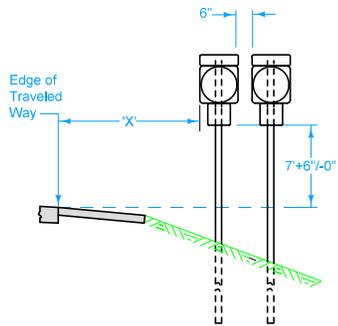


Signs

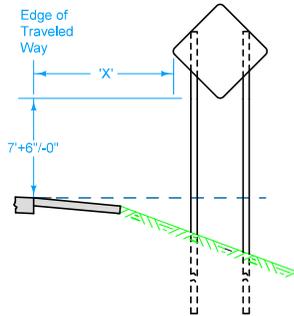
SI

Signs

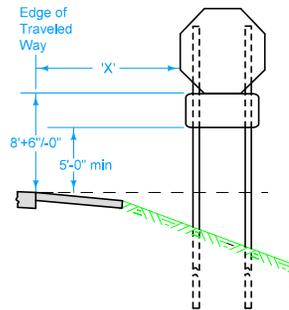
NO.	DATE	TITLE
SI-101	04-19-16	Locations - Type 'A' Signs
SI-102	04-19-16	Locations - Type 'B' Signs
SI-111	04-19-16	Support Structures - Wood Posts
SI-112	04-19-16	Footings For Steel Breakaway Posts
SI-113	04-19-16	Support Structures - Steel Breakaway Posts
SI-114	04-19-16	Support Structures - Steel Breakaway Posts Rectangular Tube
SI-119	04-19-16	Support Structures - Mounting Brackets
SI-121	04-19-16	Fabrication - Sign Legend Components
SI-123	04-19-16	Fabrication - Type 'B' Signs
SI-131	10-18-16	Installation - Type 'A' Signs
SI-132	10-18-16	Installation - Type 'B' Signs
SI-171	04-18-17	Reference Location Sign Posts
SI-172	04-19-16	Delineators
SI-173	04-19-16	Object Markers
SI-175	04-19-16	Chevrons
SI-181	10-18-16	Permanent Road Closure - Rural
SI-182	04-19-16	Permanent Road Closure - Urban
SI-211	10-18-16	Object Marker and Delineator Placement with Guardrail
SI-241	10-18-16	Sign Placement Approaching a Railroad Crossing
SI-881	10-18-16	Special Signs for Workzones
SI-882	10-18-16	Special Signs for Restricted Width Traffic Control Zones



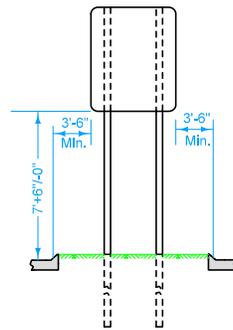
FRONT VIEW
ROUTE DIRECTION MARKER



FRONT VIEW
SIGN
TYPE 1 INSTALLATION



FRONT VIEW
SIGN WITH
ADVISORY PLATE



FRONT VIEW
SIGN LOCATION
Type 3 Installation

Type 3 installation is intended to show the requirements for a Type 'A' sign when installed in an island or median (where traffic passes on both sides of the sign) as well as for locations where the Type 'A' sign is installed adjacent to a curbed roadway (sign may be located on either side of a roadway as specified in project plans).

Final sign location will be at the discretion of the Engineer.

Use the Type 1 installation in any case except where:
 (A) Specified otherwise in the plans.
 (B) Directed otherwise by the Engineer.
 (C) A Type 3 installation is required due to location in an island or gore area.

Possible Contract Items:

- Remove and Reinstall Sign as per plan
- Wood Posts for Type A or B signs, 4in x 6in
- Perforated Square Steel tube Post (Anchor Series)
- Type A Signs, Sheet Aluminum
- Install Type A Sign

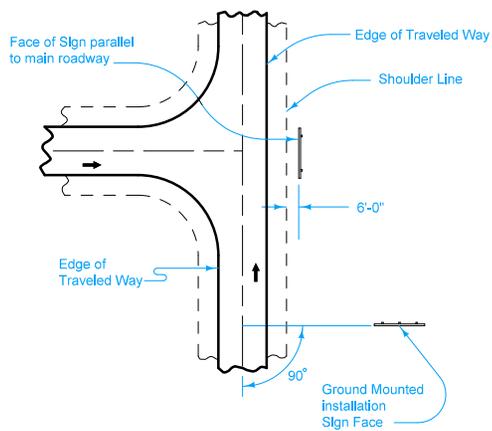
Possible Tabulations:

- 190-51
- 190-61
- 190-62
- 190-66

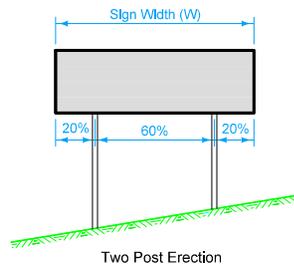
IOWA DOT	REVISION	
	1	04-19-16
	SI-101	
STANDARD ROAD PLAN		
SHEET 1 of 1		
REVISIONS: Changed Lane Edge Line to 'Edge of Traveled Way', Replaced 'Y' with numerical value including tolerance, Removed advisory sign from middle view.		

Brian Smith
 APPROVED BY DESIGN METHODS ENGINEER

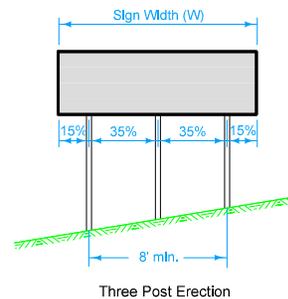
**LOCATIONS-
TYPE 'A' SIGNS**



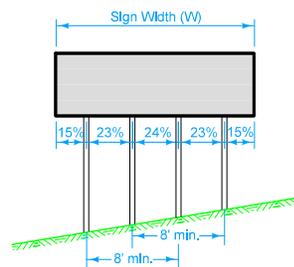
SIGN ORIENTATION PLAN



Two Post Erection



Three Post Erection



Four Post Erection
POST POSITION DETAIL

Modification of plan requirements will be permitted only as physical conditions require and are subject to the following limitations:

Provide breakaway sign posts that are a minimum length of 7'-4" plus the height of the sign, unless noted otherwise in the tabulations.

Obtain the Engineer's approval for spacing between signs less than 800 feet.

Set all signs level.

Do not modify sign location without approval of the Engineer.

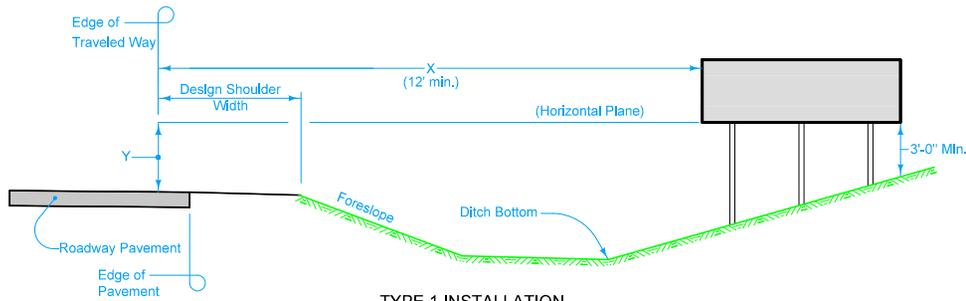
Possible Contract Items:

- Install Type B Sign
- Perforated Square Steel Tube Posts
- Perforated Square Steel Tube Post Anchor (series)
- Remove and Reinstall Signs as Per Plan
- Type B Signs
- Wood Posts for Type A or B Signs, 4 in. x 6 in.
- Steel Breakaway Sign Post for Type A or B Signs
- Concrete Footing for Breakaway Sign Post

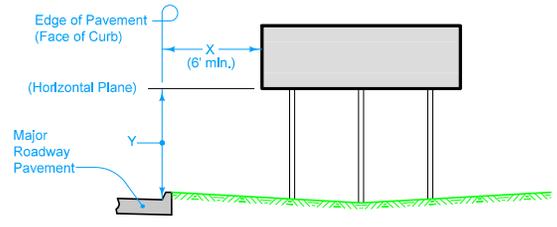
Possible Tabulations:

- 190-50
- 190-61

 STANDARD ROAD PLAN	REVISION
	2 04-19-16
	SI-102
SHEET 1 of 2	
REVISIONS: Changed 'Lane Edge Line' to 'Edge of Traveled Way', modified notes and added Possible Contract Items and Tabs. Added FOUR POST DETAIL.	
 APPROVED BY DESIGN METHODS ENGINEER	
LOCATIONS - TYPE 'B' SIGNS	

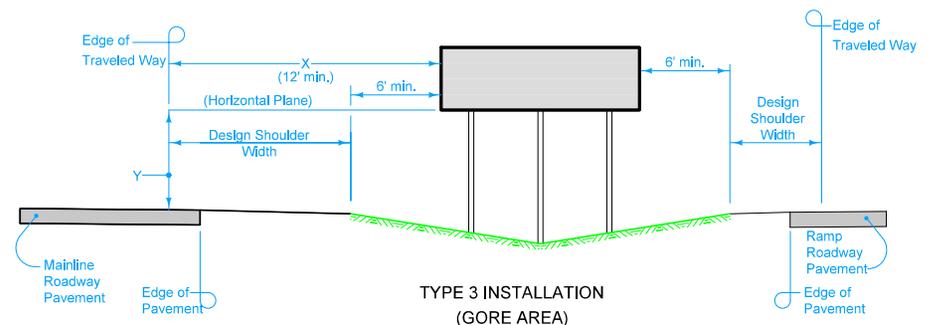


**TYPE 1 INSTALLATION
(OFFSET)**



**TYPE 2 INSTALLATION
(CURBED SECTION)**

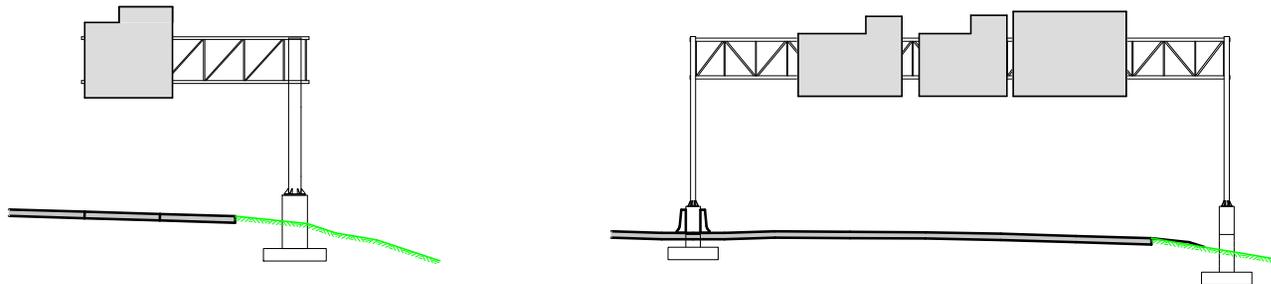
Details indicated are for an installation adjacent to a curbed roadway. The sign may be located on either side of the roadway, or in a gore area where curbed roadways pass on both sides, such as an urban freeway exit ramp. When located in a gore area, install where the width between curbs is no less than 12 feet plus sign width.



**TYPE 3 INSTALLATION
(GORE AREA)**

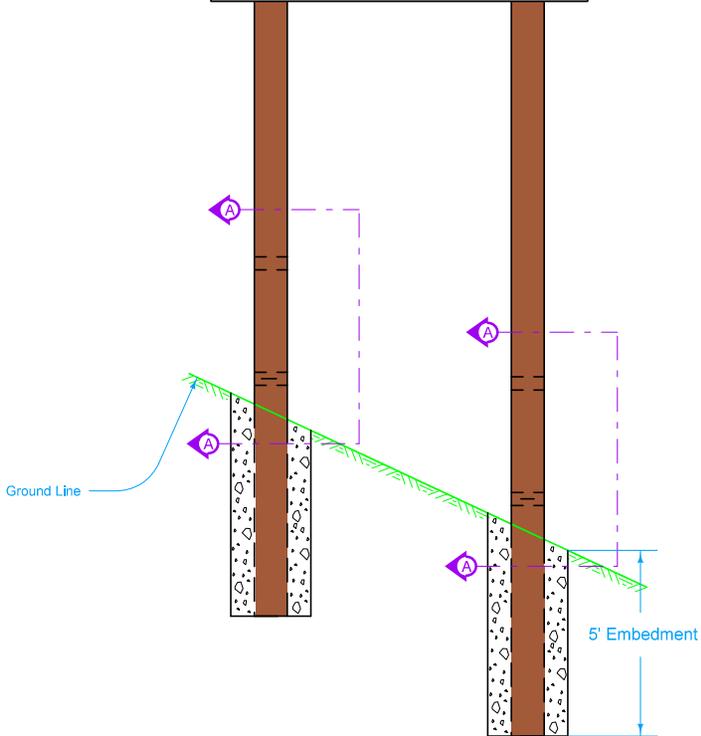
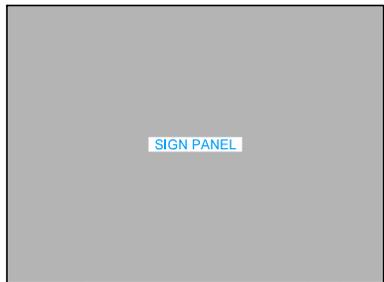
Details indicated are for an installation in a gore area where traffic on non-curbed roadways passes on both sides of the sign, such as the exit ramp for a rural type interchange.

① Refer to the Office of Bridges and Structures' Sign Truss Standards as detailed in the contract documents. Cantilevers are special designs detailed elsewhere in the contract documents.

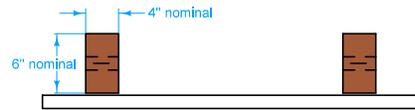


**TYPE 4 INSTALLATION ①
(OVERHEAD SUPPORT STRUCTURES)**

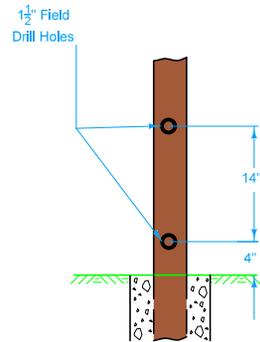
 STANDARD ROAD PLAN	REVISION
	2 04-19-16
	SI-102
SHEET 2 of 2	
<small>REVISIONS: Changed 'Lane Edge Line' to 'Edge of Traveled Way', modified notes and added Possible Contract Items and Tabs. Added FOUR POST DETAIL.</small>	
<small>APPROVED BY DESIGN METHODS ENGINEER</small> <i>Brian Smith</i>	
LOCATIONS - TYPE 'B' SIGNS	



FRONT VIEW



Top View

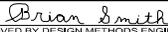


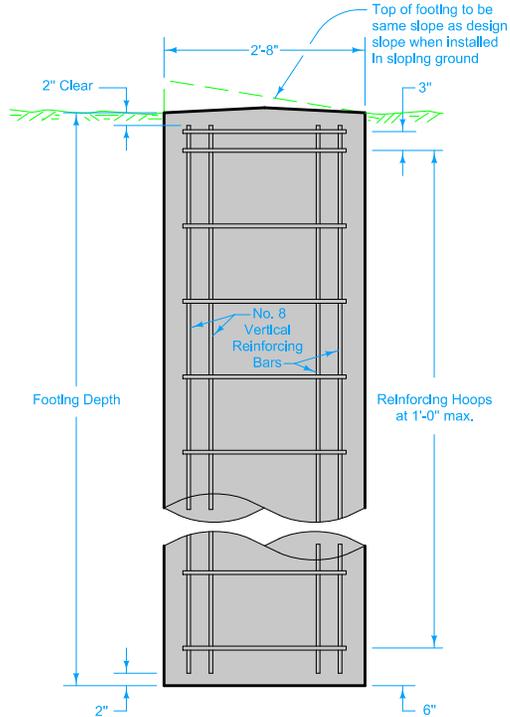
Section A-A

Possible Contract Item:
Wood Posts for Type A or Type B Signs, 4 in. x 6 in.

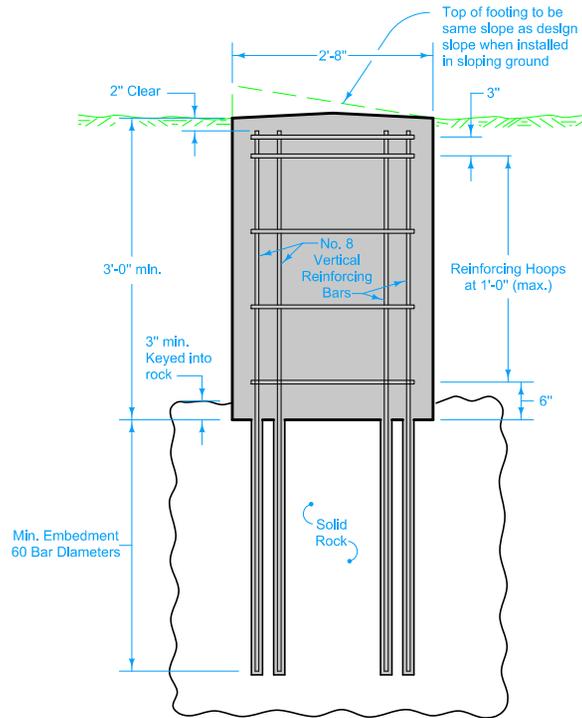
Possible Tabulations:

190-50
190-51

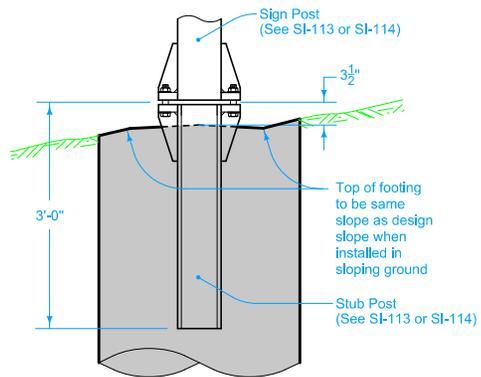
 STANDARD ROAD PLAN	REVISION 2 04-19-16	
	SI-111 SHEET 1 of 1	
<small>REVISIONS: Added "nominal" to wood post dimensions. Labeled 5' depth of post embedment. Added possible tabulations and replaced DOT logo in title block.</small>		
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
SUPPORT STRUCTURES - WOOD POSTS		



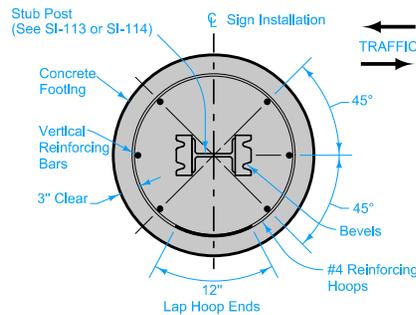
**INSTALLATION
NORMAL FOOTING IN EARTH**



**ALTERNATE DESIGN
FOOTING IN SOLID ROCK** ③



BREAKAWAY POST INSTALLATION



PLAN
(Reinforcing Placement and Sign Orientation)

Construct the footing as shown for normal footing in earth. Where solid rock is encountered, the alternate design for footing in solid rock may be used with the approval of the Engineer.

Dispose of all excavation for the footing in the area adjacent to the footing and shape to normal ground contour, unless directed otherwise by the Engineer.

Hold the stub post in proper position by an approved device to ensure that it remains in proper position upon completion of concrete placement.

The contract price for size of footing required is full compensation for footing as detailed hereon, including all necessary excavation. Excavation in Unexpected Rock will be paid for according to Article 2524.05, I, of the Standard Specifications.

