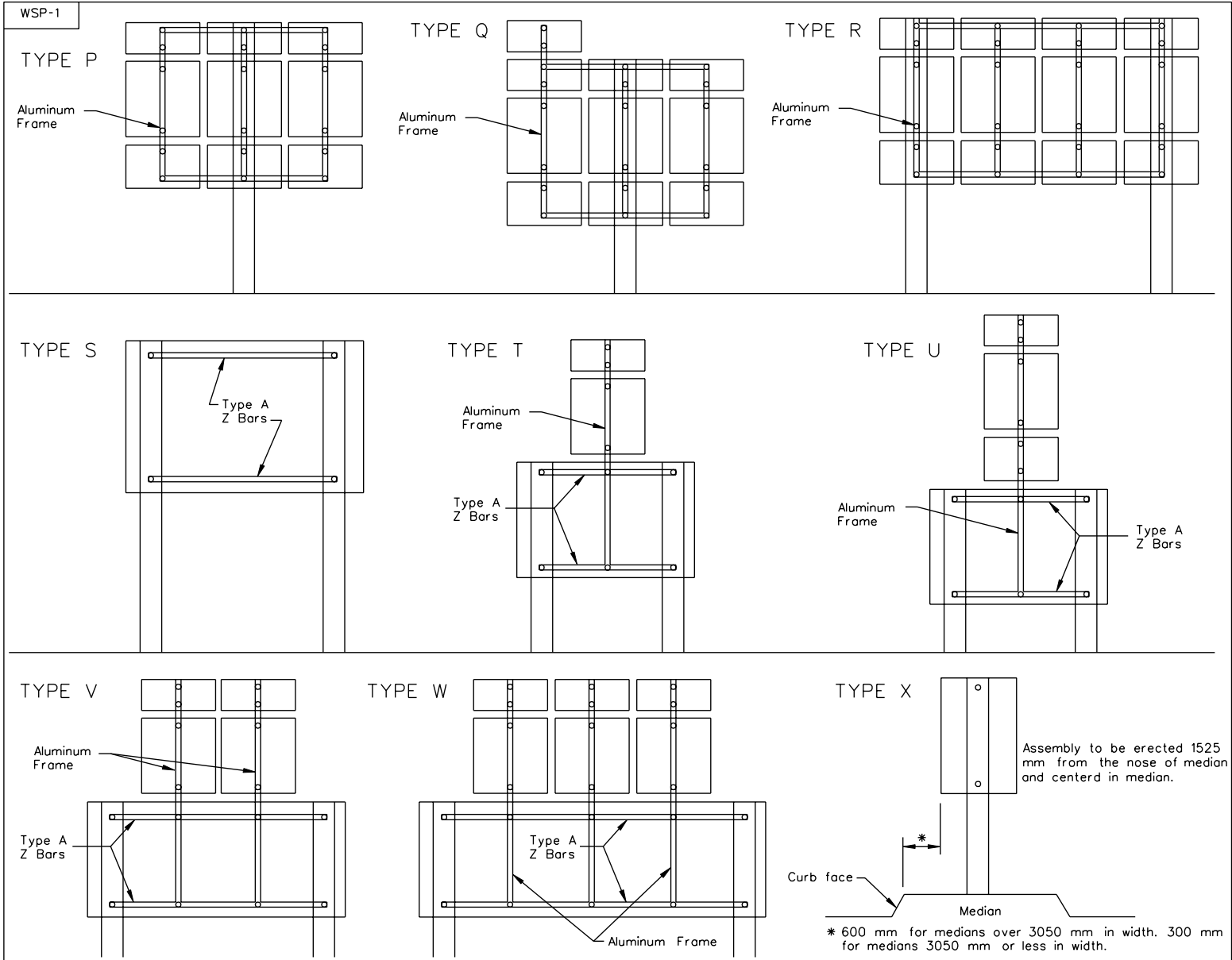


SPECIFICATION REFERENCE

### TYPICAL DETAILS FOR STANDARD WOOD POST STRUCTURE TYPES

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

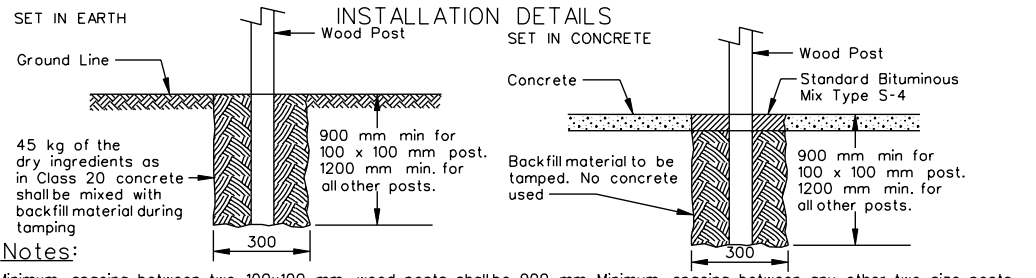


TYPICAL DETAILS FOR STANDARD WOOD POST STRUCTURE TYPES

SPECIFICATION REFERENCE

1301.53 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION



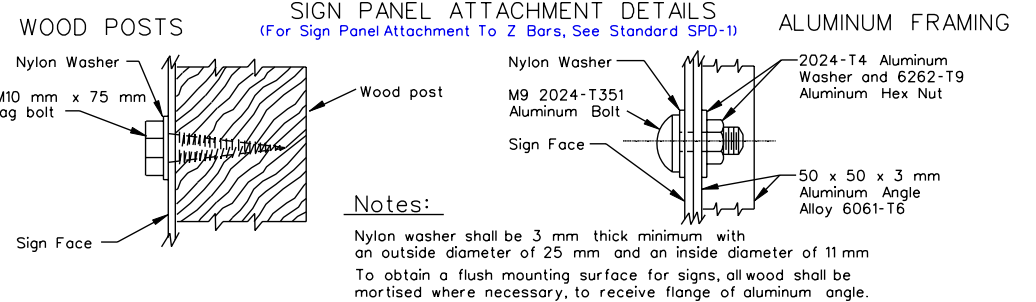
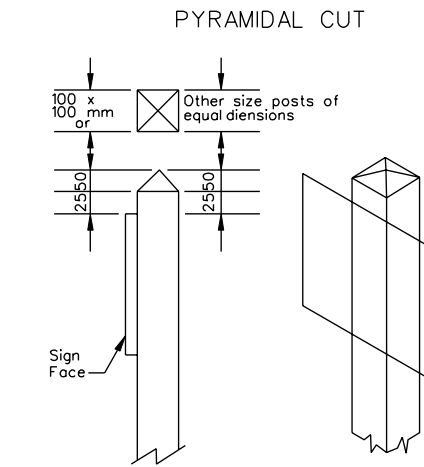
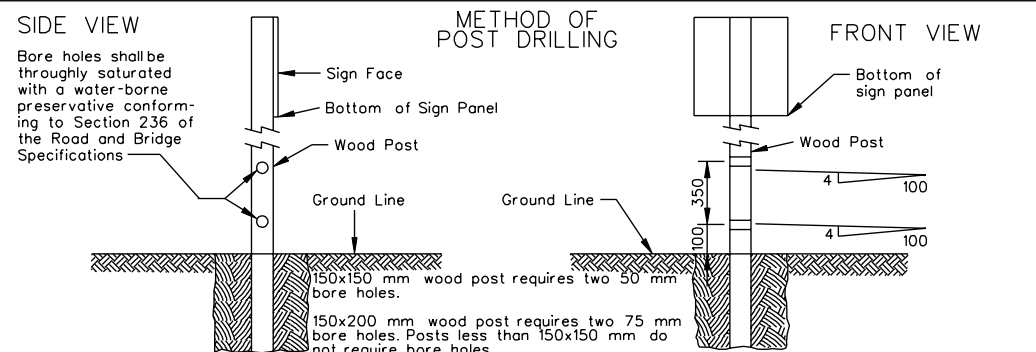
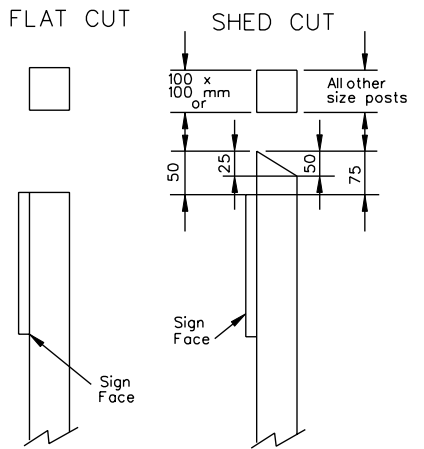
45 kg of the dry ingredients as in Class 20 concrete shall be mixed with backfill material during tamping.

**Notes:**  
Minimum spacing between two 100x100 mm wood posts shall be 900 mm. Minimum spacing between any other two size posts shall be 2400 mm.

On limited access highways, the distance between pavement surface (at edge of pavement) and bottom of sign panel for secondary and directional signs shall be 1500 and 2100 mm, respectively. Route markers, warning and regulatory signs shall be a minimum of 1800 mm between pavement surface (at edge of pavement) and bottom of sign panel. However, if located a minimum of 9000 mm from edge of roadway, the distance between pavement surface (at edge of pavement) and bottom of sign panel may be a minimum of 1500 mm.

On non-limited access highways, the distance between pavement surface (at edge of pavement) and bottom of sign panel for rural and urban localities shall be a minimum of 1500 mm and, between 2100 and 3600 mm, respectively. The distance between pavement surface (at edge of pavement) and bottom of a secondary sign panel may be 300 mm less.

In addition to the above, the following requirements shall be met. Distance between ground line and top of sign panel for a single post sign structure shall be a minimum of 2700 mm. Distance between ground line and bottom of sign panel for a dual post sign structure shall be a minimum of 2100 mm.



**Notes:**  
Nylon washer shall be 3 mm thick minimum with an outside diameter of 25 mm and an inside diameter of 11 mm  
To obtain a flush mounting surface for signs, all wood shall be mortised where necessary, to receive flange of aluminum angle.

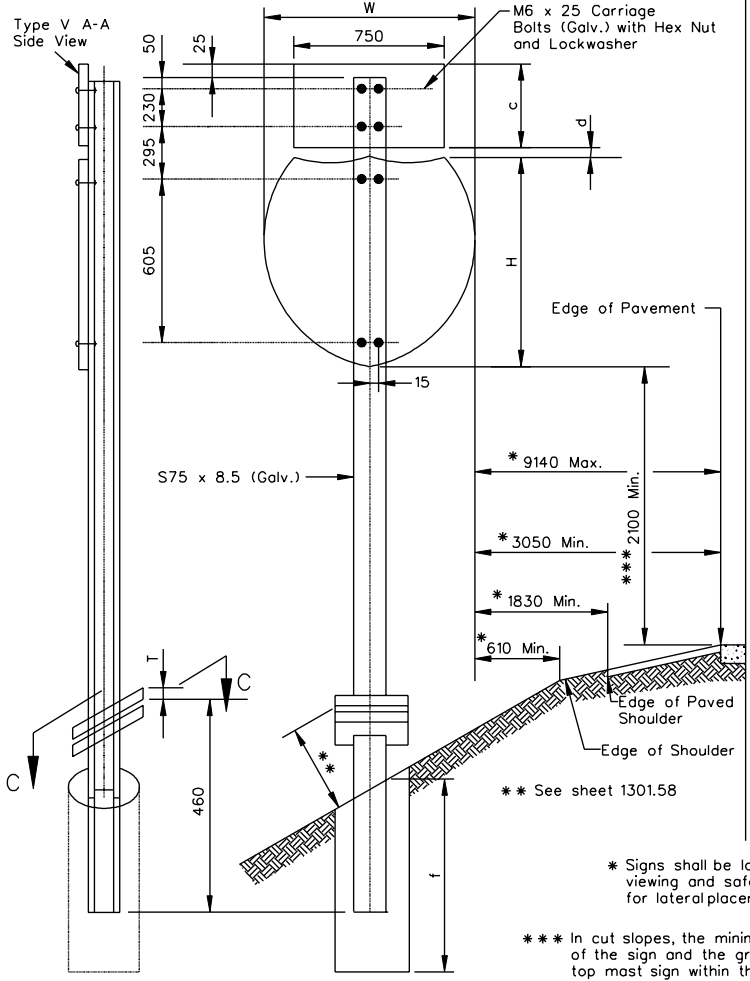
**Note:**  
Flat cut wood post is shown on Types A through X as typical. Shed cut and pyramidal cut wood post designs may be used; however the style of wood post shall be uniform throughout a project.

SPECIFICATION REFERENCE
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## TYPICAL DETAILS FOR STANDARD WOOD POST STRUCTURE TYPES

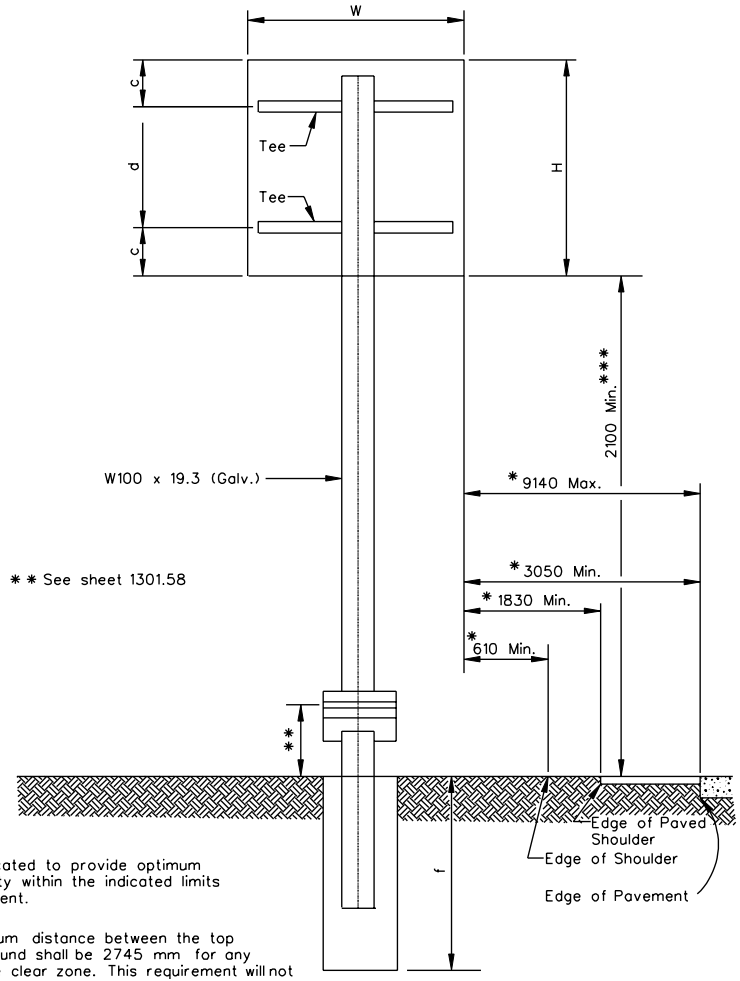
VIRGINIA DEPARTMENT OF TRANSPORTATION

TYPE VA-A



See Sheet 1301.57 for Section C-C

TYPES VA-B, VA-C, VA-D, VA-E, VA-L AND VA-M



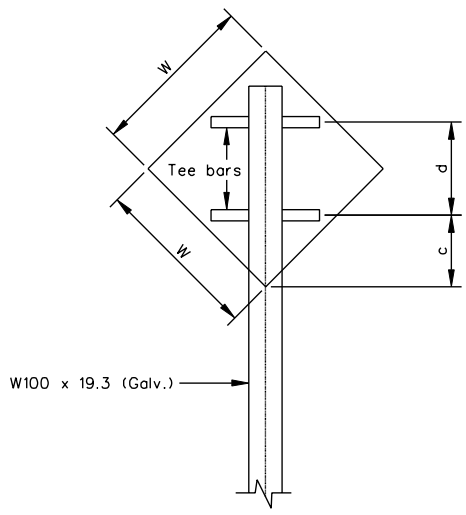
\* Signs shall be located to provide optimum viewing and safety within the indicated limits for lateral placement.

\*\*\* In cut slopes, the minimum distance between the top of the sign and the ground shall be 2745 mm for any top mast sign within the clear zone. This requirement will not apply to signs located more than 3050 mm up a slope greater than 3:1.

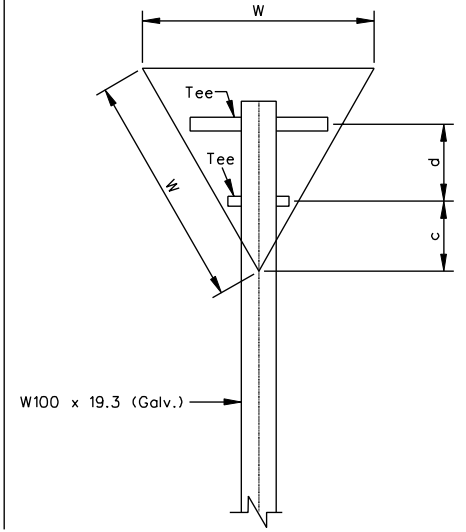
TYPICAL DETAILS FOR TYPE VA SIGN STRUCTURES

SPECIFICATION REFERENCE

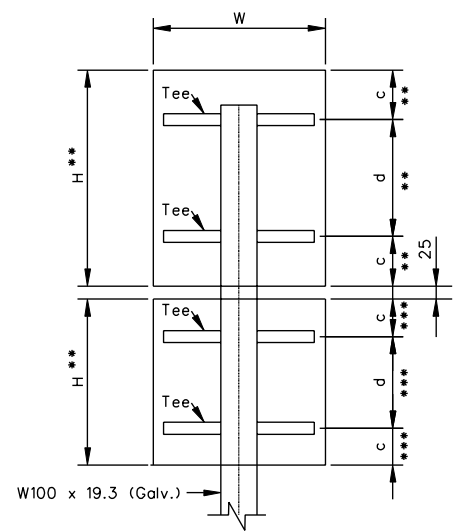
TYPE VA-F



TYPE VA-G



TYPE VA-K



SUPPORT DETAILS

STRUCTURE TYPE	SIGN PANEL DIMENSIONS				POST LENGTH DIMENSIONS		TEE 6061-T6 63.5 x 76.2 @ 1.75 kg/m		FOUNDATION DIMENSIONS		WELDED WIRE MESH		STEEL BASE PLATE
	W (mm)	H (mm)	c (mm)	d (mm)	Slope 3:1 to 2:1 (mm)	Clamp	Number	Length (mm)	f (mm)	Diameter (mm)	Length (mm)	Sq. Meters	T (Thickness)
VA-A	900	900	375	16	3675	-	-	-	900	300	750	0.46	12
VA-B	1200	1200	350	500	3675	4	2	900	1350	525	1300	1.86	25
VA-C	1200	1500	375	750	3975	4	2	900	1350	525	1300	1.86	25
VA-D	1500	900	200	500	3825	4	2	1200	1350	525	1300	1.86	25
VA-E	1800	1500	375	750	4125	4	2	1500	1350	525	1300	1.86	25
VA-F	1200	-	500	700	4125	4	2	850	1350	525	1300	1.86	25
VA-G	1500	-	500	-	3900	4	1 each	850 & 400	1350	525	1300	1.86	25
VA-K	1200 **	1500 **	375 **	750	5175	4	2	900	1350	525	1300	1.86	25
VA-K	1200 ***	1200 ***	350 ***	500	-	4	2	900	-	-	-	-	-
VA-L	1800	1800	450	900	4350	4	2	1500	1350	525	1300	1.86	25
VA-M	1500	1500	375	750	4125	4	2	1200	1350	525	1300	1.86	25
VA-A2	1800	900	375	16	4125	-	4	1500	1350	525	1300	1.86	25

\* All post lengths shall be field checked by contractor prior to fabrication.

