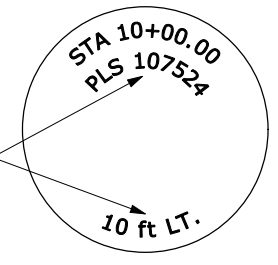


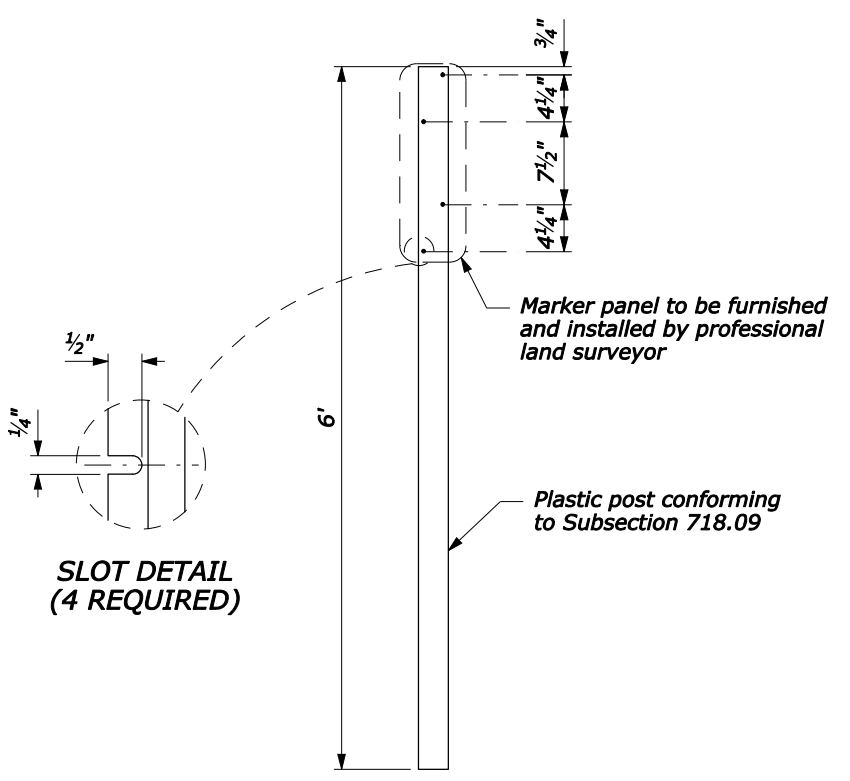
**TYPICAL SECTION
RIGHT-OF-WAY MONUMENTATION**



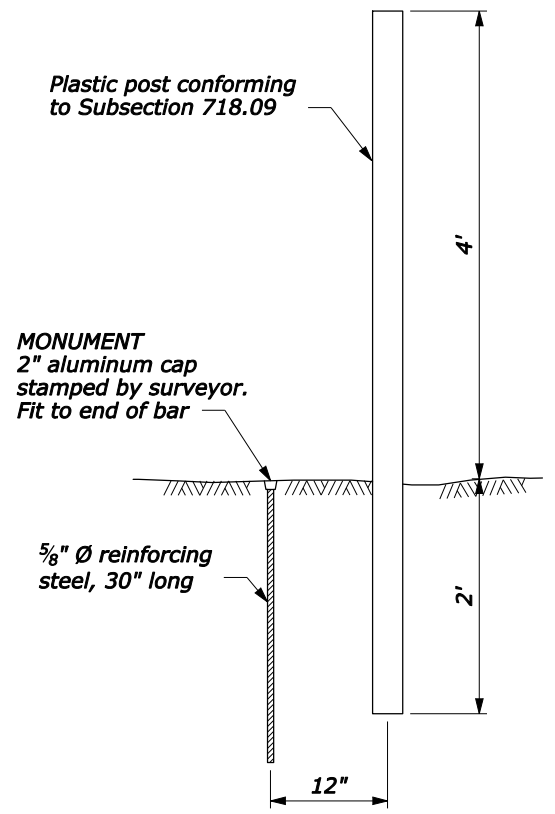
CAP DETAIL

NOTE:

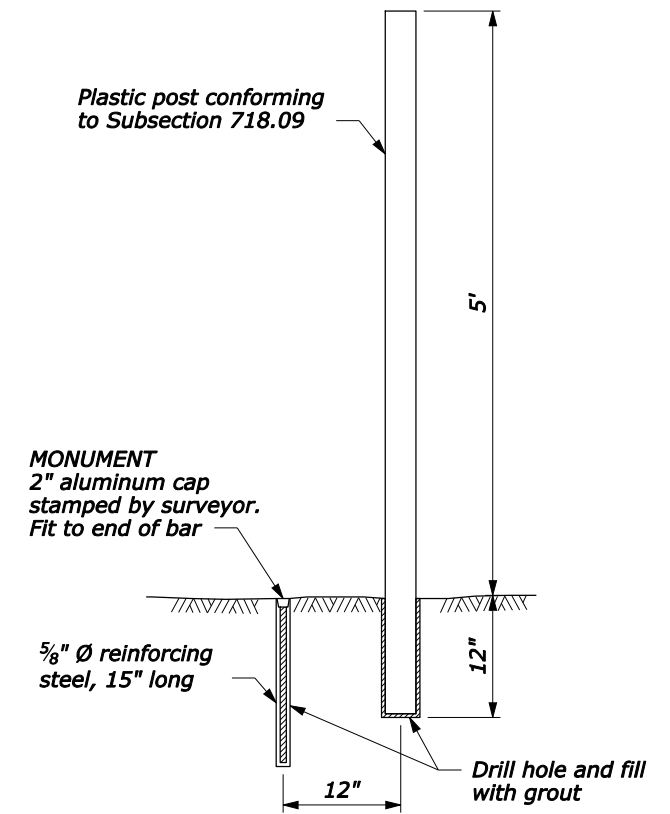
1. **Right-of-Way Witness Post:**
Set a 6 foot long flexible plastic post. Right-of-Way witness posts should be brown, green or other suitable colors to match surroundings. Attach a "Survey Marker Witness" plaque to the post. Station, offset and PLS date of survey should be permanently attached to the front of the post facing the designed alignment.
2. Witness post to be used when Right-of-Way witness post assembly is required.
3. Set monuments using a professional land surveyor according to the requirements of the state code.
4. Station and distances based on Right-of-Way centerline.
5. Install markers so that the center of the cap is not more than 1/2" from the point established.



**RIGHT-OF-WAY WITNESS POST
ASSEMBLY DETAIL**



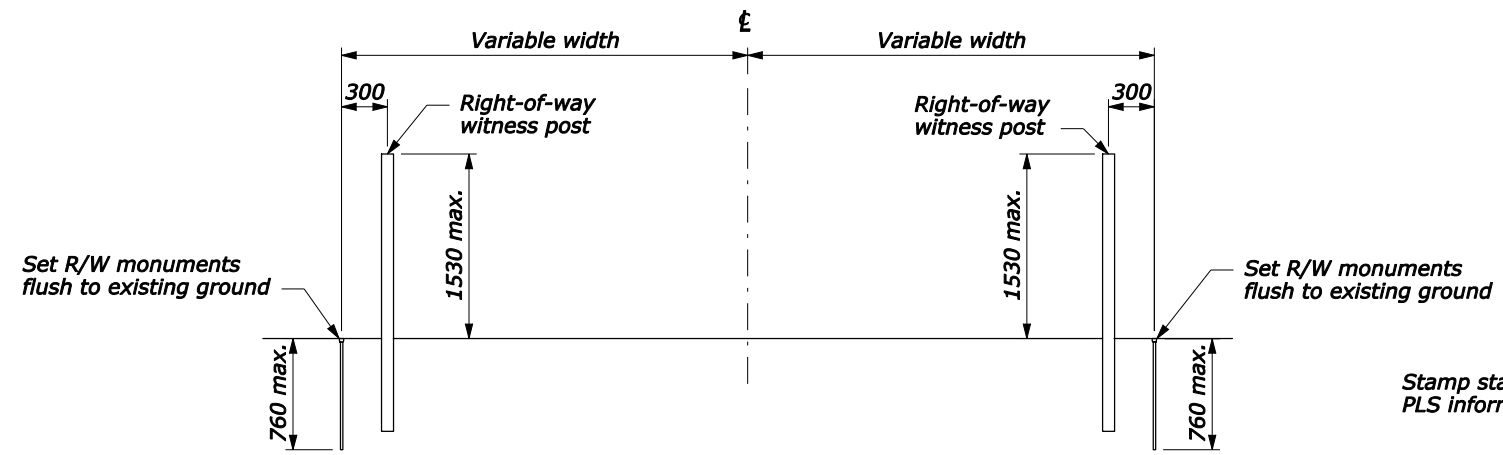
**RIGHT-OF-WAY MONUMENT
AND WITNESS POST
EARTH INSTALLATION**



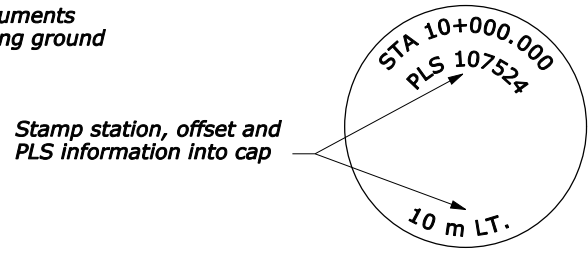
**RIGHT-OF-WAY MONUMENT
AND WITNESS POST
SOLID ROCK INSTALLATION**

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
RIGHT-OF-WAY MONUMENTATION	
DETAIL APPROVED FOR USE 5/2003 REVISED: 12/2006 11/2007	DETAIL W621-1



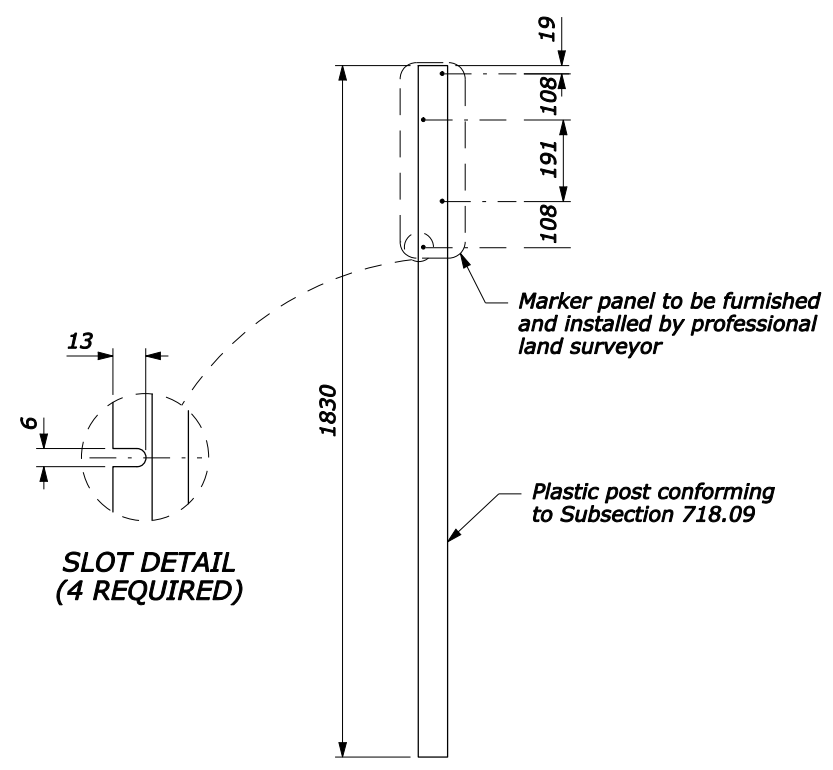
**TYPICAL SECTION
RIGHT-OF-WAY MONUMENTATION**



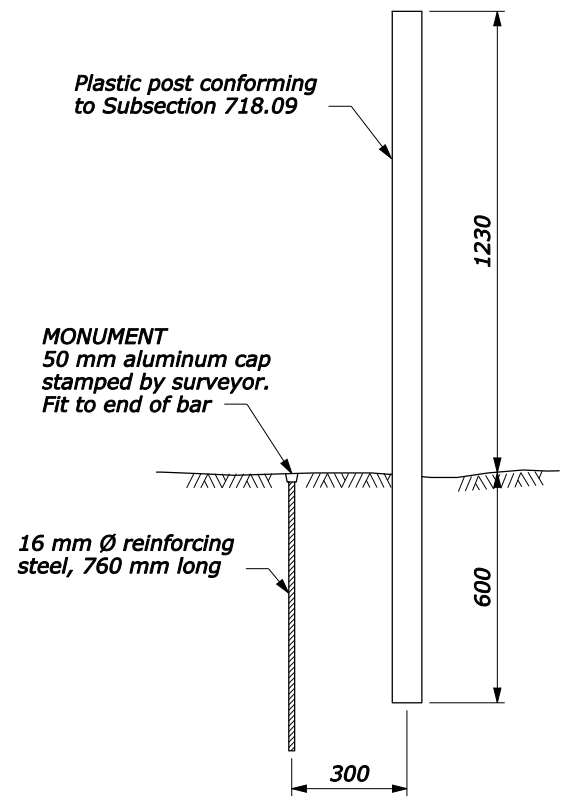
CAP DETAIL

NOTE:

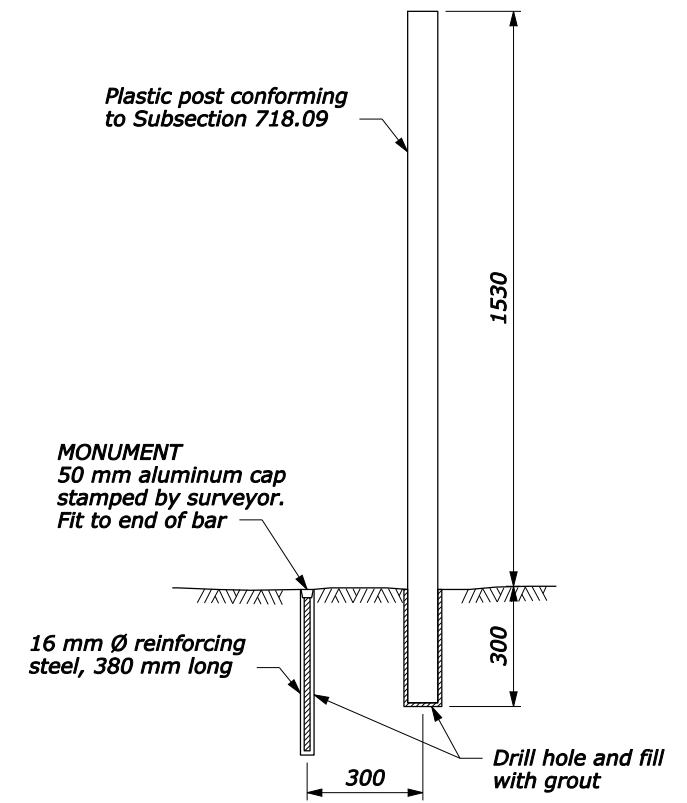
1. **Right-of-Way Witness Post:**
Set a 1830 mm long flexible plastic post. Right-of-Way witness posts should be brown, green or other suitable colors to match surroundings. Attach a "Survey Marker Witness" plaque to the post. Station, offset and PLS date of survey should be permanently attached to the front of the post facing the designed alignment.
2. Witness post to be used when Right-of-Way witness post assembly is required.
3. Set monuments using a professional land surveyor according to the requirements of the state code.
4. Station and distances based on Right-of-Way centerline.
5. Install markers so that the center of the cap is not more than 13 mm from the point established.
6. Dimensions without units are millimeters.



**RIGHT-OF-WAY WITNESS POST
ASSEMBLY DETAIL**



**RIGHT-OF-WAY MONUMENT
AND WITNESS POST
EARTH INSTALLATION**

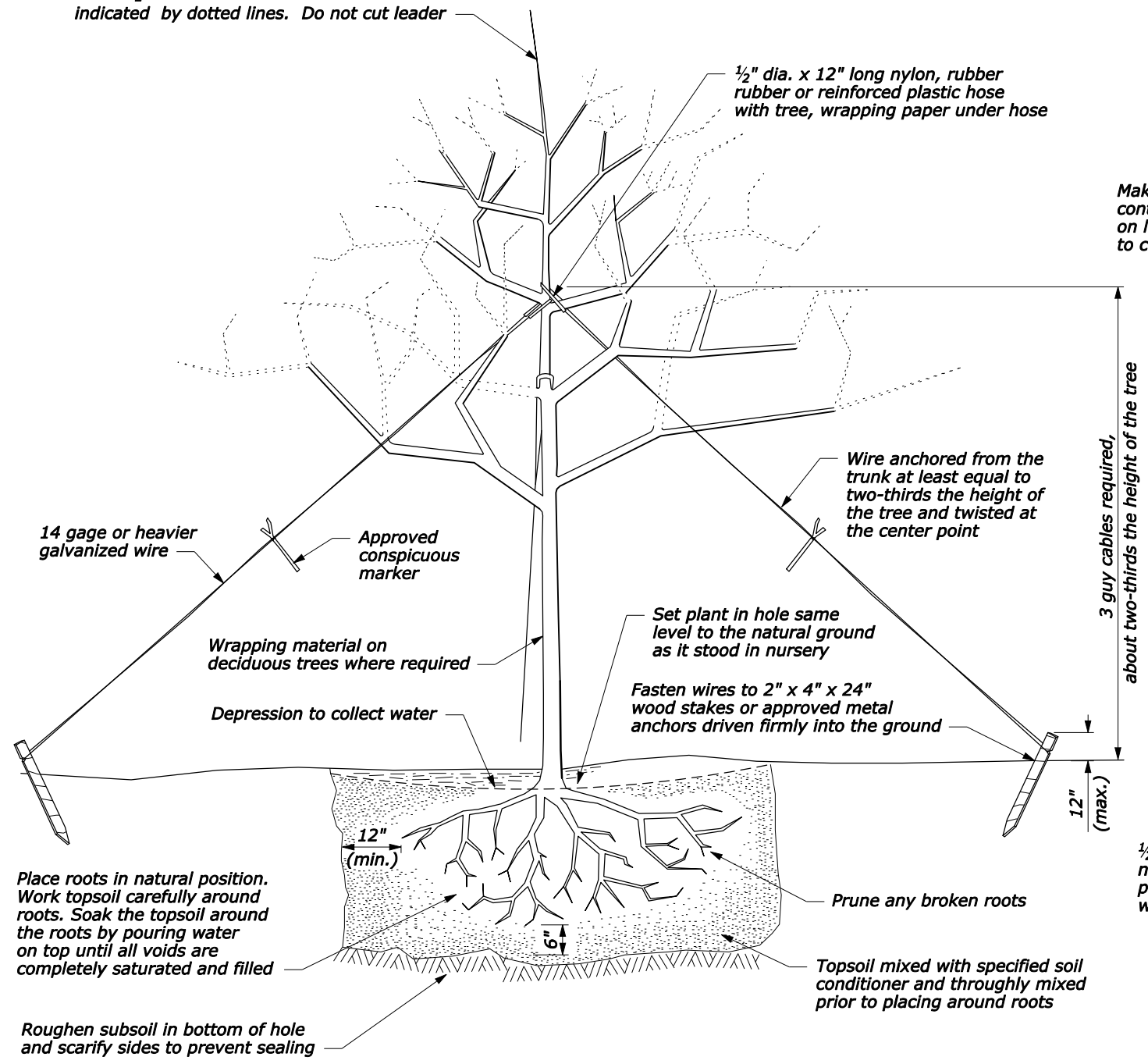


**RIGHT-OF-WAY MONUMENT
AND WITNESS POST
SOLID ROCK INSTALLATION**

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
RIGHT-OF-WAY MONUMENTATION	
DETAIL APPROVED FOR USE 5/2003	DETAIL
REVISED: 12/2006 11/2007	WM621-1

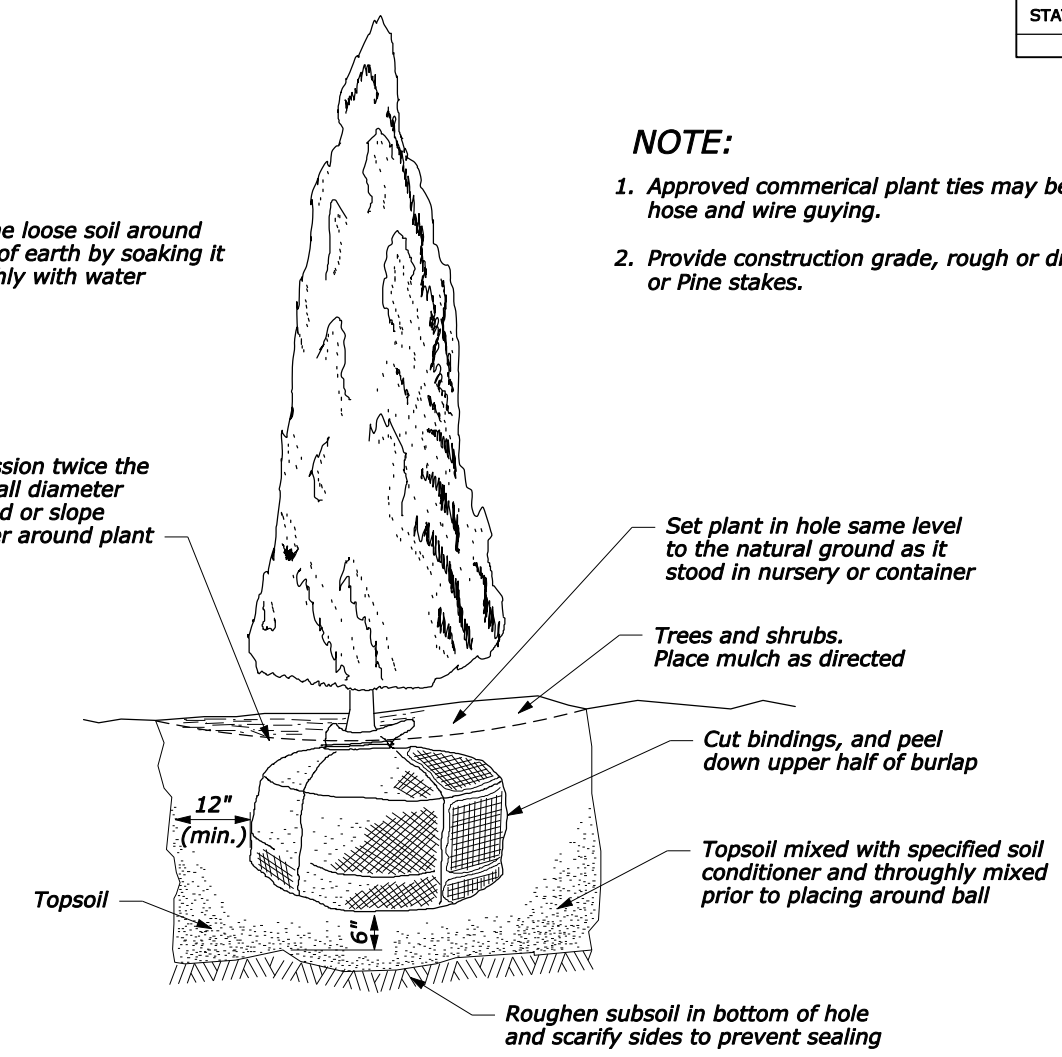
For bare root trees and shrubs, prune branches about 1/3 for nursery stock and about 1/2 for collected material as indicated by dotted lines. Do not cut leader



METHOD OF PLANTING BARE ROOT TREES AND SHRUBS AND METHOD OF GUYING DECIDUOUS TREES OVER 12' AND CONIFERS OVER 4'

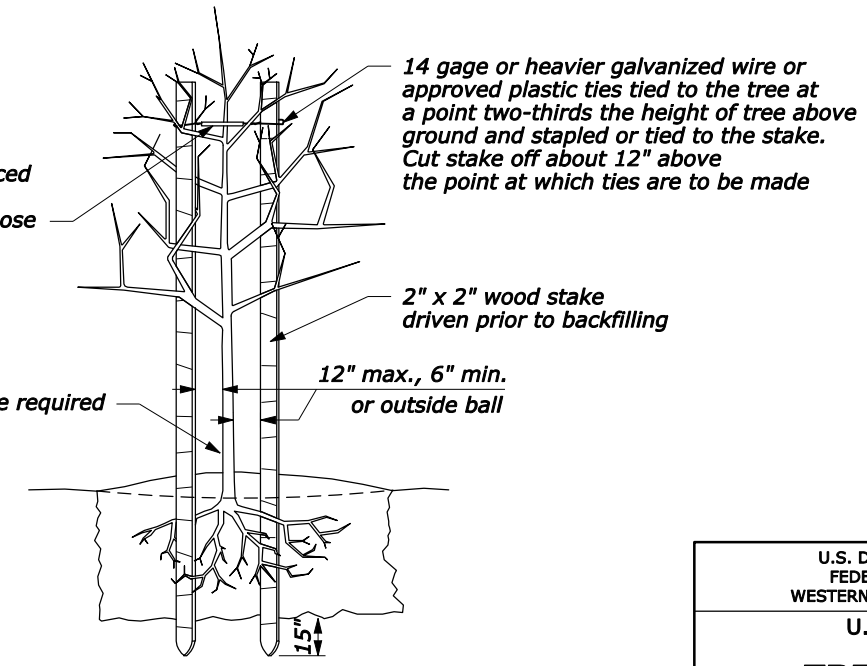
Settle the loose soil around the ball of earth by soaking it thoroughly with water

Make a depression twice the container or ball diameter on level ground or slope to collect water around plant



METHOD OF PLANTING CONTAINER OR BALLED AND BURLAPPED TREES AND SHRUBS

1/2" dia. 12" long nylon, rubber or reinforced plastic hose with tree, wrapping paper under hose