- ① Lengths are for normal footings. Required length may vary where alternate rock design is used.
- ② Refer to the contract documents for post size.
- ③ Set vertical bars in solid rock as follows:
 1. Drill holes twice bar diameter and fill with water.
 2. When hole is fully saturated, blow water out and fill two-thirds depth with sand cement mortar.
 3. Insert bar and consolidate mortar.
 4. Fill hole to top with mortar.

Possible Contract Item:
Concrete Footing for Breakaway Sign Post

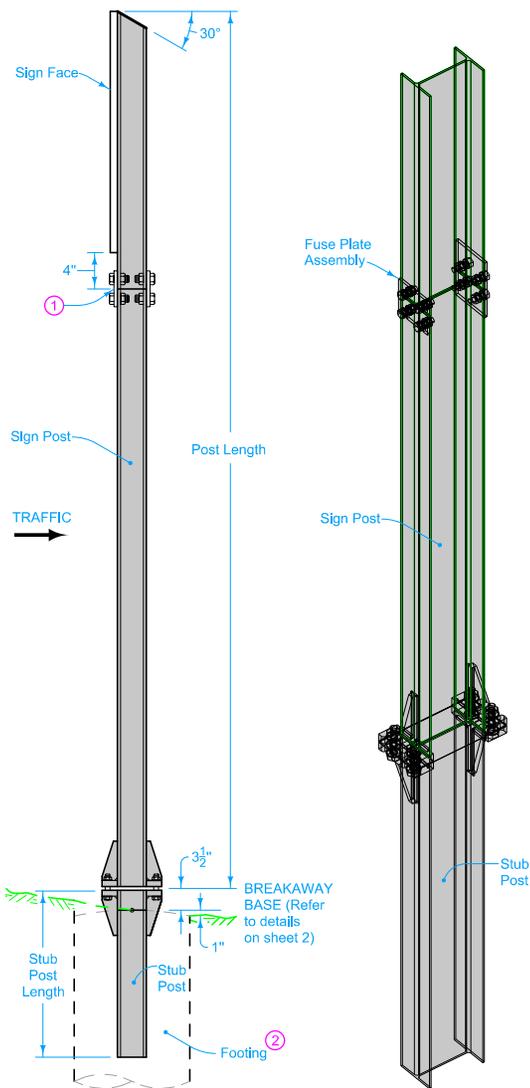
FOOTING REINFORCING DATA			
Standard	Post Size	Footing Depth	Vertical Rein. Bar Length ①
SI-113 ②	W6x12	6'-0"	5'-8"
	W8x21	7'-6"	7'-2"
SI-114	W12x26	9'-0"	8'-8"
	4"x6"	7'-6"	7'-2"

IOWA DOT	REVISION	
	New	4-19-16
STANDARD ROAD PLAN		SI-112
		SHEET 1 of 1

REVISIONS: New, Combined footing information previously shown on SI-113 and SI-114. Added Reference to 2540.05, I in notes.

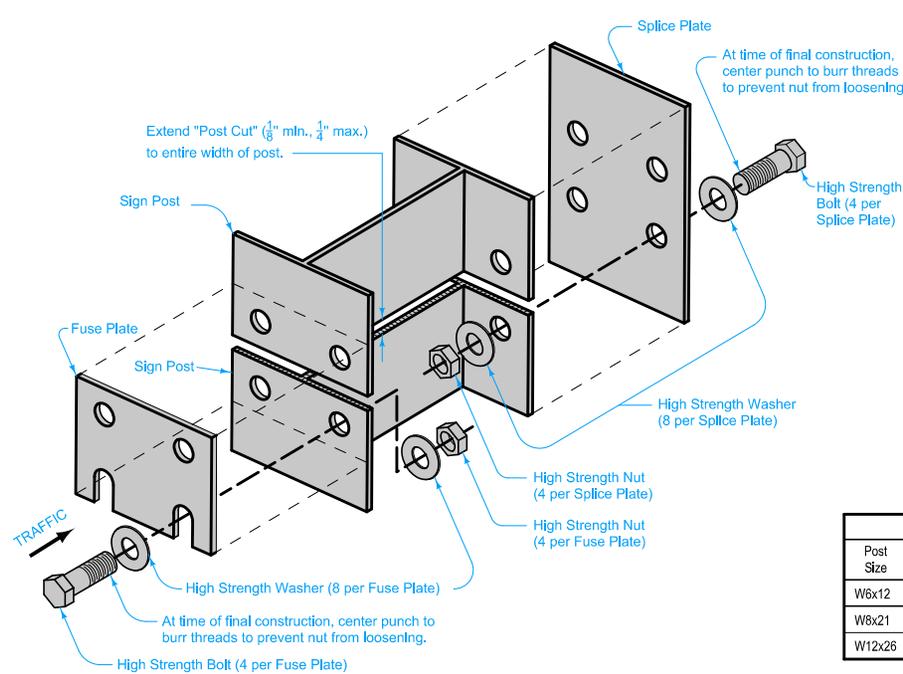
Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

**FOOTINGS FOR STEEL
BREAKAWAY POSTS**

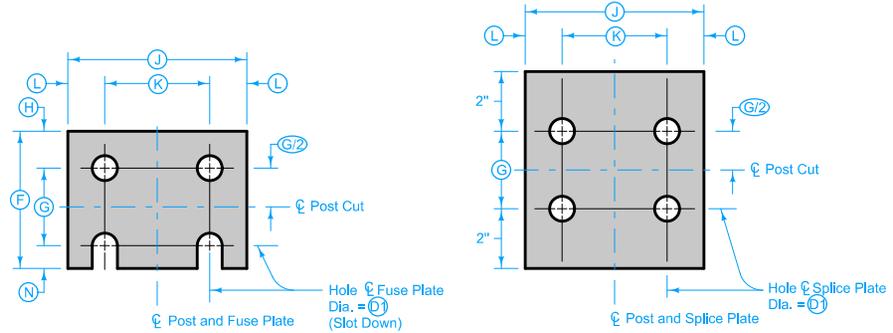


SIGN INSTALLATION
Side View

STUB & SIGN POSTS
3d View



FUSE PLATE ASSEMBLY



FUSE PLATE
(Thickness T_3)

SPLICE PLATE
(Thickness T_4)

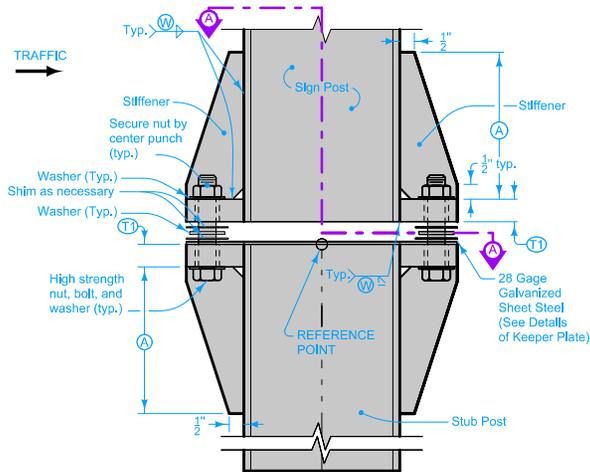
Plumb signpost by installing brass stock or strip shims complying with ASTM B36. Furnish two shims each of 0.012" and 0.032" thickness (total of 4 per post).

- ① Not for single post installations.
- ② Refer to Standard Road Plan SI-112 for footing information.

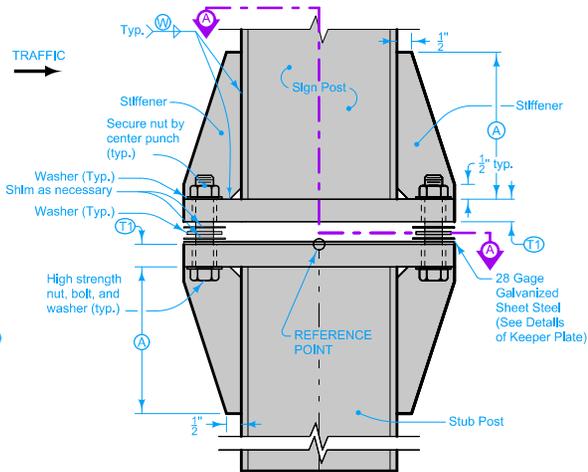
FUSE AND SPLICE PLATE DATA											
Post Size	Bolt Dia.	F	G	H	J	K	L	N	D1	T3	T4
W6x12	5/8"	3 3/4"	2"	1 1/8"	4"	2 1/4"	7/8"	5/8"	1 1/8"	3/8"	1/4"
W8x21	7/8"	4 5/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	7/8"	1 5/16"	1/2"	3/8"
W12x26	7/8"	5 3/8"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	1 5/16"	5/8"	3/8"

Possible Contract Item:
Steel Breakaway Sign Post for Type A or B Signs

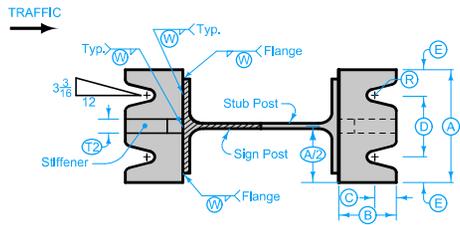
 STANDARD ROAD PLAN	REVISION 6 04-19-16
	SI-113
	SHEET 1 of 2
REVISIONS: Moved footing information to SI-112. Removed various post sizes and Hinge Alternate 2. Changed "C" dimension.	
 APPROVED BY DESIGN METHODS ENGINEER	
SUPPORT STRUCTURES - STEEL BREAKAWAY POSTS	



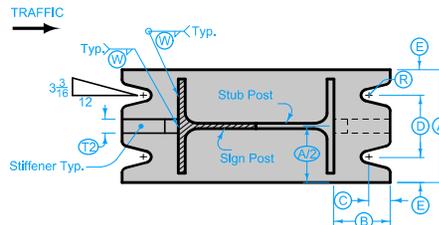
BREAKAWAY BASE
Side View
(Alternate 1)



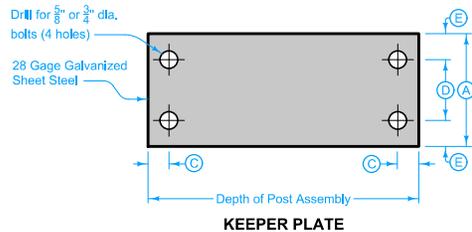
BREAKAWAY BASE
Side View
(Alternate 2)



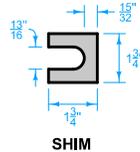
SECTION A-A
PLAN - BASE
(ALTERNATE 1)



SECTION A-A
PLAN - BASE
(ALTERNATE 2)



KEEPER PLATE



SHIM

BREAKAWAY BASE DATA										
Post Size	Bolt Size & Torque	A	B	C	D	E	T	T2	W	R
W 6 x 12	5/8" dia. x 2 3/4" Torque = 37,50 ft. lbs.	5"	2"	1 1/4"	2 3/4"	1 1/8"	4 3/8"	1"	1"	1 1/32"
W 8 x 21 W 12 x 26	3/4" dia. x 3 1/2" Torque = 62,50 ft. lbs.	6"	2 1/4"	7/8"	3 1/2"	1 1/4"	1"	1 1/4"	5/16"	1 1/32"

The following Base Plate alternates are considered equivalent:

Alternate 1 - Weld base plates (2 each), to sides of signpost and stub post flanges.

Alternate 2 - Weld base plate (1 each) to end of sign post and stub post. Properly match and align the bolt holes and notches in the stub post plate and the sign post plate as indicated herein.

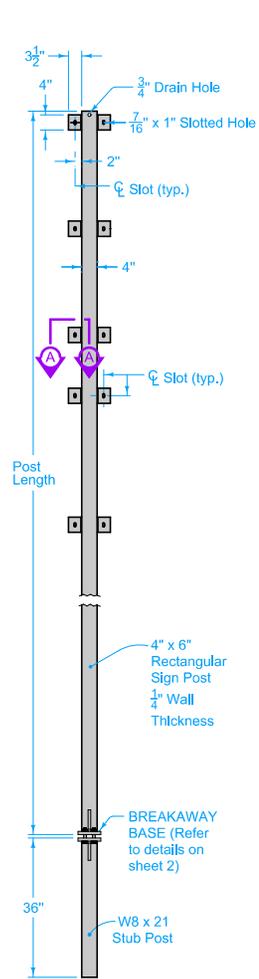
Grind smooth all welds and galvanizing between Base Plates.

 STANDARD ROAD PLAN	REVISION
	6 04-19-16
	SI-113
SHEET 2 of 2	

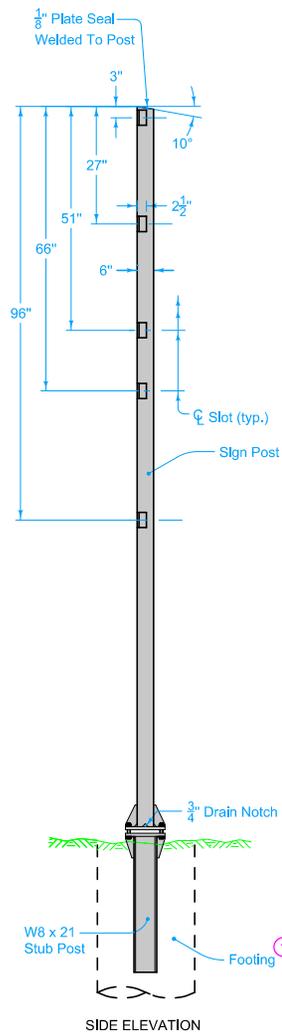
REVISIONS: Moved footing information to SI-112. Removed various post sizes and Hinge Alternate 2. Changed "C" dimension.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

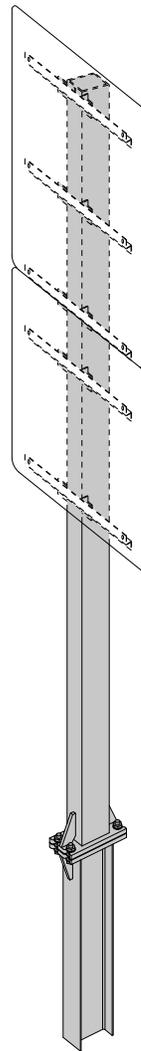
**SUPPORT STRUCTURES -
STEEL BREAKAWAY POSTS**



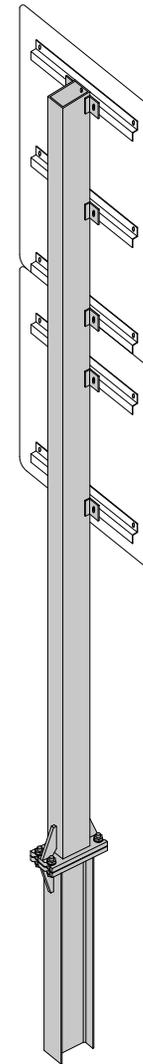
FRONT ELEVATION



SIDE ELEVATION



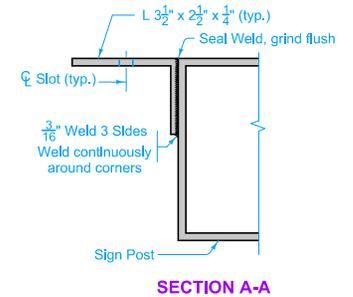
OBLIQUE FRONT VIEW



OBLIQUE BACK VIEW

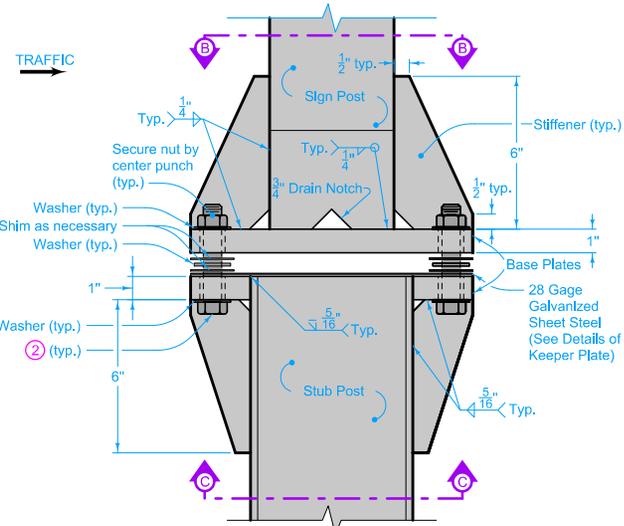
Plumb signpost by installing brass stock or strip shims complying with ASTM B 36. Furnish two shims each of 0.012" and 0.032" thickness (total of 4 per post).

① Refer to Standard Road Plan SI-112 for footing information.

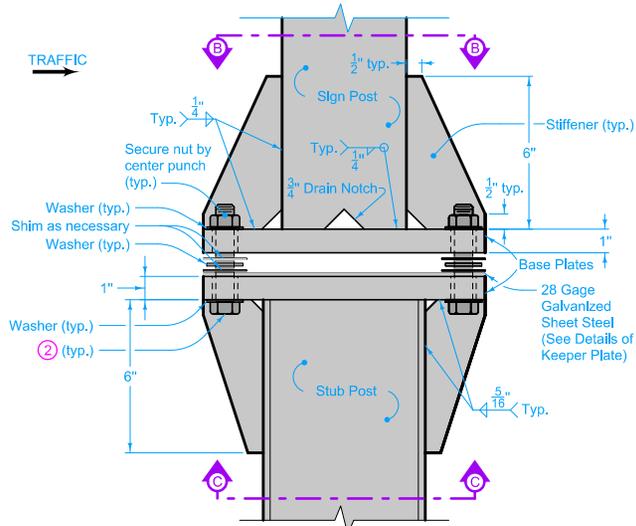


Possible Contract Item:
Steel Breakaway Sign Post, Rectangular Tube

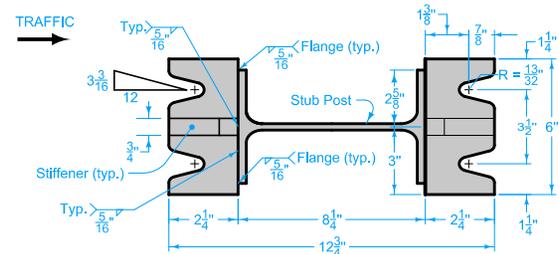
	REVISION	
	3	04-19-16
	STANDARD ROAD PLAN	
		SI-114
		SHEET 1 of 2
<small>REVISIONS: Moved footing information to SI-112. Changed title and added oblique views.</small>		
<i>Brian Smith</i> <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
FREWAY/EXPRESSWAY SPEED LIMIT SUPPORT POSTS		



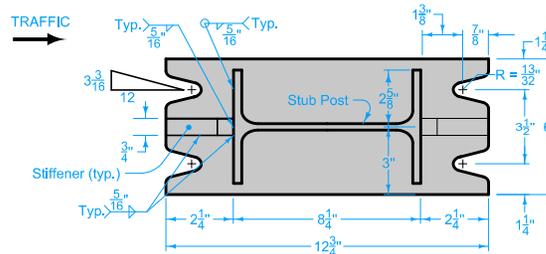
BREAKAWAY BASE
Side View
(Alternate 1)



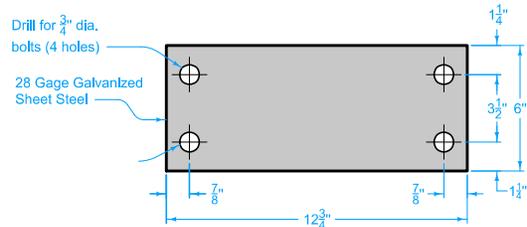
BREAKAWAY BASE
Side View
(Alternate 2)



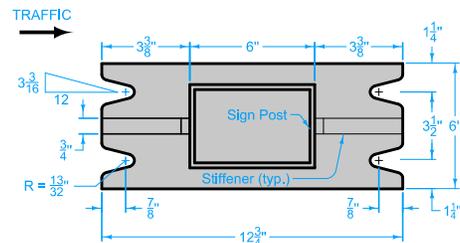
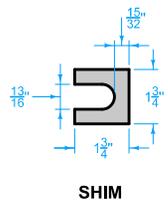
SECTION C-C
PLAN - BASE
(ALTERNATE 1)



SECTION C-C
PLAN - BASE
(ALTERNATE 2)



KEEPER PLATE



SECTION B-B
PLAN - BASE

The following Base Plate alternates are considered equivalent:

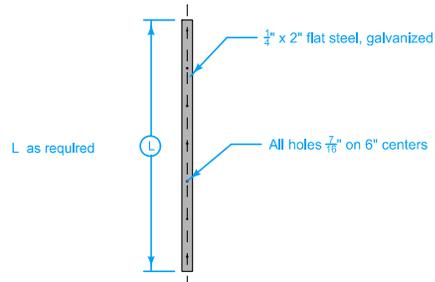
ALTERNATE 1 - Weld base plates (2 each) to sides of stub post flanges.