SPECIFICATION REFERENCE

TYPICAL DETAILS FOR TYPE VA  
SIGN STRUCTURES

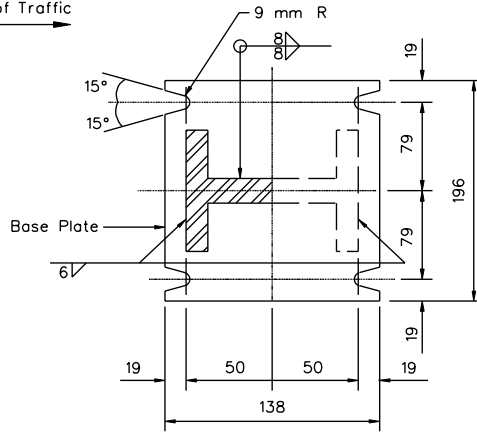
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

SSP-VA

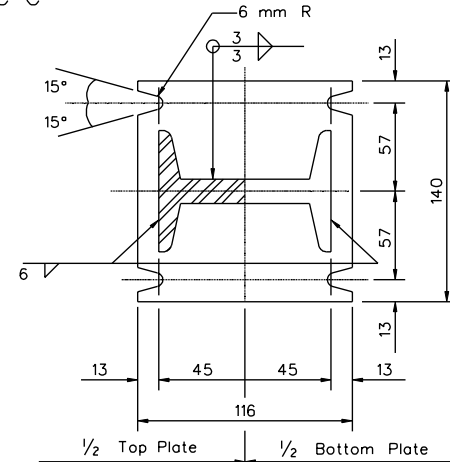
SECTION A-A

Direction of Traffic



SECTION B-B

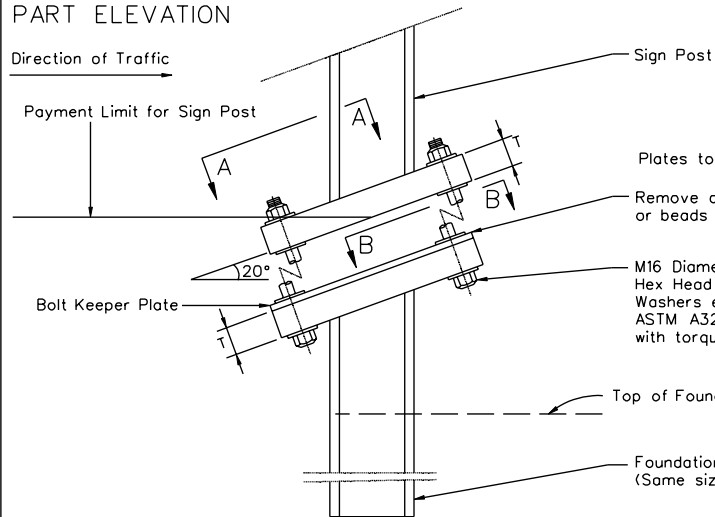
SECTION C-C



For Type VA-A, use M12 Diameter High Strength Bolts with Hex Head, Hex Nut and 3 Washers each Stainless Steel or ASTM A325M. Bolts to be installed with a torque of 18 N·m for typical assembly, see Project Plans.

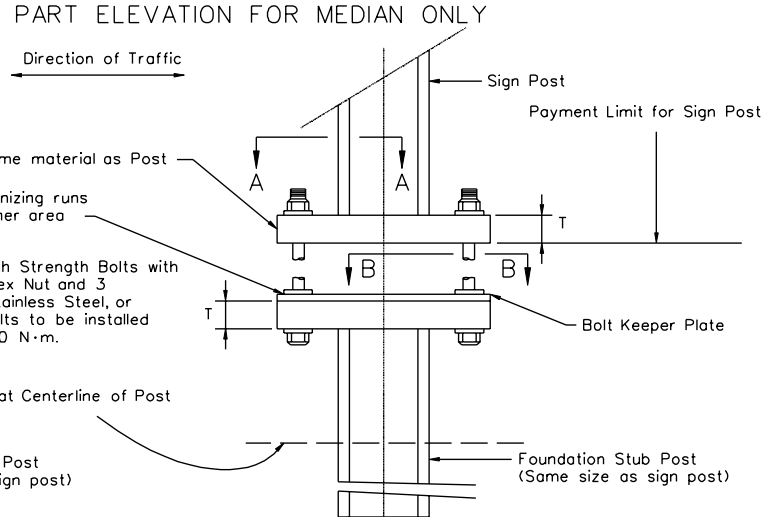
PART ELEVATION

Direction of Traffic



PART ELEVATION FOR MEDIAN ONLY

Direction of Traffic



TYPICAL DETAILS FOR TYPE VA  
SIGN STRUCTURES

VIRGINIA DEPARTMENT OF TRANSPORTATION

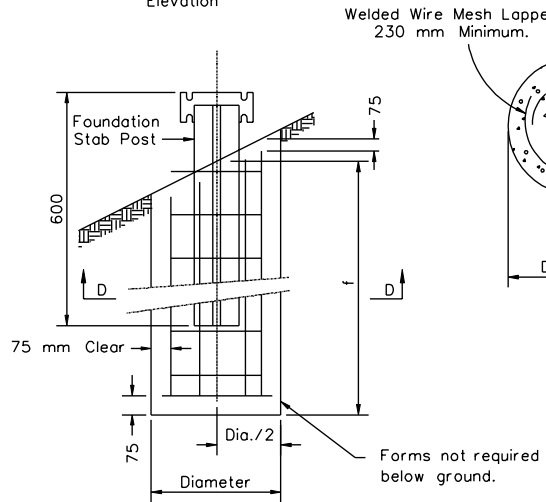
SPECIFICATION  
REFERENCE

1301.57

UNLESS OTHERWISE NOTED, ALL DIMENSIONS  
ON THIS SHEET ARE IN MILLIMETERS

FOUNDATION

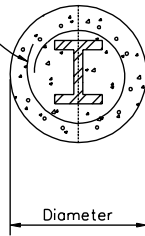
Elevation



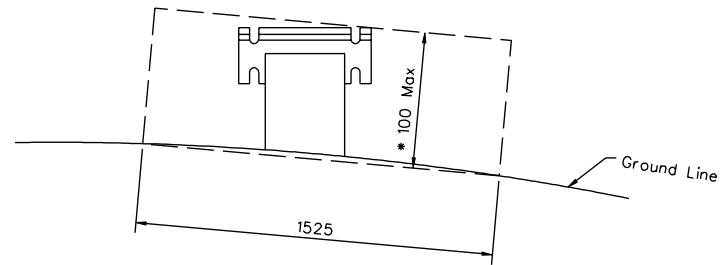
152 x 152 - MW35 x MW35

\*\* 152 x 152 - MW19 x MW19

SECTION D-D



METHOD TO DETERMINE  
MAXIMUM PROJECTION OF SIGN STUB POST



- \* 100 mm Maximum projection when measured above a 1525 mm chord aligned radially to the centerline of the highway and connecting any point, within the length of the chord, on the ground surface on one side of the support to a point on the ground surface on the other side.
- \*\* Requires two layers offset in both directions resulting in 75 mm square openings.

SPECIFICATION  
REFERENCE

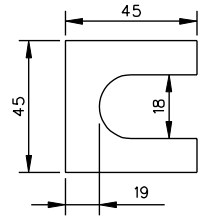
TYPICAL DETAILS FOR TYPE VA  
SIGN STRUCTURES

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS  
ON THIS SHEET ARE IN MILLIMETERS

1301.58

SHIM DETAIL

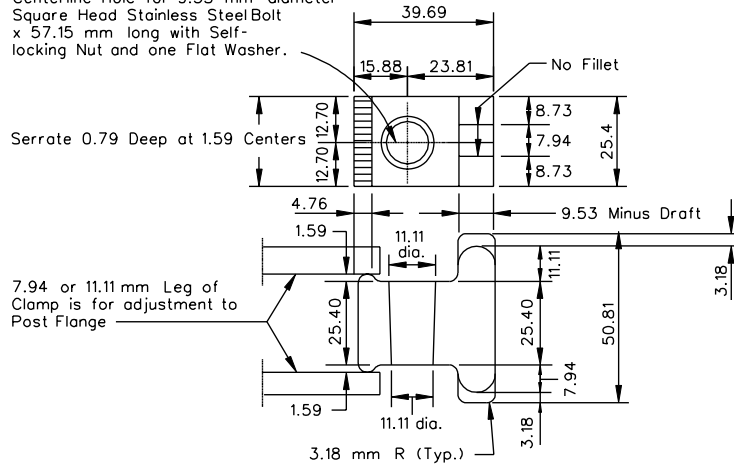


Furnish 2 @ 2 mm thick and 2 @ 1 mm thick shims per post. Shims shall be fabricated from brass conforming to ASTM B36 or from stainless steel with a minimum chromium content of 11.50%. No more than 2 shims shall be used per bolt with a maximum of 4 shims per post.

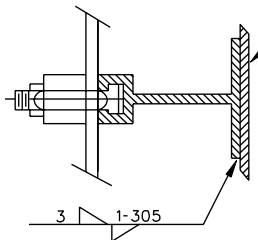
POST CLAMP DETAIL

Galvanized Gray - Iron or Aluminum Casting

Centerline Hole for 9.53 mm diameter Square Head Stainless Steel Bolt x 57.15 mm long with Self-locking Nut and one Flat Washer.

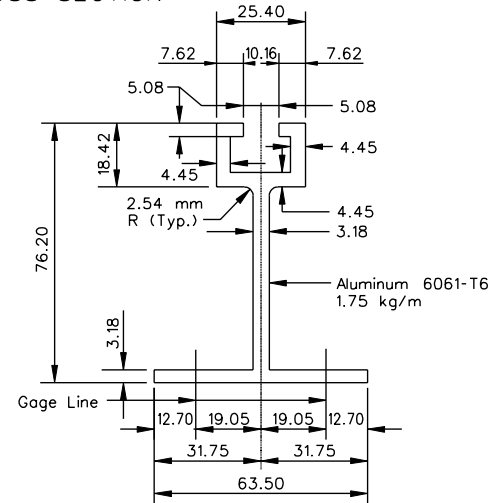


ALTERNATE FASTENING



Attach sign to tee bar by using 1100-H18 aluminum alloy 6 mm - 20 x 12 mm long studs electrically welded to back of sign panel by the Capacitor Discharge Method. Maximum horizontal spacing of studs shall be on 150 mm centers beginning 25 mm from each end of tee bar. 7075-T6 aluminum alloy spring lockwasher 6.5 mm I.D. x 12.5 mm O.D. x 1.5 mm thick shall be provided for each stud. 6262-T9 aluminum alloy 6 mm - 20 hexagon head nut, torque to 3 N.m, shall be provided for each stud.

TEE CROSS SECTION

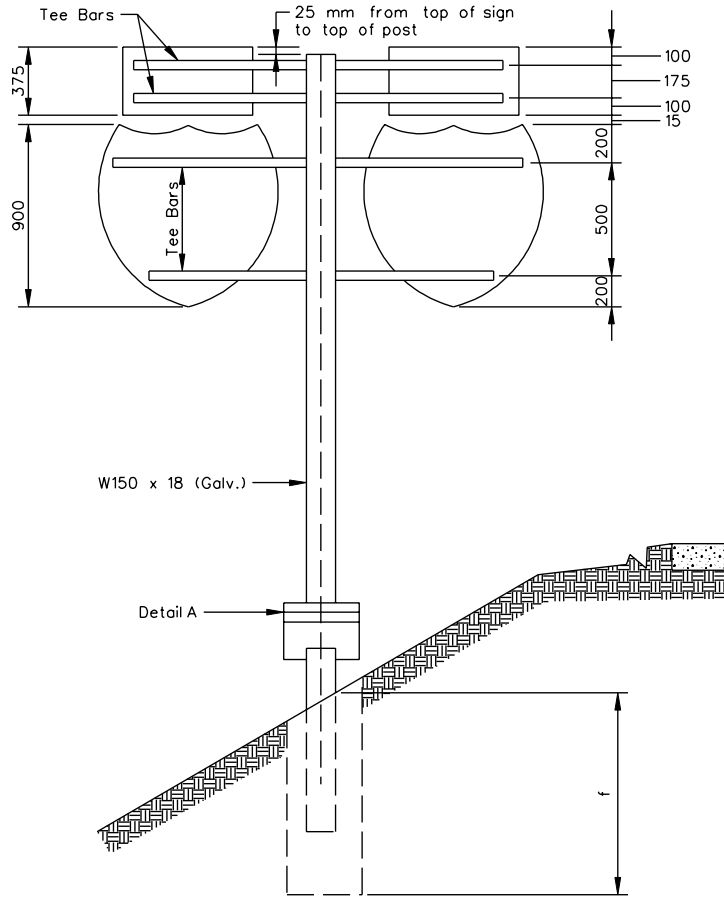


TYPICAL DETAILS FOR TYPE VA SIGN STRUCTURES

SPECIFICATION REFERENCE



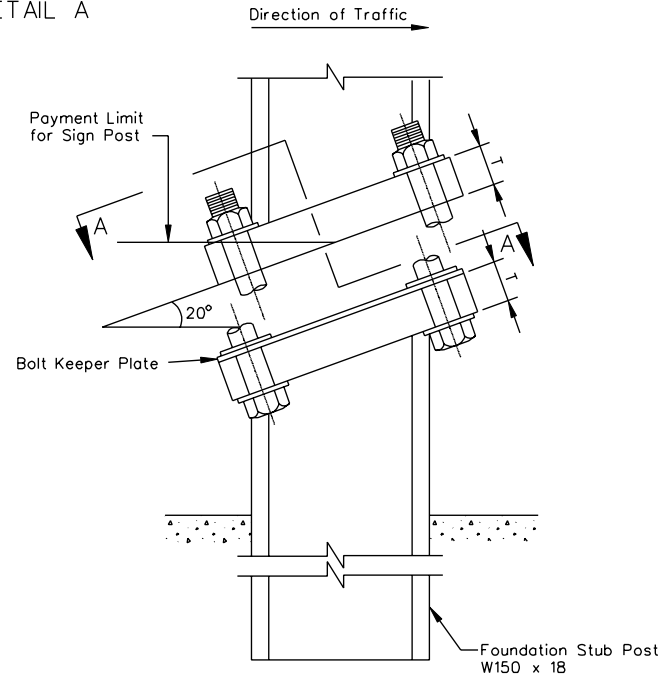
TYPE VA-A2



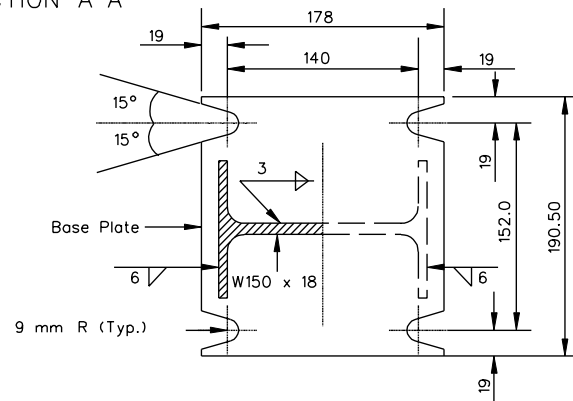
NOTES:

- There is to be a maximum space of 25 mm between signs
- Cardinal directions are to be centered above shields.
- For details of shims, tee bars, clamps, and other notes, see standard 1301.59.

DETAIL A



SECTION A-A



SPECIFICATION REFERENCE

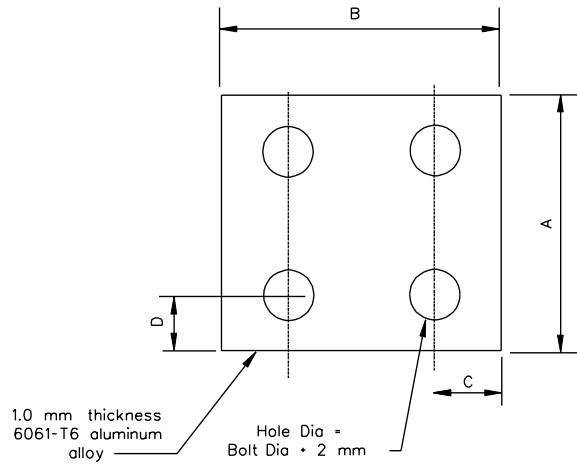
TYPICAL DETAILS FOR TYPE VA SIGN STRUCTURES

VIRGINIA DEPARTMENT OF TRANSPORTATION

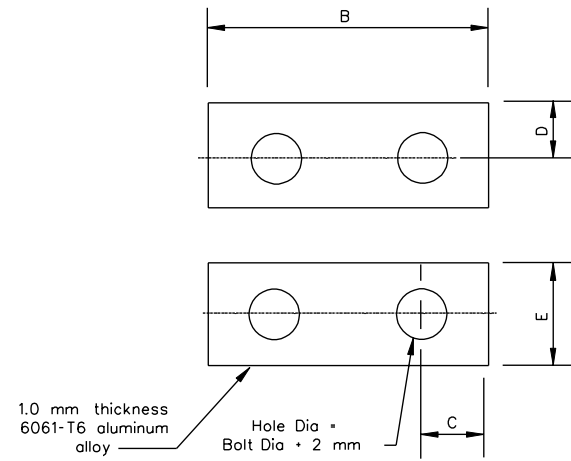
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

1301.60

BOLT KEEPER PLATE



ALTERNATE BOLT KEEPER PLATE



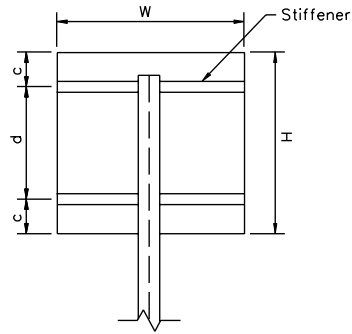
BOLT KEEPER PLATE DATA

POST SHAPE	A	B	C	D	E
S75 x 8.5	125	100	12	12	25
W100 x 19	197	140	19	19	38
W150 x 18	190	178	19	19	38

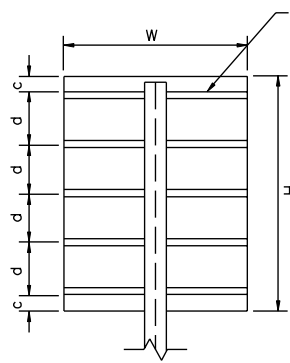
TYPICAL DETAILS FOR TYPE VA  
SIGN STRUCTURES

SPECIFICATION  
REFERENCE

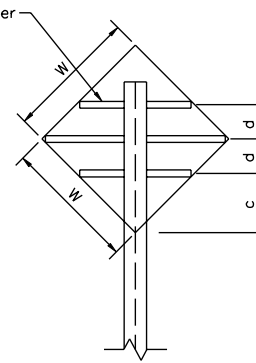
TYPES VA-B, VA-C, VA-D,  
VA-L AND VA-M



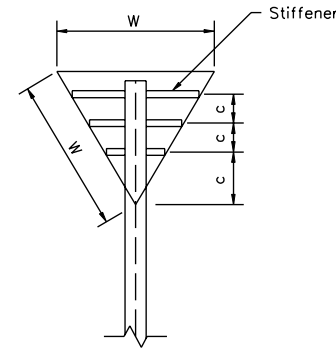
TYPES VA-E



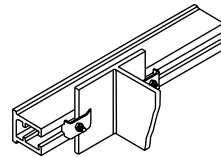
TYPES VA-F



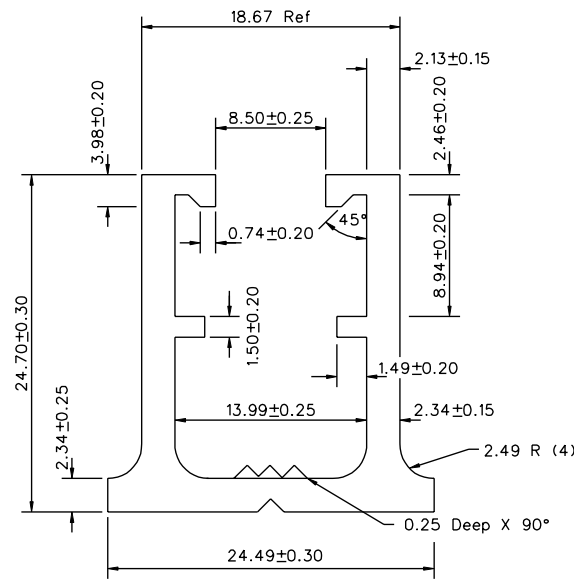
TYPES VA-G



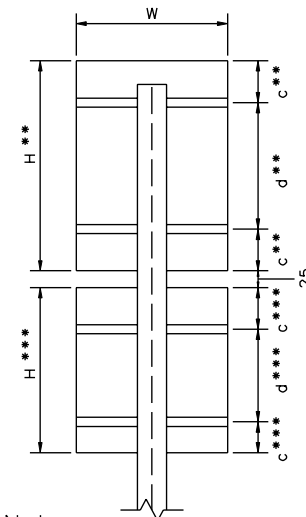
STIFFENER TO POST  
ATTACHMENT DETAIL



MEDIUM STIFFENER  
DETAIL



TYPES VA-K



**Note:**

Rivets shall be used for securing the stiffeners to the sign panel and shall be 5 mm minimum diameter by 12 mm long aluminum and capable of withstanding a minimum shear force of 2047 N. Rivet spacing for attaching the stiffeners to beginning 38 mm from the ends of the sign panel.

STRUCTURE TYPE	W	H	c	d	STIFFENERS	
					NO.	SIZE
VA-B	1200	1200	165	890	2	MEDIUM
VA-C	1200	1500	310	890	2	MEDIUM
VA-D	1500	900	175	860	2	MEDIUM
VA-E	1800	1500	0	685	5	MEDIUM
VA-F	1200	—	200	660	3	MEDIUM
VA-G	1500	—	400	—	3	MEDIUM
VA-K	1200	1500	310	890	2	MEDIUM
	1200	1200	165	890	2	MEDIUM
VA-L	1800	1800	150	685	5	MEDIUM
VA-M	1500	1500	200	860	3	MEDIUM

See Standard SSP-VIA for post clamp and bolt details.  
See sheets 1301.55 thru 1301.59 for other details.