METHOD OF STAKING DECIDUOUS TREES UNDER 12'

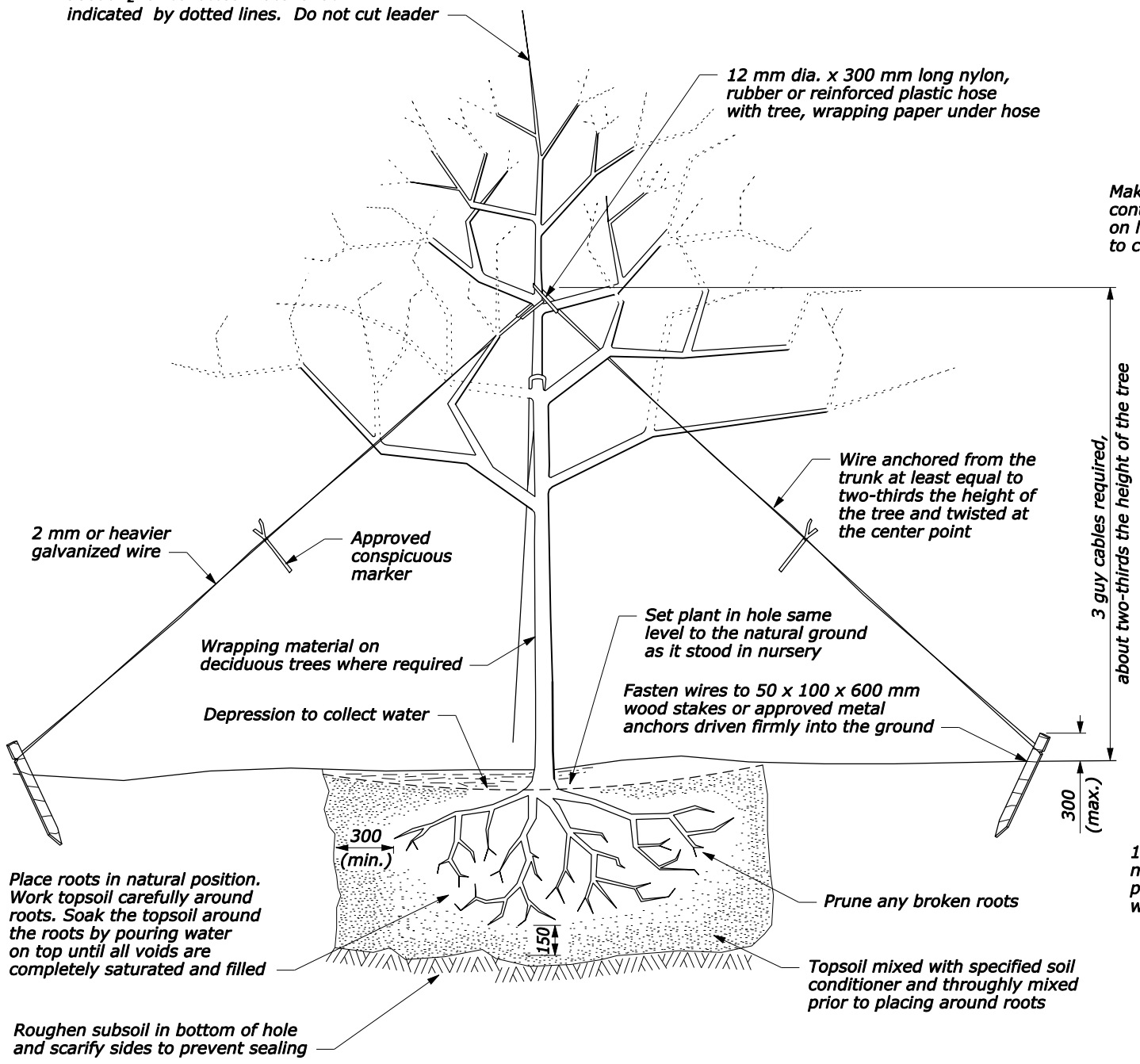
NOTE:

1. Approved commercial plant ties may be used in lieu of hose and wire guying.
2. Provide construction grade, rough or dressed Douglas Fir or Pine stakes.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
TREES AND SHRUBS PLANTING METHODS	
DETAIL APPROVED FOR USE 12/2006	DETAIL
REVISED:	W626-1

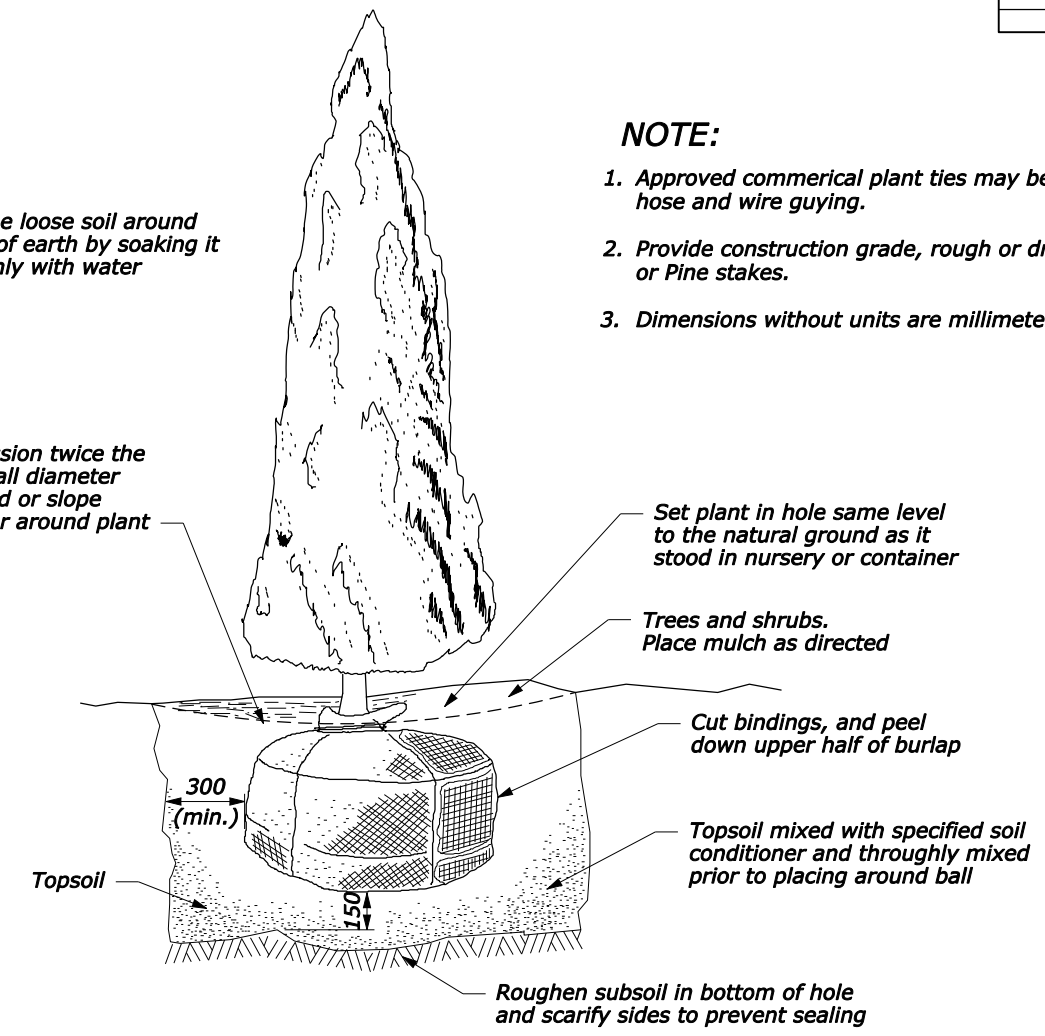
For bare root trees and shrubs, prune branches about $\frac{1}{3}$ for nursery stock and about $\frac{1}{2}$ for collected material as indicated by dotted lines. Do not cut leader



METHOD OF PLANTING BARE ROOT TREES AND SHRUBS AND METHOD OF GUYING DECIDUOUS TREES OVER 3.6 m AND CONIFERS OVER 1.2 m

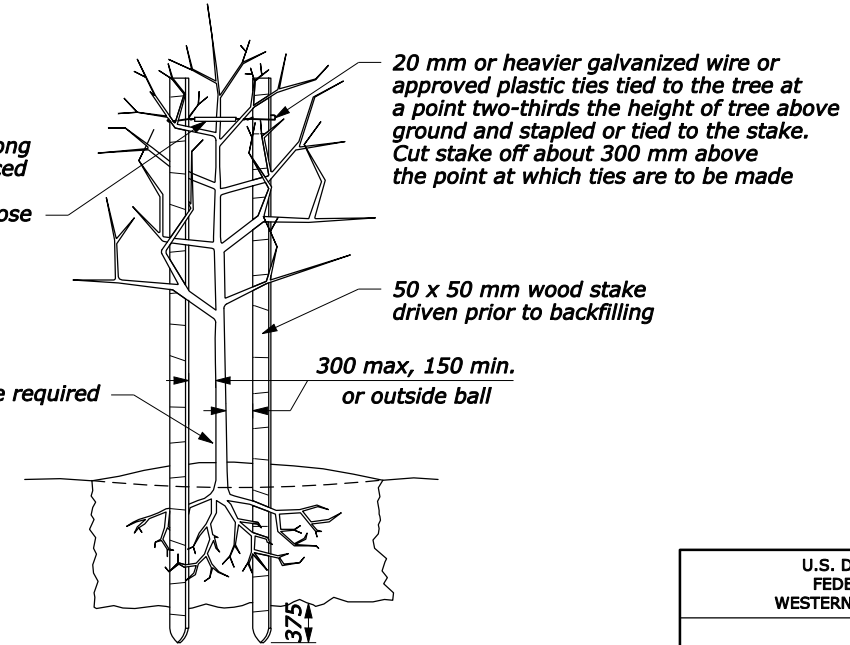
Settle the loose soil around the ball of earth by soaking it thoroughly with water

Make a depression twice the container or ball diameter on level ground or slope to collect water around plant



METHOD OF PLANTING CONTAINER OR BALLED AND BURLAPPED TREES AND SHRUBS

12 mm dia. x 300 mm long nylon, rubber or reinforced plastic hose with tree, wrapping paper under hose



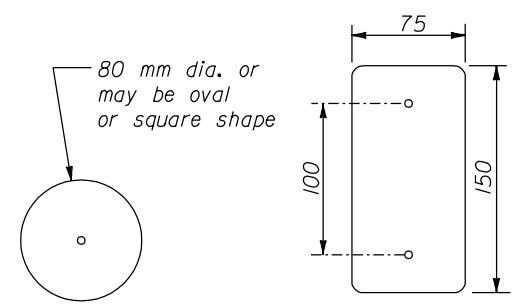
METHOD OF STAKING DECIDUOUS TREES UNDER 3.6 m

NOTE:

1. Approved commercial plant ties may be used in lieu of hose and wire guying.
2. Provide construction grade, rough or dressed Douglas Fir or Pine stakes.
3. Dimensions without units are millimeters.