ALTERNATE 2 - Weld base plate (1 each) to end of stub post. During assembly, properly match and align the bolt holes and notches in the stub post plate and the sign post plate as indicated hereon.

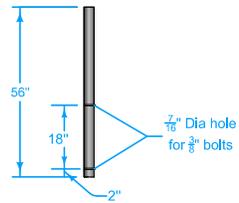
Grind smooth all welds and galvanizing between Base Plates.

- ② 3/4" dia. x 3 1/2"
Torque = 62.50 ft. lbs.

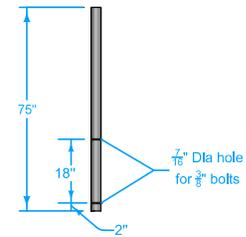
<p>STANDARD ROAD PLAN</p> <p>REVISIONS: Moved footing information to SI-112. Changed title and added oblique views.</p> <p><i>Brian Smith</i> APPROVED BY DESIGN METHODS ENGINEER</p> <p>FREWAY/EXPRESSWAY SPEED LIMIT SUPPORT POSTS</p>	<p>REVISION</p> <p>3 04-19-16</p>
	<p>SI-114</p> <p>SHEET 2 of 2</p>



AUXILIARY
SIGN MOUNTING BAR
Type 1

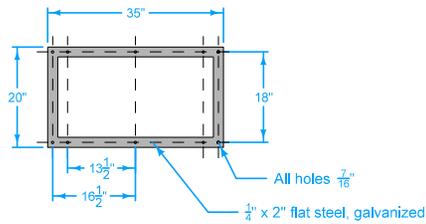


PIPE DETAIL
(Bracket 'F')
Type 4A

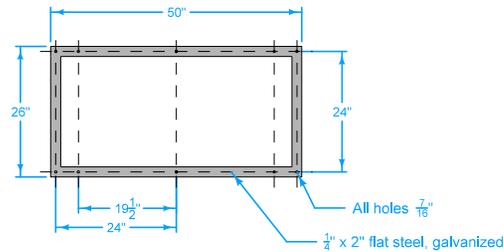


PIPE DETAIL
(Bracket 'F1')
Type 4B

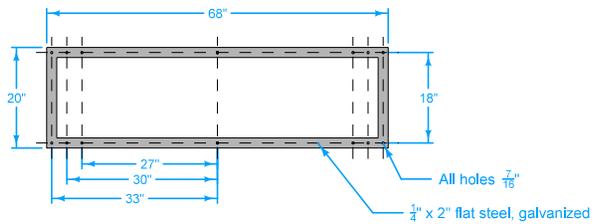
Bid price for the brackets is to include the necessary mounting bolts, washers, nuts, and set screws.



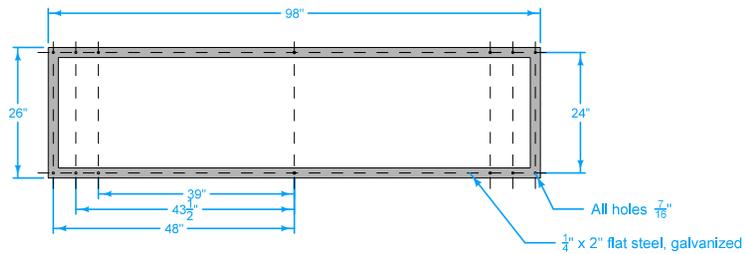
ONE POST
SIGN MOUNTING BRACKET
FOR 24" ROUTE SHIELDS
Type 2



ONE POST
SIGN MOUNTING BRACKET
FOR 36" ROUTE SHIELDS
Type 5

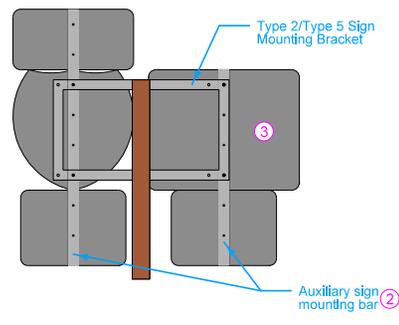
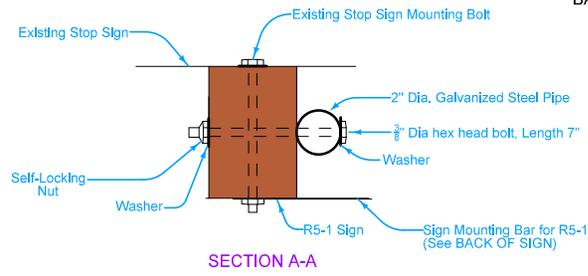
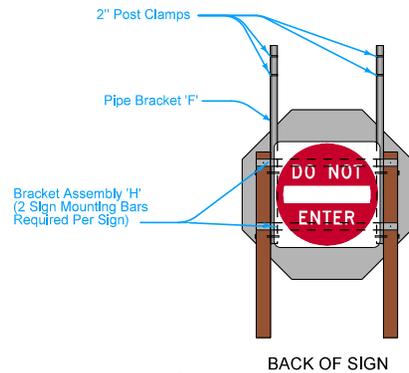
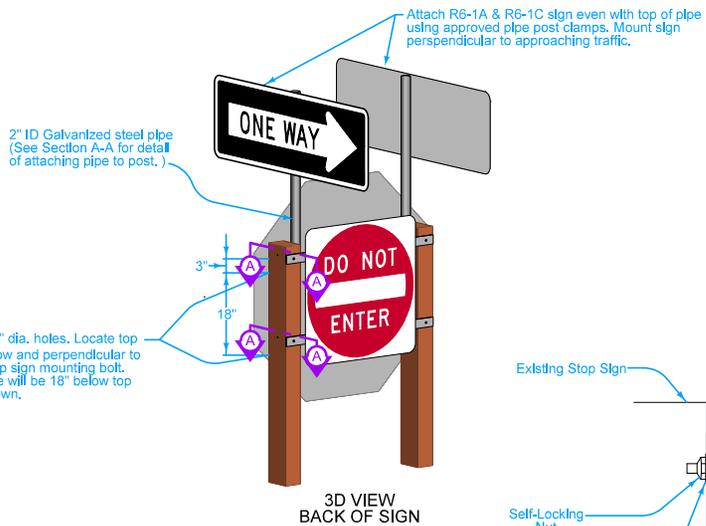


TWO POST
SIGN MOUNTING BRACKET
FOR 24" ROUTE SHIELDS
Type 3

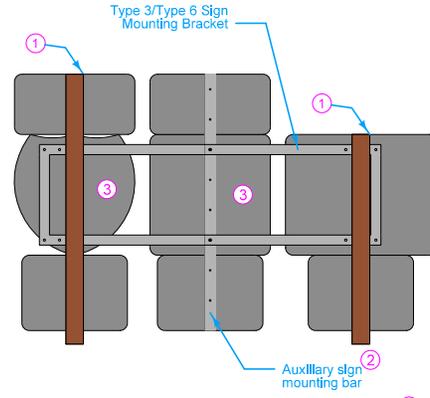


TWO POST
SIGN MOUNTING BRACKET
FOR 36" ROUTE SHIELDS
Type 6

	REVISION
	2 04-19-16
	SI-119
STANDARD ROAD PLAN	SHEET 1 of 2
REVISIONS: Changed Type 2 and 3 brackets and added Type 5 and 6 brackets to accommodate route shields. Added circle note 3 for sign spacing.	
APPROVED BY DESIGN METHODS ENGINEER <i>Brian Smith</i>	
SUPPORT STRUCTURES - MOUNTING BRACKETS	



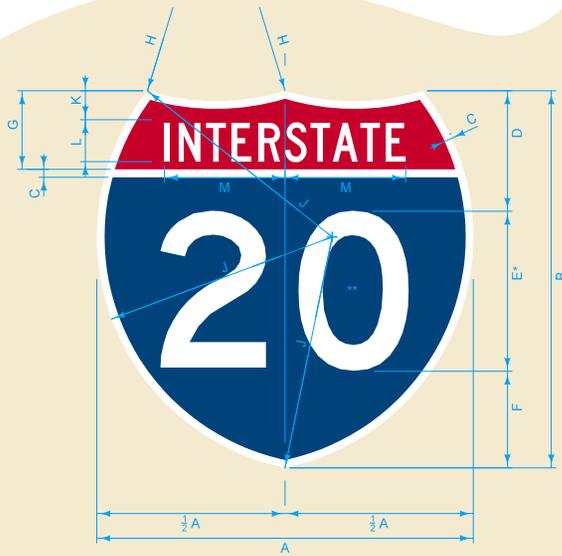
TYPICAL MOUNTING BRACKET ARRANGEMENT
FOR SINGLE WOOD POST INSTALLATION



TYPICAL MOUNTING BRACKET ARRANGEMENT
FOR TWO WOOD POST INSTALLATION

- ① Mount the wood post so that the top is flush with the top of the sign panel.
- ② Extend the Auxiliary Sign Mounting Bracket to the full length of the proposed mounted sign assembly.
- ③ Maintain a 3 inch space between Route Shields. This should be accomplished by using different drilled holes specified on the brackets, and will vary depending on the number of 2 or 3 digit signs in the assembly.
- ④ Perforated square steel tube (PSST) posts may be substituted for wood posts if approved by the Engineer.

 STANDARD ROAD PLAN	REVISION	2	04-19-16
	SI-119		
	SHEET 2 of 2		
REVISIONS: Changed Type 2 and 3 brackets and added Type 5 and 6 brackets to accommodate route shields. Added circle note 3 for sign spacing.			
 APPROVED BY DESIGN METHODS ENGINEER			
SUPPORT STRUCTURES - MOUNTING BRACKETS			



* Series 2000 Standard Alphabets.

** Optically space numerals about vertical center line.



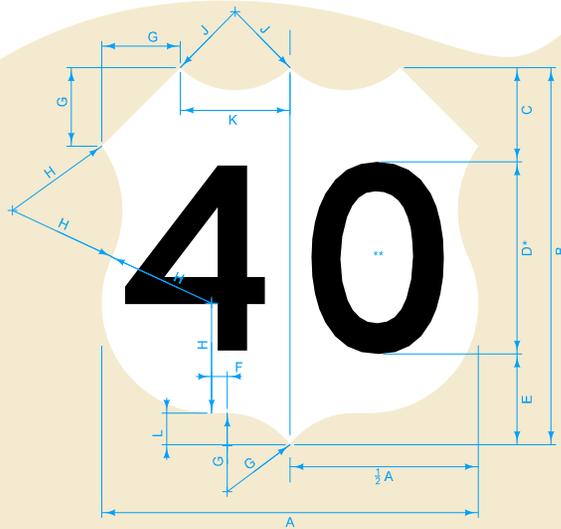
INTERSTATE ROUTE MARKERS

Sign	Width	Height	Border Thk.	Numeral Top Offset	Numeral Height & Font	Numeral Bottom Offset	Upper Section Height	Top Radius	Side Radius	Text Top Offset	Text Height & Font	Text Length Lt & Rt
	A	B		D	E	F		G	H		J	
2 Digit Routes	48	48	1	15.375	20 C	12.625	10	30	30	4	5 C	15.307
	36	36	0.75	11.5	15 C	9.5	7.5	22.5	22.5	2.75	4 C	12.246
	24	24	0.5	7.625	10 C	6.375	5	15	15	2	2.5 C	7.658
	13	13	0.271	4.125	5.5 C	3.375	2.708	8.125	8.125	0.875	1.5 C	4.6125
	10	10	0.208	3.25	4.25 C	2.5	2.083	6.25	6.25	0.75	1 C	3.075
	6	6	0.125	2	2.5 C	1.5	1.25	3.75	3.75	0.5	0.625C	1.92
3 Digit Routes	60	48	1	15.375	20 B	12.625	10	48	34	4	5 E	21.818
	45	36	0.75	11.5	15 B	9.5	7.5	36	25.5	2.75	4 E	17.455
	30	24	0.5	7.625	10 B	6.375	5	24	17	2	2.5 E	10.911
	16.25	13	0.271	4.125	5.5 B	3.375	2.708	13	9.2083	0.875	1.5 E	6.57
	12	10	0.208	3.25	4.25 B	2.5	2.083	10	7.0833	0.75	1 E	4.38
	7.5	6	0.125	2	2.5 B	1.5	1.25	6	4.25	0.5	0.625E	2.74

All dimensions are in inches unless otherwise designated.

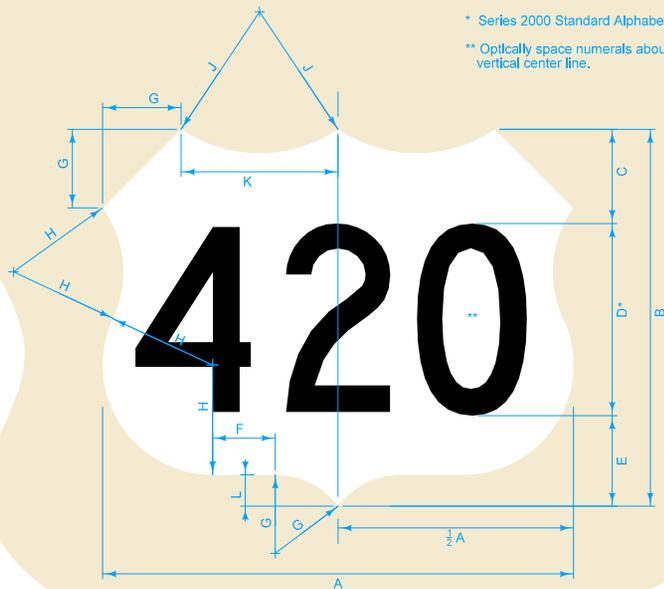
COLORS:
 Text: White
 Border: White
 Background (Interstate): Red
 Background (Route No.): Blue

	REVISION
	3 04-19-16
STANDARD ROAD PLAN	SI-121
	SHEET 1 of 5
REVISIONS: Added circle note 1 to pages 2 and 3 and circle note 2 to page 5. Updated tables on all pages to reflect current sign types and sizes.	
APPROVED BY DESIGN METHODS ENGINEER	
FABRICATION - SIGN LEGEND COMPONENTS	



* Series 2000 Standard Alphabets.

** Optically space numerals about vertical center line.



US ROUTE MARKERS



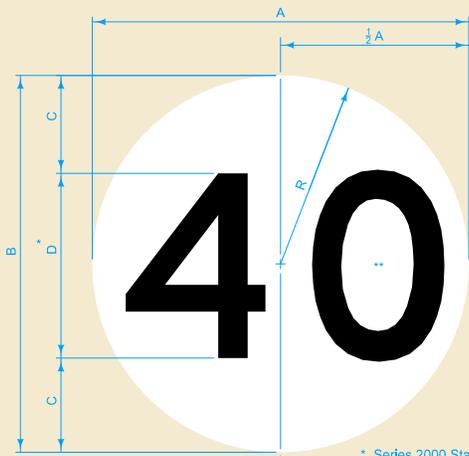
① Black borders added to route shields will not be accepted.

Sign	Width	Height	Numeral Top Offset	Numeral Height & Font	Numeral Bottom Offset	Bottom Tangent Length	Upper Section Height	Corner & Top Radius	Side Radius	Top Radius	Bottom Tangent Offset
	A	B	C	D	E	F	G	H	J	K	L
1 Digit Routes	48	48	11	24 D	13	2	10	14	10	14	4
	36	36	8.25	18 D	9.75	1.5	7.5	10.5	7.5	10.5	3
	24	24	5.5	12 D	6.5	1	5	7	5	7	2
	13	13	3	6.5 D	3.5	0.542	2.708	3.792	2.708	3.792	1.083
	10	10	2.25	5 D	2.75	0.417	2.083	2.917	2.083	2.917	0.833
	6	6	1.375	3 D	1.625	0.25	1.25	1.75	1.25	1.75	0.5
2 Digit Routes	48	48	11	24 C	13	2	10	14	10	14	4
	36	36	8.25	18 C	9.75	1.5	7.5	10.5	7.5	10.5	3
	24	24	5.5	12 C	6.5	1	5	7	5	7	2
	13	13	3	6.5 C	3.5	0.542	2.708	3.792	2.708	3.792	1.083
	10	10	2.25	5 C	2.75	0.417	2.083	2.917	2.083	2.917	0.833
	6	6	1.375	3 C	1.625	0.25	1.25	1.75	1.25	1.75	0.5
3 Digit Routes	60	48	11	24 B	13	8	10	14	18	20	4
	45	36	8.25	18 B	9.75	5.5	7.5	10.5	13.5	15	3
	30	24	5.5	12 B	6.5	4	5	7	9	10	2
	16.25	13	3	6.5 B	3.5	2.167	2.708	3.792	4.875	5.416	1.083
	12	10	2.25	5 B	2.75	1.417	2.083	2.917	3.439	3.917	0.833
	7.5	6	1.375	3 B	1.625	1	1.25	1.75	2.25	2.5	0.5

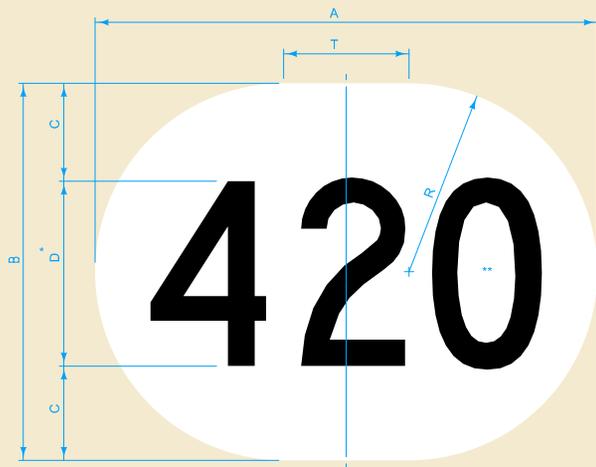
All dimensions are in inches unless otherwise designated.

COLORS:
Text: White
Shield: White

	REVISION	3	04-19-16
	STANDARD ROAD PLAN	SI-121	
SHEET 2 of 5			
REVISIONS: Added circle note 1 to pages 2 and 3 and circle note 2 to page 5. Updated tables on all pages to reflect current sign types and sizes.			
APPROVED BY DESIGN METHODS ENGINEER 			
FABRICATION - SIGN LEGEND COMPONENTS			



* Series 2000 Standard Alphabets.
 ** Optically space numerals about vertical center line.



