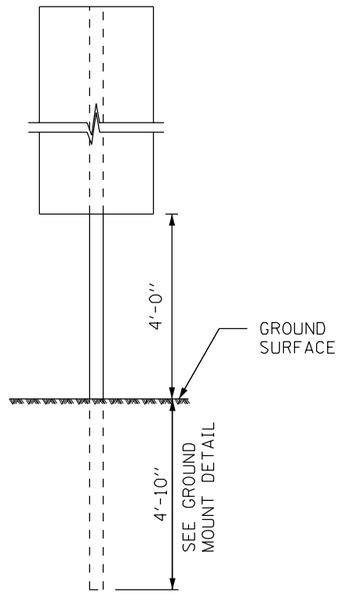
NOT TO SCALE



GROUND MOUNT DETAIL

NOT TO SCALE

Ⓐ	2 1/4'' × 2 1/4'' × 1'-0'' (12 GA.)
Ⓑ	2 1/4'' × 2 1/4'' × 2'-2'' (12 GA.)
Ⓒ	2'' × 2'' × VARIES (12 GA.)
Ⓓ	2 1/2'' × 2 1/2'' × 5'-0'' (12 GA.)



ONE POST INSTALLATION

NOT TO SCALE

GENERAL NOTES:

1. ALL ANCHOR BOLTS FOR MEDIAN BARRIER MOUNT DETAIL SHALL BE 3/8'' DIA. RED HEAD "TRUBOLT" OR APPROVED EQUAL.
2. ALL DIMENSIONS ARE IN INCHES UNLESS SHOWN OTHERWISE.
3. FOLLOWING ARE THE STEPS FOR FASTENING THE MILEPOST MARKER SIGN PANEL. ALL MOUNTING DETAILS SHOWN ON THIS SHEET APPLY:
   a. CENTER ALL FASTENERS ON THE SIGN PANEL.
   b. START AND FINISH THE FASTERNER SPACING USING A MINIMUM OF 3'' TO A MAXIMUM OF 6'' FROM THE TOP AND BOTTOM EDGE OF THE SIGN PANEL.
   c. THE DISTANCE BETWEEN SUCCESSIVE FASTENERS SHALL NOT EXCEED 2'-0''.
4. CENTER THE 5/16'' DIA. BOLT IN THE MIDDLE OF THE SIGN.
5. USE THE SAME ATTACHMENT FOR BACK TO BACK MILEPOST MARKER SIGN.
6. DISTANCE FROM THE GROUND TO THE BOTTOM OF THE MILEPOST MARKER SIGN SHALL HAVE A MINIMUM OF 4'-0'' REGARDLESS OF BARRIER TYPE.
7. THE TOP SECTION SHALL BE TELESCOPED INTO THE BASE SECTION 12 INCHES AND FASTENED TOGETHER.
8. ALL BOLTS SHALL BE GALVANIZED, A325 GRADE UNLESS OTHERWISE NOTED.
9. FOR ATTACHMENT TO BRIDGE PARAPET USE BARRIER MOUNT WALL DETAIL. ONLY ONE PANEL REQUIRED WHEN ATTACHED TO PARAPET ALONG OUTSIDE SHOULDER.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 4-6-2009

Illinois Tollway
Open Roads for a Faster Future

MILEPOST MARKER

STANDARD F11-02