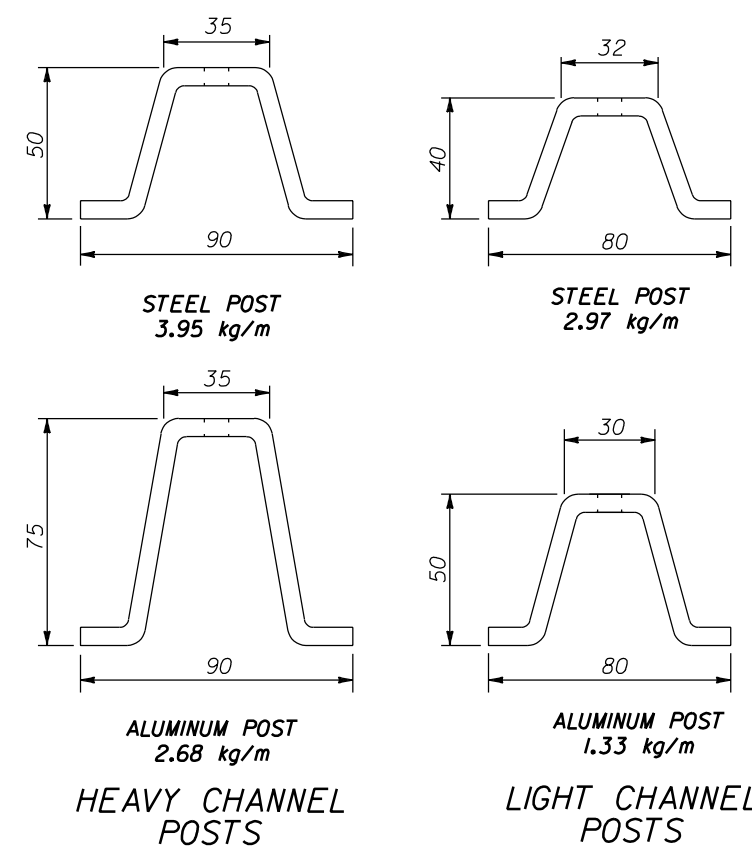
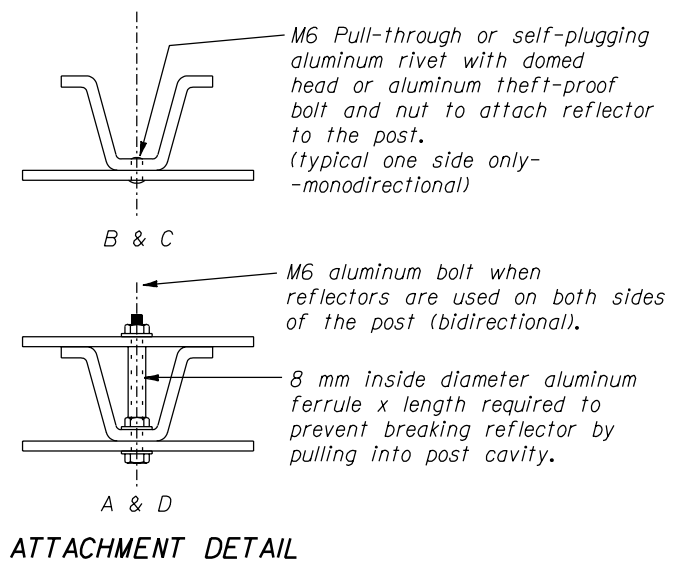
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
TREES AND SHRUBS PLANTING METHODS	
DETAIL APPROVED FOR USE 12/2006	DETAIL
REVISED:	WM626-1



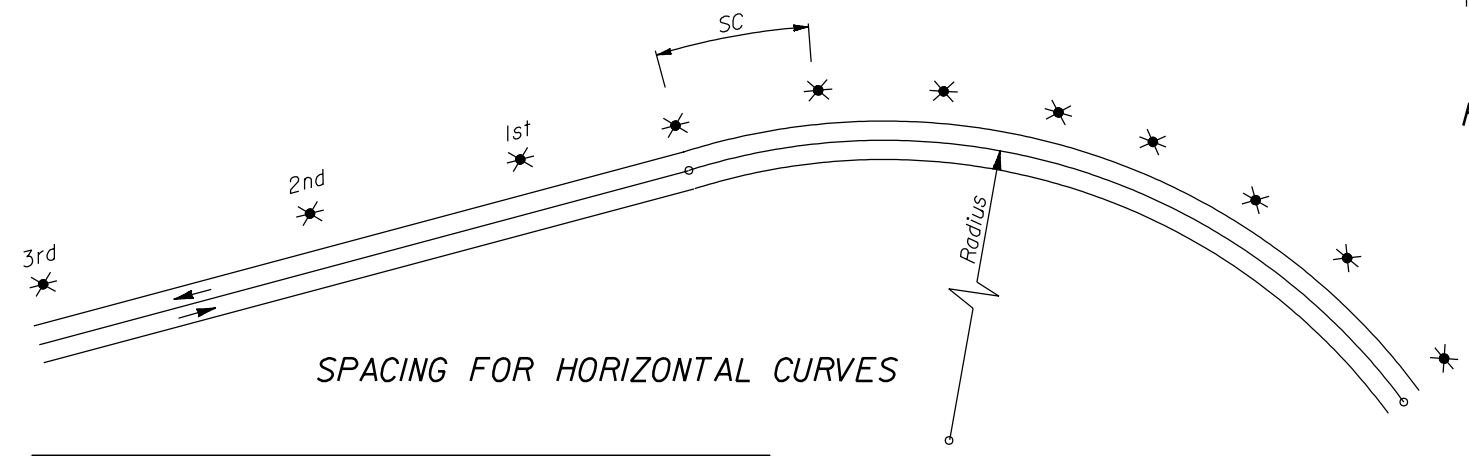
REFLECTOR DETAILS

DELINEATION MARKER REFLECTOR		
TYPE	COLOR OF REFLECTOR	REFLECTORIZED
A	White	Front & Rear
B	White	Front
C	Yellow	Front
D	Yellow	Front & Rear



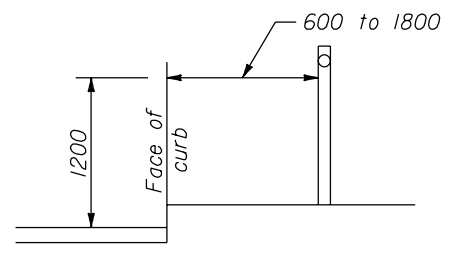
NOTE:

- Dimensions not labeled are in millimeters.
- Vary the post spacing up to 1/8 of the spacing to clear driveways, cross roads, intersections or ramps. Eliminate the post if the variation is exceeded.
- Dimensions of channel posts shown indicate general design only and may vary slightly among the manufacturers.
- Rectangular 75 x 150 mm reflectors may be used in lieu of double disk if required.
- Offset delineators 600 mm unless otherwise shown.
- Delineator reflector colors shall be as shown on the plans.
- Spacing on tangents should be 150 m±. Maximum spacing is 160 m.
- When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
- On two way roads, stagger markers on opposite sides of the road.
- Furnish hardware in the metric sizes shown. Equivalent imperial sizes may be used when metric sizes are not available.

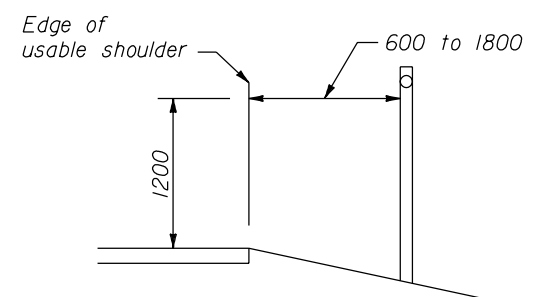


SPACING FOR HORIZONTAL CURVES

RADIUS OF CURVE IN METERS	SPACING ON EACH SIDE OF ROADWAY IN METERS			
	ON CURVE *	IN ADVANCE OF & BEYOND CURVE		
		1st SPACE	2nd SPACE	3rd SPACE
3000	90	90	90	90
1500	64	90	90	90
1200	57	90	90	90
900	49	90	90	90
600	40	80	90	90
300	28	56	84	90
270	26	52	78	90
240	25	50	75	90
210	23	46	69	90
180	22	44	66	90
150	19	38	57	90
120	17	34	51	90
90	14	28	42	84
75	13	26	39	78
60	11	22	33	66
45	9	18	27	54
30	6	12	18	36
25	6	12	18	36

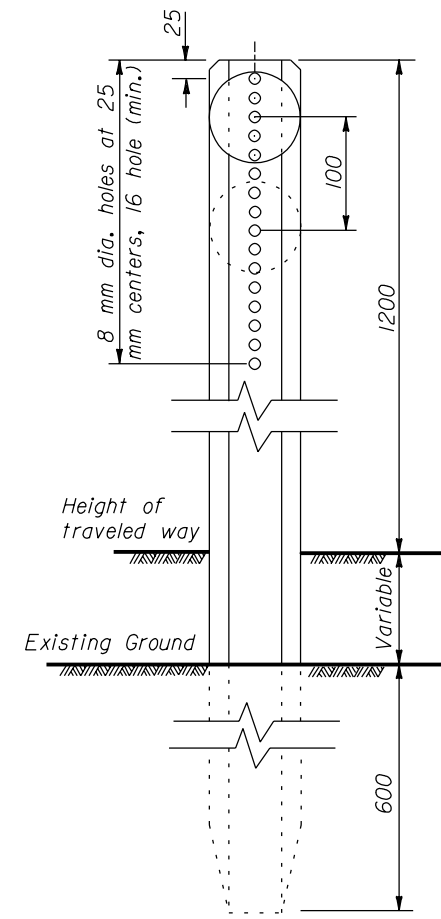


WITH CURB

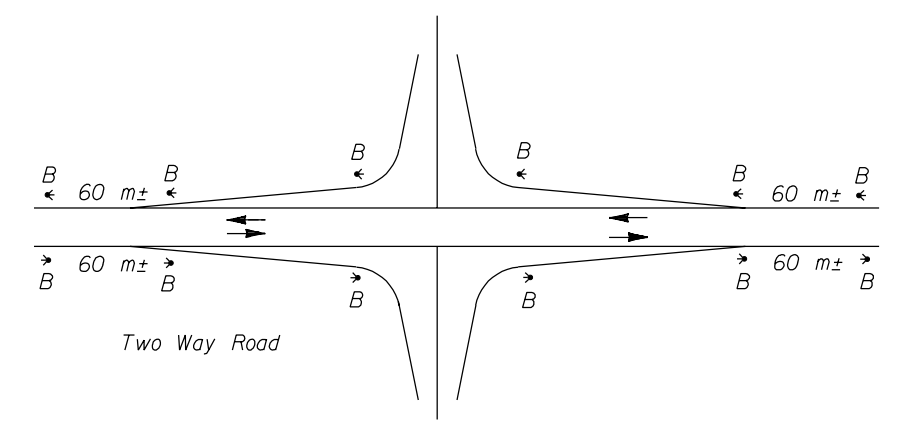


WITHOUT CURB

TYPICAL INSTALLATION



POST DETAIL



ROAD INTERSECTIONS

* Spacing for specific radii not shown may be interpolated from the formula: Spacing = 1.65 √R-15. The minimum spacing should be 6 m and not exceed 90 m.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

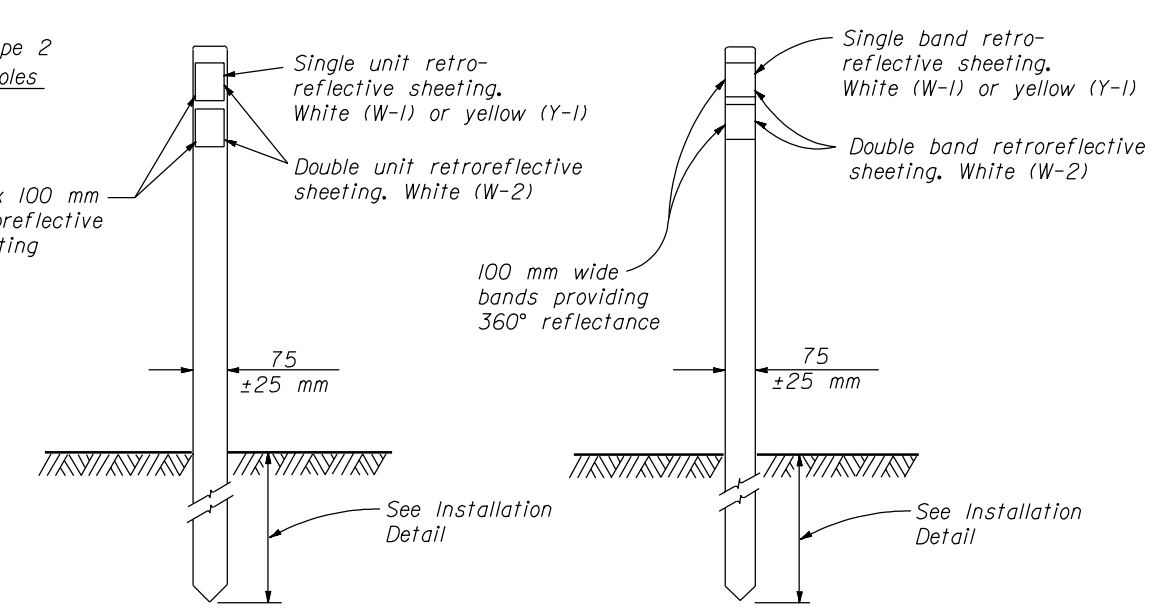
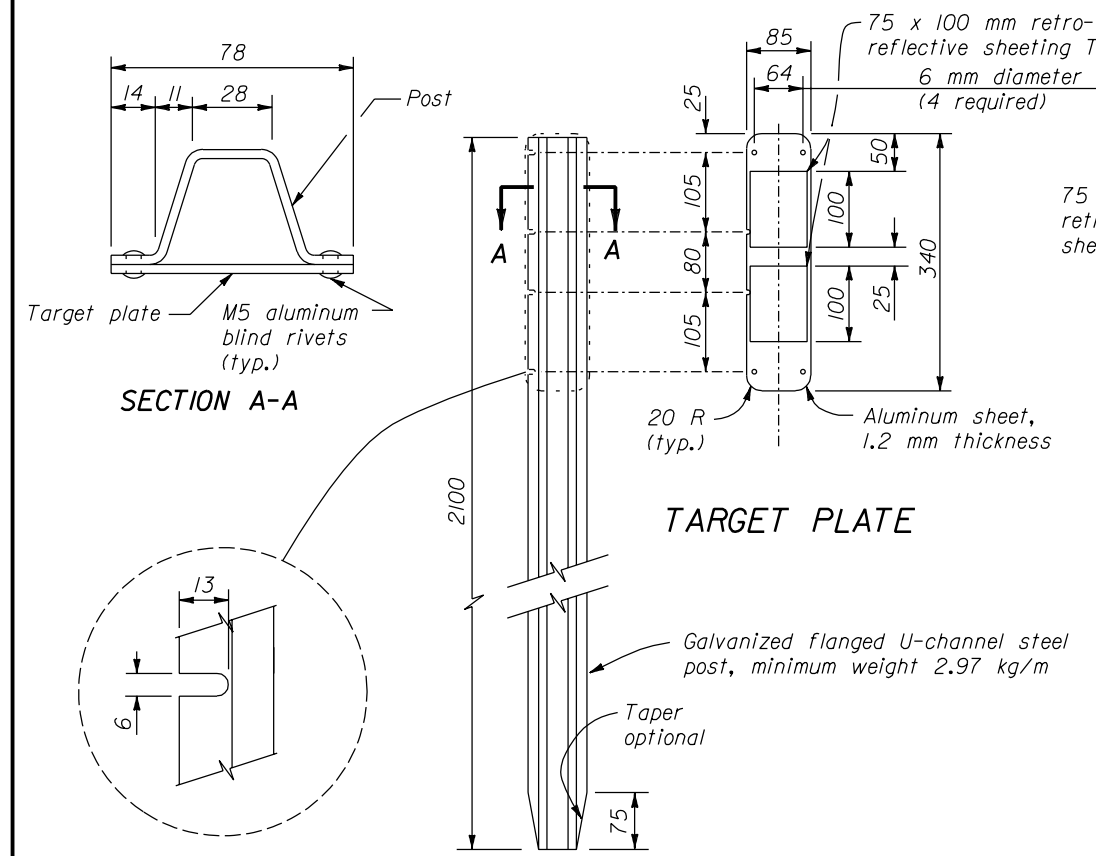
METRIC DETAIL