STATE ROUTE MARKERS



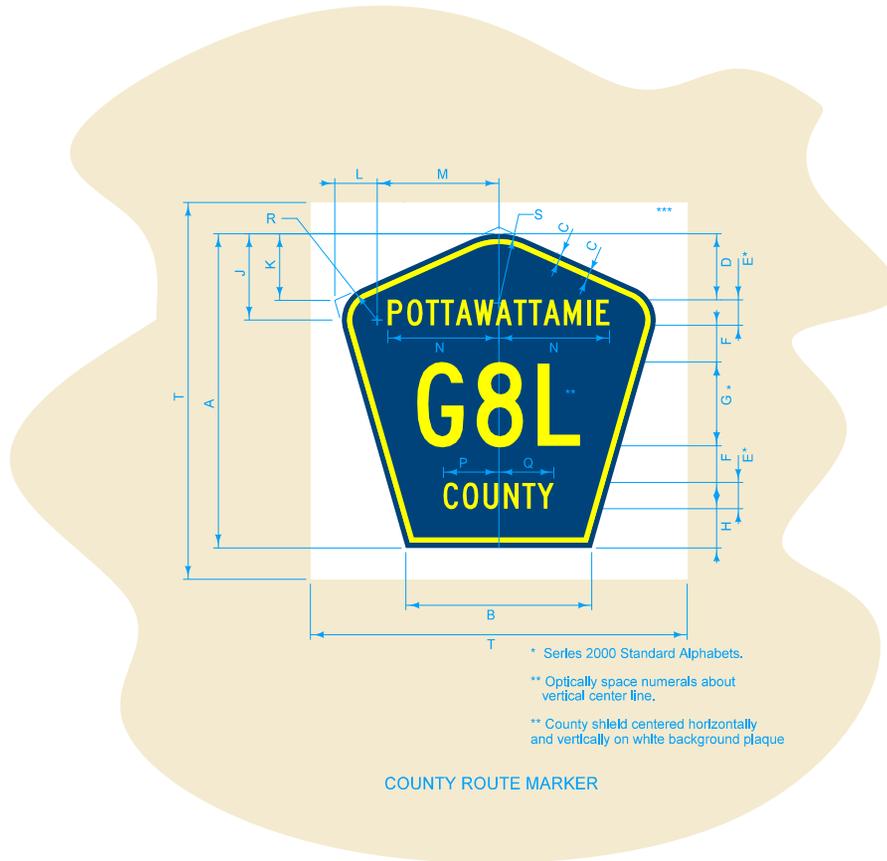
① Black borders added to route shields will not be accepted.

Sign	Width	Height	Numeral Offset	Numeral Height & Font	Radius	Tangent
	A	B	C	D	R	T
1 Digit Routes	48	48	12	24 D	24	-
	36	36	9	18 D	18	-
	24	24	6	12 D	12	-
	13	13	3.25	6.5 D	6.5	-
	10	10	2.5	5 D	5	-
	6	6	1.5	3 D	3	-
2 Digt Routes	48	48	12	24 C	24	-
	36	36	9	18 C	18	-
	24	24	6	12 C	12	-
	13	13	3.25	6.5 C	6.5	-
	10	10	2.5	5 C	5	-
	6	6	1.5	3 C	3	-
3 Digt Routes	60	48	12	24 B	24	12
	45	36	9	18 B	18	9
	30	24	6	12 B	12	6
	16,25	13	3.25	6.5 B	6.5	3.25
	12	10	2.5	5 B	5	2
	7.5	6	1.5	3 B	3	1.5

All dimensions are in inches unless otherwise designated.

COLORS:
 Text: Black
 Shield: White

	REVISION
	3 04-19-16
STANDARD ROAD PLAN	SI-121
SHEET 3 of 5	
REVISIONS: Added circle note 1 to pages 2 and 3 and circle note 2 to page 5. Updated tables on all pages to reflect current sign types and sizes.	
APPROVED BY DESIGN METHODS ENGINEER	
FABRICATION - SIGN LEGEND COMPONENTS	



* Series 2000 Standard Alphabets.
 ** Optically space numerals about vertical center line.
 ** County shield centered horizontally and vertically on white background plaque

COUNTY ROUTE MARKER

All dimensions are in inches unless otherwise designated.

COLORS:
 Text: Yellow
 Border: Yellow
 Shield: Blue
 Background: White

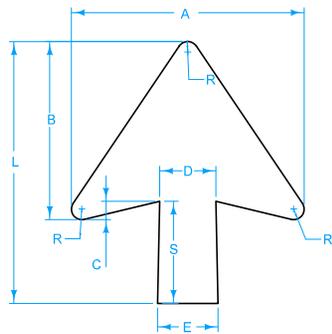
Sign	Height	Bottom Width	Border Thick. & Indent	County Top Offset	County Text Hgt & Font	Numeral Offset	Numeral Height & Font	County Bottom Offset	Radius Vertical Offset	Corner Vertical Offset	Corner Lateral Offset	Radius Lateral Offset	County Name Lt & Rt	County Text Left	County Text Right	Side Radius	Top Radius	Backgrnd Plaque
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
All Routes	36	21.25	0.5	7	3 C	3	12 C	4	10	6.75	4.75	14	VAR	7.5	7.75	4	10	42

	REVISION	
	3	04-19-16
STANDARD ROAD PLAN	SI-121	
	SHEET 4 of 5	

REVISIONS: Added circle note 1 to pages 2 and 3 and circle note 2 to page 5.
 Updated tables on all pages to reflect current sign types and sizes.

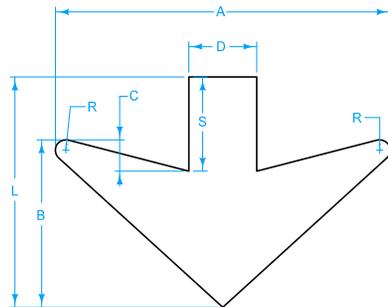
Brian Smith
 APPROVED BY DESIGN METHODS ENGINEER

**FABRICATION -
 SIGN LEGEND COMPONENTS**



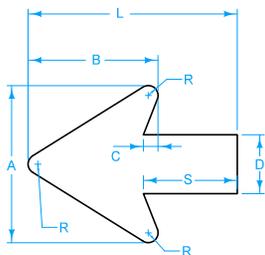
ID	Length L	Head Width A	Head Length B	Draft C	Radius R	Tip G	Shaft Width at Head D	Shaft Width at Tail E	Shaft Length S	Letter Size
I-A	17	15.125	11.5625	1.3125	0.8125	Round	3.75	4.03	6.75	8
I-B	25	15.125	11.5625	1.3125	0.8125	Round	3.75	4.36	14.75	8
I-C	20	18.25	14	1.5	0.75	Round	4.5	4.81	7.5	10-13.3
I-D	30	18.25	14	1.5	0.75	Round	4.5	5.23	17.5	10-13.3
I-E	25	22.25	17	1.75	1	Round	5.375	5.78	9.75	16
I-F	35	22.25	17	1.75	1	Round	5.375	6.2	19.75	16

TYPE I



ID	Length L	Head Width A	Head Length B	Draft C	Radius R	Tip G	Shaft Width at Head D	Shaft Width at Tail E
II-B	16	24	12	2.25	0.75	Point	4.875	6.25
II-A	22	32	16	3	1	Point	6.5	9

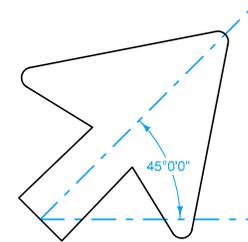
TYPE II



ID	Length L	Head Width A	Head Length B	Draft C	Radius R	Tip G	Shaft Width at Head D	Shaft Length S
III-4S	6	4	3.3125	0.375	0.25	Round	1.5	3.0625
III-4L	12	4	3.3125	0.375	0.25	Round	1.5	9.0625
III-5S	8	5	4.140625	0.46875	0.3125	Round	1.875	4.328
III-5L	12	5	4.140625	0.46875	0.3125	Round	1.875	8.328
III-6S	8	6	4.96875	0.5625	0.375	Round	2.25	3.59375
III-6L	14	6	4.96875	0.5625	0.375	Round	2.25	9.59375
III-8S	10.5	8	6.625	0.75	0.5	Round	3.0	4.625
III-8L	14	8	6.625	0.75	0.5	Round	3.0	8.125

TYPE III

② Type II-A arrows should be used in all typical 'down arrow' applications except where not practical due to size constraints.



I-E, 45

ARROW DESIGNATION:

Each arrow used on a guide sign is identified by a two part code as follows:
 Part 1 is the arrow ID number
 Part 2 is the angle in degrees between the center line of the arrow and the horizontal

All dimensions are in inches unless otherwise designated.

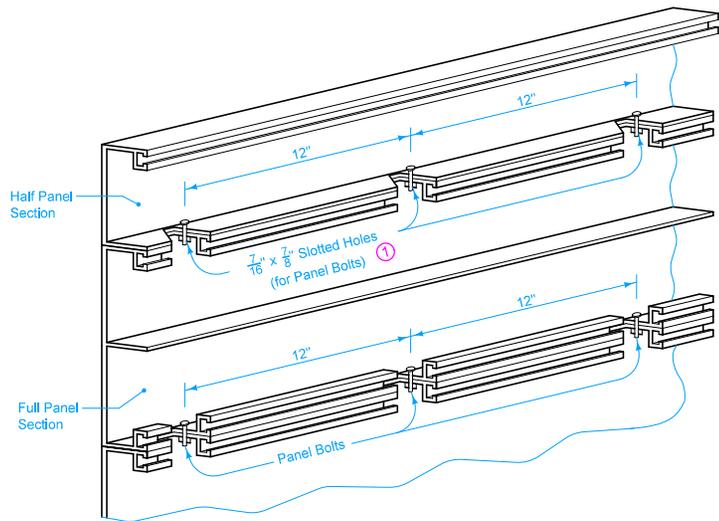
	REVISION
	3 04-19-16
STANDARD ROAD PLAN	SI-121
	SHEET 5 of 5

REVISIONS: Added circle note 1 to pages 2 and 3 and circle note 2 to page 5.
 Updated tables on all pages to reflect current sign types and sizes.

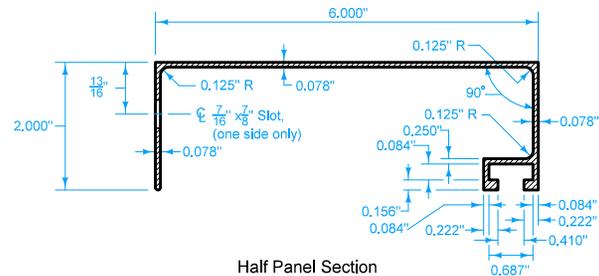
APPROVED BY DESIGN METHODS ENGINEER

Brian Smith

FABRICATION -
SIGN LEGEND COMPONENTS



ASSEMBLY DETAIL

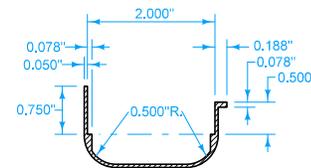


Panel bolt slotted holes spaced at 12 inch centers shall be located along the full length of each panel, such that the outermost slots are of equal distances (not to exceed 6 inches) from the ends of the panel.

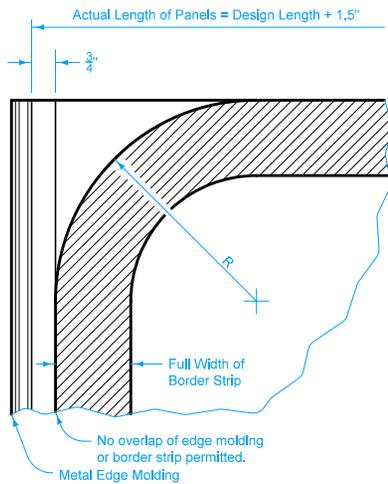
Signs shall be made up of full panels unless a half panel is required, in which case it shall be placed at the top edge of the sign.

Refer to detail project plans and summary sheet for exact data for individual sign fabrication requirements.

① Two washers per panel bolt, one each side of sign.

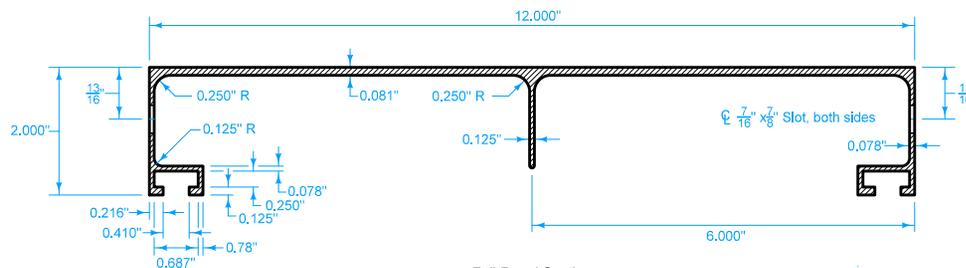


EDGE MOLDING



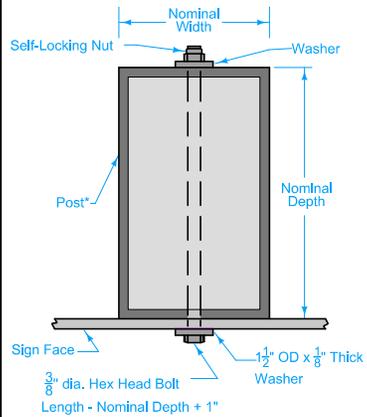
EDGE MOLDING BORDER STRIP DETAIL

Edge molding shall be installed full length of each vertical side of each sign. Attach in accordance with current specifications.



STANDARD STRUCTURAL SIGN PANELS

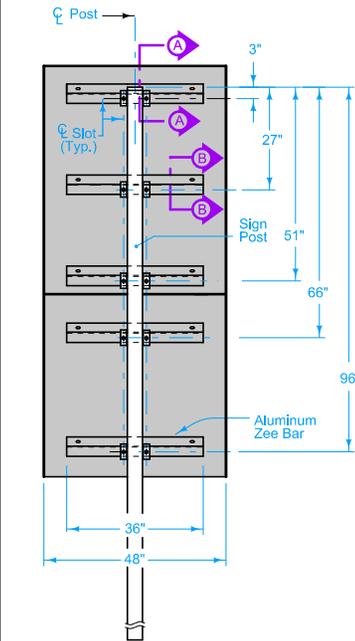
 STANDARD ROAD PLAN	REVISION	2	04-19-16
	SI-123		
	SHEET 1 of 1		
REVISIONS: Replaced the logo in the title block with the new version and modified two dimensions on the Full Structure Section drawing.			
APPROVED BY DESIGN METHODS ENGINEER <i>Brian Smith</i>			
FABRICATION - TYPE 'B' SIGNS			



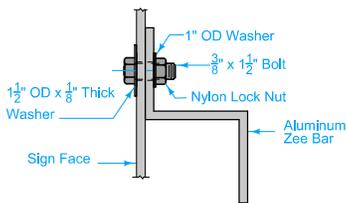
PLAN

*NOTE: Treated Wood or Perforated Square Tube Post

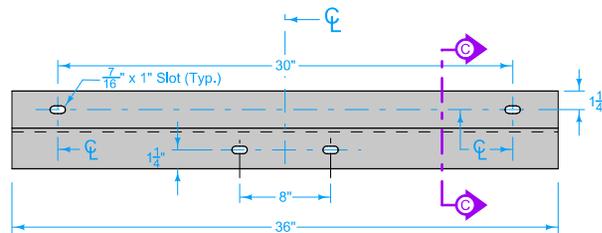
WOOD OR PERFORATED SQUARE TUBE POST ATTACHMENT



BACK ELEVATION 4" x 6" RECTANGULAR TUBE POST ATTACHMENT DETAILS

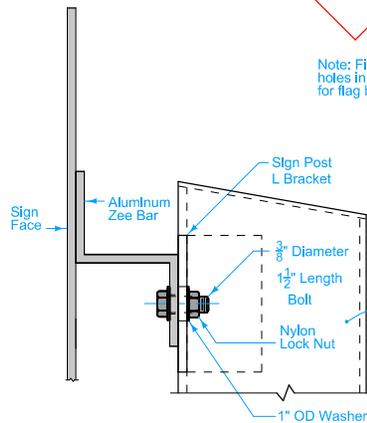


SECTION B-B

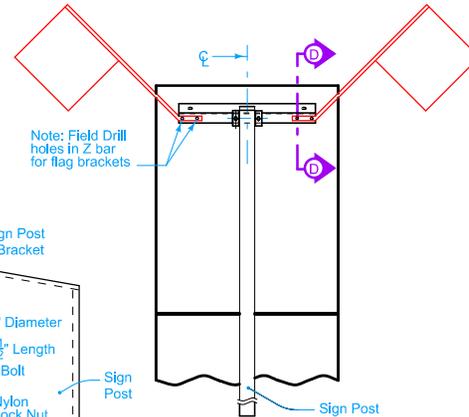


ALUMINUM ZEE BAR

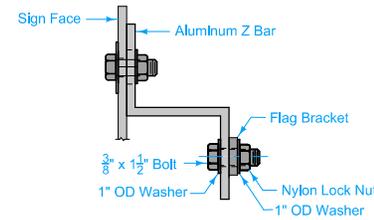
RECTANGULAR TUBE POST ATTACHMENT



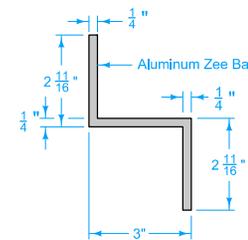
SECTION A-A



BACK ELEVATION ATTACHMENT DETAILS FOR FLAGS



SECTION D-D



SECTION C-C

Refer to SI-114 for details of steel breakaway sign post rectangular tube.

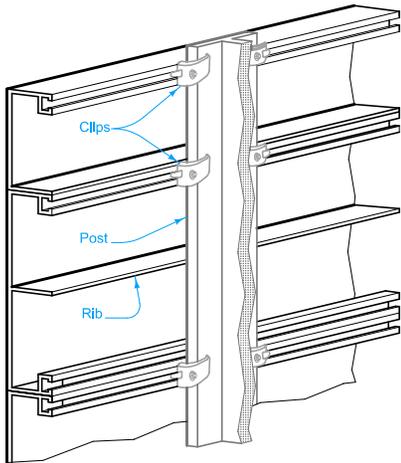
Possible Contract Items:
Steel Breakaway Sign Post
Wood Sign Post

 STANDARD ROAD PLAN	REVISION	4	10-18-16
	SI-131		
	SHEET 1 of 1		

REVISIONS: Replaced old Iowa DOT logo with new logo.

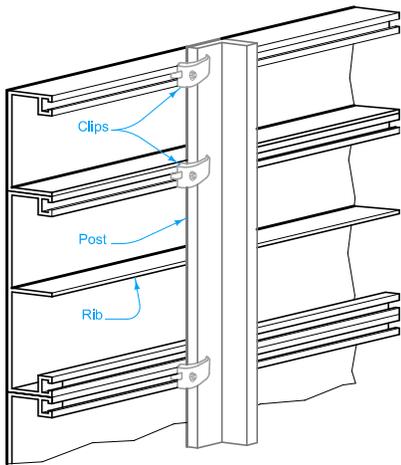
Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

INSTALLATION - TYPE 'A' SIGNS



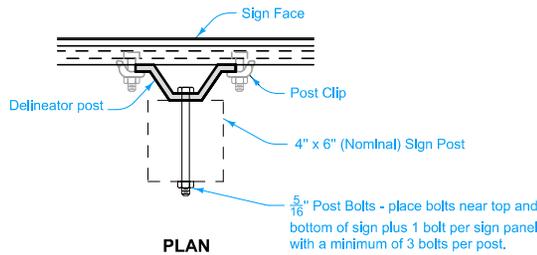
TYPE 1 ATTACHMENT

Type 1 Attachment shall be used for all signs placed on metal breakaway posts.