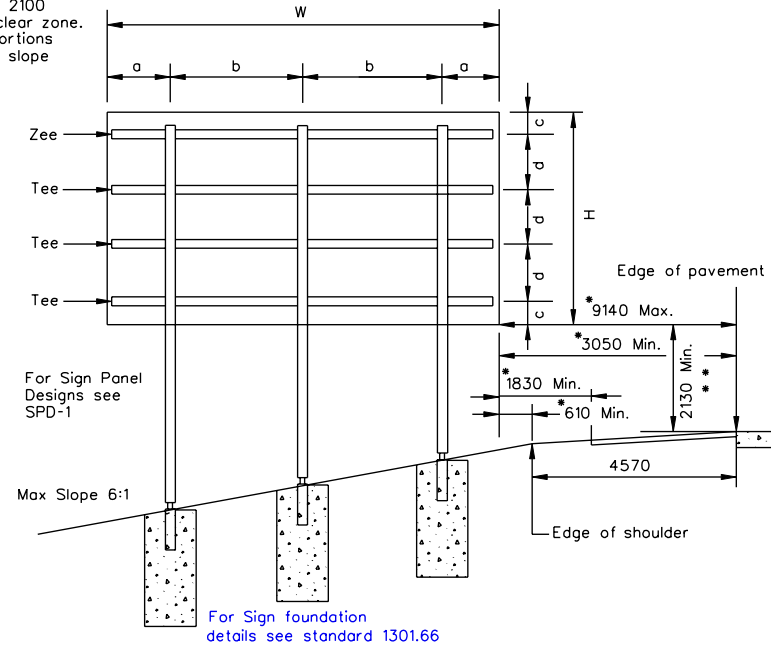
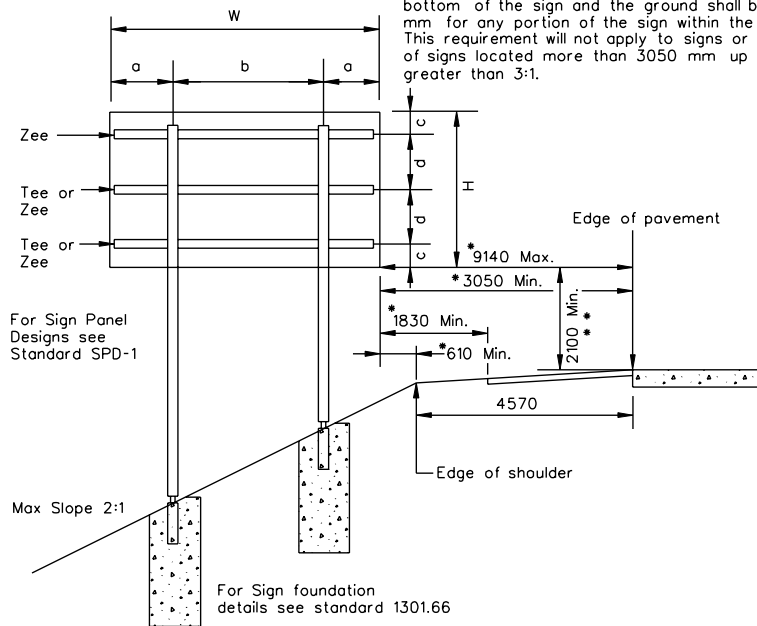
SPECIFICATION  
REFERENCE

ALTERNATE DETAILS FOR TYPE VA SIGN STRUCTURES

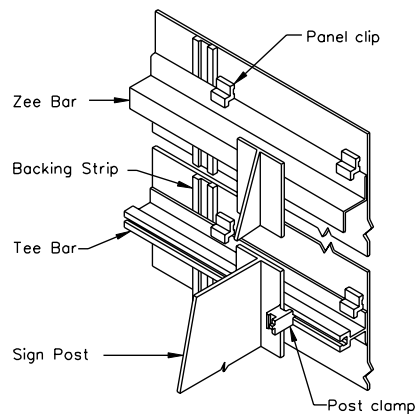
SSP-VIA

The spacing between sign posts shall be a minimum of 2440 mm center to center.  
 \* Signs shall be located to provide optimum viewing and safety within the indicated view limits for lateral placement.

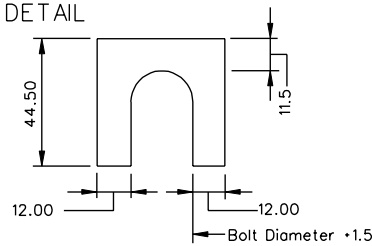
\*\* In cut slopes, the minimum clearance between the bottom of the sign and the ground shall be 2100 mm for any portion of the sign within the clear zone. This requirement will not apply to signs or portions of signs located more than 3050 mm up a slope greater than 3:1.



ISOMETRIC VIEW

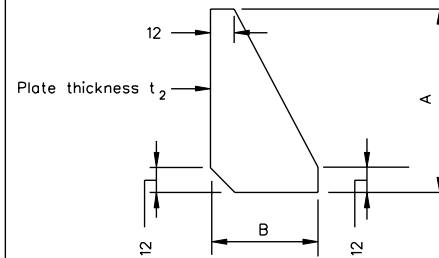


SHIM DETAIL



Furnish 2 each 1.500± mm and 2 each 1.0± mm thick shims per pole. Shims shall be fabricated from brass conforming to ASTM B36M or from stainless steel with a minimum chromium content of 11.50%. No more than 2 shims shall be used per bolt with a maximum of 4 shims per pole.

STIFFENER PLATE DETAIL



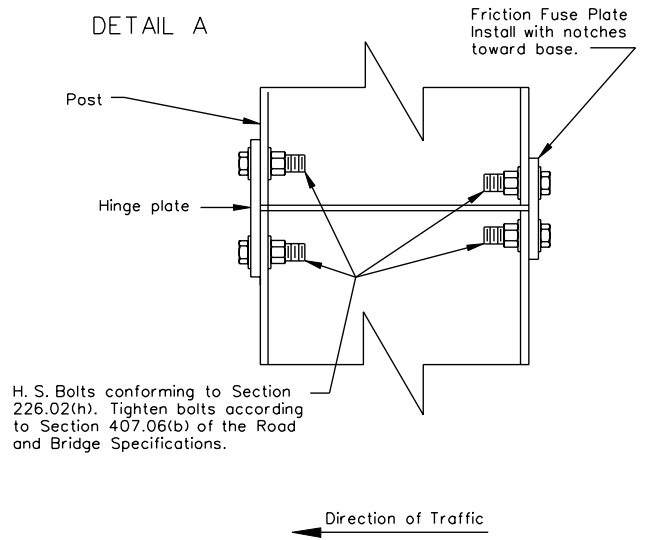
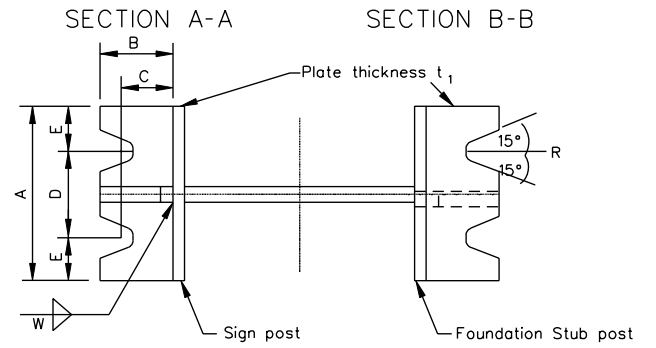
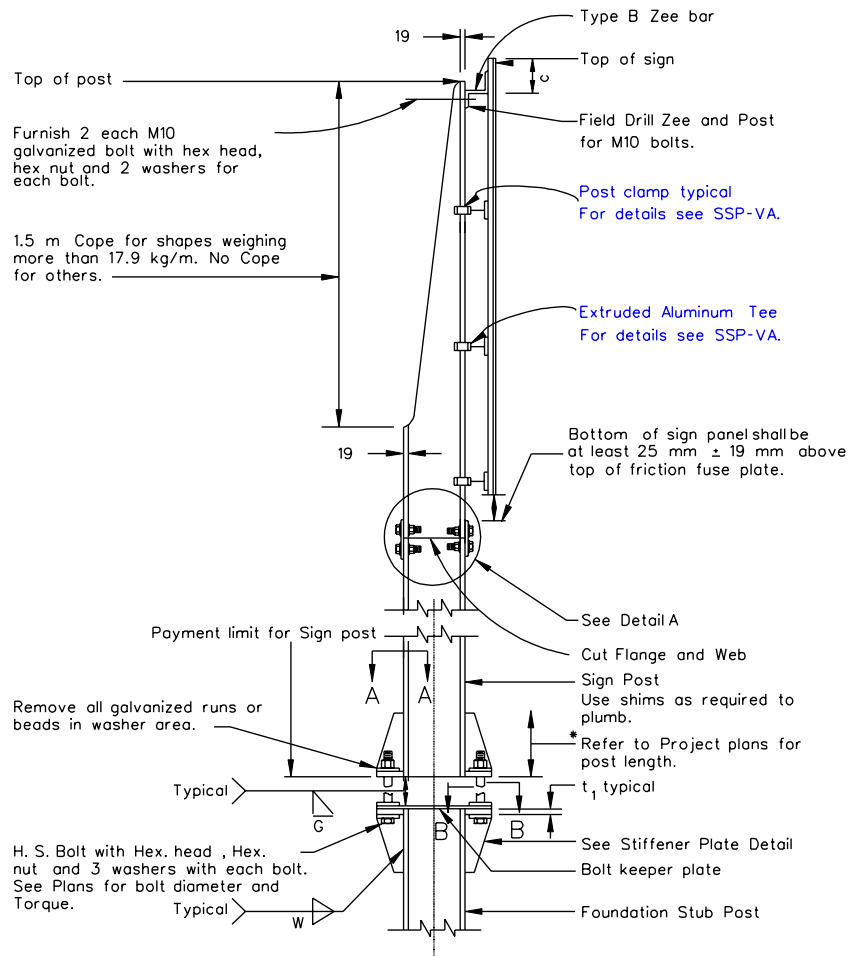
TYPICAL DETAILS FOR TYPE VIA INTERSTATE SIGN STRUCTURE

SPECIFICATION REFERENCE

1301.63 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SIGN POST AND FOUNDATION STUB POST ELEVATION



SPECIFICATION REFERENCE

TYPICAL DETAILS FOR TYPE VIA INTERSTATE SIGN STRUCTURES

VIRGINIA DEPARTMENT OF TRANSPORTATION

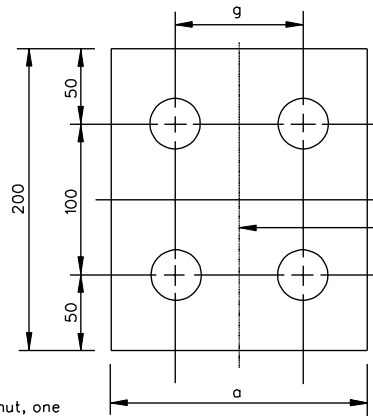
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

ZEE BARS		
TYPE	SIZE	WEIGHT (kg/m)
A	60 x 32 x 4.8	1.5
B	76 x 68 x 6.4	3.6
C	102 x 78 x 6.4	4.4
D	127 x 82 x 7.9	6.1
E	152 x 89 x 9.5	8.3

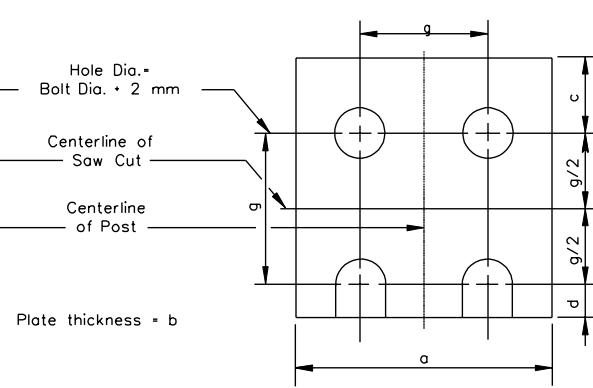
NOTES:

Use H.S. bolts with hexagon head and hexagon nut, one flat washer under each bolt head and bevel or flat washer, where required, under nut. Tighten in accordance with section 407.06 of the Road and Bridge Specifications.

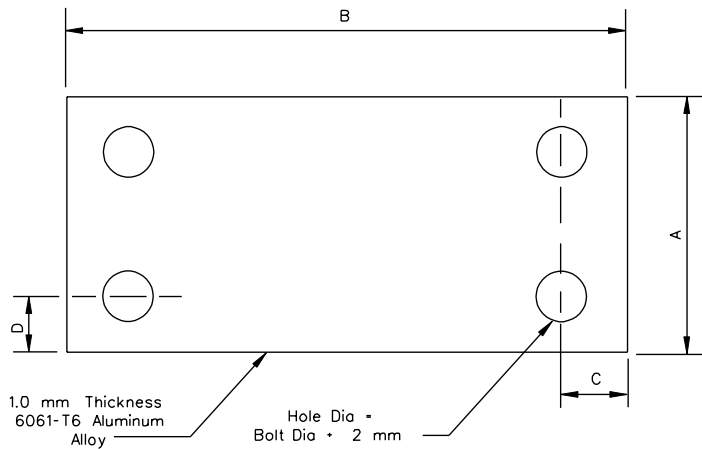
HINGE PLATE DETAIL



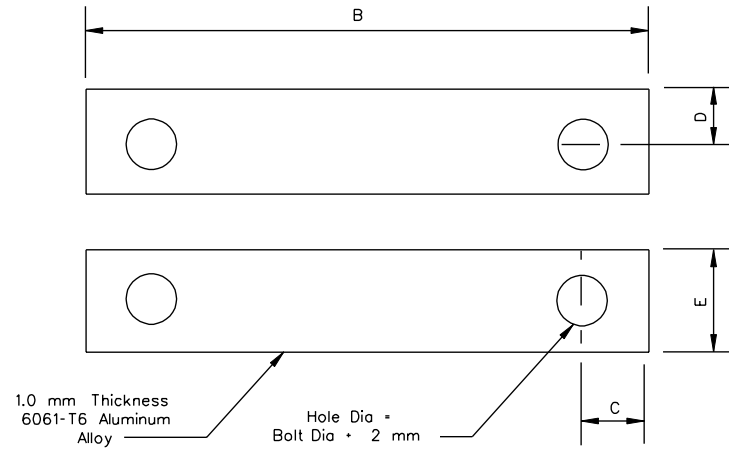
FUSE PLATE DETAIL



BOLT KEEPER PLATE



ALTERNATE BOLT KEEPER PLATE



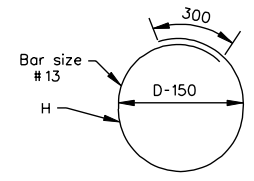
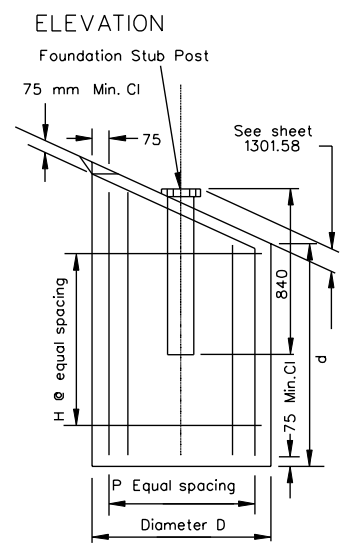
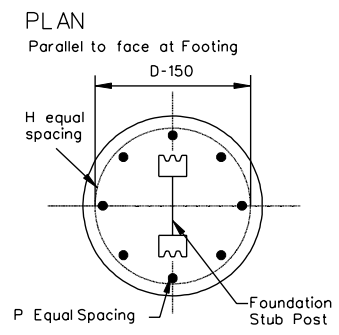
TYPICAL DETAILS FOR TYPE VI A  
INTERSTATE SIGN STRUCTURES

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION  
REFERENCE

TYPE VIA	FOOTING DIMENSIONS		BAR P			BAR H		
	D (mm)	d (mm)	Length (meters)	Bar Size	No.	Bar Size	No.	Length (meters)
A	675	1200	1.05	# 13	8	# 13	5	1.95
B	675	1200	1.05	# 13	8	# 13	5	1.95
C	675	1200	1.05	# 13	8	# 13	5	1.95
D	675	1200	1.05	# 13	8	# 13	5	1.95
E	675	1350	1.20	# 13	8	# 13	5	1.95
F	825	1350	1.20	# 13	8	# 13	5	2.45
G	825	1500	1.35	# 13	8	# 13	6	2.45
H	825	1650	1.50	# 16	8	# 13	6	2.45
J	900	1650	1.50	# 16	8	# 13	6	2.70
K	900	1800	1.65	# 16	8	# 13	7	2.70
L	900	1950	1.80	# 16	8	# 13	7	2.70
M	1050	1950	1.80	# 16	8	# 13	7	3.15
N	1050	2100	1.95	# 16	8	# 13	8	3.15
O	1050	2100	1.95	# 19	8	# 13	8	3.15
P	1050	2250	2.10	# 19	8	# 13	8	3.15
Q	825	1350	1.20	# 13	8	# 13	5	2.45
R	825	1500	1.35	# 13	8	# 13	6	2.45
S	825	1650	1.50	# 13	8	# 13	6	2.45
T	825	1800	1.65	# 16	8	# 13	7	2.45
U	825	1950	1.80	# 16	8	# 13	7	2.45
V	900	1950	1.80	# 16	8	# 13	7	2.70
W	900	2100	1.95	# 19	8	# 13	8	2.70
X	900	2250	2.10	# 19	8	# 13	8	2.70
Y	1050	2250	2.10	# 19	8	# 13	8	3.15
Z	1050	2400	2.25	# 19	8	# 13	9	3.15
AA	1050	2550	2.40	#25	8	# 13	9	3.15
BB	1050	2700	2.55	#25	8	# 13	10	3.15
CC	825	1650	1.50	# 16	8	# 13	6	2.45
DD	825	1950	1.80	# 16	8	# 13	7	2.45
EE	825	2100	1.95	# 19	8	# 13	8	2.45
FF	900	2100	1.95	# 19	8	# 13	8	2.70
GG	1050	2250	2.10	# 19	8	# 13	8	3.15
HH	1050	2400	2.25	# 19	8	# 13	9	3.15
JJ	1050	2550	2.40	#25	8	# 13	9	3.15
KK	1050	2700	2.55	#25	8	# 13	10	3.15
LL	1050	2850	2.70	#25	8	# 13	10	3.15
MM	1050	3000	2.85	#25	8	# 13	11	3.15
NN	1050	3000	2.85	#25	8	# 13	11	3.15

TYPE VIA	FOOTING DIMENSIONS		BAR P			BAR H		
	D (mm)	d (mm)	Length (meters)	Bar Size	No.	Bar Size	No.	Length (meters)
OO	825	1650	1.50	# 13	8	# 13	6	2.45
PP	825	1800	1.65	# 16	8	# 13	7	2.45
QQ	825	1950	1.80	# 16	8	# 13	7	2.45
RR	900	2100	1.95	# 16	8	# 13	8	2.70
SS	900	2100	1.95	# 19	8	# 13	8	2.70
TT	900	2400	2.25	# 19	8	# 13	9	2.70
UU	1050	2400	2.25	# 19	8	# 13	9	3.15
VV	1050	2400	2.25	# 19	8	# 13	9	3.15
WW	1050	2550	2.40	#25	8	# 13	9	3.15
XX	1050	2700	2.55	#25	8	# 13	10	3.15
YY	1050	2850	2.70	#25	8	# 13	10	3.15
ZZ	900	2100	1.95	# 19	8	# 13	8	2.70
AB	900	2250	2.10	# 19	8	# 13	8	2.70
AC	1050	2400	2.25	# 19	8	# 13	9	3.15
AD	1050	2550	2.40	#25	8	# 13	9	3.15
AE	1050	2700	2.55	#25	8	# 13	10	3.15
AF	1050	2850	2.70	#25	8	# 13	10	3.15
AG	1050	3000	2.85	#25	8	# 13	11	3.15
AH	1200	3000	2.85	#25	8	# 13	11	3.60
AJ	1200	3150	3.00	#25	8	# 13	11	3.60
AK	1200	3300	3.15	#25	8	# 13	12	3.60
AL	1200	2250	2.10	# 19	8	# 13	8	3.60
AM	1200	2400	2.25	# 19	8	# 13	9	3.60
AN	1200	2700	2.55	#25	8	# 13	10	3.60
AO	1200	2850	2.70	#25	8	# 13	10	3.60
AP	1200	3000	2.85	#25	8	# 13	11	3.60
AQ	1200	3150	3.00	#25	8	# 13	11	3.60
AR	1200	3300	3.15	#25	8	# 13	12	3.60
AS	1200	3450	3.30	#25	8	# 13	12	3.60
AT	1200	3600	3.45	#25	8	# 13	13	3.60
AU	1200	2700	2.55	#25	8	# 13	10	3.60
AV	1200	2850	2.70	#25	8	# 13	10	3.60
AW	1200	3000	2.85	#25	8	# 13	11	3.60
AX	1200	3300	3.15	#25	8	# 13	12	3.60
AY	1200	3450	3.30	#25	8	# 13	12	3.60
AZ	1200	3600	3.45	#25	8	# 13	13	3.60
BC	1200	3900	3.75	#25	8	# 13	14	3.60
BD	1200	4050	3.90	#25	8	# 13	14	3.60



SPECIFICATION REFERENCE

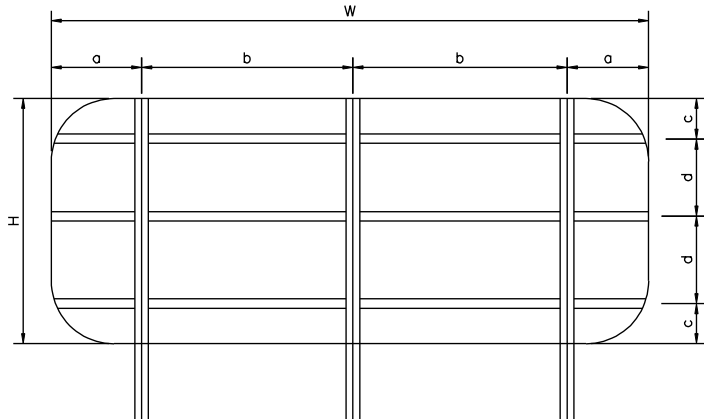
## TYPICAL VIA FOUNDATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

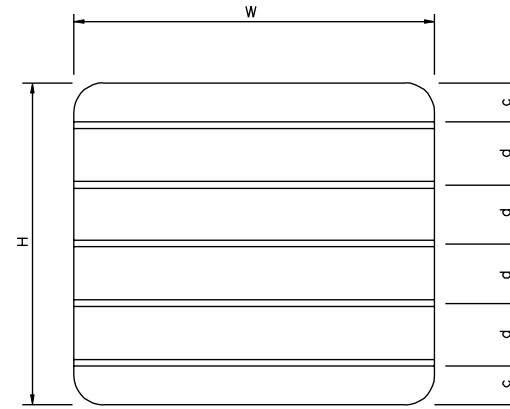
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

SSP-VIA

SIGN PANEL  
DETAIL

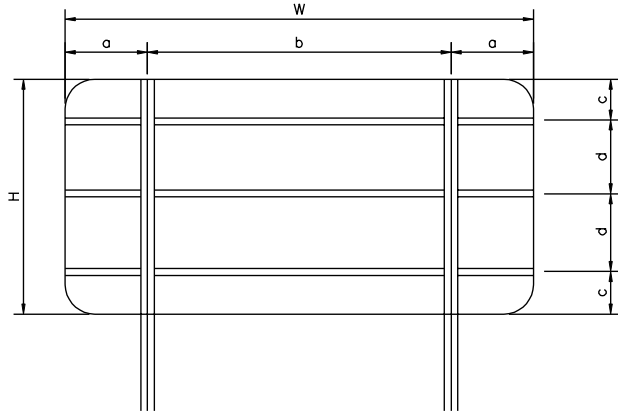


SIGN PANEL  
DETAIL

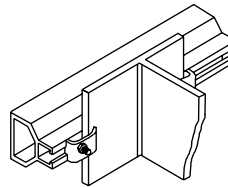


Use the above sign panel detail for "c" and "d" spacing when the "c" dimension for Alternate Sign Panel Attachment Details is "0" or 12 mm.