**TRAFFIC DELINEATORS
 ALASKA PROJECTS**

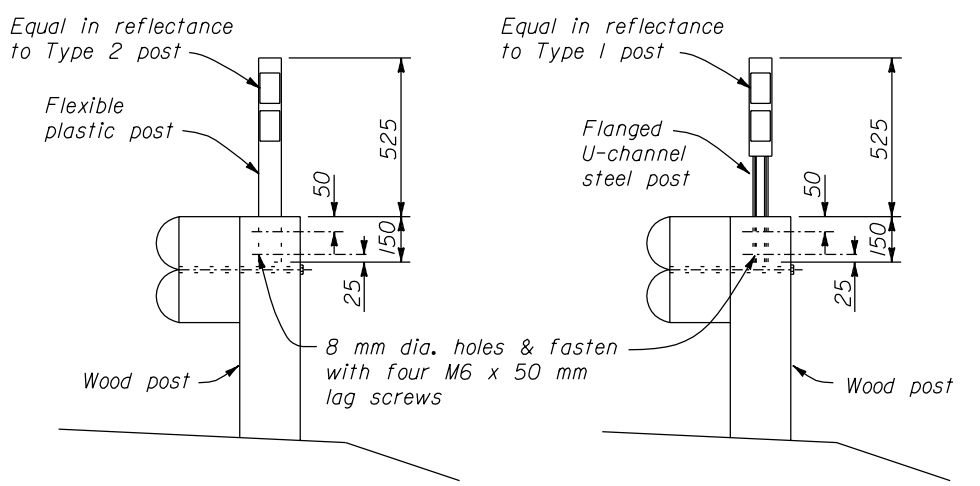
DETAIL APPROVED FOR USE 3/1996

REVISOR: _____

DETAIL
WM633-1



- NOTE:**
- Dimensions not labeled are in millimeters.
 - Place delineators nearly opposite each other on horizontal curves.
 - Install all delineators with reflectors facing adjacent on-coming traffic.
 - Install delineators behind the rail at guardrail locations.
 - Offset delineators a minimum distance of 1200 mm in areas of heavy snow removal operations.
 - On roads with less than 500 ADT, use delineators only where situations such as sharp vertical or horizontal curves, or other undesirable geometrics exist.
 - Vary the post spacing up to 1/8 of the spacing shown to clear driveways, cross roads, intersections or ramps. Eliminate the post if the variation is exceeded.
 - When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
 - If horizontal and vertical curves are combined, use the more restrictive spacing.
 - Furnish hardware in the metric sizes shown. Equivalent imperial sizes may be used when metric sizes are not available.



REFLECTOR TYPE	HIGHWAY	SPACING EACH SIDE
W-1	Divided	• 120 m
W-1	Undivided	• 120 m
W-2	See channelized and flared plans	
Y-1	See interchange ramp plans	

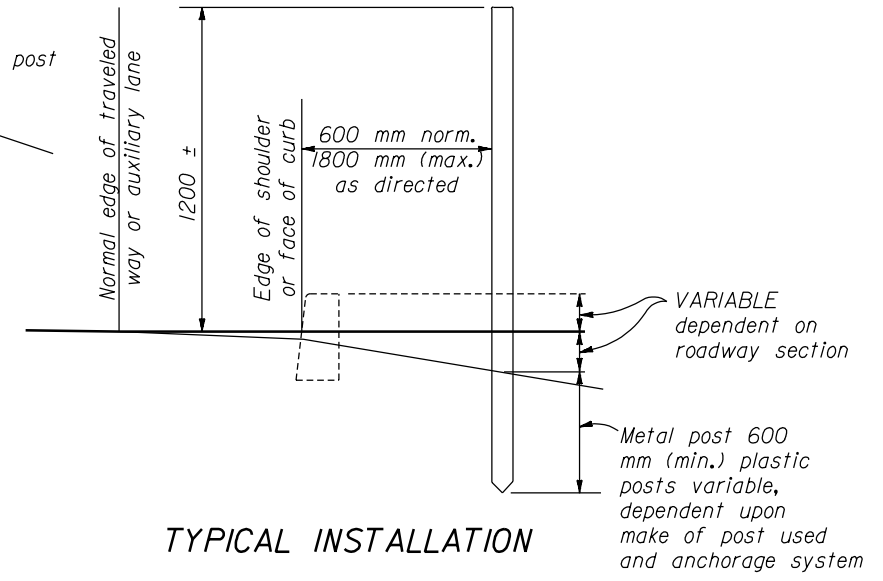
TYPE	COLOR OF REFLECTOR AND TARGET OR POST	NUMBER OF REFLECTORS
W-1	White	1
W-2	White	2
Y-1	Yellow	1

* For variations on HORIZONTAL CURVE and CREST VERTICAL CURVES, See tables below.

ALGEBRAIC DIFFERENCE IN GRADE (%)	VERTICAL CURVE LENGTH IN METERS										
	30	60	90	120	150	180	240	300	375	450	600
	SPACING EACH SIDE OF ROADWAY IN METERS										
0.5	65	90	120	120							
1.0	45	70	85	100	115	120					
1.5	35	55	70	80	90	100	120	120			
2.0	30	45	60	70	80	90	100	115	120		
2.5		40	50	60	70	75	90	100	115	120	
3.0		35	45	55	60	65	80	90	100	115	120
4.0		30	35	45	50	60	70	80	90	95	100
5.0			35	40	45	50	60	70	75	80	90
6.0			30	35	40	45	55	60	70	75	80
7.0				30	35	40	50	55	60	70	75
9.5					30	35	40	45	50	60	70
12.0						30	35	40	45	50	60

TYPE 4 PLASTIC OR STEEL POST INSTALLATION WITH BEAM TYPE GUARDRAIL

RADIUS OF CURVE	SPACING ON EACH SIDE OF ROADWAY IN METERS		
	ON CURVE	IN ADVANCE OF & BEYOND CURVE	
		FIRST SPACE	SECOND SPACE
2000	90	120	120
900	65	115	120
600	50	95	120
450	45	80	120
350	40	70	120
290	35	60	105
220-250	30	55	90
175-200	25	50	80
145-160	25	45	75
100-135	20	40	65
70-95	18	35	55
65 & less	15	30	45



TYPICAL INSTALLATION

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

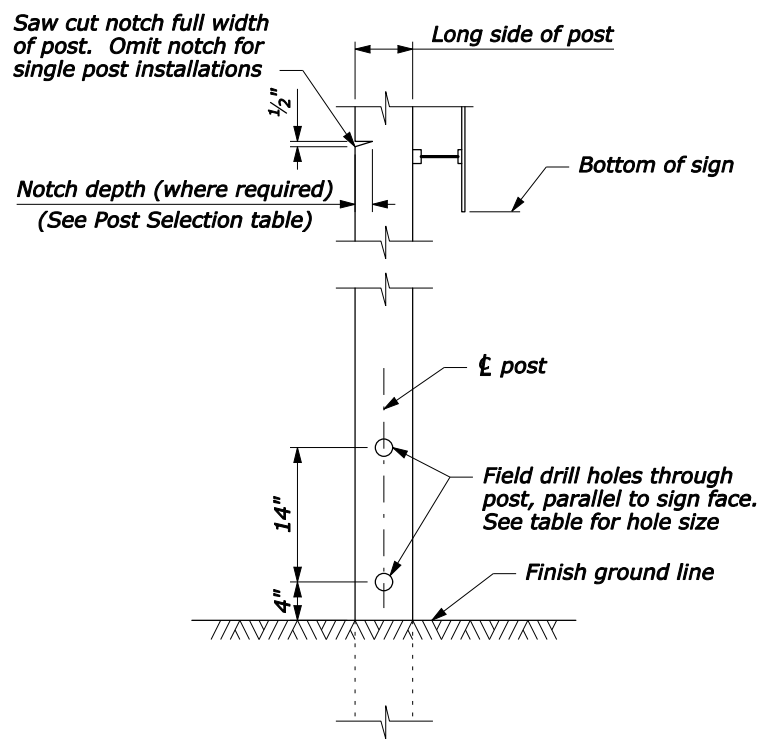
METRIC DETAIL

**TRAFFIC DELINEATORS
 OREGON PROJECTS**

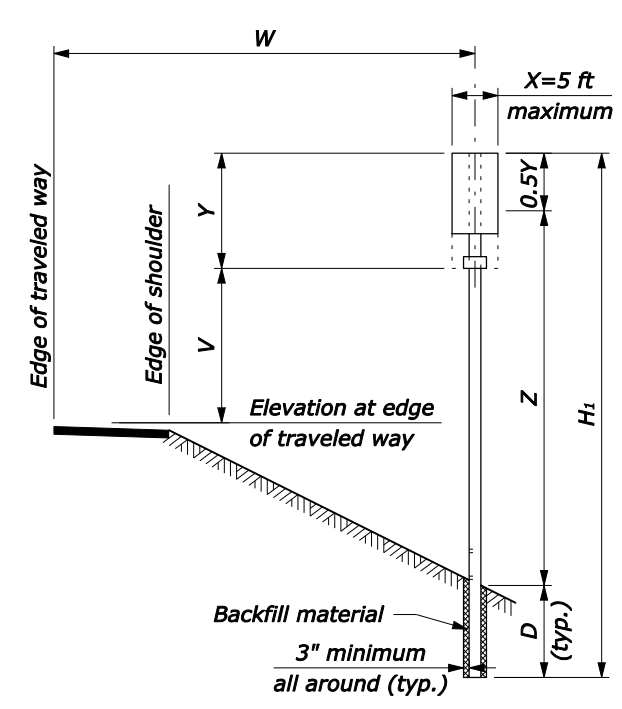
DETAIL APPROVED FOR USE 3/1996
 REVISIONS: _____