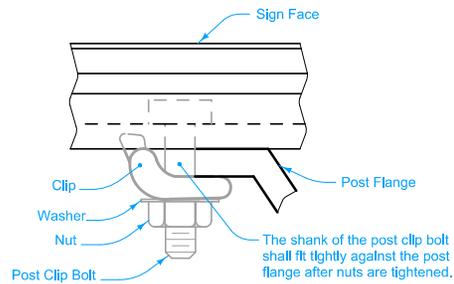


TYPE 4 ATTACHMENT

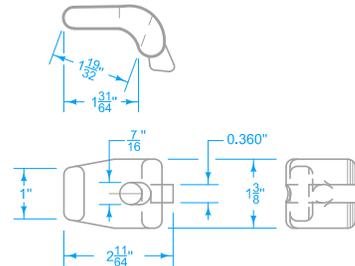
Type 4 Attachment shall be used for all signs mounted on overhead sign support structures.



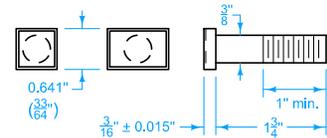
PLAN



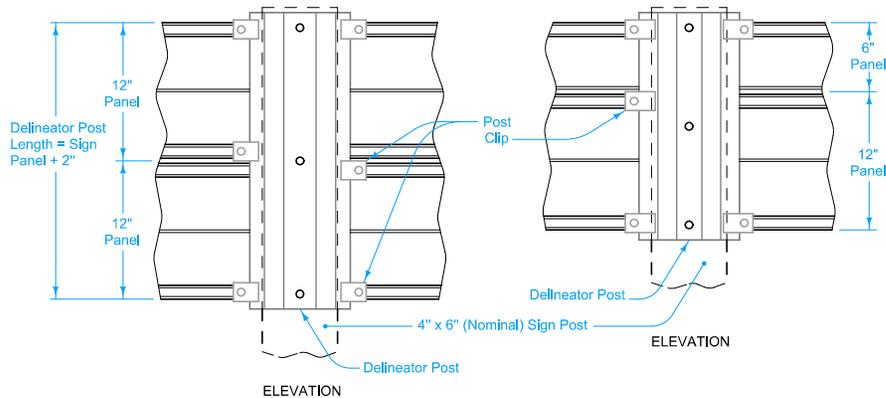
CLIP INSTALLATION



POST CLIP



CLIP BOLT
(Square or Rectangular Head Optional)



ELEVATION

ELEVATION

TYPE 3 ATTACHMENT

Use Type 3 Attachment for all signs with wood posts.

Position the EXIT NUMBER PANEL above the guide sign aligned with the edge of the guide sign indicating direction of exit.

If the bolt holes in the top panel and the bottom panel of the two signs line up, panel bolts are to be used.

If the angle fasteners can not be horizontally placed as shown, they can be moved so as to securely hold the top sign.

A post clip is required on each angle at top of panel and each extrusion joint.

The aluminum angles are considered part of the mounting hardware and are to be furnished by the Contractor as an incidental item. No separate payment will be made aluminum angles.

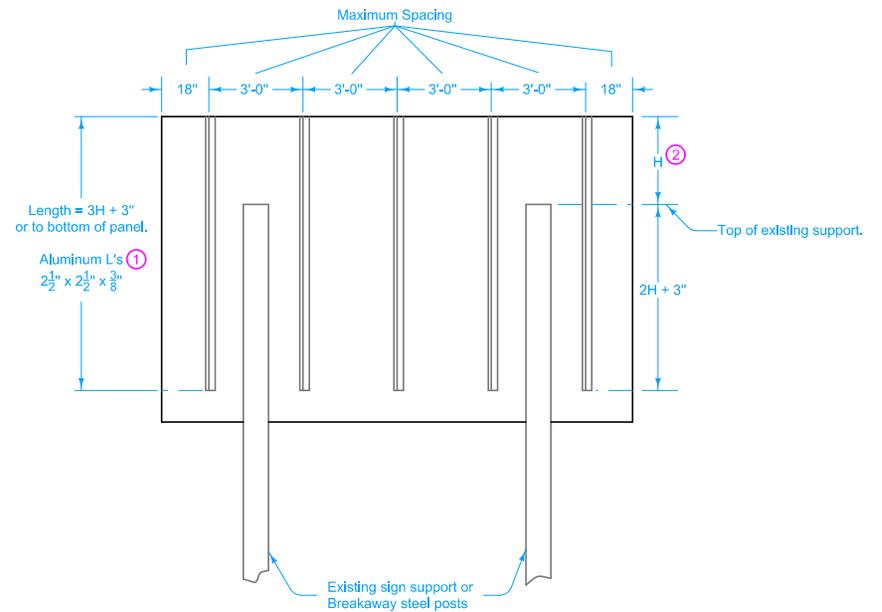
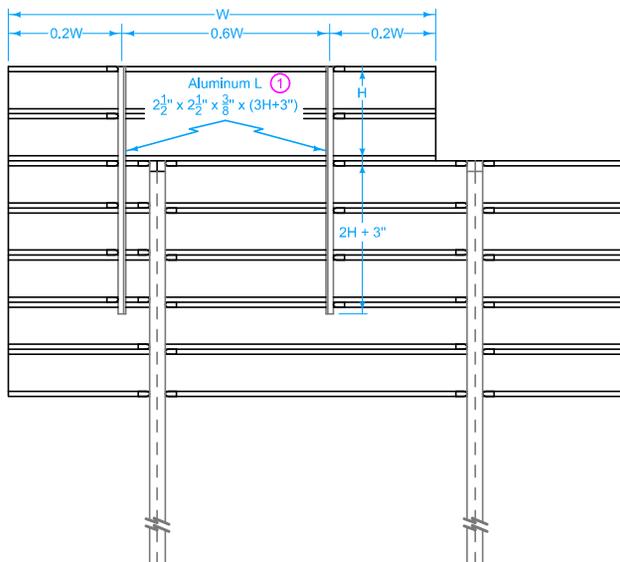
 STANDARD ROAD PLAN	REVISION
	3 10-18-16
	SI-132
SHEET 1 of 2	

REVISIONS: Replaced old Iowa DOT logo with new logo.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

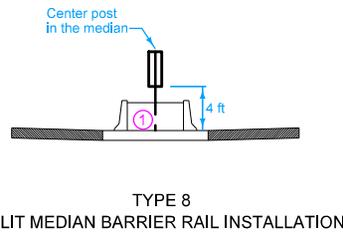
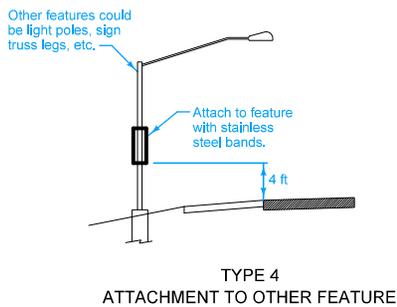
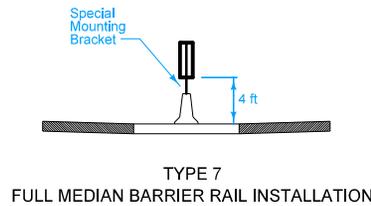
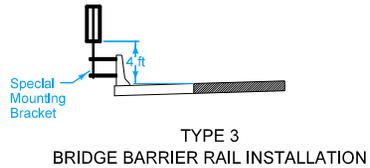
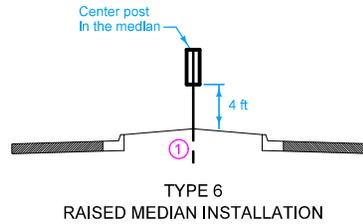
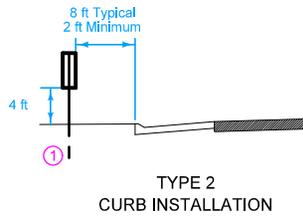
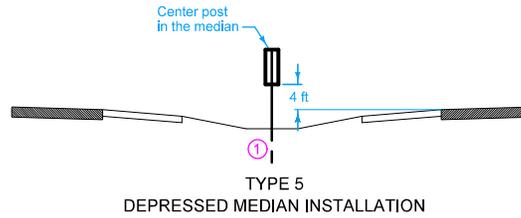
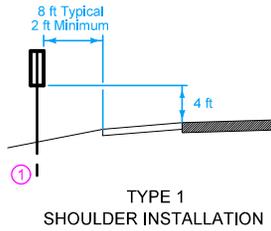
**INSTALLATION -
TYPE 'B' SIGNS**

- ① Do not allow the aluminum L to extend below the bottom of the major sign.
- ② Sign height added above existing supports.



GUIDE SIGNS

IOWA DOT	REVISION	
	3	10-18-16
STANDARD ROAD PLAN		SI-132
<small>REVISIONS: Replaced old Iowa DOT logo with new logo.</small>		<small>SHEET 2 of 2</small>
<i>Brian Smith</i>		
<small>APPROVED BY DESIGN METHODS ENGINEER</small>		
INSTALLATION - TYPE 'B' SIGNS		

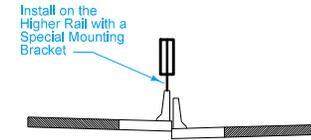


Furnish Type 1 delineator posts for each location unless specified otherwise in the plans.

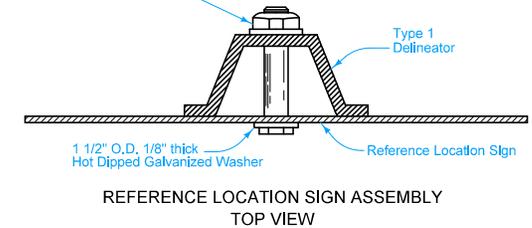
$\frac{3}{16}$ " or $\frac{7}{16}$ " holes in delineators are acceptable.

All dimensions are in inches unless otherwise designated.

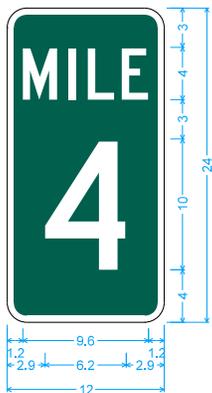
① Install post of sufficient length to provide a minimum of 30 inches of embedment when installed at the specified mounting height.



Hot dipped galvanized steel bolts, self-locking nuts, and washers, $\frac{5}{16}$ " x 2 $\frac{1}{2}$ " - 18 NC hex bolts and hex selflocking nuts with washers $\frac{11}{32}$ " I.D. x $\frac{11}{16}$ " O.D. x 0.091".



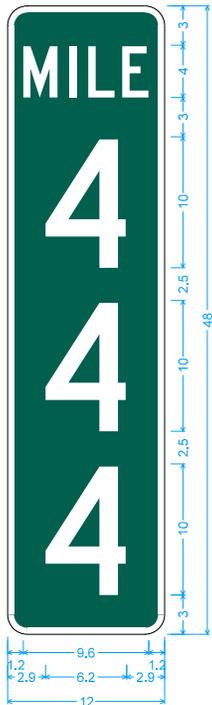
	REVISION
	3 04-18-17
STANDARD ROAD PLAN	SI-171
SHEET 1 of 4	
REVISIONS: Changed title and "milepost" to new Reference Location Sign naming.	
<i>Brian Smith</i> APPROVED BY DESIGN METHODS ENGINEER	
REFERENCE LOCATION SIGN POSTS	



D10-1A;
1.50" Radius, 0.50" Border, White on Green;
[MILE] C 2K;
[4] C 2K;



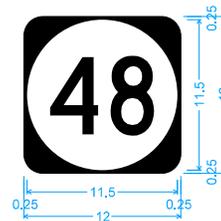
D10-2A;
1.50" Radius, 0.50" Border, White on Green;
[MILE] C 2K;
[4] C 2K; [4] C 2K;



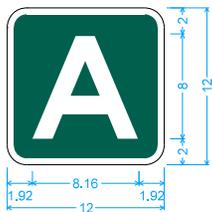
D10-3A;
1.50" Radius, 0.50" Border, White on Green;
[MILE] C 2K;
[4] C 2K; [4] C 2K;
[4] C 2K;



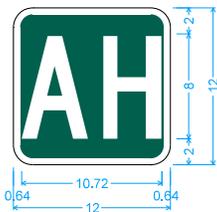
D10-5A;
1.50" Radius, No border, White on Black;



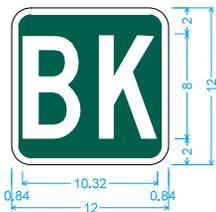
D10-9A;
1.50" Radius, No border, White on Black;
Rounded Rectangle 5.75" Radius;



D10-7A;
1.50" Radius, 0.50" Border, White on Green;
[A] E 2K;

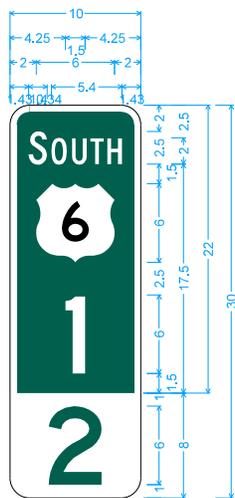


D10-8A;
1.50" Radius, 0.50" Border, White on Green;
[AH] C 2K;

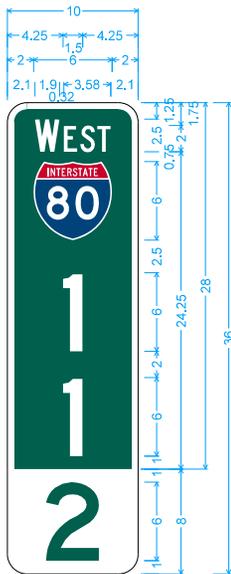


D10-9A;
1.50" Radius, 0.50" Border, White on Green;
[BK] C 2K;

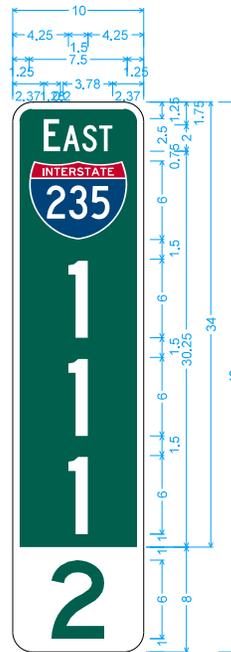
	REVISION
	3 04-18-17
	SI-171
STANDARD ROAD PLAN	SHEET 2 of 4
REVISIONS: Changed title and "milepost" to new Reference Location Sign naming.	
 APPROVED BY DESIGN METHODS ENGINEER	
REFERENCE LOCATION SIGN POSTS	



2.96 ← 4.08 → 2.96
 D10-1D;
 1.50" Radius, 0.50" Border, White on Green;
 [SOUTH] C 2K;
 [1] D 2K;
 1.50" Radius, No border, Green on White;
 [2] D 2K;



2.96 ← 4.08 → 2.96
 D10-2D;
 1.50" Radius, 0.50" Border, White on Green;
 [WEST] C 2K;
 [1] D 2K;
 [1] D 2K;
 1.50" Radius, No border, Green on White;
 [2] D 2K;

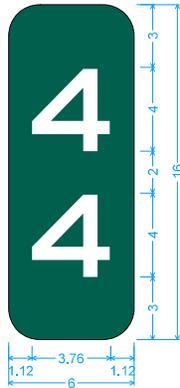


2.96 ← 4.08 → 2.96
 D10-3D;
 1.50" Radius, 0.50" Border, White on Green;
 [EAST] C 2K;
 [1] D 2K;
 [1] D 2K;
 [1] D 2K;
 1.50" Radius, No border, Green on White;
 [2] D 2K;

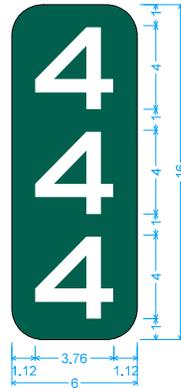
	REVISION
	3 04-18-17
STANDARD ROAD PLAN	SI-171
	SHEET 3 of 4
<small>REVISIONS: Changed title and "milepost" to new Reference Location Sign naming.</small>	
<small>APPROVED BY DESIGN METHODS ENGINEER</small>	
REFERENCE LOCATION SIGN POSTS	



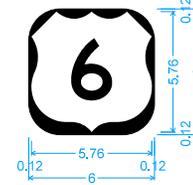
D10-1;
1.50" Radius, No border, White on Green;
[4] E 2K;



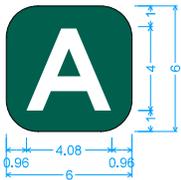
D10-2;
1.50" Radius, No border, White on Green;
[4] E 2K;
[4] E 2K;



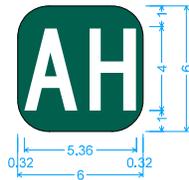
D10-3;
1.50" Radius, No border, White on Green;
[4] E 2K;
[4] E 2K;
[4] E 2K;



D10-5;
1.50" Radius, No border, White on Black;



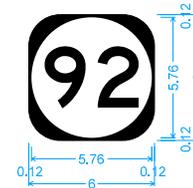
D10-7;
1.50" Radius, No border, White on Green;
[A] E 2K;



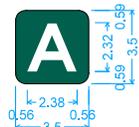
D10-8;
1.50" Radius, No border, White on Green;
[AH] C 2K;



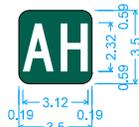
D10-9;
1.50" Radius, No border, White on Green;
[BK] C 2K;



D10-6;
1.50" Radius, No border, White on Black;
State Highway 92 M1-5;



[A] E 2K;
0.50" Radius, No border, White on Green;

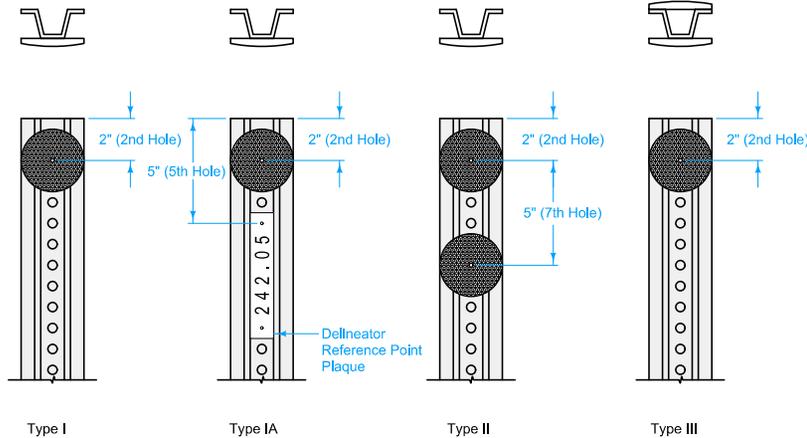


[AH] C 2K;
0.50" Radius, No border, White on Green;

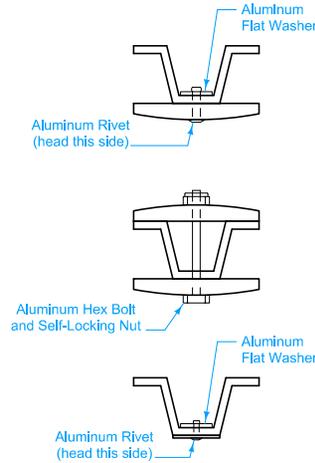


[BK] C 2K;
0.50" Radius, No border, White on Green;

	REVISION
	3 04-18-17
STANDARD ROAD PLAN	SI-171
SHEET 4 of 4	
REVISIONS: Changed title and "milepost" to new Reference Location Sign naming.	
APPROVED BY DESIGN METHODS ENGINEER	
REFERENCE LOCATION SIGN POSTS	



RIGID DELINEATOR MOUNTINGS



ATTACHMENTS

Place delineators at a constant distance from the edge of traveled way and/or the edge of shoulder.