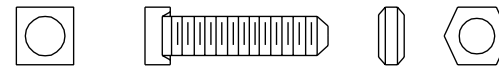
SIGN PANEL  
DETAIL



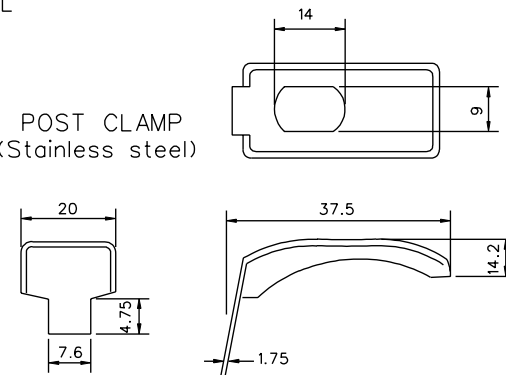
STIFFENER TO POST  
ATTACHMENT DETAIL



Post clam bolt  
(Stainless steel)



POST CLAMP  
(Stainless steel)



See Standard SPD-1 for sign panel design.  
See sheets 1301.63 thru 1301.66 for other details.

ALTERNATE DETAILS FOR TYPE VIA INTERSTATE SIGN STRUCTURES

SPECIFICATION  
REFERENCE

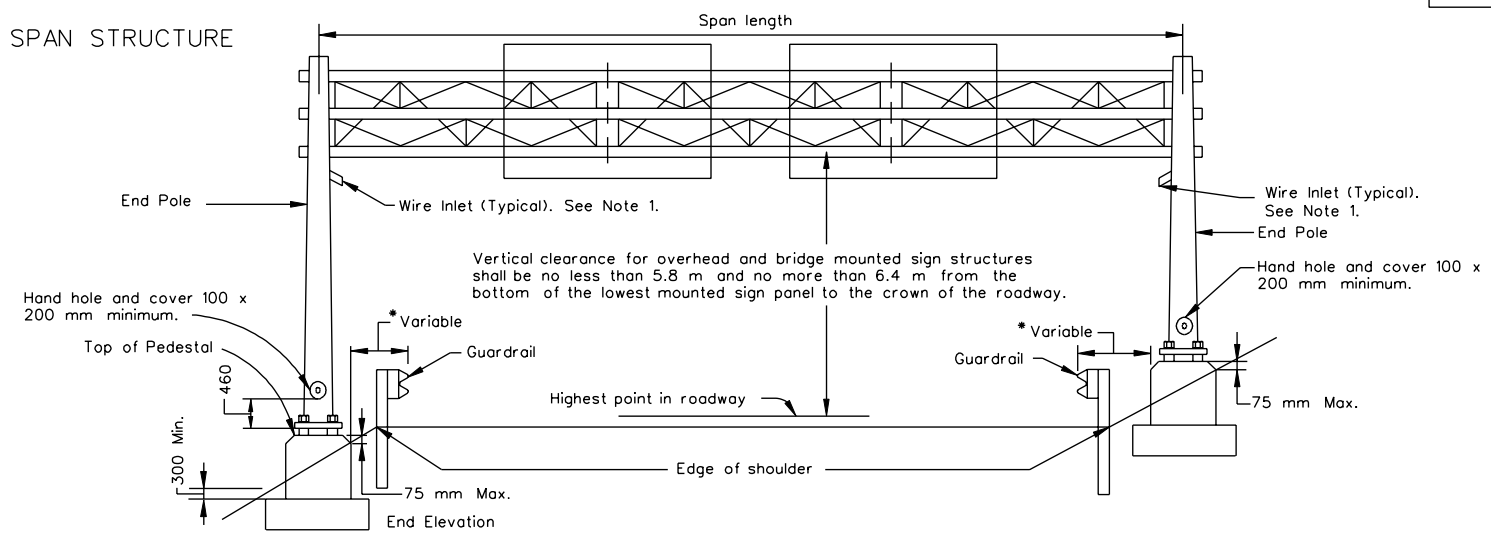
1301.67

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ON THIS SHEET ARE IN MILLIMETERS

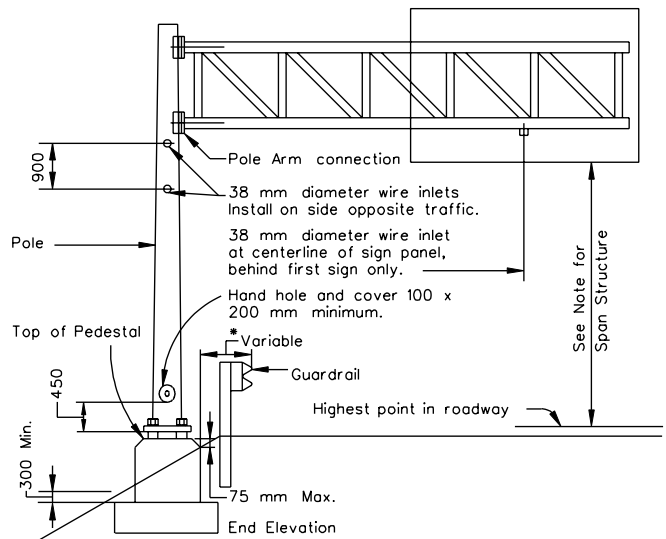
VIRGINIA DEPARTMENT OF TRANSPORTATION



SPAN STRUCTURE



CANTILEVER STRUCTURE



NOTES:

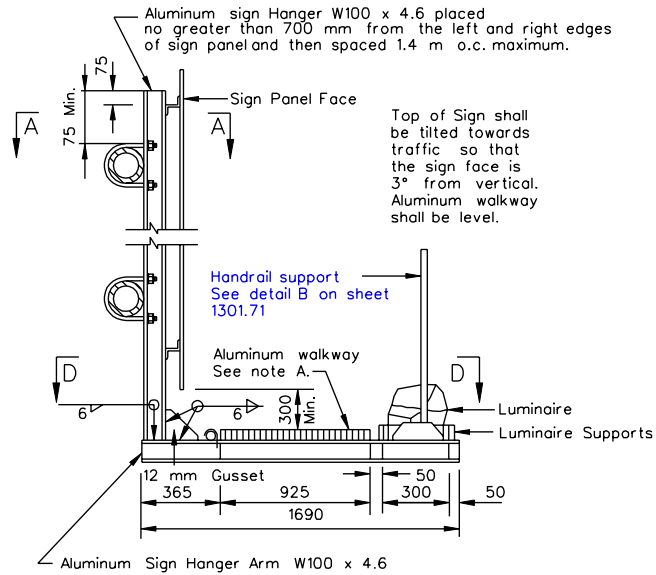
1. 38 mm diameter wire inlets shall be provided at the following locations:
  - A. On span structures on the front leg of end pole 300 mm below bottom chord.
  - B. On cantilever structures on pole 300 mm below bottom chord.
  - C. On span structures below bottom chord at centerline behind first sign panel from each end pole.
  - D. On cantilever structures below bottom chord at centerline behind first sign panel from pole.
2. All unused wire inlets shall be capped water tight.
- \*3. Distance shall be no less than the minimum indicated in Standard GR-INS.

SPECIFICATION REFERENCE

TYPICAL DETAILS FOR OVERHEAD SIGN STRUCTURES  
VIRGINIA DEPARTMENT OF TRANSPORTATION

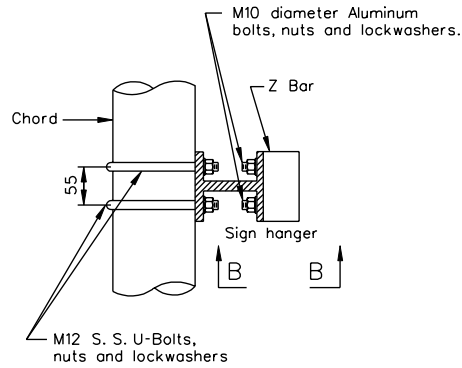
OSS-1

SIGN HANGER ERECTION DETAIL

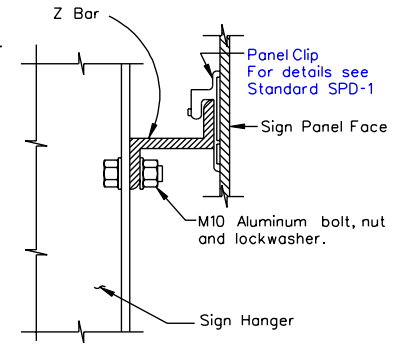


Note A  
Walkway, Handrail and Luminaires required only where indicated on the plans.

SECTION A-A



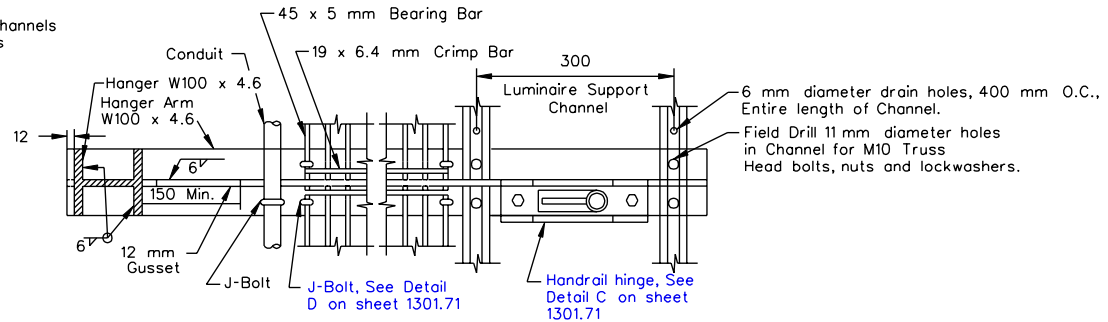
SECTION B-B



See Standard SSP-VIA for method of attaching alternate sign panel design to sign hanger.

SECTION D-D

Luminaire to be attached to Channels with M10 galvanized cap screws and spring nuts.



TYPICAL DETAILS FOR OVERHEAD SIGN STRUCTURES

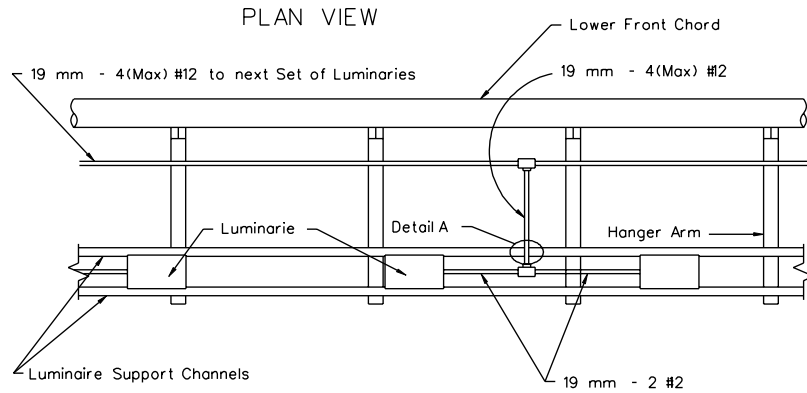
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

1301.69

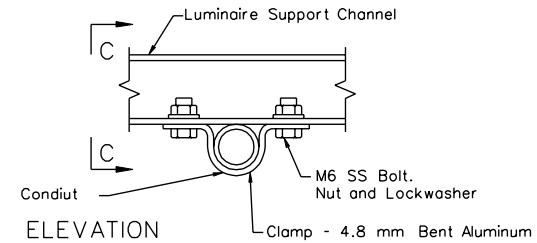
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

## ELECTRICAL INSTALLATION DOUBLE POLE END FRAMES

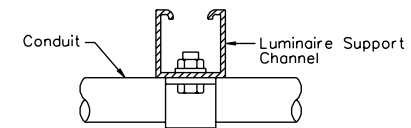


Walkway Grating, if required, is not shown.  
Installation for Single Pole Supports to be similar.

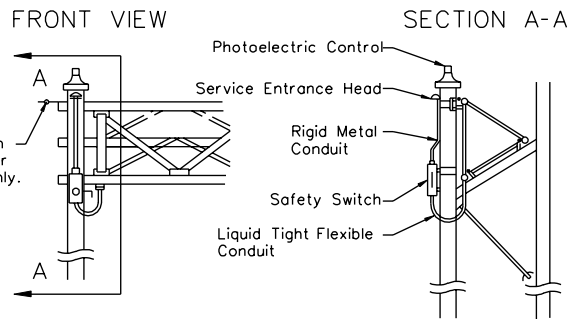
### DETAIL A



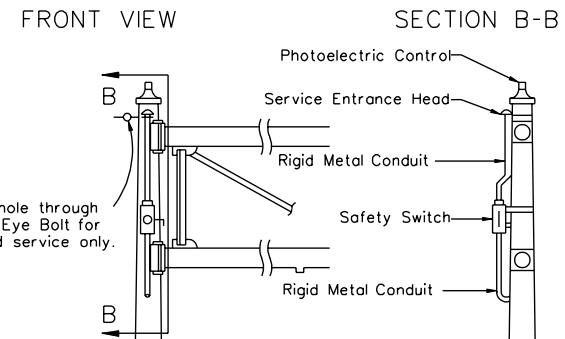
### SECTION A-A



## ELECTRIC DETAILS FOR SIGN LIGHTING SPAN SIGN STRUCTURE



## ELECTRIC DETAILS FOR SIGN LIGHTING CANTILEVER SIGN STRUCTURE



**Note:**

All conduit located in or on cantilever structure shall be 19 mm minimum.

SPECIFICATION REFERENCE

## TYPICAL DETAILS FOR OVERHEAD SIGN STRUCTURES

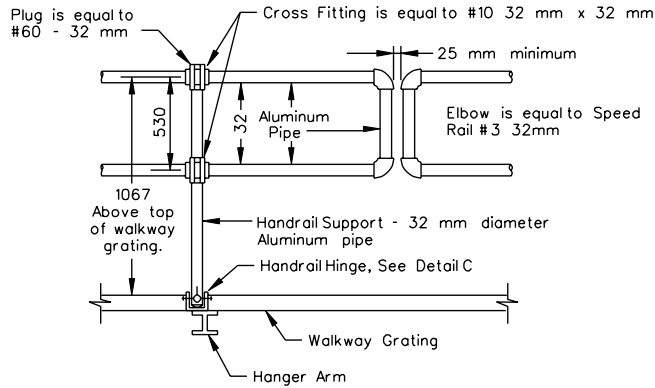
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

1301.70

DETAIL B

HANDRAIL ELEVATION



DETAIL D

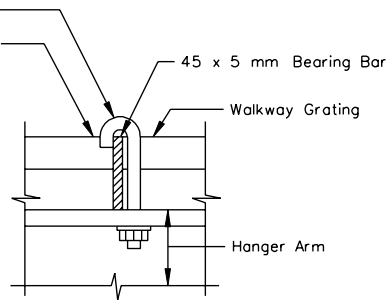
M6 S.S. J-Bolt, Stop Nut and Washer

19 mm x 3 mm Crimp Bar

45 x 5 mm Bearing Bar

Walkway Grating

Hanger Arm



DETAIL C

HANDRAIL HINGE

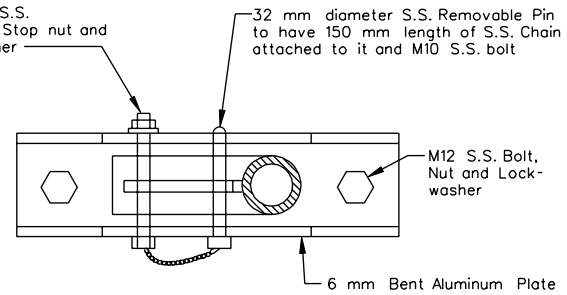
M10 S.S. Bolt, Stop nut and Washer

32 mm diameter S.S. Removable Pin to have 150 mm length of S.S. Chain attached to it and M10 S.S. bolt

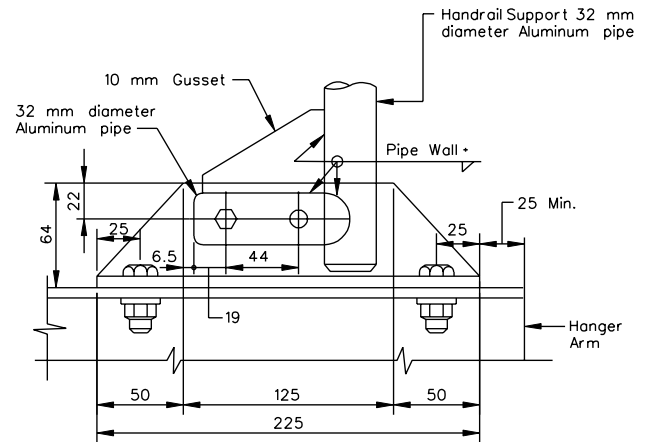
M12 S.S. Bolt, Nut and Lock-washer

6 mm Bent Aluminum Plate

PLAN VIEW



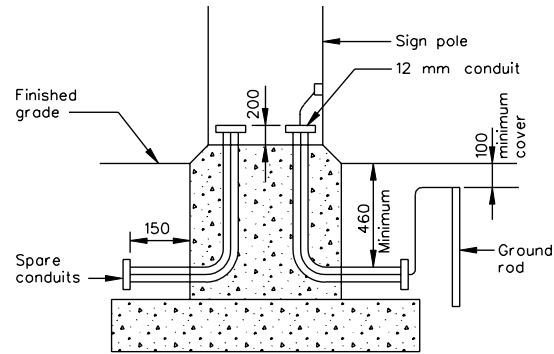
ELEVATION VIEW



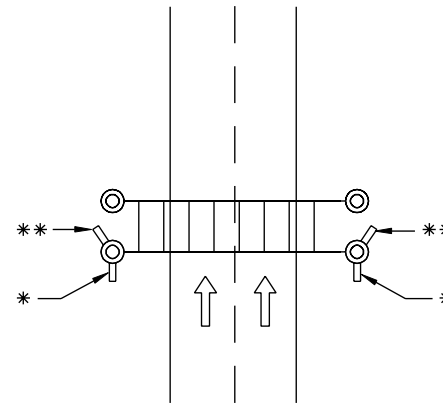
TYPICAL DETAILS FOR OVERHEAD SIGN STRUCTURES

SPECIFICATION REFERENCE

TYPICAL SIGN FOOTING DETAIL WITH CONDUIT



LOCATION OF FUTURE USE CONDUITS FOR DOUBLE END POLE STRUCTURES



NOTES:

The type, size, number and orientation of conduits entering and exiting footings may vary per sign location.