DETAIL
WM633-5

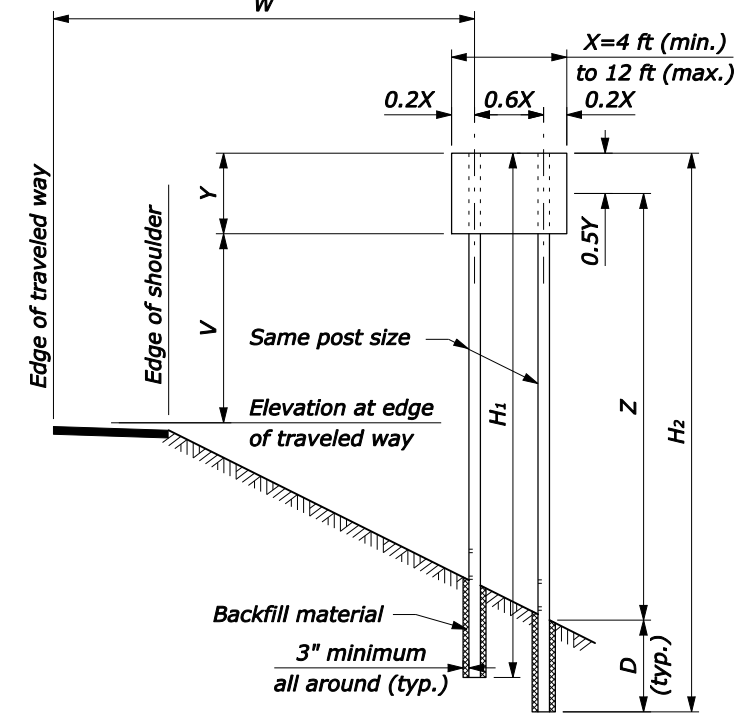
NO SCALE



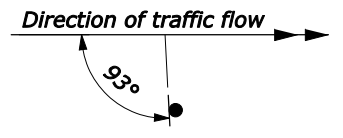
POST DETAIL



SINGLE POST SIGNS



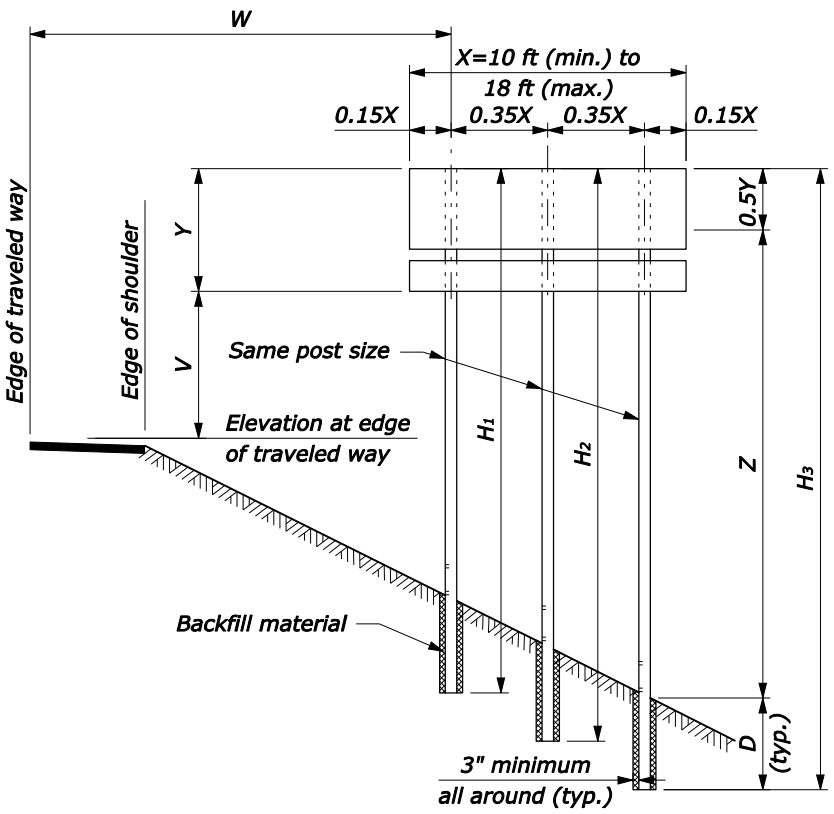
TWO POST SIGNS



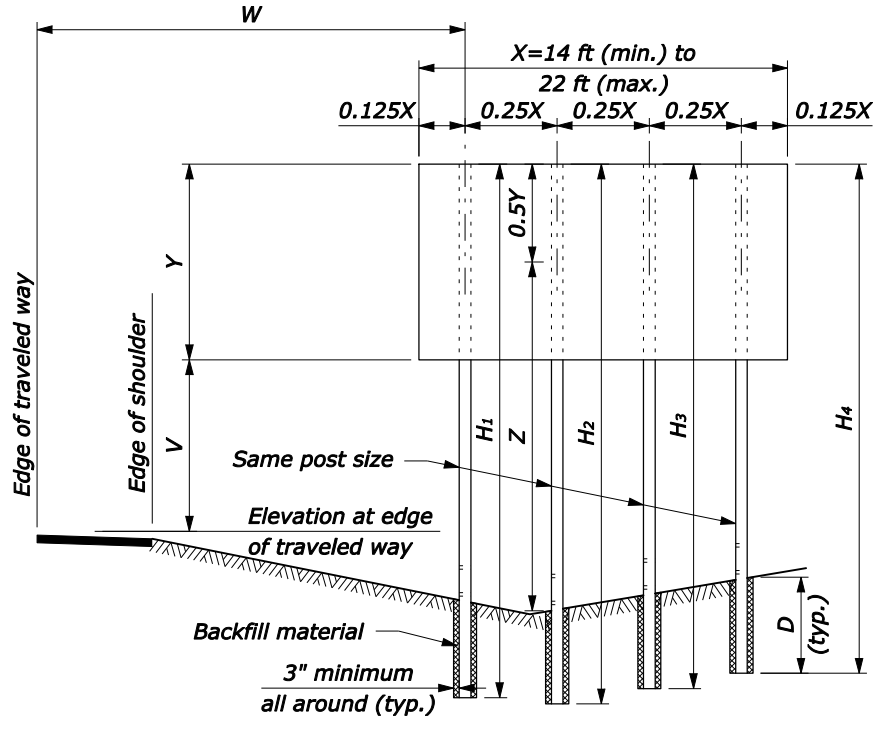
SIGN INSTALLATION ANGLE
For all retroreflectorized signs where $W > 25'$

MINIMUM DISTANCE TO SIGN		
Location	Lateral Offset (W)	Mounting Height (V)
Rural Districts	6 ft	5 ft
Business or Residence Districts	2 ft from curb	7 ft

V may be reduced by 1 foot in rural districts for a secondary sign mounted below another sign.

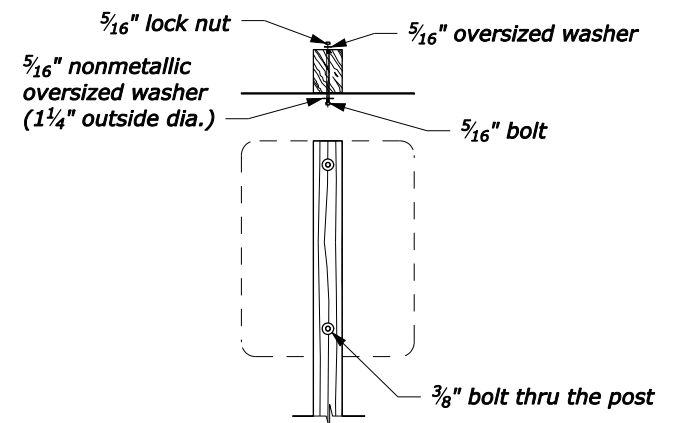


THREE POST SIGNS



FOUR POST SIGNS

- NOTE:**
- Traffic barrier protection is required for all posts larger than 6" x 8" when located within the clear zone or if the post is vulnerable to being struck when placed outside the clear zone.
 - H₁ thru H₄ indicate overall post length. Select post lengths to fit field conditions.
 - D is the minimum post embedment depth for average soil conditions. See Wood Post Selection Table below.
 - Z is the height from ground line to mid-height of sign at the longest post.
 - For the purpose of post selection X and Y are as follows:
 - Single sign, or back to back signs: X and Y are the overall dimensions of the signs.
 - Multiple sign installations: X and Y are the dimensions of a rectangle enclosing all the signs.



TYPICAL MOUNTING FOR SIGNS WITHOUT ANGLES

POST SIZE (inch)	NUMBER OF POSTS				D	Notch depth and hole diameter
	1	2	3	4		
	Product of X-Y-Z in CUFT					
4 x 4	80	155	235	310	3'-0"	-
4 x 6	180	385	545	725	4'-0"	1 3/4"
6 x 6	235	475	710	950	4'-0"	1 3/4"
6 x 8	300	850	1280	1700	4'-0"	2 1/2"
6 x 10	385	1180	1170	2360	5'-0"	-
8 x 10	575	1610	2410	3215	5'-0"	-
8 x 12	775	2310	3465	4620	6'-0"	-

Values shown are the maximum permitted. If the product of XYZ exceeds the limit for the largest post, use steel post installation.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

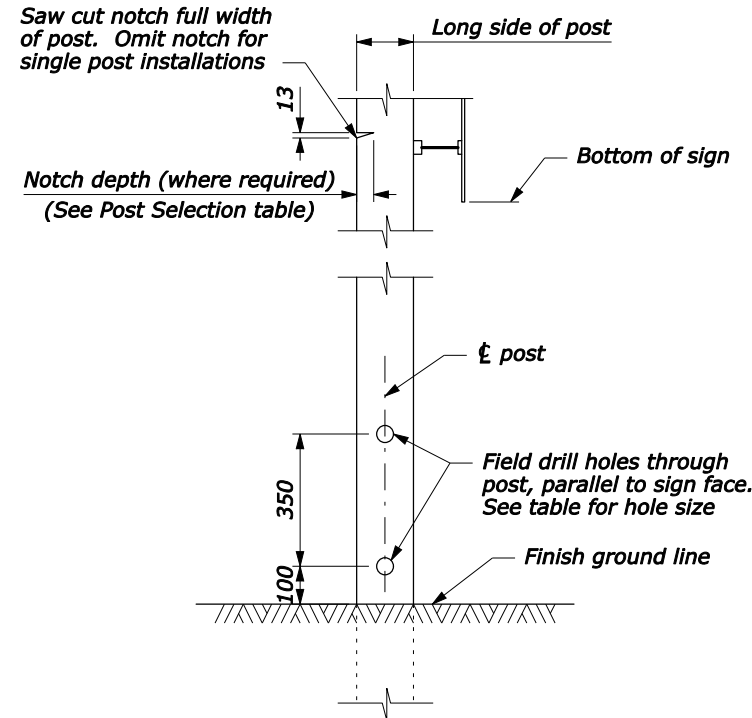
U.S. CUSTOMARY DETAIL
PERMANENT SIGN INSTALLATION WOOD POSTS

DETAIL APPROVED FOR USE --/---

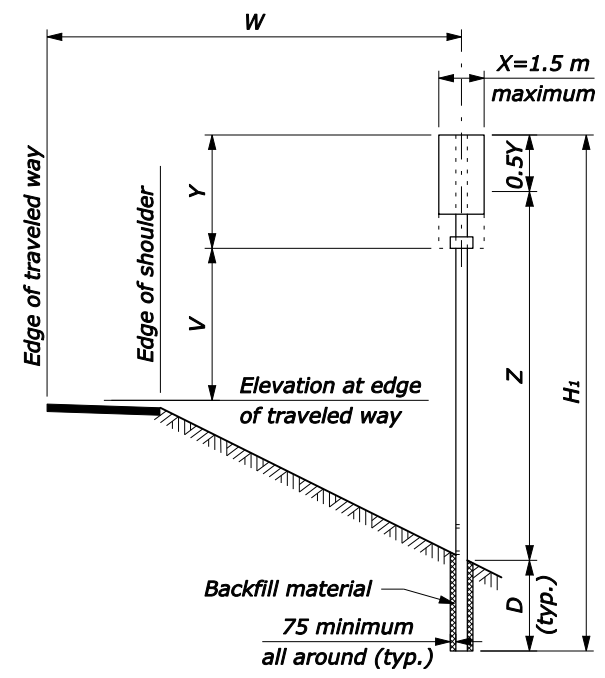
REVISSED: 2/1998
DRAFT: 10/2009

DETAIL W633-7

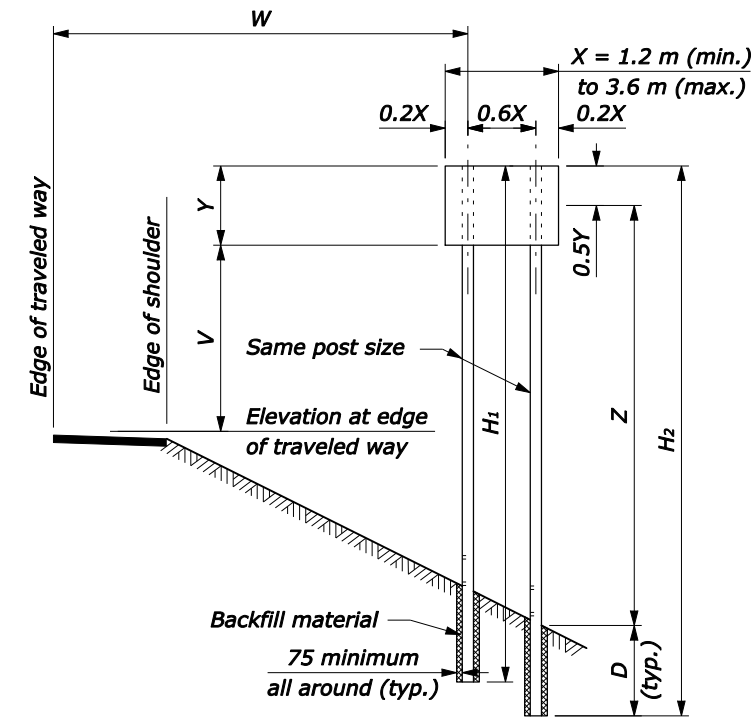
NO SCALE



POST DETAIL



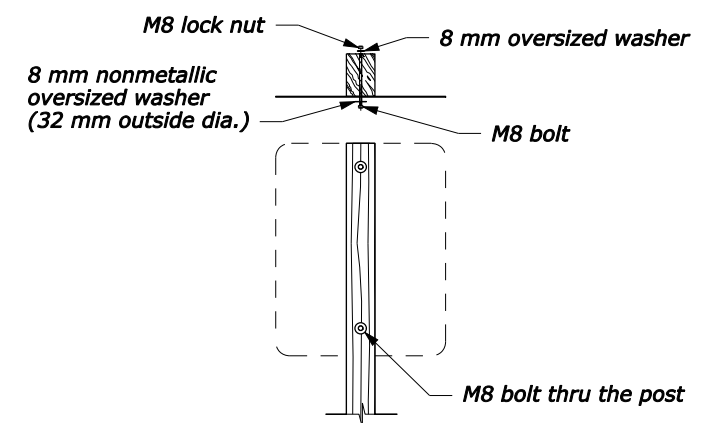
SINGLE POST SIGNS



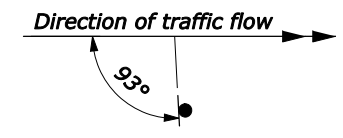
TWO POST SIGNS

NOTE:

1. Traffic barrier protection is required for all posts larger than 150 x 200 mm when located within the clear zone or if the post is vulnerable to being struck when placed outside the clear zone.
2. H_1 thru H_4 indicate overall post length. Select post lengths to fit field conditions.
3. D is the minimum post embedment depth for average soil conditions. See Wood Post Selection Table below.
4. Z is the height from ground line to mid-height of sign at the longest post.
5. For the purpose of post selection X and Y are as follows:
 - Single sign, or back to back signs: X and Y are the overall dimensions of the signs.
 - Multiple sign installations: X and Y are the dimensions of a rectangle enclosing all the signs.
6. Dimensions without units are millimeters.