The delineator height is measured from the edge of traveled way or the face of curb.

When placed behind curb, the delineator offset is measured from the face of curb. Allowable offsets are 2 feet minimum and 8 feet maximum. If the curb is part of a shoulder, maintain at least a minimum 8 foot offset from the edge of traveled way.

When placed on the foreslope, the delineator offset is measured from the edge of shoulder. Allowable offsets are 2 feet minimum and 8 feet maximum. However, for shoulders less than 6 feet in width, maintain a minimum 8 feet to the edge of traveled way.

Refer to the project plans for specific offset dimensions.

Furnish white, yellow, and/or red reflectors as specified in the project plans.

Furnish Type I delineator posts. Post lengths are to be sufficient to ensure the proper installation height and provide a minimum of 2'-6" embedment. See Table I for post lengths for various slope and offset conditions.

3/8" or 7/16" holes in the delineators are acceptable.

Install delineators truly vertical.

Delineators placed along freeways and expressways are to be spaced every 0.05 mile along the thru roadway. Placements are based on the reference post marker. A Delineator Reference Point Plaque is required on each delineator for both directions of travel.

Fabricate plaques from 0.063 inch thick sheet aluminum of the appropriate dimensions. Use non-reflectORIZED sheeling. White for the background, and black for the numerals.

Attach single reflectors to the post with an aluminum, brazier head, blind rivet of 3/16 inch diameter and a grip range of 0.376 to 0.625 inches, and an aluminum flat washer of 0.193 in. ID x 0.750 in. OD x 0.091 in. thickness.

Attach back to back reflectors to the post with an aluminum 3/16 in. dia x 2 1/2 in. length hex head bolt with a matching self-locking nut.

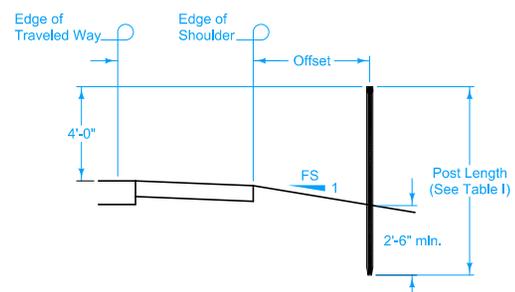
Attach plaques to the post with an aluminum, brazier head, blind rivet of 1/8 inch diameter and a grip range of 0.126 to 0.250 inches, and an aluminum flat washer of 0.129" ID x 0.750" OD x 0.091" thickness.

Furnish materials complying with Section 4186 of the Standard Specifications.

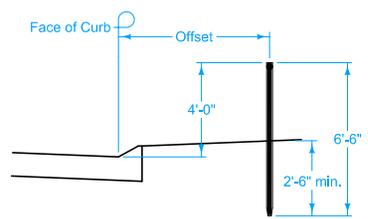
- Possible Contract Items:
- Delineator, Rigid - Type I
 - Delineator, Rigid - Type IA
 - Delineator, Rigid - Type II
 - Delineator, Rigid - Type III

Possible Tabulation:
190-25

Offset ft	Foreslope Rate (FS:1)				
	10:1	6:1	4:1	3:1	2:1
2	8	8	8	8	8
4	8	8	8	10	10
6	8	8	10	10	10
8	8	10	10	10	12

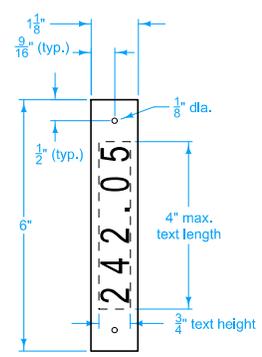


Shoulder Installation



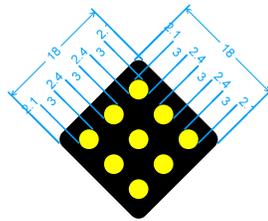
Curb Installation

DELINEATOR POST LOCATIONS



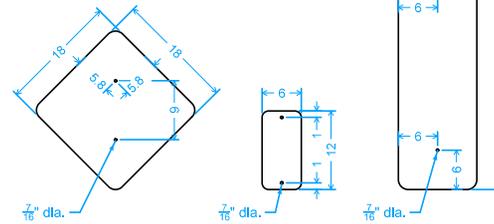
DELINEATOR REFERENCE POINT PLAQUE

 STANDARD ROAD PLAN	REVISION 3 04-19-16
	SI-172
	SHEET 1 of 1
REVISIONS: Widened general notes column to add possible contract items and possible tabulation.	
APPROVED BY DESIGN METHODS ENGINEER <i>Brian Smith</i>	
DELINEATORS	

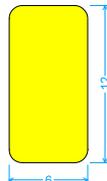


OM1-2:
1.5" Radius, No border, Black

TYPE 1 OBJECT MARKER

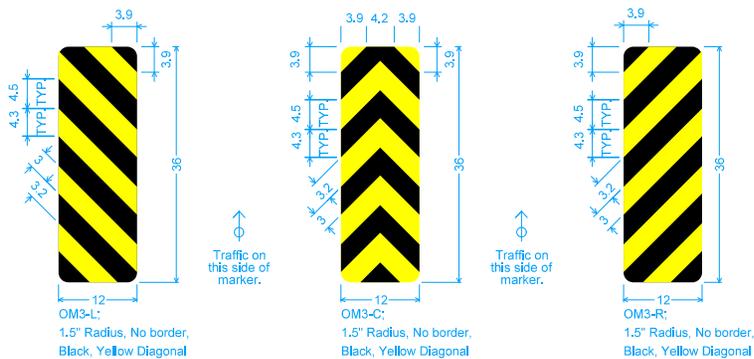


SIGN BLANKS

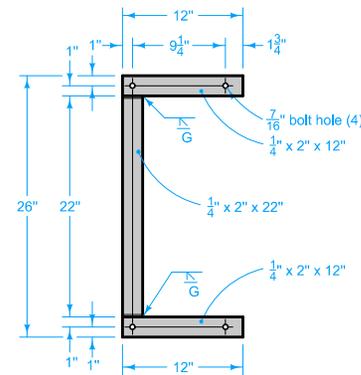


OM2-2:
1" Radius, No border, Yellow

TYPE 2 OBJECT MARKER



TYPE 3 OBJECT MARKERS



OFFSET BRACKET
Galvanize in accordance with AASHTO M 111.

Fabricate object markers from materials complying with Section 4186 of the Standard Specifications.

Buttons on Type 1 Object Markers may consist of yellow reflectors or yellow reflective sheeting. Do not mix types on any single object marker. When reflectors are used, attach to sign blank with an aluminum, brazier head, blind rivet of $\frac{3}{16}$ inch diameter and a grip range of $\frac{1}{8}$ to $\frac{3}{8}$ inches.

Install object markers truly vertical.

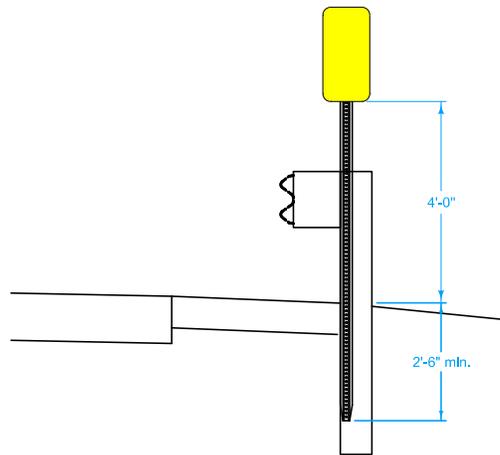
Ensure top of post does not extend above top of object marker.

Possible Contract Item:
Object Marker

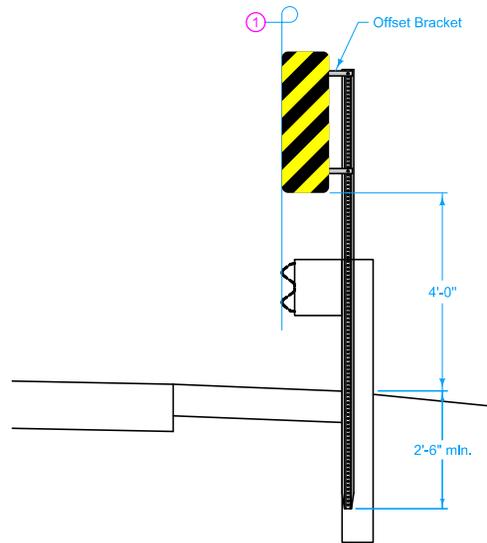
Possible Tabulation:
190-25

 STANDARD ROAD PLAN	REVISION
	1 04-19-16
	SI-173
SHEET 1 of 2	
<small>REVISIONS: Removed OM1-1, OM1-3, and .063" aluminum call out on page 1, Modified general notes, drawing labels, and changed dimensions to 1 pt. of accuracy.</small>	
<i>Brian Smith</i> <small>APPROVED BY DESIGN METHODS ENGINEER</small>	

OBJECT MARKERS

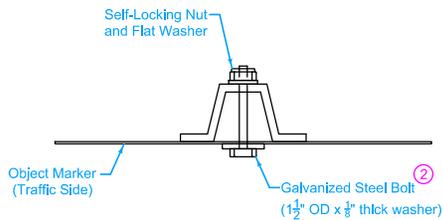


TYPE 2

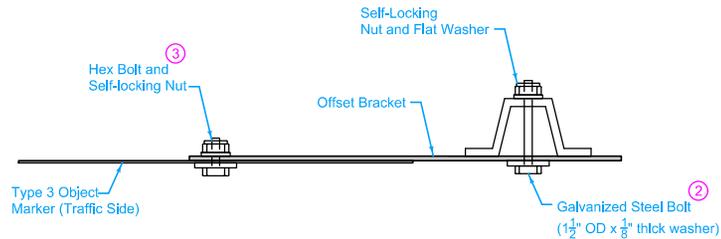


TYPE 3

INSTALLATION AT GUARDRAIL LOCATIONS



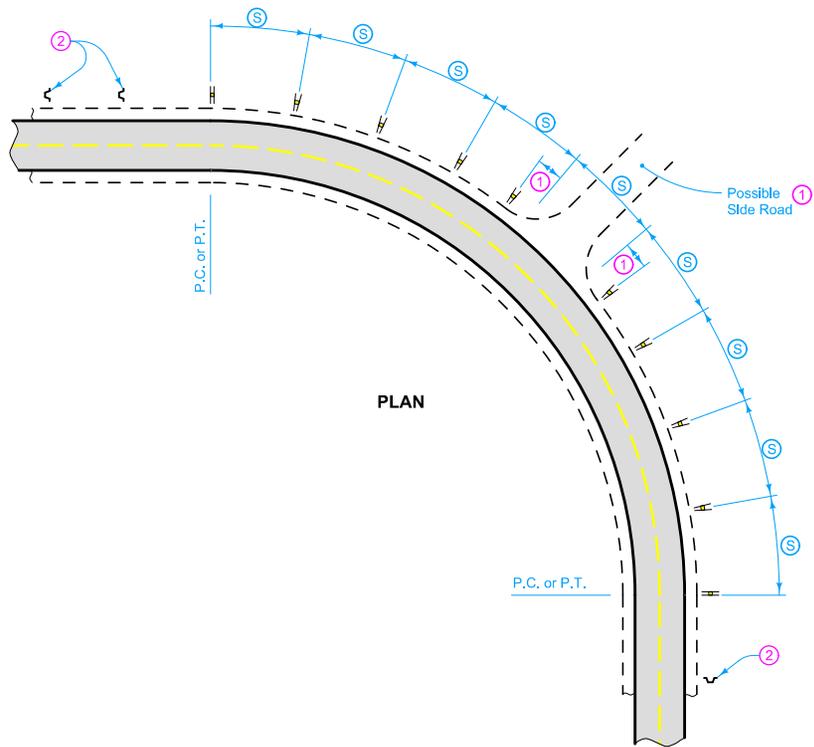
STANDARD ATTACHMENT



OFFSET BRACKET ATTACHMENT

- ① Install Type 3 Object Markers so the inside edge of the marker is in line with the inner edge of the obstruction.
- ② Attach object marker or offset bracket to the delineator post at two locations. Use the following per bolt hole location:
 - one galvanized $\frac{5}{16}$ in. dia x $2\frac{1}{4}$ in. length hex head bolt with matching self locking nut.
 - galvanized steel washer, $\frac{1}{32}$ " ID, $1\frac{1}{2}$ " OD, $\frac{1}{8}$ " thick under the head of the bolt.
- ③ When Type 3 Object Marker is installed on an offset bracket, attach marker to bracket at two locations. Use the following per bolt hole location:
 - one $\frac{5}{16}$ in. dia x $1\frac{1}{2}$ in. length hex head bolt with matching self locking nut.
 - galvanized steel washer, $\frac{1}{32}$ " ID, $1\frac{1}{2}$ " OD, $\frac{1}{8}$ " thick under the head of the bolt.

 STANDARD ROAD PLAN	REVISION
	1 04-19-16
	SI-173
SHEET 2 of 2	
REVISIONS: Removed OM1-1, OM1-3, and .063" aluminum call out on page 1. Modified general notes, drawing labels, and changed dimensions to 1 pt. of accuracy.	
 APPROVED BY DESIGN METHODS ENGINEER	
OBJECT MARKERS	

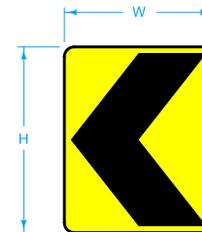
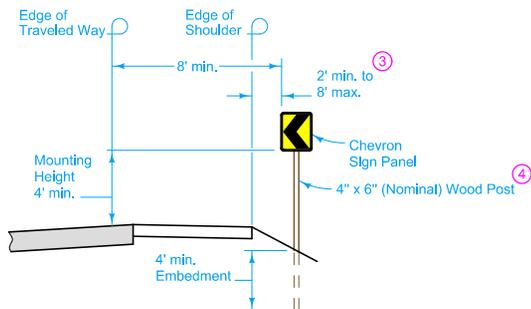


To be effective, Chevron Sign Panels should be visible for at least 500 feet. Attach Chevron Sign Panels to the adjustable brackets at an angle so headlight beams are not reflected back into the driver's eye.

Furnish adjustable brackets in all aluminum or all galvanized steel products. Include locking devices on all bolts.

Each correctly installed "Guidance Marker, Chevron W1-8 (Special)" will be counted and paid for at the contract unit price. Payment is full compensation for furnishing and installing one wood post, two chevron W1-8 sign panels, approved mounting brackets, braces, and all work necessary to install as shown.

- ① Adjust chevron locations as necessary to meet (S) as near as possible.
- ② Possible delineators.
- ③ Align horizontal placement of Chevrons with roadway delineators if applicable.
- ④ Perforated Square Steel Tube (PSST) may be substituted for the wood post if allowed by the Engineer.



CHEVRON SIGN PANEL (W1-8)

Colors: Chevron - Black (non-reflective)
Background - Yellow (reflective)

Possible Contract Item:
Guidance Marker, Chevron W1-8 (Special)

Possible Tabulation:
108-34

LEGEND	
	Guidance Marker, Chevron

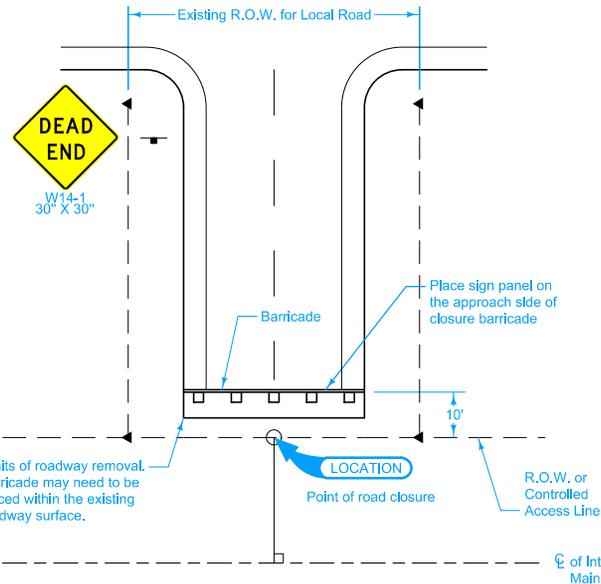
TYPICAL SECTION

 STANDARD ROAD PLAN	REVISION
	3 04-19-16
	SI-175
SHEET 1 of 1	

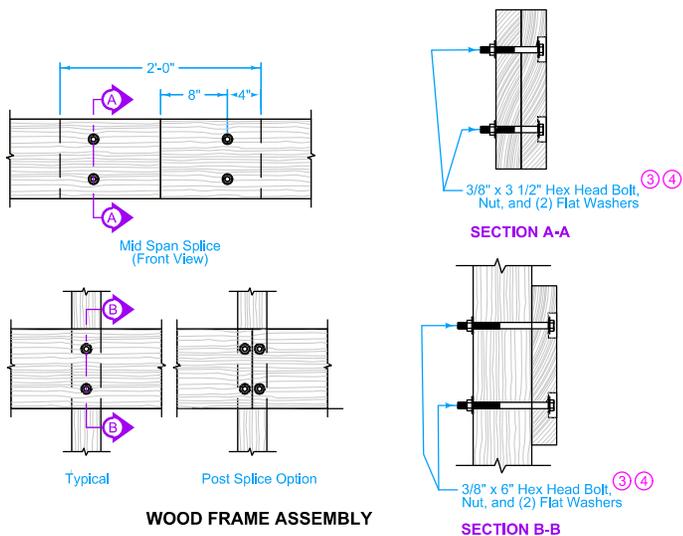
REVISIONS: Changed mounting height to match MUTCD. Removed views of brackets no longer used. Added circle note 4.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

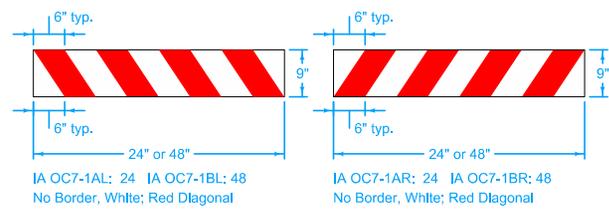
CHEVRONS



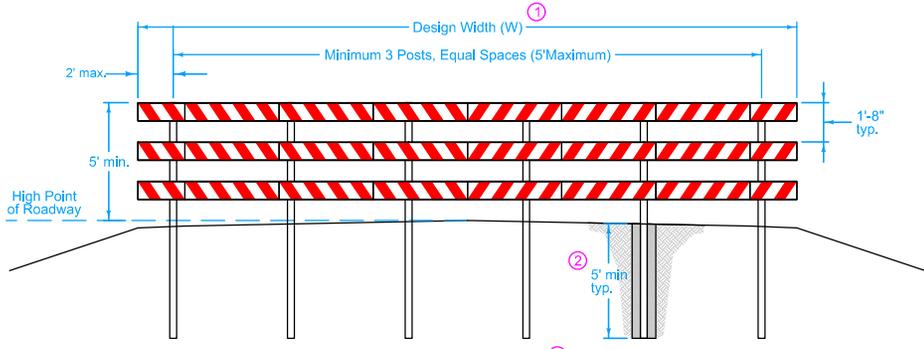
PLAN - INSTALLATION



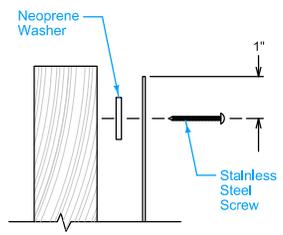
WOOD FRAME ASSEMBLY



SIGN PANEL FABRICATION



APPROACH VIEW



SIGN PANEL INSTALLATION

Price bid for "Permanent Road Closure, Rural, SI-181" includes furnishing and installing the barricade, signs, posts, and hardware.