In addition to the conduits specified on the plans, one - 12 mm conduit required for ground wire and two - 50 mm pvc heavy wall conduits required for future use. Future use conduits shall be stubbed out and capped. Future use conduits shall be oriented to run parallel to the roadway. For location of future use conduits in foundations for double end pole structures, see drawing at right.

Each foundation shall be permanently marked to indicate all sides from which conduits pass. This mark shall be made with a trowel when finishing the concrete and shall be 6 mm deep and 100 to 150 mm long. Locations of empty conduits shall have an additional 50 mm long mark made perpendicular to and centered on this mark.

Foundations above finished grade shall be chamfered 19 mm on all edges.

Grounding bushings shall be installed on each end of metal conduits.

Bell ends shall be installed on each end of PVC conduits.

Bell ends & bushings of empty conduits shall be plugged to prevent moisture and rodent entry.

Voids remaining after conductors exit or enter bell ends or bushings of conduits shall be sealed with silicone to prevent moisture and rodent entry.

\* Future use conduits placed parallel to the roadway

\*\* Future use conduits placed at an angle to miss the back foundation or anchor bolts in a spread footing foundation.

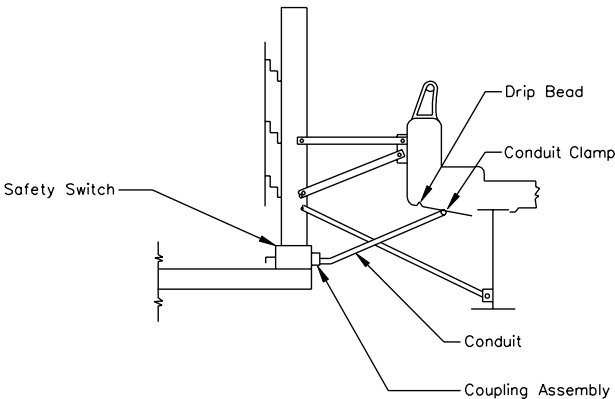
SPECIFICATION REFERENCE
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TYPICAL DETAILS FOR OVERHEAD SIGN STRUCTURES

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

BRIDGE PARAPET ELECTRICAL DETAILS



NOTES:

The vertical and horizontal conduit runs shall be supported at 3.0 m intervals for metal conduits and 1.5 m intervals for PVC conduit; all bends shall be supported within a minimum of 300 mm on each side of bend.

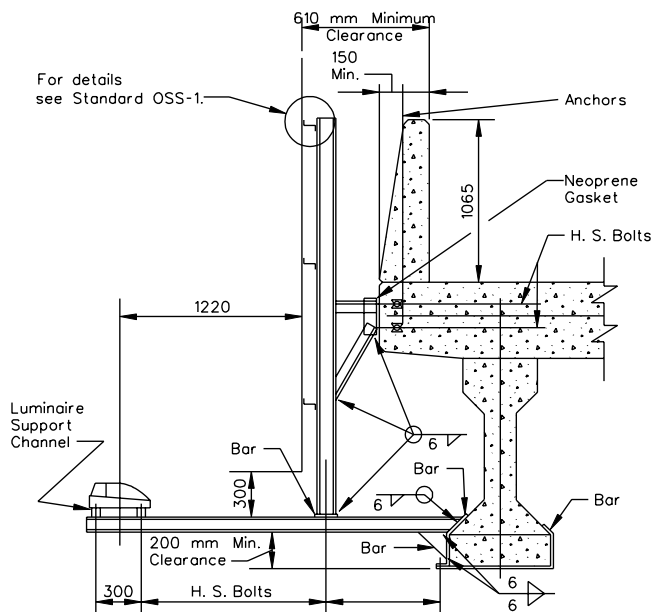
Conduit clamps shall be designed for the size and type of conduit indicated. The expansion anchor bolt shall be galvanized or stainless steel, 6.0 mm diameter embedded a minimum length of 50 mm with a minimum tensile pullout strength of 2225 N. Conduit clamps shall be located 100 mm minimum from the drip bead.

TYPICAL BRIDGE PARAPET  
ELECTRICAL DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

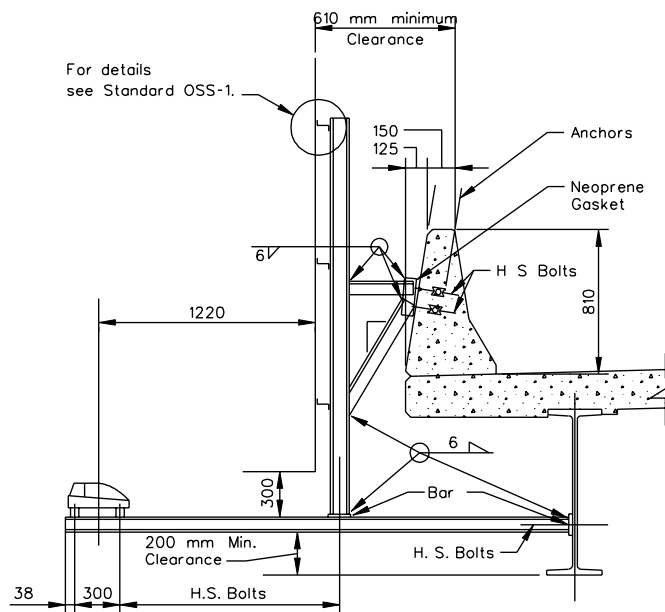
SPECIFICATION  
REFERENCE

TYPICAL FOR PRESTRESSED CONCRETE



This parapet is typical for bridges with a sidewalk.

TYPICAL FOR STEEL BEAM



NOTES:

- The size of members shall be designed by the contractor for the sign to be supported.
- Minimum clearances are as specified by AASHTO or approved by the Virginia Department of Transportation.
- The supporting frames may be either aluminum or galvanized steel.
- The spacing of zees and supports shall be as shown on the plans.
- Sign supports shall be braced for lateral forces.
- Bolts shall be High-Strength ASTM A325M, galvanized.
- Anchors shall be adhesive or cast-in-place. Thru-bolting may also be used for attachments to parapets. When cast-in-place anchors are used, they shall develop the strength of the bolts. When thru-bolting is used, anchorage on the traffic side of the parapet shall be flush with the parapet face.

SPECIFICATION REFERENCE
----------------------------

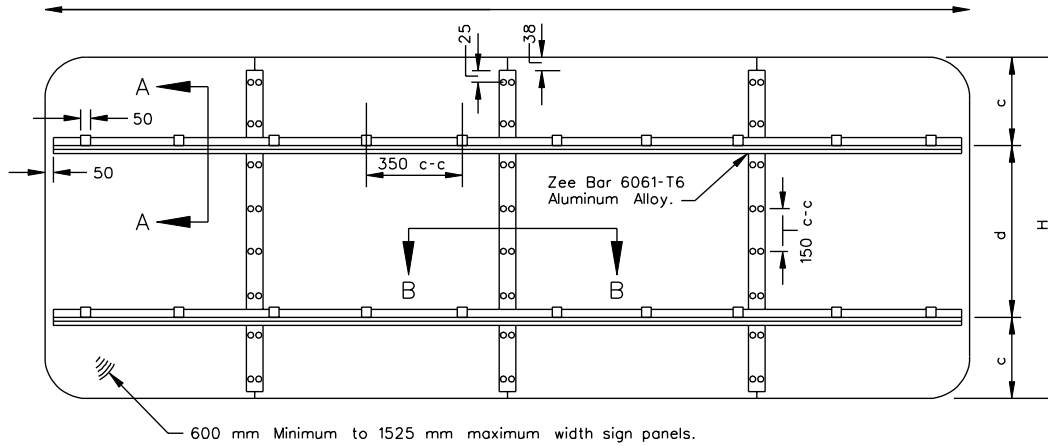
TYPICAL BRIDGE PARAPET SIGN  
MOUNTING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

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ON THIS SHEET ARE IN MILLIMETERS

SPD-1

PANEL



SECTION A-A

6262-T9 Aluminum Alloy M6 hexagon head nut to be installed with torque not to exceed 2.8 Nm.

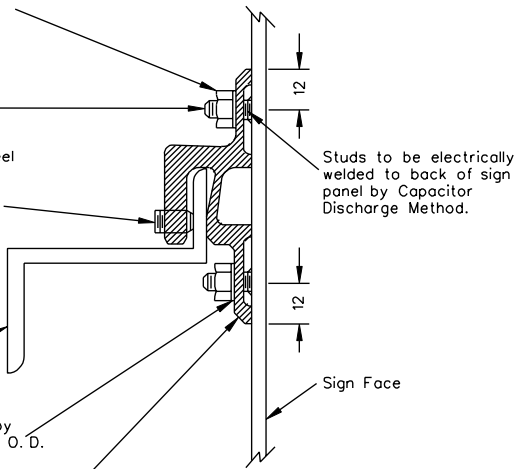
5356-H32 Aluminum Alloy M6 x 12 mm long stud.

Type 304 stainless steel cup point set screw M10 x 12 mm long NC-2 socket head to be provided in each panel clip.

Zee Bar 6061-T6 Aluminum Alloy.

7075-T6 Aluminum Alloy 6.5 mm I.D. 12.5 mm O.D. x 1.5 mm thick spring lockwasher.

6061-T6 Aluminum Alloy panel clip.



SECTION B-B

Sign Face

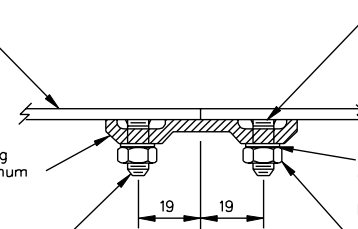
Studs to be electrically welded to back of sign panel by Capacitor Discharge Method.

3 mm Thick backing strip 6061-T6 Aluminum Extrusion.

7075-T6 Aluminum Alloy 6.5 mm I.D. 12.5 mm O.D. x 1.5 mm thick spring lockwasher.

5356-H32 Aluminum Alloy M6 x 12 mm long stud.

6262-T9 Aluminum Alloy M6 hexagon head nut to be installed with torque not to exceed 2.8 N.m.



SIGN PANEL DESIGN

SPECIFICATION REFERENCE

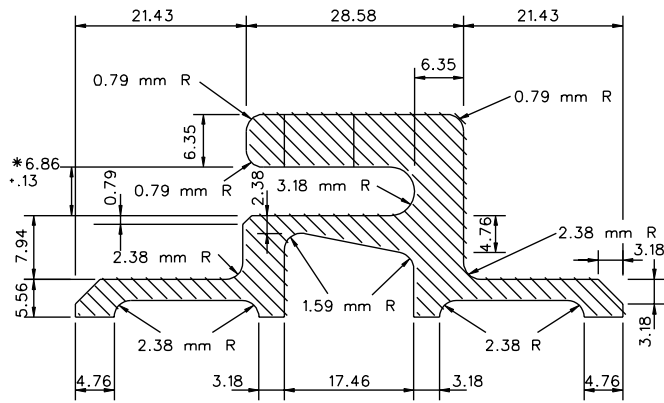
1301-75

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

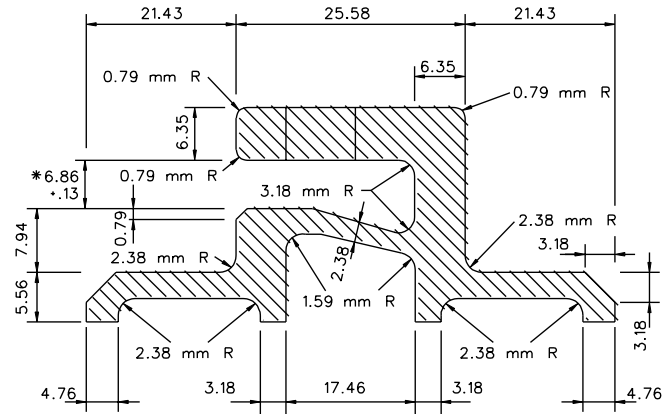


TYPE ONE PANEL CLIP DETAIL



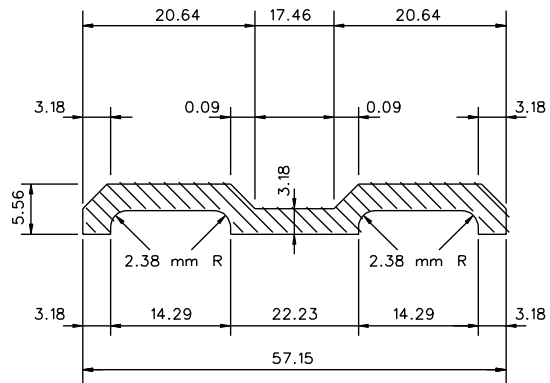
\* Use 9.65 mm for Type D and E Zee Bars

TYPE TWO PANEL CLIP DETAIL



\* Use 9.65 mm for Type D and E Zee Bars

BACKING STRIP DETAIL



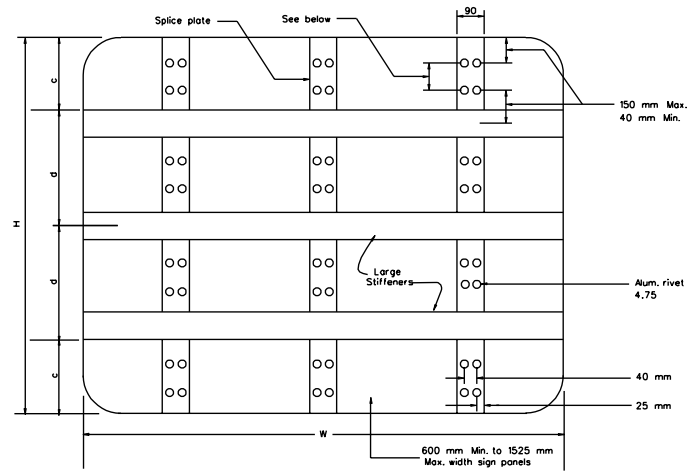
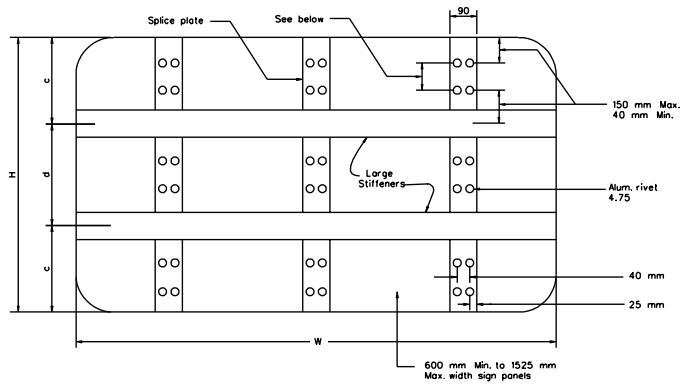
SPECIFICATION REFERENCE

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

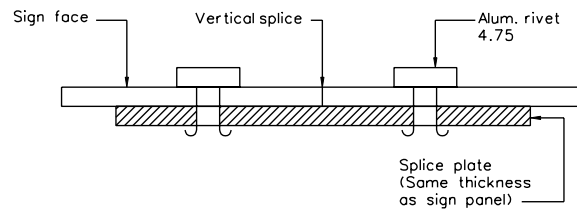
1301.76



Use the above sign panel detail for "c" and "d" spacing when the "c" dimension for alternate sign panel attachment details is "0" or 12 mm.

Rivets used for securing the stiffeners and splice plate to the sign, and the large stiffener splice bar to the large stiffener shall be 4.75 mm minimum diameter by 12 mm long aluminum and capable of withstanding a minimum shear force of 2047 N. Rivet spacing for attaching the stiffeners to the sign shall be 150 mm maximum beginning 40 mm from the ends of the sign panel. Rivet spacing for attaching the large stiffener splice bar to the large stiffener shall be 75 mm beginning 40 mm from the ends of the splice bar. Rivet spacing for attaching the splice plate shall be based on stiffener spacing in accordance with the following:

Stiffener spacing	Splice plate rivet spacing
150	75
175	100
200	125
225 or greater	150



VERTICAL SPLICING DETAIL

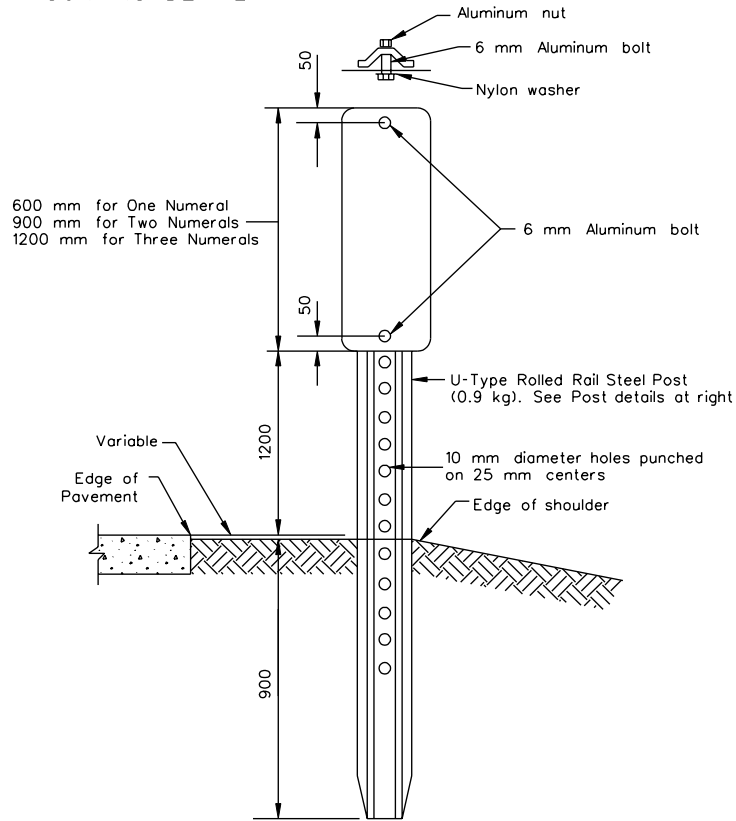
ALTERNATE SIGN PANEL DESIGN

SPECIFICATION REFERENCE



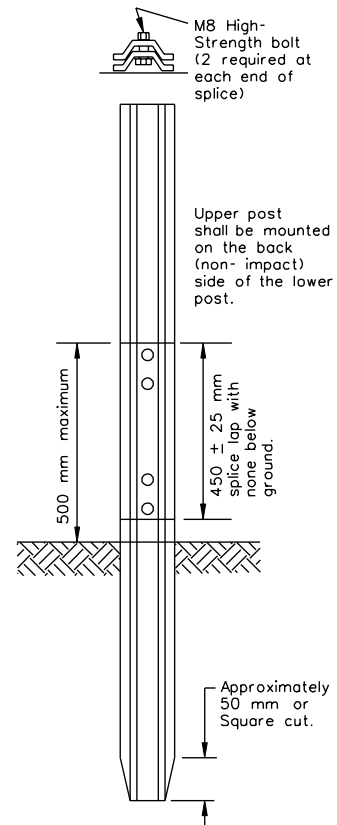
MM-1

MOUNTING DETAIL

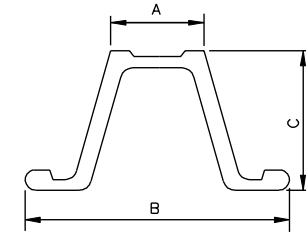


USP-1

SPLICING DETAIL



POST SECTION DIMENSIONS



2 kg/m		
Minimum		Maximum
A. 12		25
B. 50		57
C. 19		32
3 kg/m		
Minimum		Maximum
A. 31		33
B. 78		79
C. 36		39
4.5 kg/m		
Minimum		Maximum
A. 32		41
B. 81		89
C. 38		48
Length is variable		
Weight is per meter		

Notes:

- Driving cap to be used when driving post.
- Panel to be fabricated of ASTM B209M alloy 6061-T6 or 5052-H38, 2 mm thick.
- Top of panel to be flush with top of post.

ERECTION

Milepost markers to be located in line with delineator posts, edge of shoulder or back of guardrail, if present.