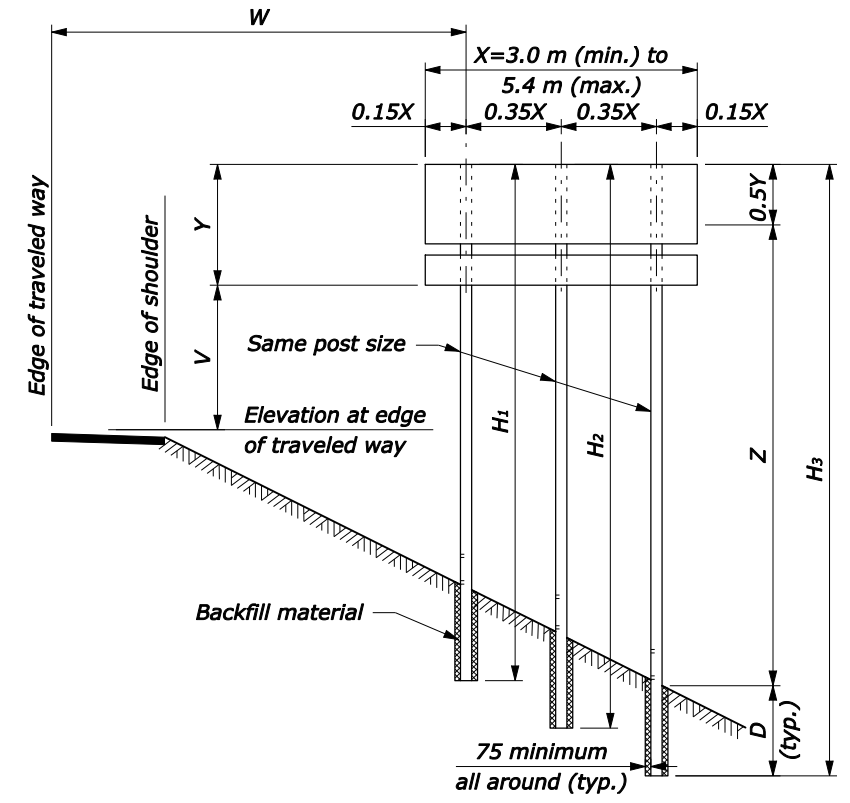
TYPICAL MOUNTING FOR SIGNS WITHOUT ANGLES



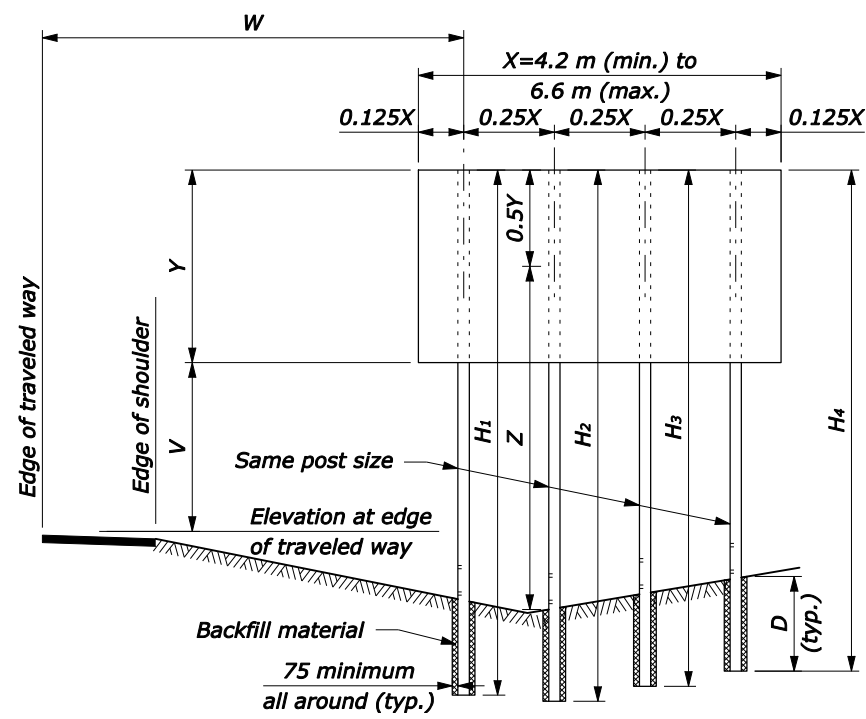
SIGN INSTALLATION ANGLE
For all retroreflectorized signs where $W > 7.5$ m

MINIMUM DISTANCE TO SIGN		
Location	Lateral Offset (W)	Mounting Height (V)
Rural Districts	1.8 m	1.5 m
Business or Residence Districts	0.6 m from curb	2.1 m

V may be reduced by 0.3 m in rural districts for a secondary sign mounted below another sign.



THREE POST SIGNS



FOUR POST SIGNS

POST SIZE (mm)	NUMBER OF POSTS				D (m)	Notch depth and hole diameter
	1	2	3	4		
100 x 100	2.2	4.3	6.6	18.7	0.9	-
100 x 150	5.0	10.8	15.3	20.3	1.2	45 mm
150 x 150	6.6	13.3	19.9	26.6	1.2	45 mm
150 x 200	8.4	23.8	35.8	47.6	1.2	65 mm
150 x 250	10.8	33.0	49.6	66.1	1.5	-
200 x 250	16.1	45.1	67.5	90.0	1.5	-
200 x 300	21.7	64.7	97.0	129.4	1.8	-

Values shown are the maximum permitted. If the product of XYZ exceeds the limit for the largest post, use steel post installation.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

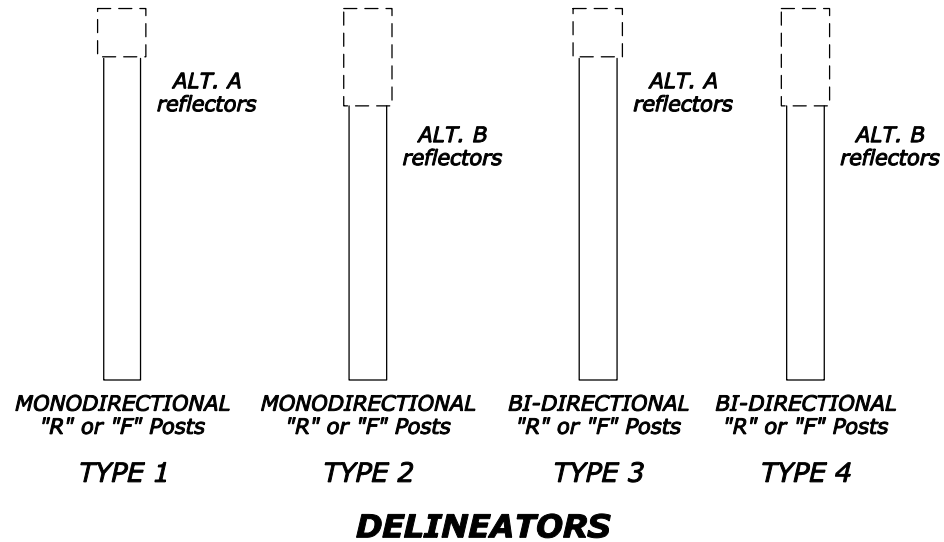
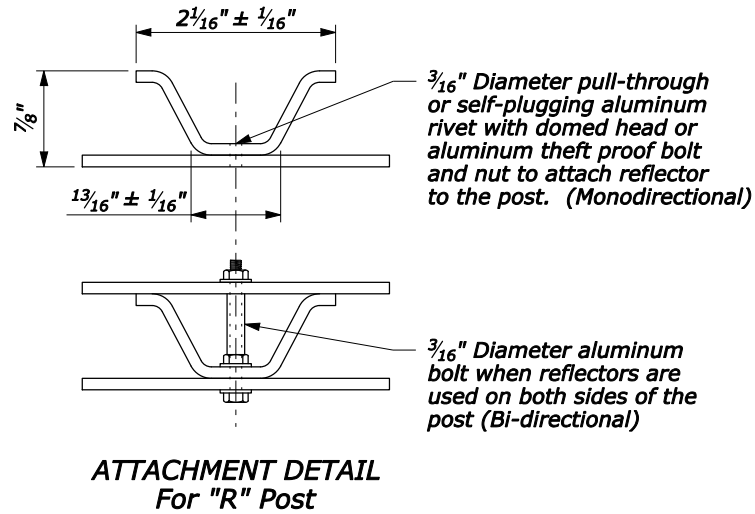
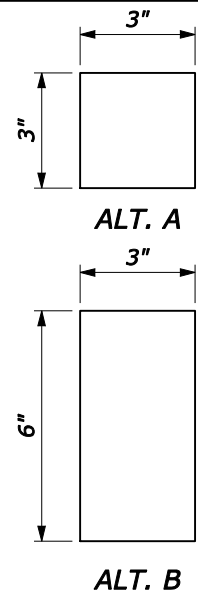
PERMANENT SIGN INSTALLATION WOOD POSTS

DETAIL APPROVED FOR USE --/----

REVIS: 2/1998 3/1999
DRAFT: 10/2009

DETAIL WM633-7

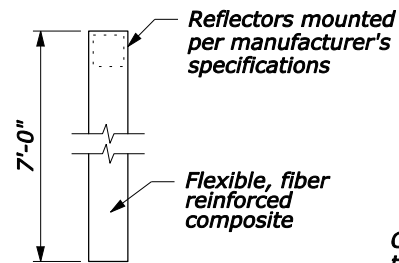
NO SCALE



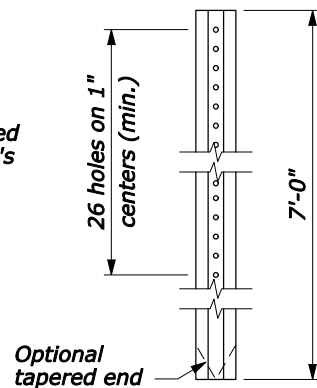
NOTE:

- Where delineators are used only on curves, place three delineators outside the curve limits.
- Place Type 3 delineators on the left side of two-way roadways at extreme curves with radii less than 984 feet to the right. They may also be installed where it is not possible or practical to install and maintain right-hand delineation on both sides.
- If horizontal and vertical curves are combined, use the more restrictive spacing.
- Where delineators are used on tangents, space the delineators at 528 feet. Begin the tangent spacing beyond the spacing requirements for horizontal and vertical curves.
- Delineator reflector colors are shown in the plans. Delineator type includes the post type, for example: Type 1R or Type 3F, etc.
- When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
- Vary the post spacing up to 1/8 of the spacing shown to clear driveways, cross roads, intersections or ramps. Eliminate the post if the variation is exceeded.