The length will be measured in linear feet based on the width of standard sign panels installed.

The Contractor will be paid the contract unit price per linear foot.

Minimum Barricade length = design width (W).

- ① Design width (W) equals width of existing roadway and shoulders.
- ② Install posts according to Section 2524.03.B.1 of the Standard Specifications.
- ③ Assemble the wood frame with standard strength, hot dip galvanized bolts, nuts and washers according to the following specifications:

- Bolts - ASTM A307
- Nuts - ASTM A563
- Washers - ASTM F884
- Galvanization - ASTM F2329.

- ④ Recess all bolt heads in a 1 1/4 inch diameter x 1/2 inch deep hole to allow sign panels to lay flush on the planks.

- ⑤ Use 0.063 inch aluminum blank for sign panel. Install sign panel meeting the requirements of Section 2524 of the Standard Specifications. Attach sign panels to the planks along the top and bottom at 2 foot centers using #10 x 1 1/4 inch self-drilling, phillips, pan head, 18-8 stainless steel screws. Use a 1 in. OD x 1/8 in. thick neoprene washer between the sign panel and the treated wood plank to prevent corrosion.

- ⑥ Use pressure treated 4 in. x 4 in. x 12 ft. nominal boards for posts, and pressure treated 2 in. x 10 in. x variable length nominal boards for planks. Use planks of sufficient length to span at least 2 posts.

Possible Contract Item:
Permanent Road Closure, Rural, SI-181

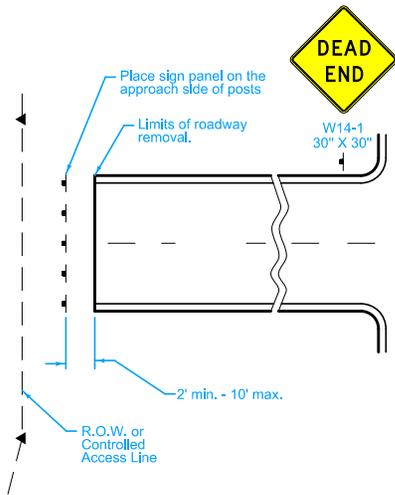
Possible Tabulation:
102-4

IOWA DOT	REVISION	
	2	10-18-16
STANDARD ROAD PLAN		SI-181
		SHEET 1 of 1

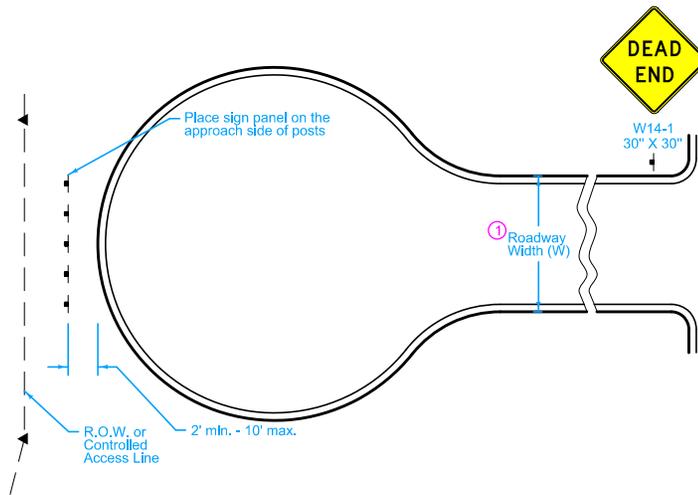
REVISIONS: Replaced old Iowa DOT logo with new logo.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

PERMANENT ROAD CLOSURE - RURAL



DEAD END WITHOUT CUL-DE-SAC

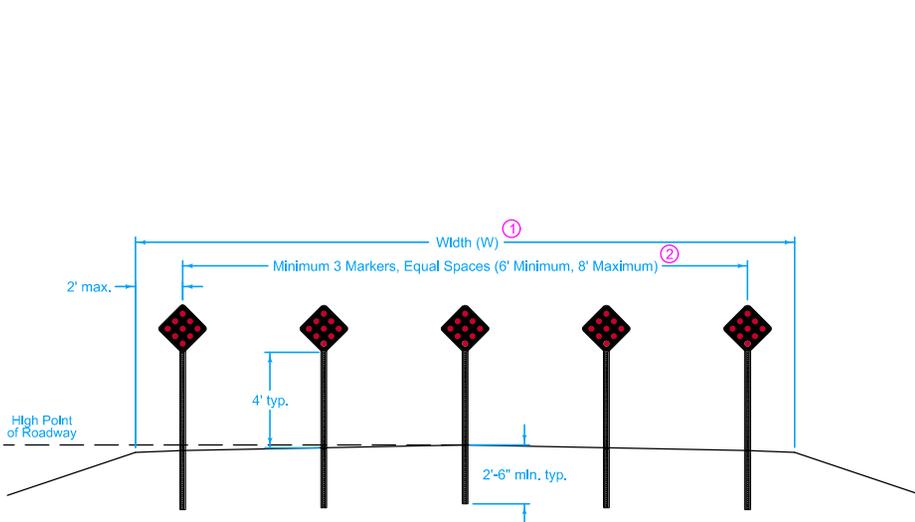


DEAD END WITH CUL-DE-SAC

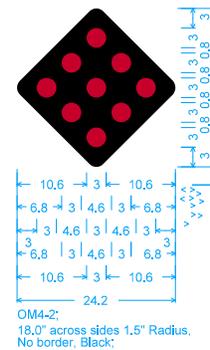
Price bid for "Permanent Road Closure, Urban, SI-182" includes furnishing and installing the closure, signs, posts, and hardware.

Closures will be counted and the contractor will be paid the contract unit price for each closure.

- ① Width includes the width of the existing roadway and shoulders.
- ② Type I delineator posts.
- ③ Use 0.063 inch aluminum blank with Type IV retro reflective sheeting for sign panel.



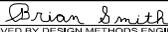
APPROACH VIEW



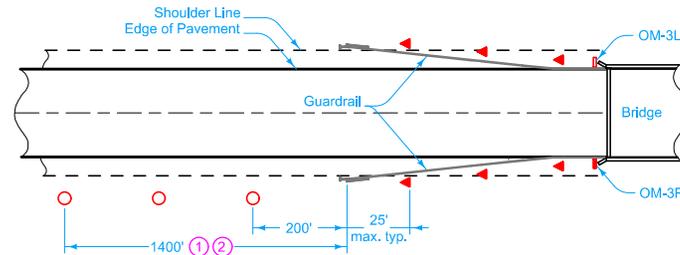
END OF ROADWAY MARKER FABRICATION

Possible Contract Item:
Permanent Road Closure, Urban, SI-182

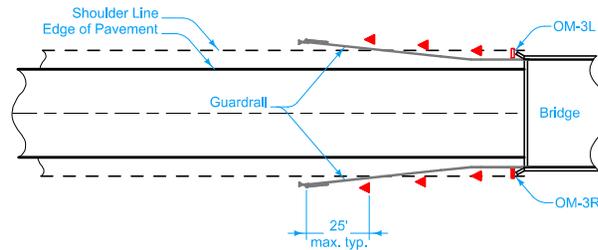
Possible Tabulation:
102-4

IOWA DOT	REVISION	
	2	04-19-16
STANDARD ROAD PLAN		SI-182
		SHEET 1 of 1
<small>REVISIONS: Removed OM4-1 and OM4-3 from END OF ROADWAY MARKER FABRICATION detail. Revised note 3 and APPROACH VIEW detail.</small>		
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
PERMANENT ROAD CLOSURE - URBAN		

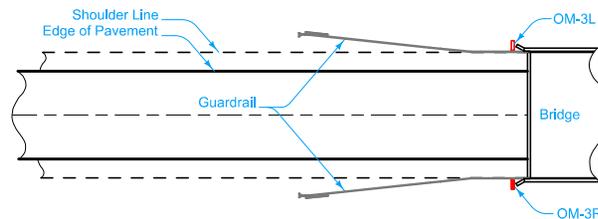
See [SI-172](#) for details of Delineators and [SI-173](#) for details of Object Markers.



**TYPE 1
BRIDGE OR CONCRETE BARRIER RAIL**
(LESS THAN FULL SHOULDER WIDTH AND BRIDGE/ROADWAY WIDTH LESS THAN 30 FT.)



**TYPE 2
BRIDGE OR CONCRETE BARRIER RAIL**
(LESS THAN FULL SHOULDER WIDTH AND BRIDGE/ROADWAY WIDTH 30 FT. OR GREATER)



**TYPE 3
BRIDGE OR CONCRETE BARRIER RAIL**
(FULL SHOULDER WIDTH)

INSTALLATION AT BRIDGES

LEGEND	
	Type 3 Object Marker, Left (OM-3L)
	Type 3 Object Marker, Right (OM-3R)
	Type 2 Object Marker
	Rigid Delineator, Type 1 White

TYPE 1:

Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Install Type 3 Object Marker at the bridge ends. On paved roadways only, install 7 Single White Delineators at 200 foot spacing beginning 200 feet in front of the approach end of the guardrail. For ramp terminals see note 2.

TYPE 2:

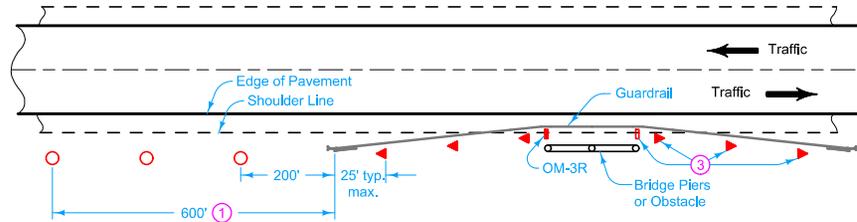
Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Install Type 3 Object Marker at the bridge ends.

TYPE 3:

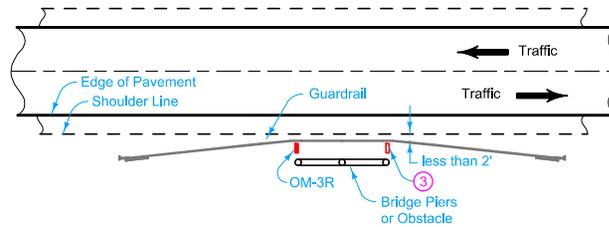
Install Type 3 Object Markers at the bridge ends.

- ① Not required on projects where delineators are proposed or installed throughout the length of the project.
- ② At ramp terminals only, install Single White Delineators as follows: Place first delineator at location where near ramp terminal radius meets the edge of the through pavement. Place additional delineator(s) spaced equally (spacing not to exceed 200 feet) between first delineator and guardrail.

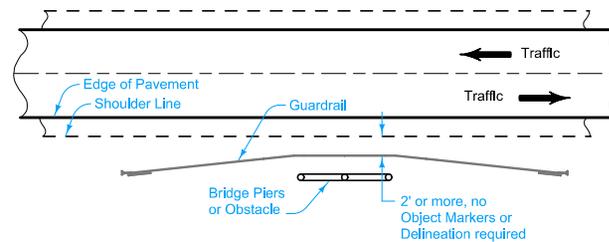
	REVISION
	2 10-18-16
STANDARD ROAD PLAN	SI-211
	SHEET 1 of 3
REVISIONS: Replaced old Iowa DOT logo with new logo.	
APPROVED BY DESIGN METHODS ENGINEER 	
OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL	



TYPE 4
MARKING SIDE OBSTACLES
 (STEEL BEAM GUARDRAIL ON THE SHOULDER)



TYPE 5
MARKING SIDE OBSTACLES
 (STEEL BEAM GUARDRAIL LESS THAN 2 FT. FROM THE SHOULDER LINE)



TYPE 6
MARKING SIDE OBSTACLES
 (STEEL BEAM GUARDRAIL 2 FT. OR MORE FROM THE SHOULDER LINE)

INSTALLATION AT SIDE OBSTACLES

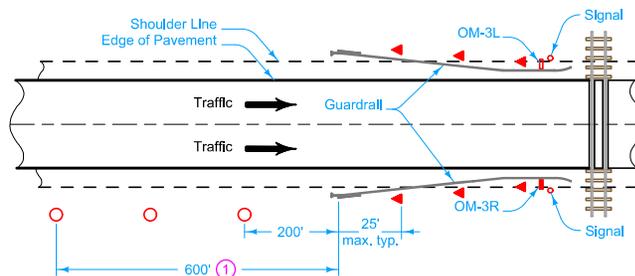
LEGEND	
	Type 3 Object Marker, Left (OM-3L)
	Type 3 Object Marker, Right (OM-3R)
	Type 2 Object Marker
	Rigid Delineator, Type 1 White

TYPE 4:

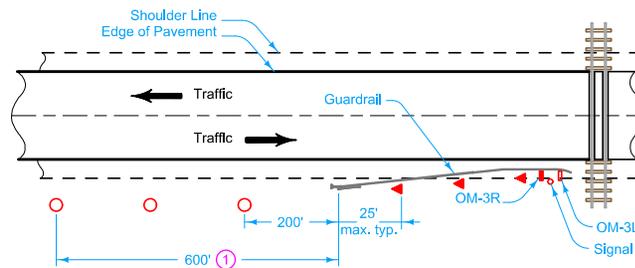
Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Beginning 200 feet in front of approach end of the guardrail, install 3 Single White Delineators at 200 foot spacing. Additional markers as shown.

- ① Not required on projects where delineators are proposed or installed throughout the length of the project.
- ③ Type 2 and Type 3 Object Marker at trailing end of obstacle not required when one-way traffic exists.

	REVISION	
	2	10-18-16
STANDARD ROAD PLAN	SI-211	
SHEET 2 of 3		
<small>REVISIONS: Replaced old Iowa DOT logo with new logo.</small>		
<i>Brian Smith</i> <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL		



TYPE 7
MARKING RAILROAD CROSSING SIGNALS
 (ONE-WAY TRAFFIC)



TYPE 8
MARKING RAILROAD CROSSING SIGNALS
 (TWO-WAY TRAFFIC)

TYPE 7:

Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Beginning 200 feet in front of approach end of the outside guardrail, install 3 Single White Delineators at 200 foot spacing.

TYPE 8:

Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Beginning 200 feet in front of approach end of the right guardrail, install 3 Single White Delineators at 200 foot spacing.

① Not required on projects where delineators are proposed or installed throughout the length of the project.

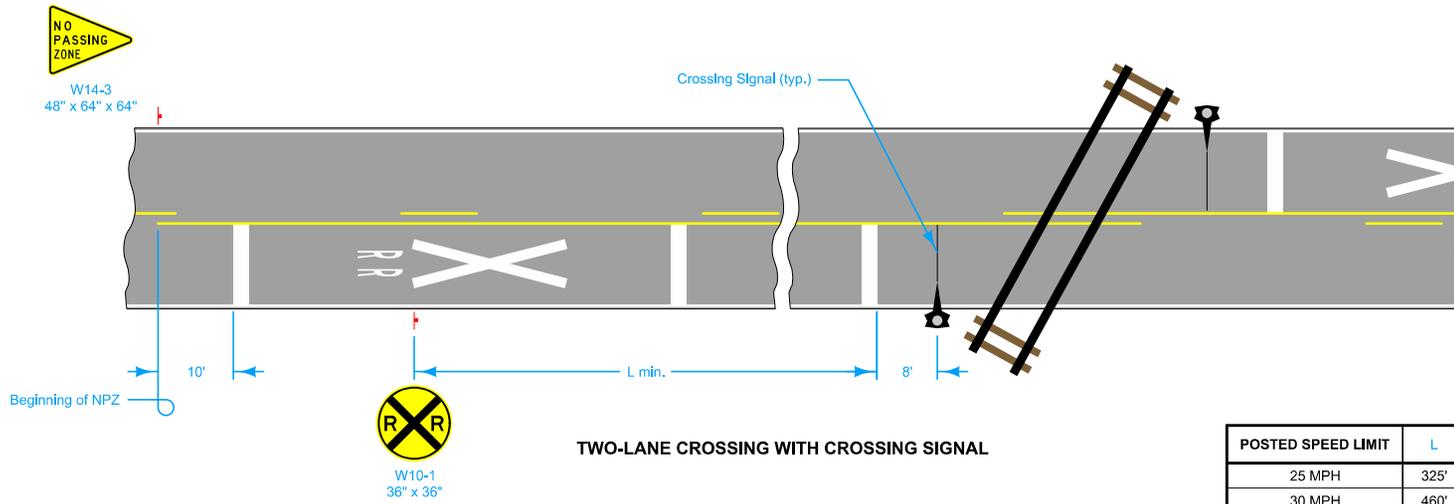
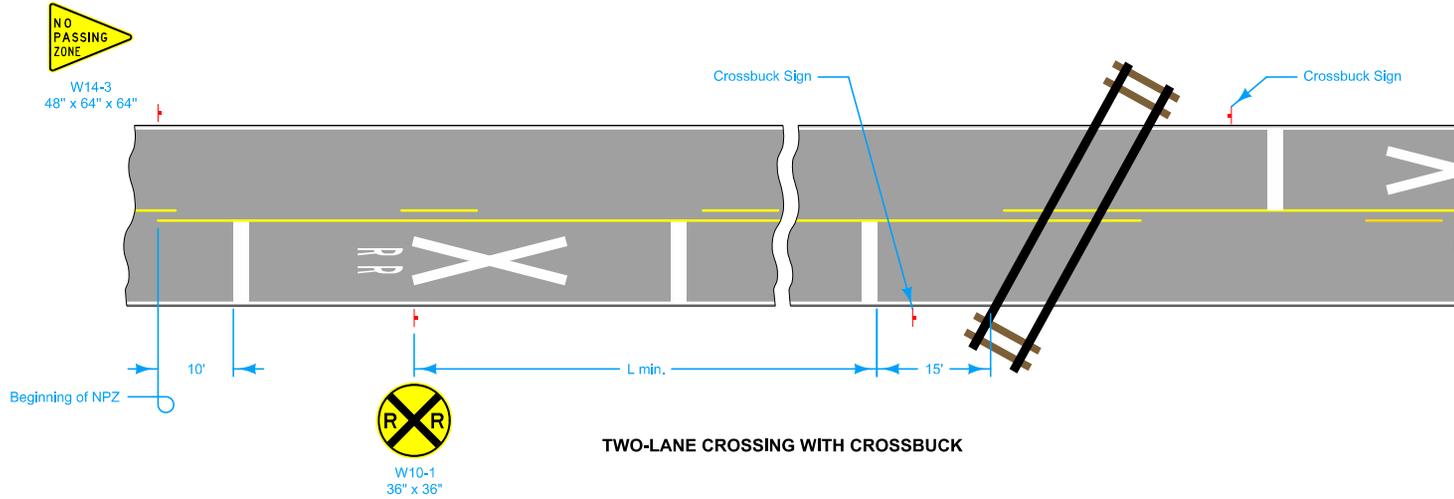
LEGEND