	D10-4	D10-5	D10-6
Curb face to sign edge:	600	600	600
Pavement top to sign bottom:	1200	1200	1200
Curb top to sign bottom:	1200	1200	1200
Sign face to pavement edge:	93°	93°	93°

TYPICAL DETAILS FOR MILEPOST MARKERS & U-TYPE STEEL POST STRUCTURES

SPECIFICATION REFERENCE

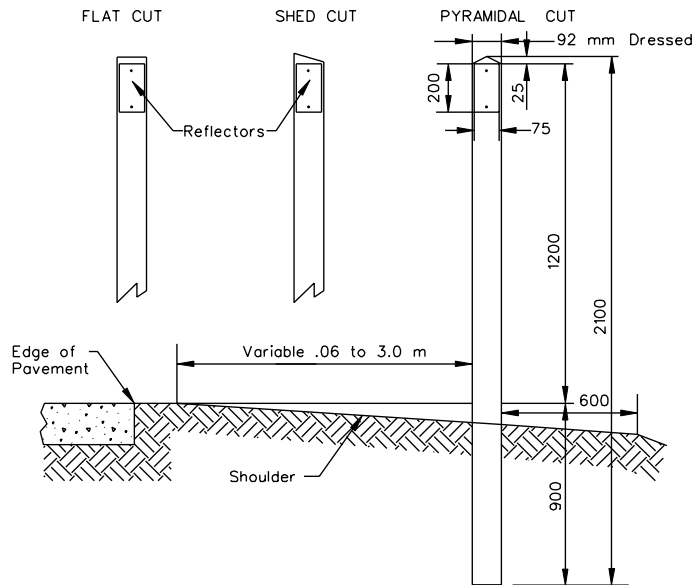
1301.79

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

ED-1

STANDARD ROAD EDGE DELINEATORS



NOTES:

Standard ED-1 delineators consist of reflectorized sheeting, cut to a 75 by 200 mm vertical rectangle, mounted on a backing of aluminum alloy, not less than 1.6 mm thick conforming to ASTM B209 M, alloy 6061-T6 or 5052-H38. The color of the reflective sheeting shall, in all cases, conform to the color of the edgelines.

The reflectors are attached to wood posts with a minimum of two nails or screws produced from alloy 2024-T4 or 6061-T6.

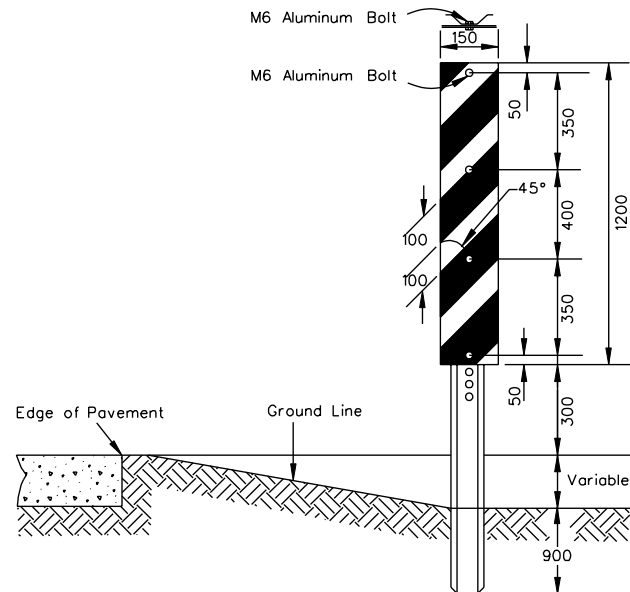
The posts above the ground are painted white with number 11 white point.

Posts are treated with a water-borne preservative in accordance with Section 236 of the Road and Bridge Specifications.

The top of the posts may have a flat, shed, or pyramidal cut: however, they shall be uniform throughout a project. Cuts shall be in accordance with Standard WSP-1.

ED-2

SPECIAL ROAD EDGE DELINEATORS



NOTES:

Special delineators are made from aluminum alloy, not less than 2 mm thick conforming to ASTM B209 M, alloy 6061-T6 or 5052-H38.

Delineators extend 25 mm above the top of the post.

Delineators are reflectorized, and in all cases, the color shall conform to the color of the edgelines, alternating with a black stripe.

The stripes shall slope down toward the center of roadway.

Delineators are mounted on U-Type posts fabricated from rolled-steel 1.98 kg/m minimum.

The bottom of the delineator panel is 300 mm above the pavement edge elevation.

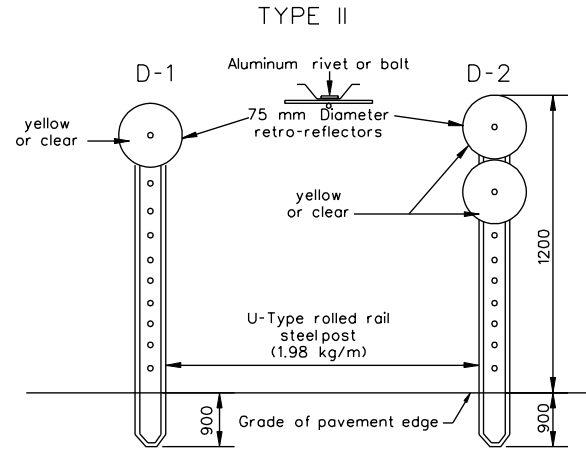
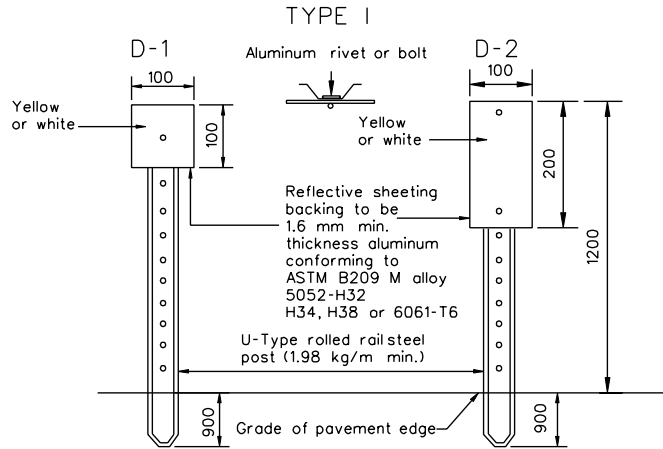
SPECIFICATION REFERENCE

TYPICAL DETAILS FOR STANDARD & SPECIAL ROAD EDGE DELINEATORS

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

1301.80



**NOTES:**

Road edge delineators are to be erected 0.60 meters beyond the outer edge of the shoulder or the face of unmountable curb.

D-1 delineators shall be placed on the right of through roadways at 160 m spacing with the following exceptions:

Tangent roadways where pavement markers are installed will not require the installation of delineators.

Locations where delineators are installed on guardrails, parapets or barriers on the right of the roadway will not require the installation of road edge delineators.

D-1 delineators shall be placed on at least one side and on the outside curve of interchange ramps except where delineators are installed on guardrails, parapets or barriers. The spacing along the ramps shall be at 30 m intervals except in horizontal curves where the spacing shall conform to the chart on SPACING FOR HIGHWAY DELINEATORS.

D-2 delineators shall be placed on acceleration and deceleration lanes at 30 m spacing.

The color of delineators shall conform to the color of the edgelines.

**SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES**

Distance in meters rounded to the nearest 1.5 meters.

RADIUS OF CURVE IN METERS	SPACING ON CURVE IN METERS
15	6.0
45	9.0
60	10.7
75	12.0
90	15.0
120	16.8
150	19.8
180	21.0
210	22.8
240	24.4
270	26.0
300	27.0

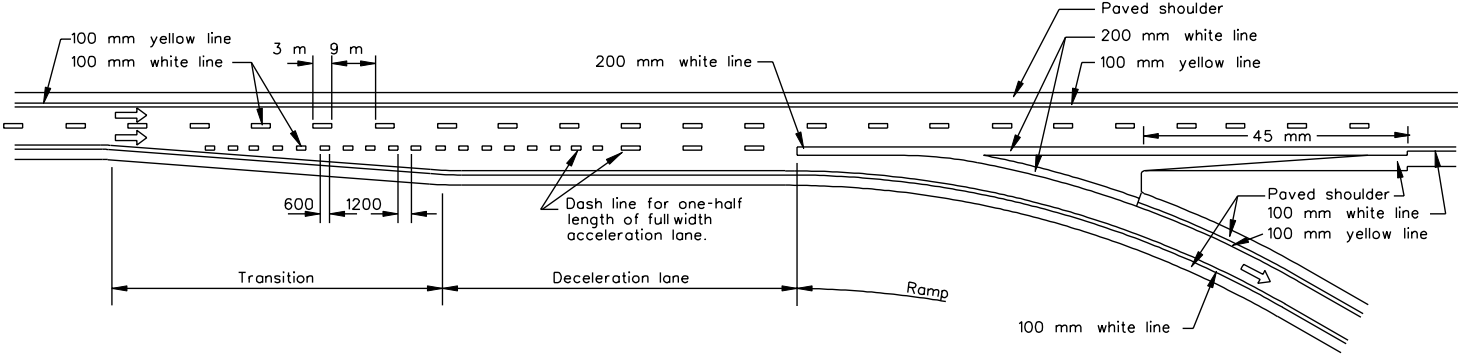
Spacing for specific radii not shown may be interpolated from table. The minimum spacing should be 6 meters. The spacing on curves should not exceed 90 meters. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator is 2S, the second 3S and the third 6S but not to exceed 90 meters. S refers to the delineator spacing for specific radii computed from the formula  $S = 1.6 \sqrt{R - 15}$

**TYPICAL DETAILS FOR INTERSTATE ROAD EDGE DELINEATORS**

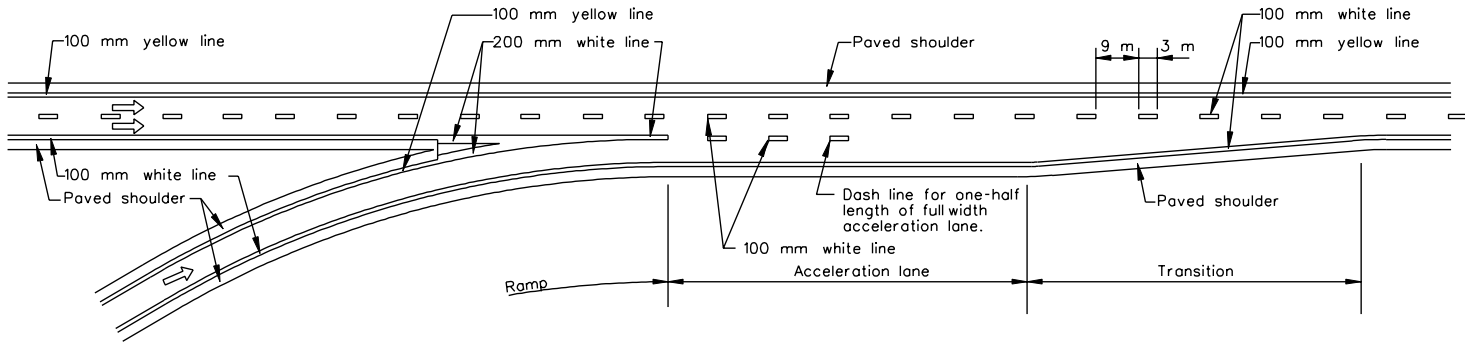
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

INTERCHANGE EXIT



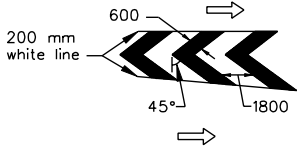
INTERCHANGE ENTRANCE



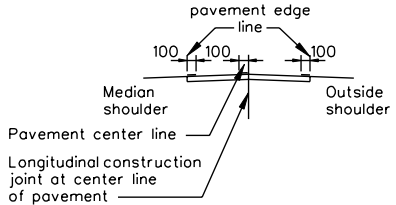
Notes:

Place pavement center line marking on center line of bituminous surface.  
 All pavement markings shall be installed in accordance with the MUTCD.

GORE AREA HATCHING OPTIONAL



LATERAL PLACEMENT FOR PAVEMENT LINE MARKING ON HYDRAULIC CEMENT CONCRETE



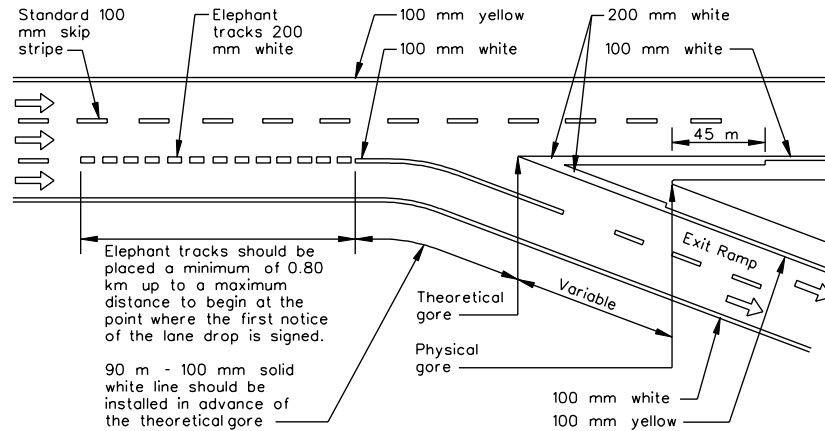
SPECIFICATION REFERENCE

TYPICAL PAVEMENT MARKING DETAILS

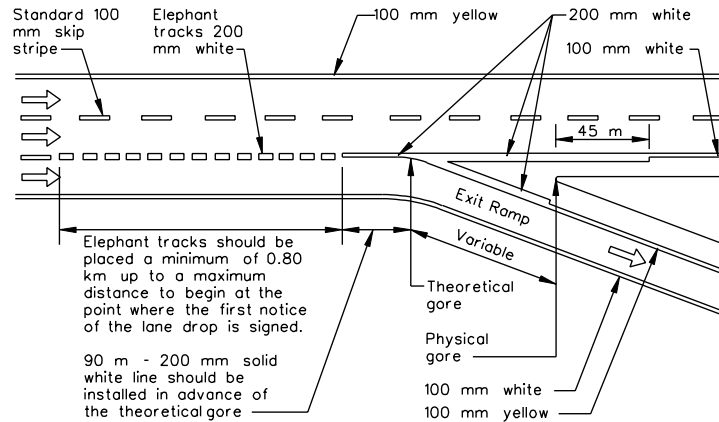
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

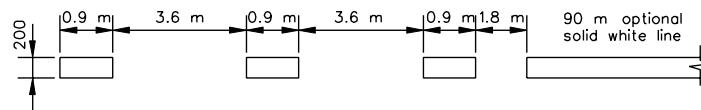
LIMITED ACCESS LANE DROP EXIT RAMPS  
BESIDE CHOICE LANE THRU / EXIT



LIMITED ACCESS LANE DROP EXIT RAMPS



STANDARD ELEPHANT TRACKS



TYPICAL PAVEMENT MARKING  
DETAILS

SPECIFICATION  
REFERENCE

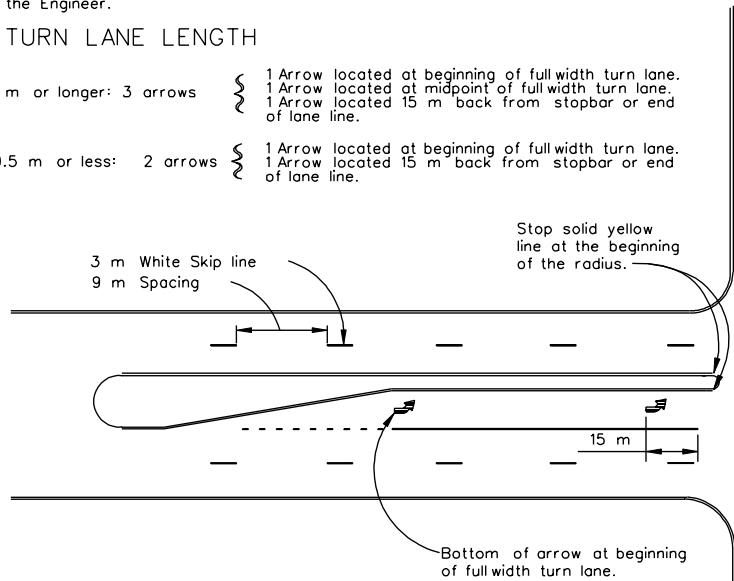


TURN LANE ARROWS

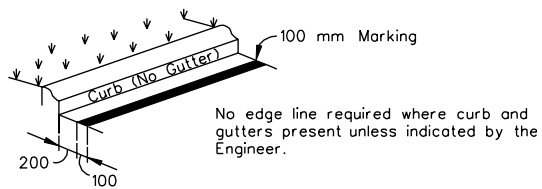
Turn arrows required in accordance with the following, unless otherwise directed by the Engineer.

TURN LANE LENGTH

- 91 m or longer: 3 arrows } 1 Arrow located at beginning of full width turn lane.  
1 Arrow located at midpoint of full width turn lane.  
1 Arrow located 15 m back from stopbar or end of lane line.
- 90.5 m or less: 2 arrows } 1 Arrow located at beginning of full width turn lane.  
1 Arrow located 15 m back from stopbar or end of lane line.

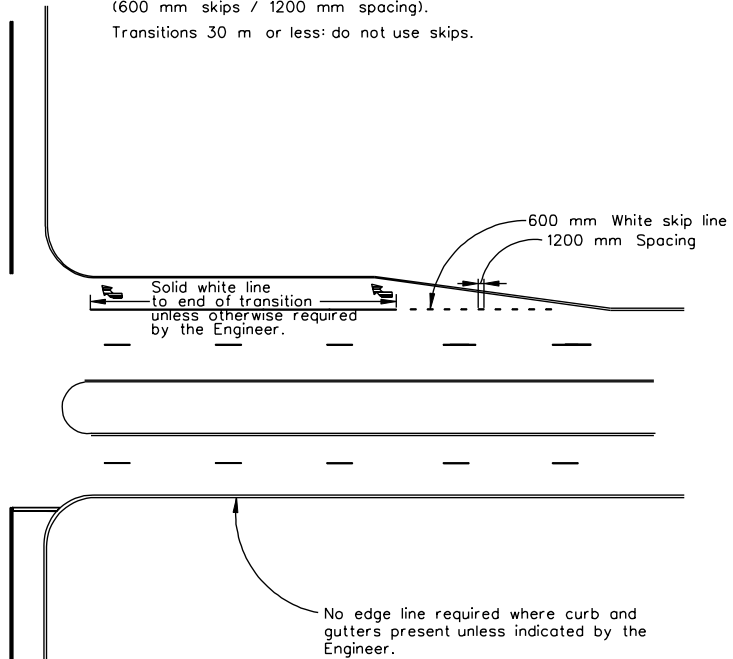


DETAIL FOR LOCATION OF EDGE LINES ON CURB SECTIONS OF ROADWAY (NO GUTTER)



SKIPS

- Thru lanes: use 3 m skips / 9 m spacing.
- Transitions more than 30 m : use miniskips (600 mm skips / 1200 mm spacing).
- Transitions 30 m or less: do not use skips.



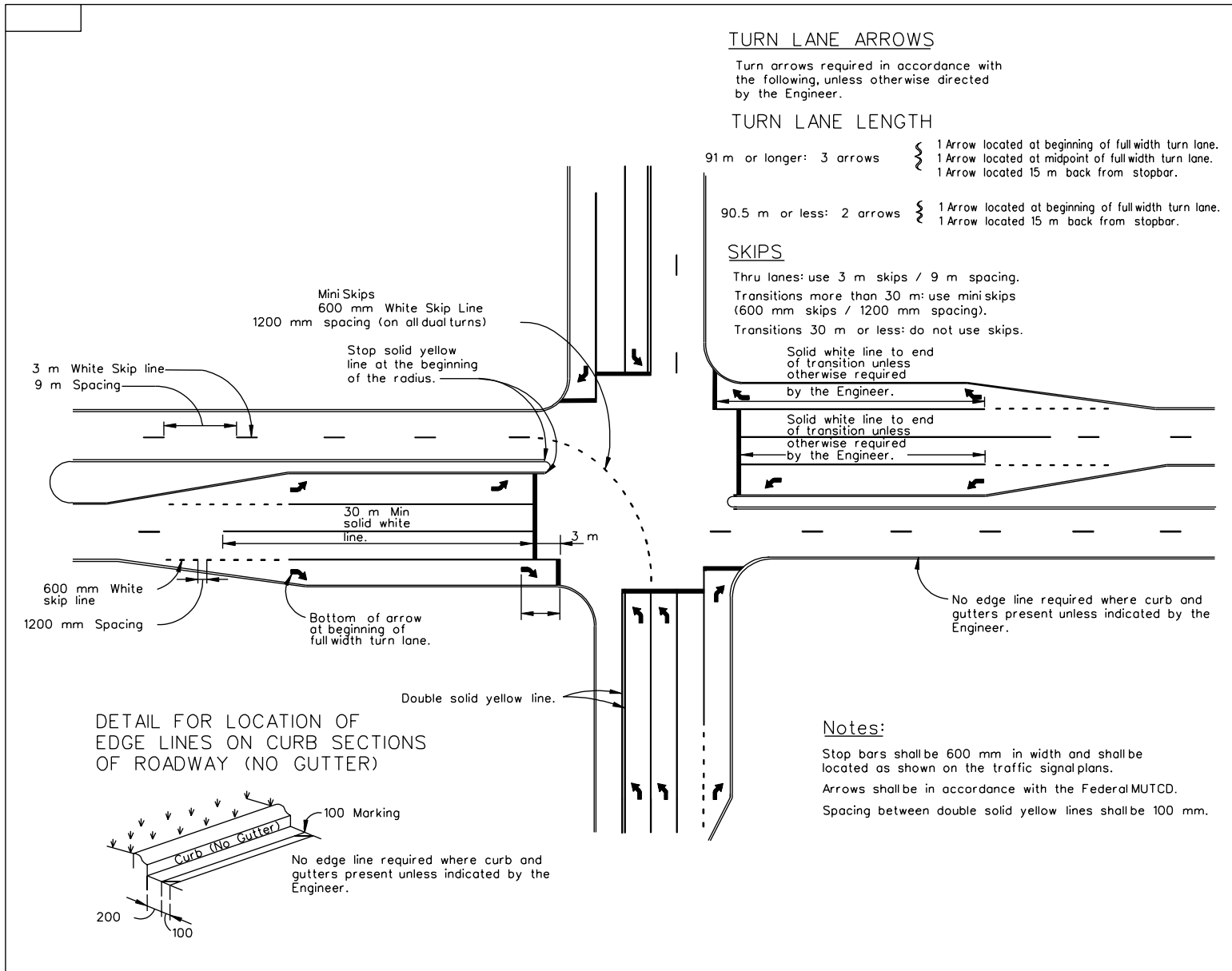
Notes:

Stop bars, if required by the Engineer, shall be a minimum of 1200 mm in advance of the crosswalk. In the absence of a marked crosswalk, the stop bar shall be a minimum of 1200 mm and a maximum of 9 m in advance of the nearest edge of the intersecting roadway. Stopbars shall be 600 mm in width. Arrows shall be in accordance with the Federal MUTCD. Spacing between double solid yellow lines shall be 100 mm.