-  Type 3 Object Marker, Left (OM-3L)
-  Type 3 Object Marker, Right (OM-3R)
-  Type 2 Object Marker
-  Rigid Delineator, Type 1 White

INSTALLATION AT RAILROADS

	REVISION	
	2	10-18-16
STANDARD ROAD PLAN	SI-211	
	SHEET 3 of 3	
REVISIONS: Replaced old Iowa DOT logo with new logo.		
 APPROVED BY DESIGN METHODS ENGINEER		
OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL		

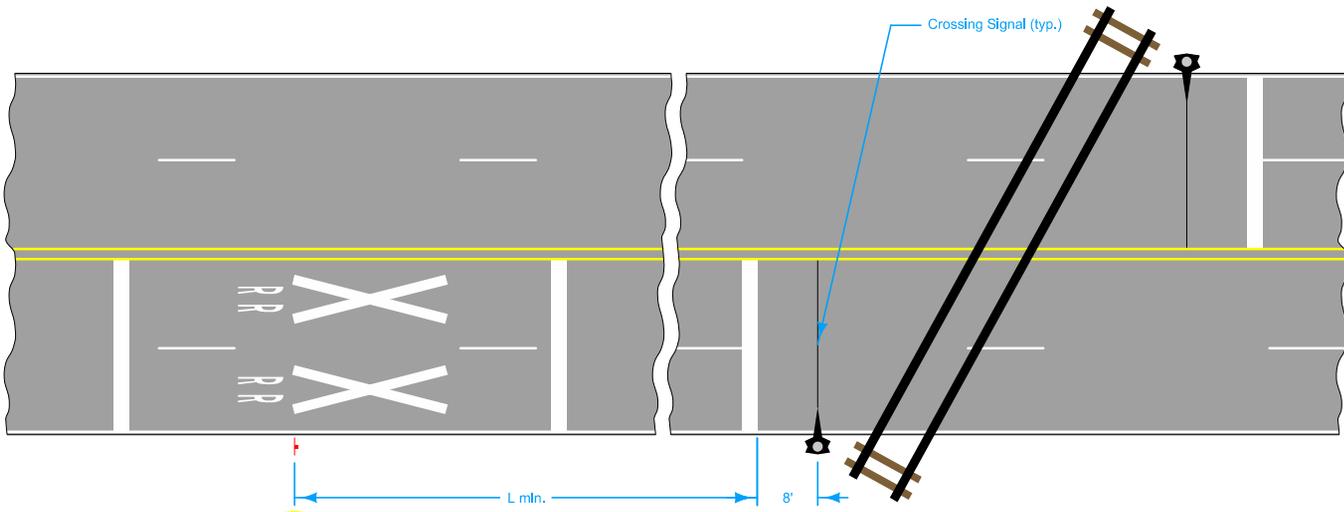
For pavement marking information, see [PM-240](#) and [PM-242](#).



LEGEND	
	Traffic Sign

POSTED SPEED LIMIT	L
25 MPH	325'
30 MPH	460'
35 MPH	565'
40 MPH	670'
45 MPH	775'
50 MPH	885'
55 MPH	990'
60 MPH	1100'
65 MPH	1200'

 STANDARD ROAD PLAN	REVISION
	1 10-18-16
	SI-241
SHEET 1 of 2	
<small>REVISIONS: Changed No Passing Zone sign size from 48" x 60" x 60" to 48" x 64" x 64". Replaced old Iowa DOT logo with new logo.</small>	
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>	
SIGN PLACEMENT APPROACHING A RAILROAD CROSSING	

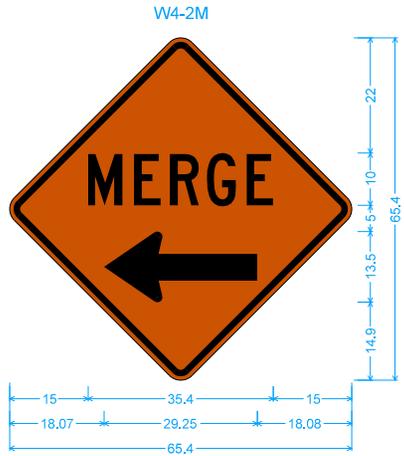


FOUR-LANE CROSSING WITH CROSSING SIGNAL

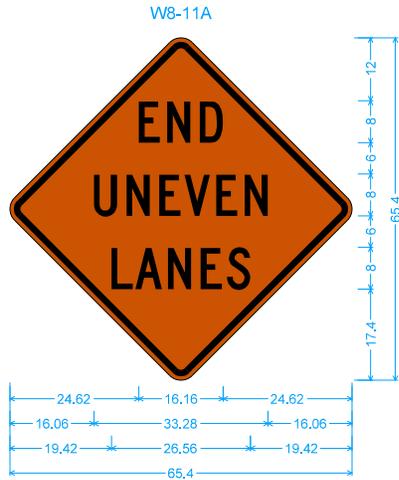
LEGEND
 Traffic Sign

POSTED SPEED LIMIT	L
25 MPH	325'
30 MPH	460'
35 MPH	565'
40 MPH	670'
45 MPH	775'
50 MPH	885'
55 MPH	990'
60 MPH	1100'
65 MPH	1200'

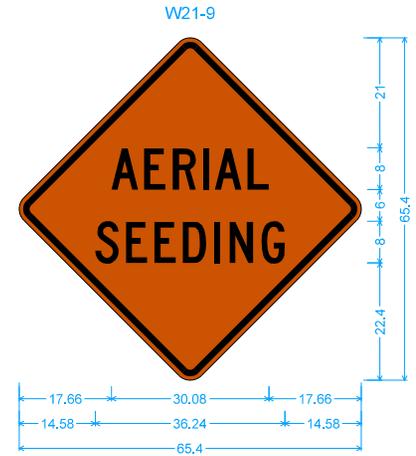
 STANDARD ROAD PLAN	REVISION
	1 10-18-16
	SI-241
SHEET 2 of 2	
<small>REVISIONS: Changed No Passing Zone sign size from 48" x 60" x 60" to 48" x 64" to 64". Replaced old Iowa DOT logo with new logo.</small>	
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>	
SIGN PLACEMENT APPROACHING A RAILROAD CROSSING	



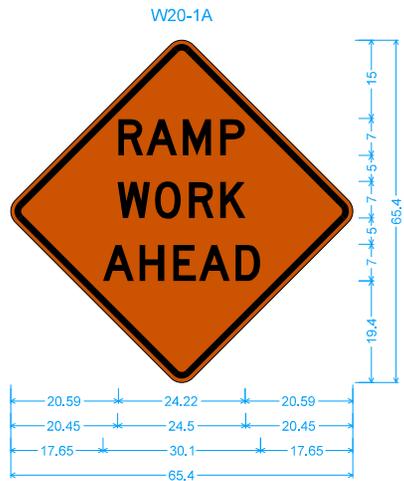
W4-2M;
48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[MERGE] C 2K;
Standard Arrow Custom 29.25" X 13.50" 180°;



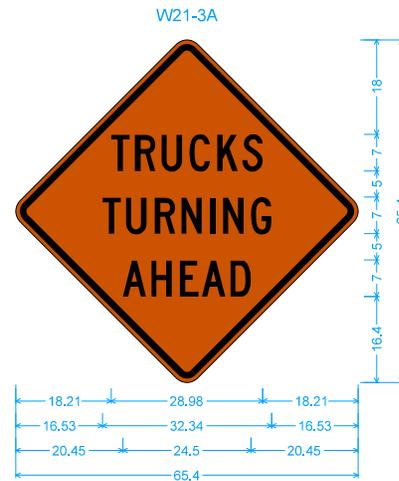
W8-11A;
48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[END] C 2K; [UNEVEN] C 2K; [LANES] C 2K;



W21-9;
48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[AERIAL] C 2K; [SEEDING] C 2K;

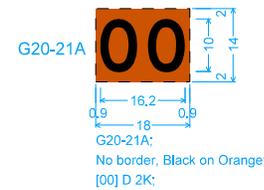
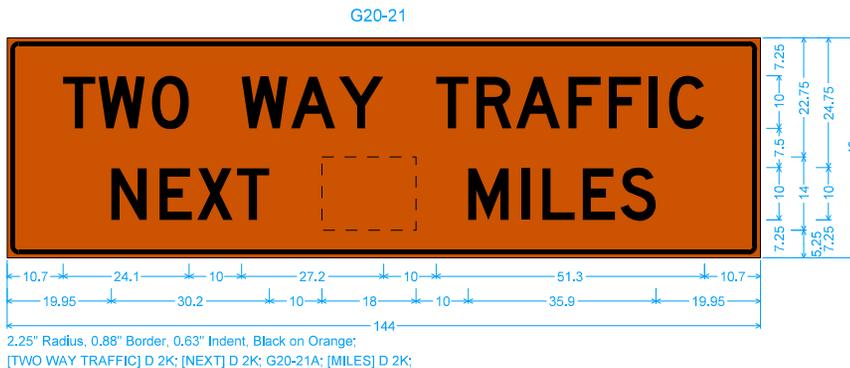
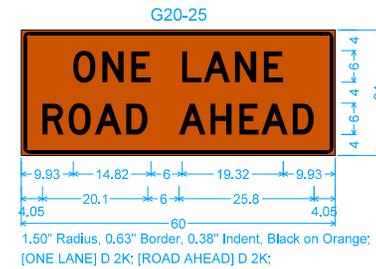
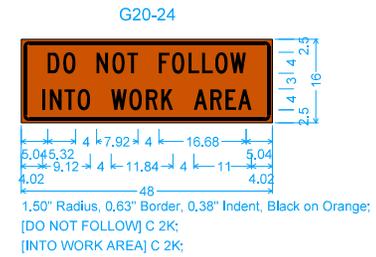
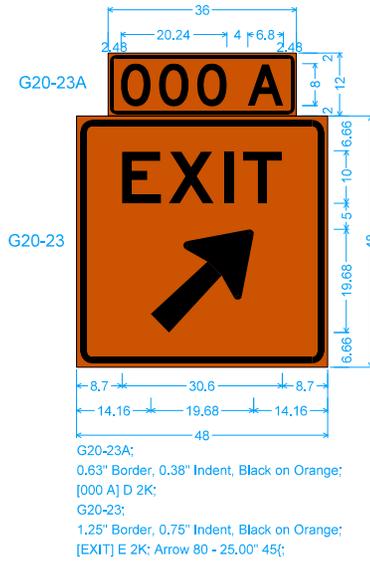


W20-1A;
48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[RAMP] D 2K; [WORK] D 2K; [AHEAD] D 2K;

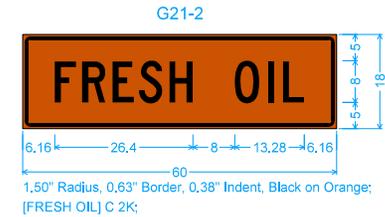
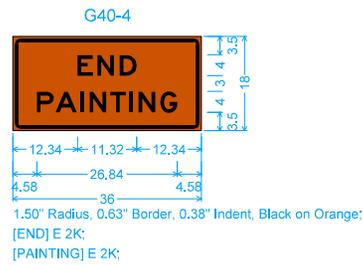
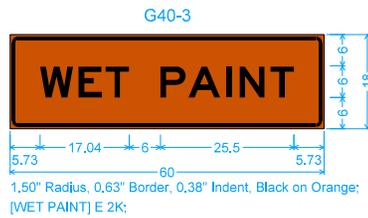


W21-3A;
48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[TRUCKS] C 2K; [TURNING] C 2K;
[AHEAD] C 2K;

	REVISION
	4 10-18-16
STANDARD ROAD PLAN	SI-881
SHEET 1 of 3	
REVISIONS: Replaced old Iowa DOT logo with new logo.	
APPROVED BY DESIGN METHODS ENGINEER	
SPECIAL SIGNS FOR WORKZONES	



	REVISION	
	4	10-18-16
STANDARD ROAD PLAN	SI-881	
REVISIONS: Replaced old Iowa DOT logo with new logo.		
 APPROVED BY DESIGN METHODS ENGINEER		
SPECIAL SIGNS FOR WORKZONES		



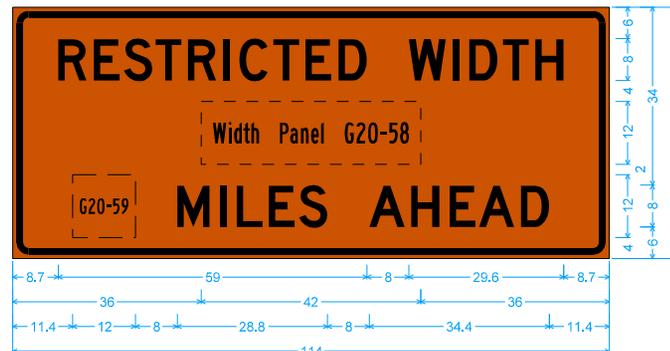
 STANDARD ROAD PLAN	REVISION
	4 10-18-16
SI-881 SHEET 3 of 3	
REVISIONS: Replaced old Iowa DOT logo with new logo.	
 APPROVED BY DESIGN METHODS ENGINEER	
SPECIAL SIGNS FOR WORKZONES	

G20-51



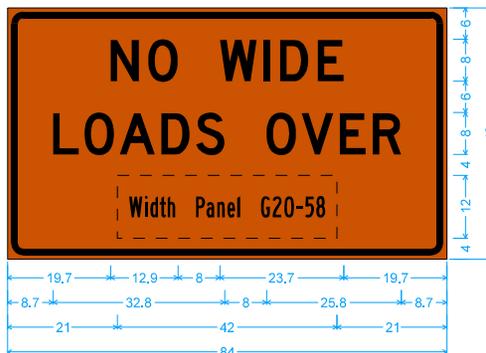
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
[RESTRICTED WIDTH] D 2K; [MILES AHEAD] D 2K; [USE NEXT EXIT] D 2K;

G20-52



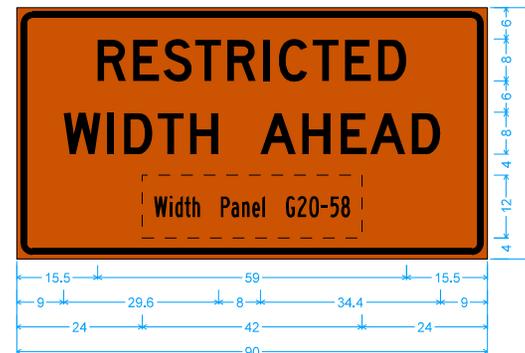
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
[RESTRICTED WIDTH] D 2K; [MILES AHEAD] D 2K;

G20-54



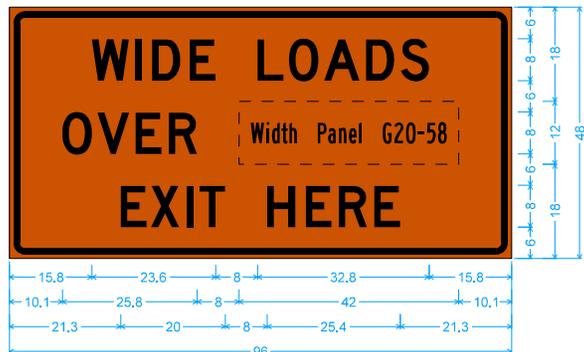
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
[NO WIDE] D 2K; [LOADS OVER] D 2K;

G20-55



3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
[RESTRICTED] D 2K; [WIDTH AHEAD] D 2K;

G20-53



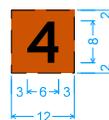
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
[WIDE LOADS] D 2K; [OVER] D 2K; [EXIT HERE] D 2K;

G20-58 ①



No border, Orange;
[44'] Black D 2K;
[-] Black D 2K;
[4"] Black D 2K;

G20-59

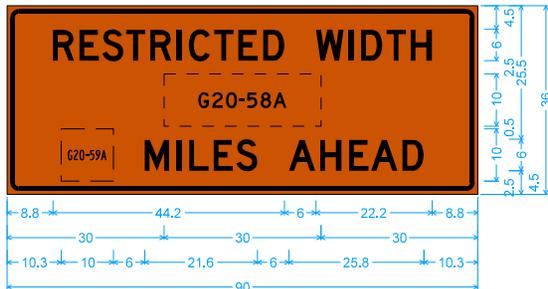


No border, Orange;
[4] Black D 2K;

① See TC-81 for requirement of restricted width dimension.

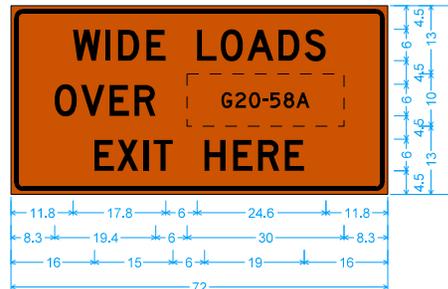
	REVISION
	1 10-18-16
STANDARD ROAD PLAN	SI-882
REVISIONS: Replaced old Iowa DOT logo with new logo.	SHEET 1 of 2
 APPROVED BY DESIGN METHODS ENGINEER	
SPECIAL SIGNS FOR RESTRICTED WIDTH TRAFFIC CONTROL ZONES	

G20-52A



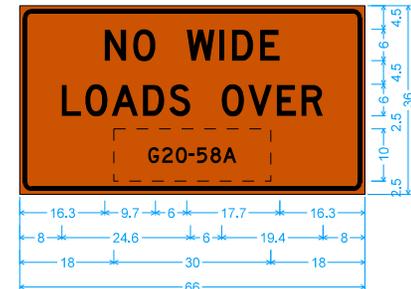
2.3" Radius, 0.9" Border, 0.6" Indent, Black on Orange;
 [RESTRICTED WIDTH] D 2K; [MILES AHEAD] D 2K;

G20-53A



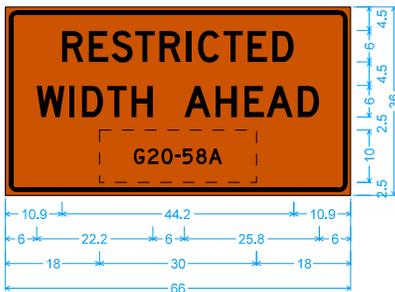
2.3" Radius, 0.9" Border, 0.6" Indent, Black on Orange;
 [WIDE LOADS] D 2K; [OVER] D 2K;
 [EXIT HERE] D 2K;

G20-54A



2.3" Radius, 0.9" Border, 0.6" Indent, Black on Orange;
 [NO WIDE] D 2K; [LOADS OVER] D 2K;

G20-55A



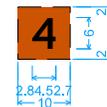
2.3" Radius, 0.9" Border, 0.6" Indent, Black on Orange;
 [RESTRICTED] D 2K; [WIDTH AHEAD] D 2K;

G20-58A ①



No border, Orange;
 [44'] Black D 2K;
 [-] Black D 2K;
 [4'] Black D 2K;

G20-59A



No border, Orange;
 [4] Black D 2K;

① See TC-81 for requirement of restricted width dimension.

	REVISION
	1 10-18-16
STANDARD ROAD PLAN	SI-882
SHEET 2 of 2	
REVISIONS: Replaced old Iowa DOT logo with new logo.	
 APPROVED BY DESIGN METHODS ENGINEER	
SPECIAL SIGNS FOR RESTRICTED WIDTH TRAFFIC CONTROL ZONES	