SPECIFICATION REFERENCE
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TYPICAL PAVEMENT MARKING FOR UNSIGNALIZED INTERSECTIONS

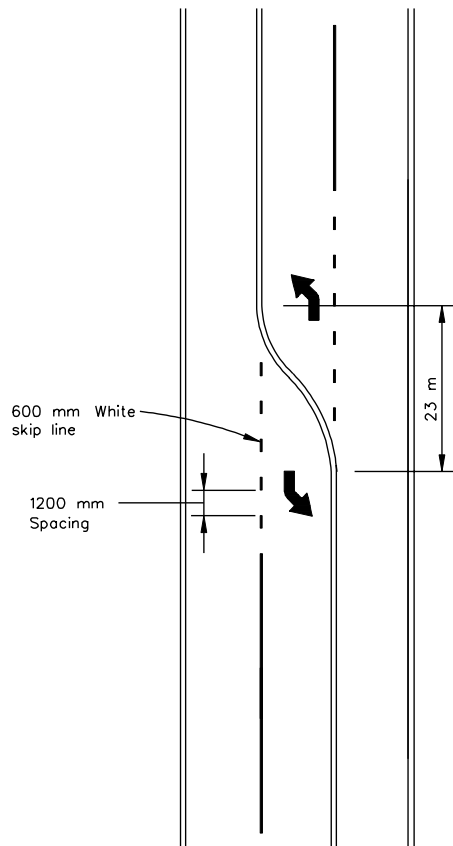
VIRGINIA DEPARTMENT OF TRANSPORTATION



TYPICAL PAVEMENT MARKING FOR SIGNALIZED INTERSECTIONS

SPECIFICATION REFERENCE

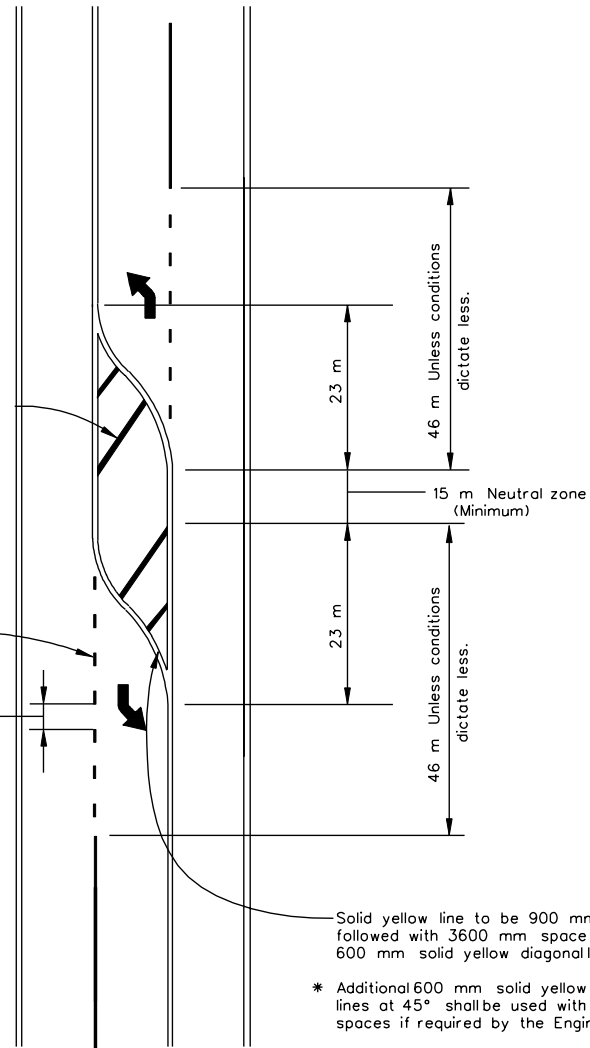
Note:  
Method used shall be  
as directed by the Engineer.



\* 600 mm Yellow Diagonal Line @ 45°

600 mm White skip line

1200 mm Spacing



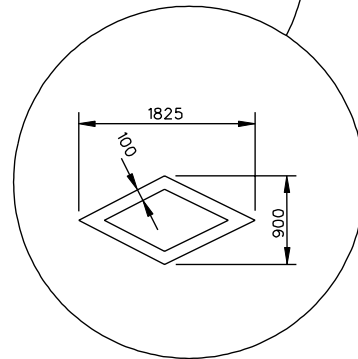
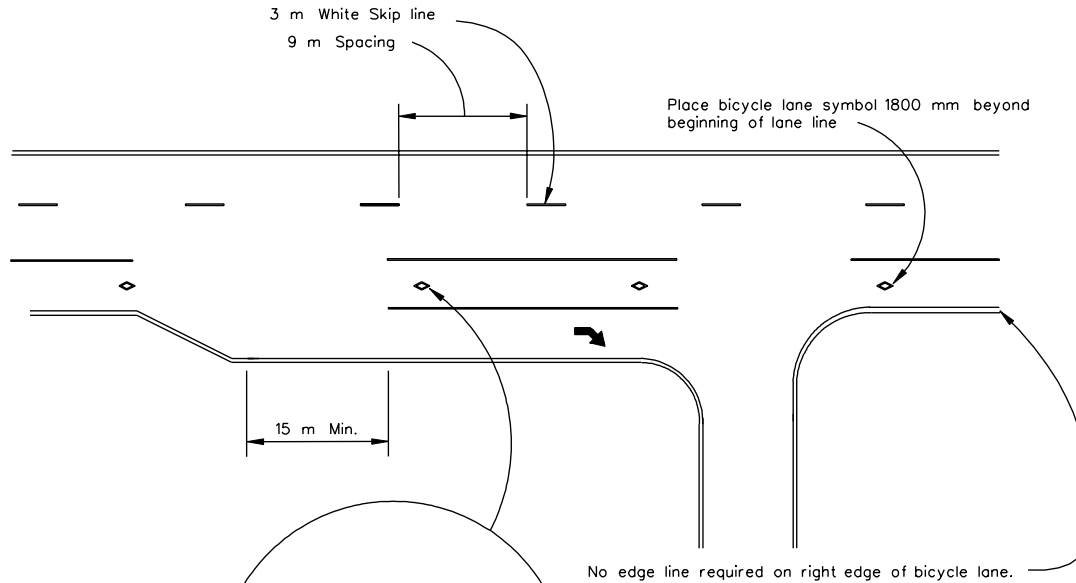
SPECIFICATION REFERENCE

# TYPICAL PAVEMENT MARKING LEFT TURN PAVEMENT MARKED MEDIAN

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS  
ON THIS SHEET ARE IN MILLIMETERS

1301.86



DETAIL  
BICYCLE  
LANE SYMBOL

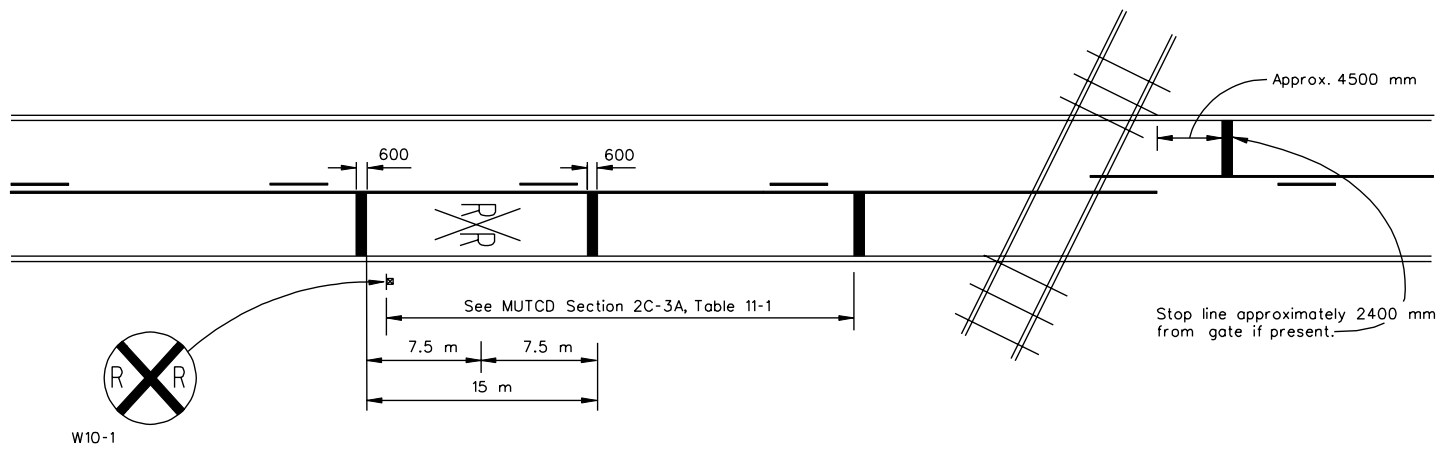
Notes:

- Bicycle lane symbols shall be placed at the beginning and at the end of the bike lane at right turn lanes.
- Bicycle lane symbols shall be placed 150 m max. apart.
- Roadway with curb requires a 1500 mm minimum width for bicycle lane.
- Roadway with shoulder on curb and gutter requires a 1200 mm minimum width for bicycle lane.

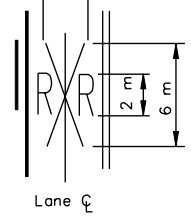
TYPICAL PAVEMENT  
MARKING BICYCLE LANE

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION  
REFERENCE



2.5 m Width may vary according to lane width.



A portion of the pavement marking symbol should be directly opposite the advance warning sign (W10-1). If needed, supplemental pavement marking symbols(s) may be placed between the advance warning sign and the crossing, but should be at least 15 m from the stop line.

Markings shall be installed at grade crossing which conform to the requirements of the MUTCD and as directed by the Engineer.

A three lane roadway should be marked with a centerline for two - lane approach operation on the approach to a crossing.

On multi-lane roads the transverse bands should extend across all approach lanes, and individual RXR symbols should be used in each approach lane.

Refer to standard alphabet for highway signs and markings for RXR symbols details.

SPECIFICATION REFERENCE
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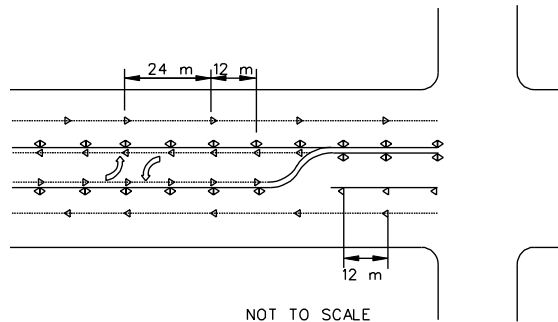
## TYPICAL PAVEMENT MARKING RAILROAD - HIGHWAY GRADE CROSSING

VIRGINIA DEPARTMENT OF TRANSPORTATION

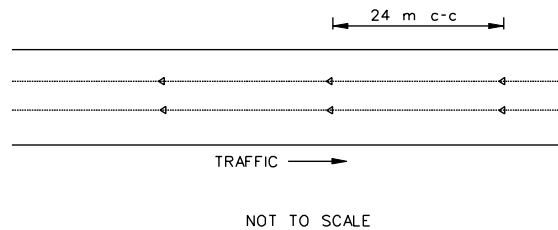
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

1301.88

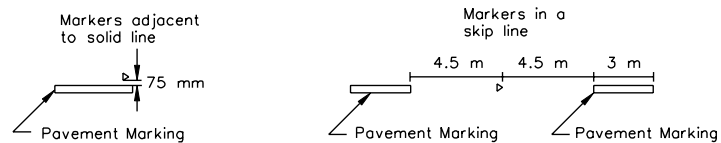
FIVE LANE - CENTER LANE LEFT TURN ONLY



DIVIDED ROADWAYS



GENERAL PLACEMENT:



Notes:

Exact locations of the markers shall be approved by the Engineer prior to installation.

Typical spacing is 12 m c-c when used adjacent to a solid line and 24 m when used in conjunction with a skip line except that on horizontal curves of 4° or more, the spacing along skip lines and channelizing lines adjacent to turn lanes can be reduced by 1/2 as shown on the plans or as directed by the Engineer.

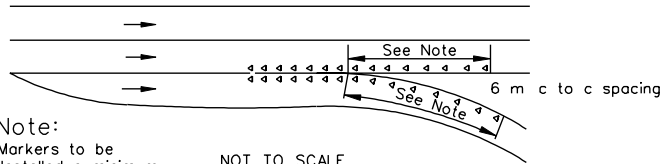
KEY:

- ◊ Two way
- ◄ One way

TYPICAL PAVEMENT MARKER LOCATION DETAILS

SPECIFICATION REFERENCE

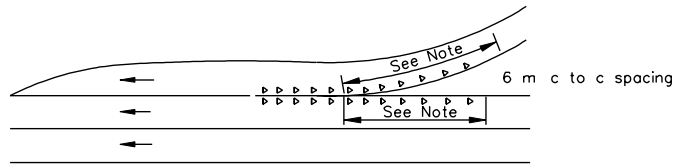
EXIT RAMP



Note:  
Markers to be installed a minimum of 24 m beyond physical gore.

NOT TO SCALE

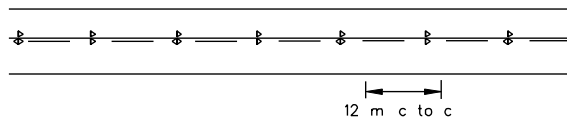
ENTRANCE RAMP



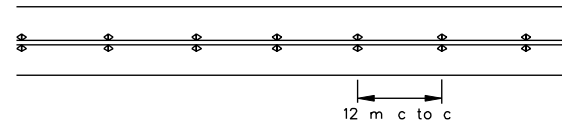
NOT TO SCALE

Note:  
Markers to be installed a minimum of 24 m beyond physical gore.

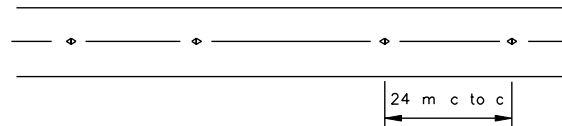
PASSING ONE DIRECTION



NO PASSING



PASSING TWO DIRECTIONS



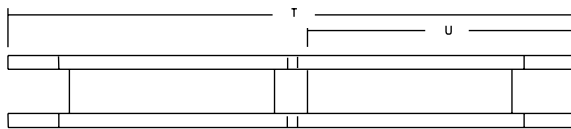
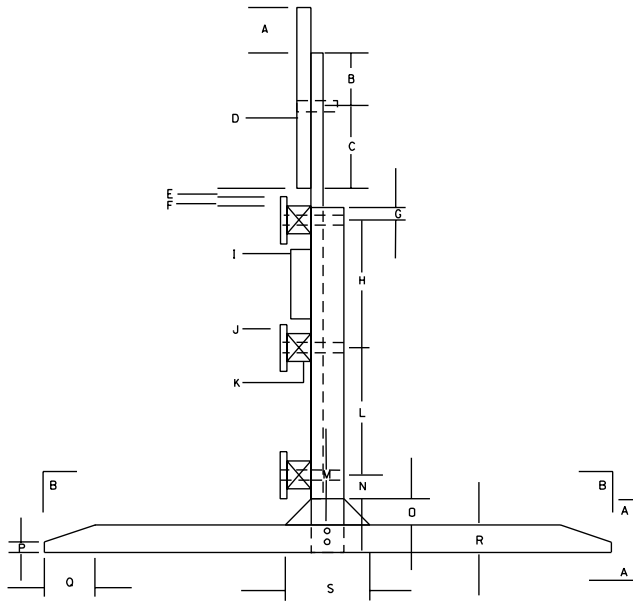
SPECIFICATION REFERENCE
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TYPICAL PAVEMENT MARKER LOCATION DETAILS

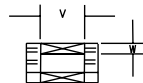
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

BD-1,2



Section BB



Section AA

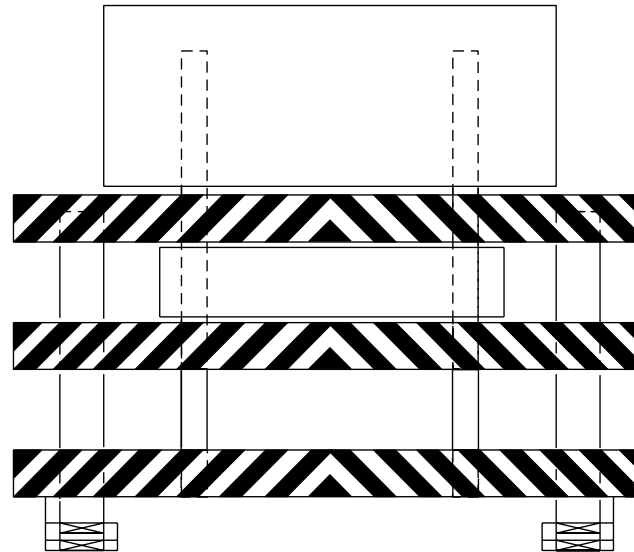
**Notes:**

Direction of chevrons to be determined at each location. Chevrons shall be 13 mm in thickness.

13 mm diameter holes to be bored in panels to match 13 mm holes in cross beams.

All lumber shall be pressure treated.

Miscellaneous hardware shall be galvanized or stainless steel.



DIMENSIONS (mm)		
	BD-1 (1220)	BD-2 (2440)
A	200	200
B	175	175
C	370	375
D	760x1220	760x1220
E	SIDEWALK CLOSED	ROAD CLOSED
F	100	100
G	50	50
H	50	50
I	700	700
J	N.A.	460x1220
K	13x200x1220	DETOUR
L	100x100x1220	13x200x2440
M	700	100x100x2440
N	13	700
O	70	70
P	140	140
Q	25	25
R	100	100
S	140	140
T	600	600
U	1800	2400
V	850	1150
W	89	89
X	38	38

TYPE III BARRICADE DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

1301.91

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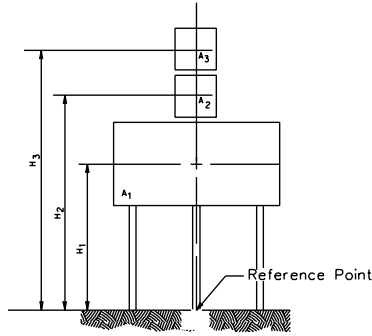
THIS SHEET INTENTIONALLY LEFT BLANK

SPECIFICATION REFERENCE	
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VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS  
ON THIS SHEET ARE IN MILLIMETERS

1301.92



- A<sub>1</sub> = Area of Sign Panel 1
- A<sub>2</sub> = Area of Sign Panel 2
- A<sub>3</sub> = Area of Sign Panel 3
- H<sub>1</sub> = Centroidal Distance From Sign Panel 1 to Ground Line
- H<sub>2</sub> = Centroidal Distance From Sign Panel 2 to Ground Line
- H<sub>2</sub> = Centroidal Distance From Sign Panel 2 to Ground Line
- H = Centroidal Distance for Sign Group

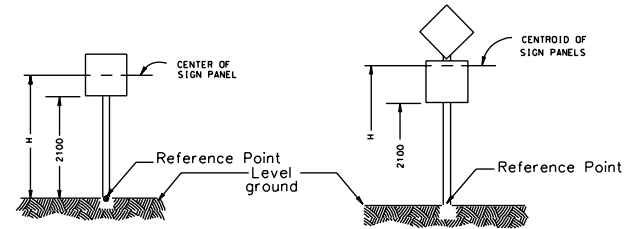
$$H = \frac{(A_1 \times H_1) + (A_2 \times H_2)}{(A_1 + A_2)}$$

NOTE: Measure "H" distances from Reference point which is located half-way between outer posts (for 2 or 3 posts) and intersection with ground line.

PROCEDURE FOR DETERMINING CENTROID WITH MULTIPLE SIGN PANELS

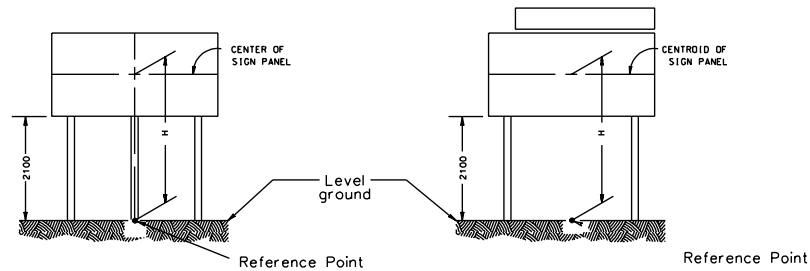
DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
100X100	2300	0.43	0.86	1.29
	2400	0.41	0.82	1.23
	2500	0.39	0.79	1.18
	2600	0.38	0.76	1.14
	2700	0.37	0.73	1.10
	2800	0.35	0.70	1.06
	2900	0.34	0.68	1.02
	3000	0.33	0.66	0.99
	3100	0.32	0.64	0.96
	3200	0.31	0.62	0.93
	3300	0.30	0.60	0.90
	3400	0.29	0.58	0.87
	3500	0.28	0.56	0.85
	3600	0.27	0.55	0.82
3700	0.27	0.53	0.80	

SINGLE POST



SINGLE SIGN PANEL      MULTIPLE SIGN PANELS

TWO OR THREE POSTS



SINGLE SIGN PANEL      MULTIPLE SIGN PANEL

Dimension "H" is defined as follows (for level ground) :

Single sign panel: Vertical distance from center of sign panel to the ground line.

Multiple sign panels: Vertical distance from centroid of sign panel group to the ground line.

Minimum spacing between posts:

100 X 100 posts: 900mm

All other posts: 2400mm

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS FOR CONSTRUCTION SIGN INSTALLATIONS LEVEL GROUND

SPECIFICATION REFERENCE

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
125X125	2300	1.02	2.03	3.05
	2400	0.97	1.95	2.92
	2500	0.93	1.87	2.80
	2600	0.90	1.80	2.70
	2700	0.87	1.73	2.60
	2800	0.83	1.67	2.50
	2900	0.81	1.61	2.42
	3000	0.78	1.56	2.34
	3100	0.75	1.51	2.26
	3200	0.73	1.46	2.19
	3300	0.71	1.42	2.12
	3400	0.69	1.37	2.06
	3500	0.67	1.33	2.00
	3600	0.65	1.30	1.95
	3700	0.63	1.26	1.89
100X150 (*)	2300	1.24	2.48	3.73
	2400	1.19	2.38	3.57
	2500	1.14	2.29	3.43
	2600	1.10	2.20	3.30
	2700	1.06	2.12	3.17
	2800	1.02	2.04	3.06
	2900	0.99	1.97	2.96
	3000	0.95	1.90	2.86
	3100	0.92	1.84	2.76
	3200	0.89	1.79	2.68
	3300	0.87	1.73	2.60
	3400	0.84	1.68	2.52
	3500	0.82	1.63	2.45
	3600	0.79	1.59	2.38
	3700	0.77	1.54	2.32

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
150X150	2300	1.95	3.90	5.86
	2400	1.87	3.74	5.61
	2500	1.80	3.60	5.39
	2600	1.73	3.45	5.18
	2700	1.66	3.33	4.99
	2800	1.60	3.21	4.81
	2900	1.55	3.10	4.64
	3000	1.50	2.99	4.49
	3100	1.45	2.90	4.34
	3200	1.40	2.81	4.21
	3300	1.36	2.72	4.08
	3400	1.32	2.64	3.96
	3500	1.28	2.57	3.85
	3600	1.25	2.49	3.74
	3700	1.21	2.43	3.64
150X200 (*)	2300	3.54	7.07	10.61
	2400	3.39	6.78	10.16
	2500	3.25	6.51	9.76
	2600	3.13	6.26	9.38
	2700	3.01	6.02	9.03
	2800	2.90	5.81	8.71
	2900	2.80	5.61	8.41
	3000	2.71	5.42	8.13
	3100	2.62	5.25	7.87
	3200	2.54	5.08	7.62
	3300	2.46	4.93	7.39
	3400	2.39	4.78	7.17
	3500	2.32	4.65	6.97
	3600	2.26	4.52	6.78
	3700	2.20	4.40	6.59

(\*) Larger dimension in direction of (parallel to) traffic.  
 Minimum spacing between posts:

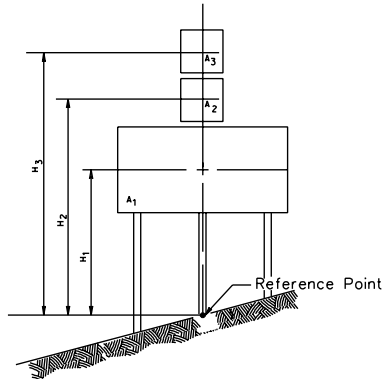
100 X 100 posts: 900mm  
 All other posts: 2400mm

SPECIFICATION  
 REFERENCE

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS  
 FOR CONSTRUCTION SIGN INSTALLATIONS LEVEL GROUND

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS  
 ON THIS SHEET ARE IN MILLIMETERS



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- H<sub>2</sub> = Centroidal Distance From Sign Panel 2 to Ground Line
- H = Centroidal Distance for Sign Group

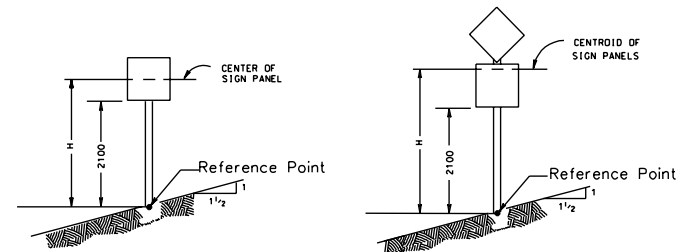
$$H = \frac{(A_1 \times H_1) + (A_2 \times H_2)}{(A_1 + A_2)}$$

NOTE: Measure "H" distances from Reference point which is located half-way between outer posts (for 2 or 3 posts) and intersection with ground line.

PROCEDURE FOR DETERMINING CENTROID WITH MULTIPLE SIGN PANELS

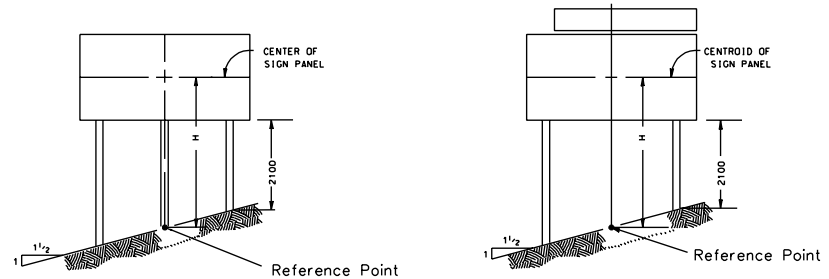
DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
100X100	2300	0.43	---	---
	2400	0.41	---	---
	2500	0.39	---	---
	2600	0.38	---	---
	2700	0.37	0.64	---
	2800	0.35	0.62	---
	2900	0.34	0.60	---
	3000	0.33	0.58	0.73
	3100	0.32	0.56	0.70
	3200	0.31	0.54	0.68
	3300	0.30	0.53	0.66
	3400	0.29	0.51	0.64
	3500	0.28	0.48	0.62
	3600	0.27	0.47	0.61
	3700	0.27	0.46	0.59

SINGLE POST



SINGLE SIGN PANEL      MULTIPLE SIGN PANELS

TWO OR THREE POSTS



SINGLE SIGN PANEL      MULTIPLE SIGN PANEL

Dimension "H" is defined as follows (for 1/2 : 1 Slope) :

Single sign panel: Vertical distance from center of sign panel to the ground line.

Multiple sign panels: Vertical distance from centroid of sign panelgroup to the ground line.

Minimum spacing between posts:

- 100 X 100 posts: 900mm
- All other posts: 2400mm

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS FOR CONSTRUCTION SIGN INSTALLATIONS 1 1/2 : 1 SLOPE

SPECIFICATION REFERENCE

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
125x125	2300	1.02	---	---
	2400	0.97	---	---
	2500	0.93	---	---
	2600	0.90	---	---
	2700	0.87	---	---
	2800	0.83	---	---
	2900	0.81	---	---
	3000	0.78	1.33	---
	3100	0.75	1.29	---
	3200	0.73	1.25	---
	3300	0.71	1.21	---
	3400	0.69	1.18	---
	3500	0.67	1.14	---
	3600	0.65	1.11	---
	3700	0.63	1.08	---
	3800	---	1.05	---
	3900	---	1.03	1.20
	4000	---	1.00	1.17
	4100	---	0.98	1.14
	4200	---	0.95	1.12
	4300	---	---	1.09
	4400	---	---	1.06
	4500	---	---	1.04
	4600	---	---	1.02
	4700	---	---	1.00
	4800	---	---	0.98
	4900	---	---	0.96
	5000	---	---	0.94
	5100	---	---	0.92
	5200	---	---	0.90

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
100x150 (*)	2300	1.24	---	---
	2400	1.19	---	---
	2500	1.14	---	---
	2600	1.10	---	---
	2700	1.06	---	---
	2800	1.02	---	---
	2900	0.99	---	---
	3000	0.95	1.73	---
	3100	0.92	1.68	---
	3200	0.89	1.62	---
	3300	0.87	1.57	---
	3400	0.84	1.53	---
	3500	0.82	1.48	---
	3600	0.79	1.44	---
	3700	0.77	1.40	---
	3800	---	1.37	---
	3900	---	1.33	1.73
	4000	---	1.30	1.69
	4100	---	1.27	1.65
	4200	---	1.24	1.61
	4300	---	---	1.57
	4400	---	---	1.54
	4500	---	---	1.50
	4600	---	---	1.47
	4700	---	---	1.44
	4800	---	---	1.41
	4900	---	---	1.38
	5000	---	---	1.35
	5100	---	---	1.33
	5200	---	---	1.30

(\*) Larger dimension in direction of (parallel to) traffic.

Minimum spacing between posts:

100 X 100 posts: 900mm  
 All other posts: 2400mm

SPECIFICATION REFERENCE

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS  
 FOR CONSTRUCTION SIGN INSTALLATIONS 1 1/2 : 1 SLOPE

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
150X150	2300	1.95	---	---
	2400	1.87	---	---
	2500	1.80	---	---
	2600	1.73	---	---
	2700	1.66	---	---
	2800	1.60	---	---
	2900	1.55	---	---
	3000	1.50	2.72	---
	3100	1.45	2.63	---
	3200	1.40	2.55	---
	3300	1.36	2.47	---
	3400	1.32	2.40	---
	3500	1.28	2.33	---
	3600	1.25	2.27	---
	3700	1.21	2.21	---
	3800	---	2.15	---
	3900	---	2.09	2.72
	4000	---	2.04	2.66
	4100	---	1.99	2.59
	4200	---	1.94	2.53
	4300	---	---	2.47
	4400	---	---	2.42
	4500	---	---	2.36
	4600	---	---	2.31
	4700	---	---	2.26
	4800	---	---	2.21
	4900	---	---	2.17
	5000	---	---	2.13
5100	---	---	2.08	
5200	---	---	2.04	

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
150X200 (*)	2300	3.54	---	---
	2400	3.39	---	---
	2500	3.25	---	---
	2600	3.13	---	---
	2700	3.01	---	---
	2800	2.90	---	---
	2900	2.80	---	---
	3000	2.71	5.15	---
	3100	2.62	4.98	---
	3200	2.54	4.83	---
	3300	2.46	4.68	---
	3400	2.39	4.54	---
	3500	2.32	4.41	---
	3600	2.26	4.29	---
	3700	2.20	4.17	---
	3800	---	4.06	---
	3900	---	3.96	5.53
	4000	---	3.86	5.39
	4100	---	3.77	5.26
	4200	---	3.68	5.13
	4300	---	---	5.01
	4400	---	---	4.90
	4500	---	---	4.79
	4600	---	---	4.69
	4700	---	---	4.59
	4800	---	---	4.49
	4900	---	---	4.40
	5000	---	---	4.31
5100	---	---	4.23	
5200	---	---	4.15	

(\*) Larger dimension in direction of (parallel to) traffic.  
 Minimum spacing between posts:  
 100 X 100 posts: 900mm  
 All other posts: 2400mm

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS  
 FOR CONSTRUCTION SIGN INSTALLATIONS 1 1/2 : 1 SLOPE

SPECIFICATION  
 REFERENCE

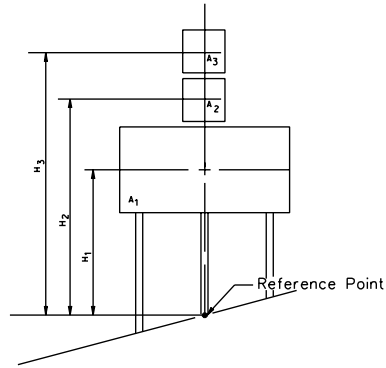
THIS SHEET INTENTIONALLY LEFT BLANK

SPECIFICATION  
REFERENCE

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS  
ON THIS SHEET ARE IN MILLIMETERS

1301.98



- A<sub>1</sub> = Area of Sign Panel 1
- A<sub>2</sub> = Area of Sign Panel 2
- A<sub>3</sub> = Area of Sign Panel 3
- H<sub>1</sub> = Centroidal Distance From Sign Panel 1 to Ground Line
- H<sub>2</sub> = Centroidal Distance From Sign Panel 2 to Ground Line
- H<sub>2</sub> = Centroidal Distance From Sign Panel 2 to Ground Line
- H = Centroidal Distance for Sign Group

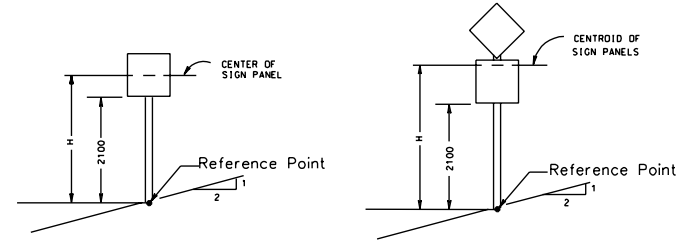
$$H = \frac{(A_1 \times H_1) + (A_2 \times H_2)}{(A_1 + A_2)}$$

NOTE: Measure "H" distances from Reference point which is located half-way between outer posts (for 2 or 3 posts) and intersection with ground line.

PROCEDURE FOR DETERMINING CENTROID WITH MULTIPLE SIGN PANELS

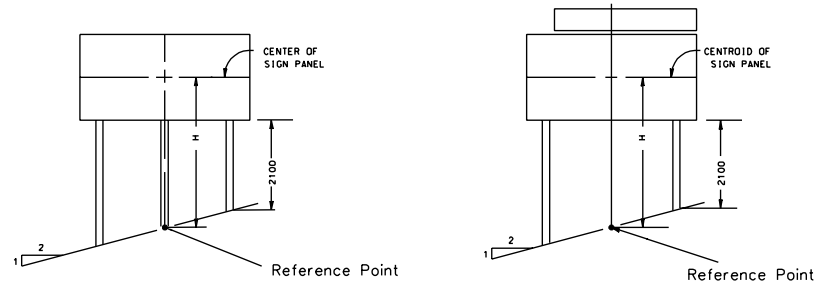
DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
100X100	2300	0.43	---	---
	2400	0.41	---	---
	2500	0.39	---	---
	2600	0.38	---	---
	2700	0.37	0.67	---
	2800	0.35	0.64	---
	2900	0.34	0.62	---
	3000	0.33	0.60	0.80
	3100	0.32	0.58	0.78
	3200	0.31	0.56	0.75
	3300	0.30	0.55	0.73
	3400	0.29	0.53	0.71
	3500	0.28	0.51	0.69
	3600	0.27	0.50	0.67
	3700	0.27	0.49	0.65

SINGLE POST



SINGLE SIGN PANEL      MULTIPLE SIGN PANELS

TWO OR THREE POSTS



SINGLE SIGN PANEL      MULTIPLE SIGN PANEL

Dimension "H" is defined as follows (for 2 : 1 Slope) :  
 Single sign panel: Vertical distance from center of sign panel to the ground line.  
 Multiple sign panels: Vertical distance from centroid of sign panel group to the ground line.

Minimum spacing between posts:

100 X 100 posts: 900mm  
 All other posts: 2400mm

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS FOR CONSTRUCTION SIGN INSTALLATIONS 2 : 1 SLOPE

SPECIFICATION REFERENCE



DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
125x125	2300	1.02	---	---
	2400	0.97	---	---
	2500	0.93	---	---
	2600	0.90	---	---
	2700	0.87	---	---
	2800	0.83	---	---
	2900	0.81	---	---
	3000	0.78	1.40	---
	3100	0.75	1.35	---
	3200	0.73	1.31	---
	3300	0.71	1.27	---
	3400	0.69	1.23	---
	3500	0.67	1.20	---
	3600	0.65	1.16	1.50
	3700	0.63	1.13	1.46
	3800	---	1.10	1.42
	3900	---	1.07	1.38
	4000	---	1.05	1.35
	4100	---	1.02	1.31
	4200	---	1.00	1.28
	4300	---	---	1.25
	4400	---	---	1.22
	4500	---	---	1.20
	4600	---	---	1.17
	4700	---	---	1.15
	4800	---	---	1.12
4900	---	---	1.10	

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
100x150 (*)	2300	1.24	---	---
	2400	1.19	---	---
	2500	1.14	---	---
	2600	1.10	---	---
	2700	1.06	---	---
	2800	1.02	---	---
	2900	0.99	---	---
	3000	0.95	1.78	---
	3100	0.92	1.72	---
	3200	0.89	1.67	---
	3300	0.87	1.62	---
	3400	0.84	1.57	---
	3500	0.82	1.53	---
	3600	0.79	1.48	2.03
	3700	0.77	1.44	1.98
	3800	---	1.41	1.92
	3900	---	1.37	1.87
	4000	---	1.34	1.83
	4100	---	1.30	1.78
	4200	---	1.27	1.74
	4300	---	---	1.70
	4400	---	---	1.66
	4500	---	---	1.62
	4600	---	---	1.59
	4700	---	---	1.55
	4800	---	---	1.52
4900	---	---	1.49	

(\*) Larger dimension in direction of (parallel to) traffic.  
 Minimum spacing between posts:  
 100 X 100 posts: 900mm  
 All other posts: 2400mm

SPECIFICATION REFERENCE

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS FOR CONSTRUCTION SIGN INSTALLATIONS 2 : 1 SLOPE

VIRGINIA DEPARTMENT OF TRANSPORTATION

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
150x150	2300	1.95	---	---
	2400	1.87	---	---
	2500	1.80	---	---
	2600	1.73	---	---
	2700	1.66	---	---
	2800	1.60	---	---
	2900	1.55	---	---
	3000	1.50	2.80	---
	3100	1.45	2.71	---
	3200	1.40	2.62	---
	3300	1.36	2.54	---
	3400	1.32	2.47	---
	3500	1.28	2.40	---
	3600	1.25	2.33	3.19
	3700	1.21	2.27	3.10
	3800	---	2.21	3.02
	3900	---	2.15	2.94
	4000	---	2.10	2.87
	4100	---	2.05	2.80
	4200	---	2.00	2.73
	4300	---	---	2.67
	4400	---	---	2.61
	4500	---	---	2.55
	4600	---	---	2.50
	4700	---	---	2.44
	4800	---	---	2.39
4900	---	---	2.34	

DESIGN TABLE FOR WOODEN SIGN SUPPORTS				
Size of post	H (mm)	Maximum Area (Total of sign panels) (m <sup>2</sup> )		
		Single-post	Two-posts	Three-posts
150x200 (*)	2300	3.54	---	---
	2400	3.39	---	---
	2500	3.25	---	---
	2600	3.13	---	---
	2700	3.01	---	---
	2800	2.90	---	---
	2900	2.80	---	---
	3000	2.71	5.23	---
	3100	2.62	5.06	---
	3200	2.54	4.90	---
	3300	2.46	4.75	---
	3400	2.39	4.61	---
	3500	2.32	4.48	---
	3600	2.26	4.35	6.23
	3700	2.20	4.24	6.06
	3800	---	4.13	5.90
	3900	---	4.02	5.75
	4000	---	3.92	5.60
	4100	---	3.82	5.47
	4200	---	3.73	5.34
	4300	---	---	5.21
	4400	---	---	5.09
	4500	---	---	4.98
	4600	---	---	4.87
	4700	---	---	4.77
	4800	---	---	4.67
4900	---	---	4.57	

(\*) Larger dimension in direction of (parallel to) traffic.  
 Minimum spacing between posts:

100 X 100 posts: 900mm  
 All other posts: 2400mm

DETAILS FOR CALCULATING NUMBER AND SIZE OF WOOD POSTS FOR CONSTRUCTION SIGN INSTALLATIONS 2 : 1 SLOPE

SPECIFICATION REFERENCE