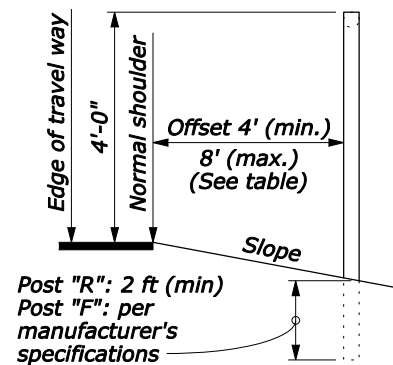
REFLECTIVE SHEETING



FLEXIBLE, SELF ERECTING OR YIELDING; WHITE UNLESS OTHERWISE NOTED
POST "F" DETAIL

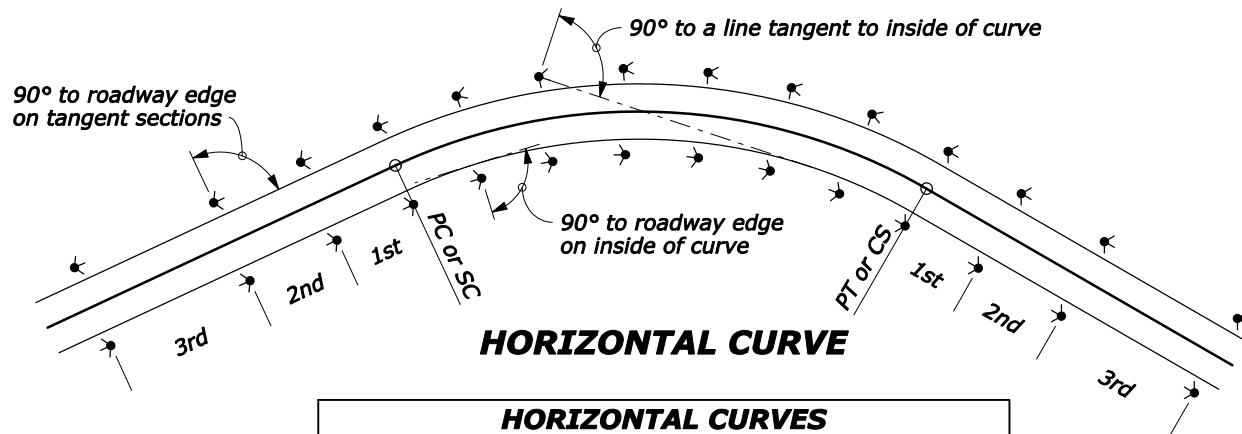


RIGID STEEL OR ALUMINUM (ALL HOLES 1/4" DIAMETER)
POST "R" DETAIL

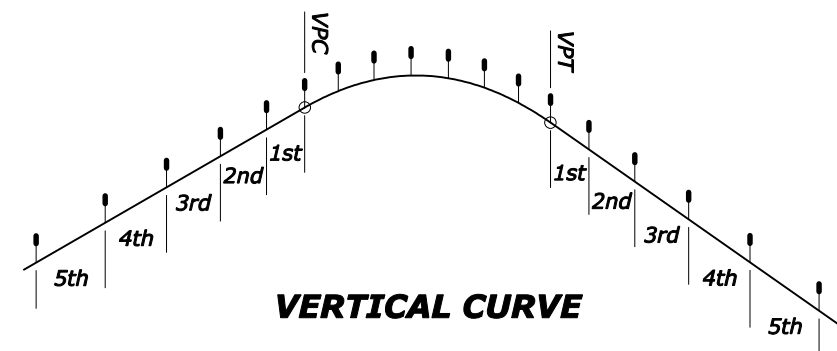


TYPICAL INSTALLATION

LATERAL PLACEMENT TABLE	
SLOPE	OFFSET
1V:4H	4'-0" to 6'-0"
1V:6H or flatter	6'-0" to 8'-0"
Curb Section	6'-0"

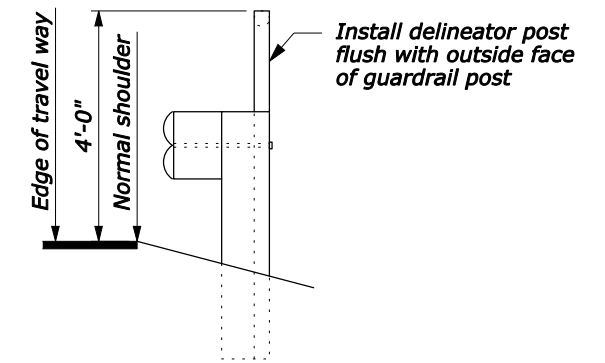


HORIZONTAL CURVES				
CURVE RADIUS (FEET)	SPACING ON EACH SIDE OF ROADWAY (FEET)			
	ON CURVE	BEYOND SC, CS, PC or PT		
		1st SPACE	2nd SPACE	3rd SPACE
≥ 6000	300	528	528	528
1450 - 5999	150	300	528	528
480 - 1449	100	200	300	528
240 - 479	75	150	225	528
< 240	50	100	150	300



CREST VERTICAL CURVES						
K	SPACING ON EACH SIDE OF ROADWAY IN FEET					
	ON CURVE	BEYOND VPC or VPT				
		1st SPACE	2nd SPACE	3rd SPACE	4th SPACE	5th SPACE
550	528	528	528	528	528	528
400 - 549	300	528	528	528	528	528
200 - 399	200	300	528	528	528	528
100 - 199	100	150	200	300	528	528
50 - 99	75	100	150	200	300	528
< 50	50	75	100	150	200	300

$K = \frac{L}{A}$ where $L = \text{Length of vertical curve in feet}$
 $A = \text{Algebraic grade change in \%}$



TYPICAL INSTALLATION WITH BEAM TYPE GUARD RAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

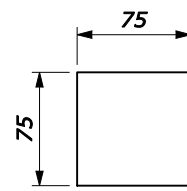
U.S. CUSTOMARY DETAIL

IDAHO
DELINEATORS

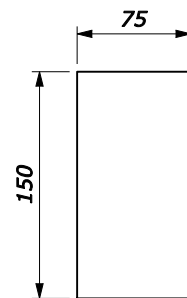
DETAIL APPROVED FOR USE 9/2009
REVISIONS:

DETAIL
W633-50

NO SCALE



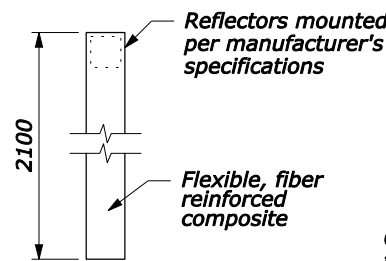
ALT. A



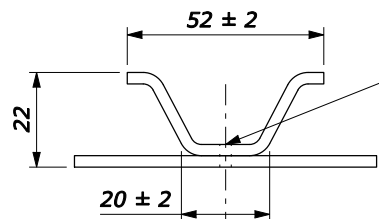
ALT. B

Mount reflectors on aluminum or apply directly to flexible post.

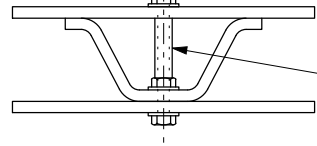
REFLECTIVE SHEETING



FLEXIBLE, SELF ERECTING OR YIELDING; WHITE UNLESS OTHERWISE NOTED
POST "F" DETAIL

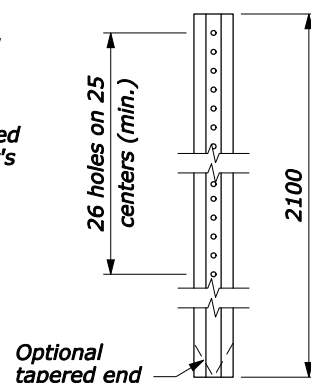


5 mm diameter pull-through or self-plugging aluminum rivet with domed head or aluminum theft proof bolt and nut to attach reflector to the post. (Monodirectional)

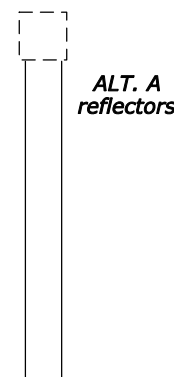


5 mm diameter aluminum bolt when reflectors are used on both sides of the post (Bi-directional)

ATTACHMENT DETAIL For "R" Post

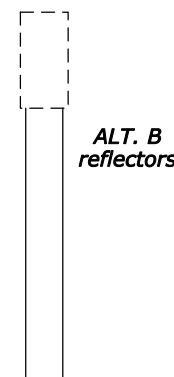


RIGID STEEL OR ALUMINUM (ALL HOLES 6.5 mm DIAMETER)
POST "R" DETAIL



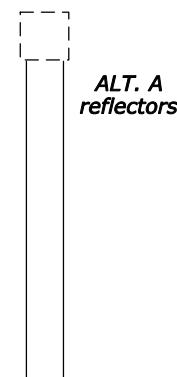
MONODIRECTIONAL "R" or "F" Posts

TYPE 1



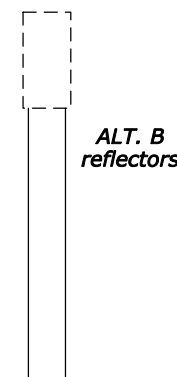
MONODIRECTIONAL "R" or "F" Posts

TYPE 2



BI-DIRECTIONAL "R" or "F" Posts

TYPE 3



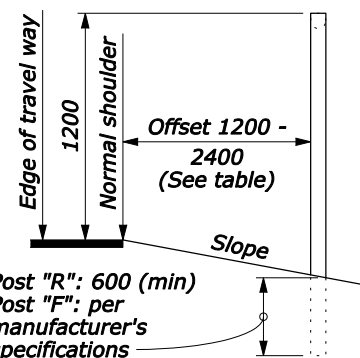
BI-DIRECTIONAL "R" or "F" Posts

TYPE 4

DELINEATORS

NOTE:

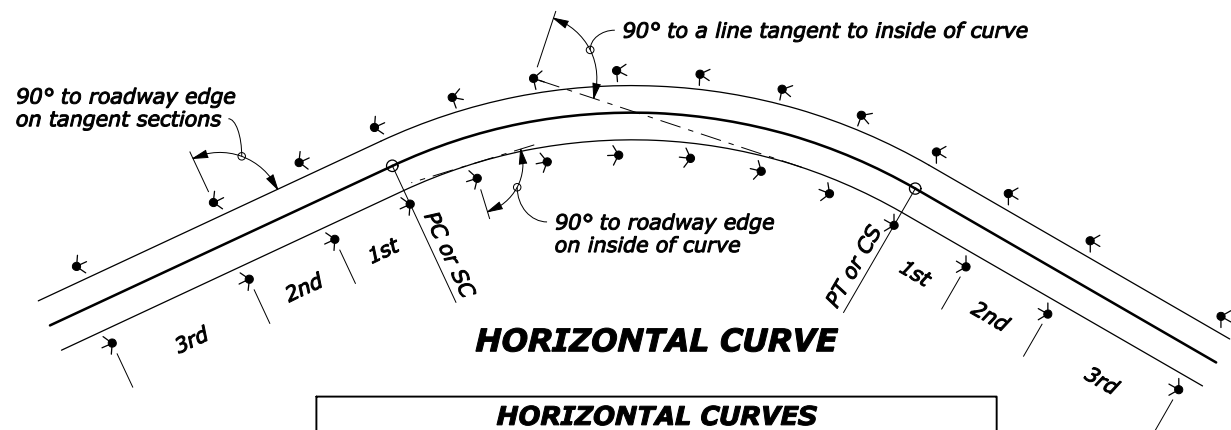
- Where delineators are used only on curves, place three delineators outside the curve limits.
- Place Type 3 delineators on the left side of two-way roadways at extreme curves with radii less than 300 m to the right. They may also be installed where it is not possible or practical to install and maintain right-hand delineation on both sides.
- If horizontal and vertical curves are combined, use the more restrictive spacing.
- Where delineators are used on tangents, space the delineators at 160 meters. Begin the tangent spacing beyond the spacing requirements for horizontal and vertical curves.
- Delineator reflector colors are shown in the plans. Delineator type includes the post type, for example: Type 1R or Type 3F, etc.
- When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
- Vary the post spacing up to 1/8 of the spacing shown to clear driveways, cross roads, intersections or ramps. Eliminate the post if the variation is exceeded.
- Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are not available.
- Dimensions without units are millimeters.



Post "R": 600 (min)
Post "F": per manufacturer's specifications

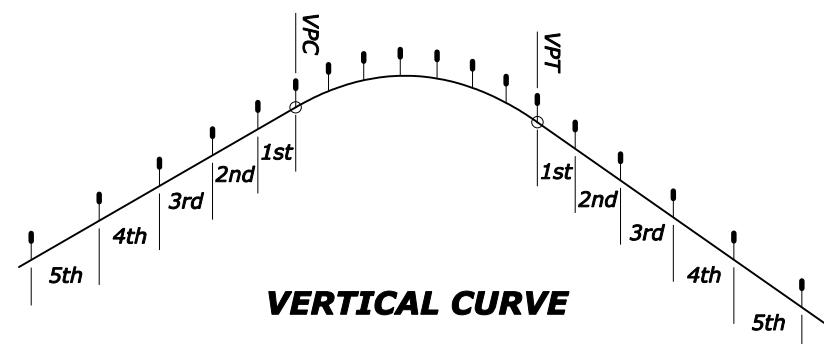
TYPICAL INSTALLATION

LATERAL PLACEMENT TABLE	
SLOPE	OFFSET
1V:4H	1200 to 1800
1V:6H or flatter	1800 to 2400
Curb Section	1800



HORIZONTAL CURVE

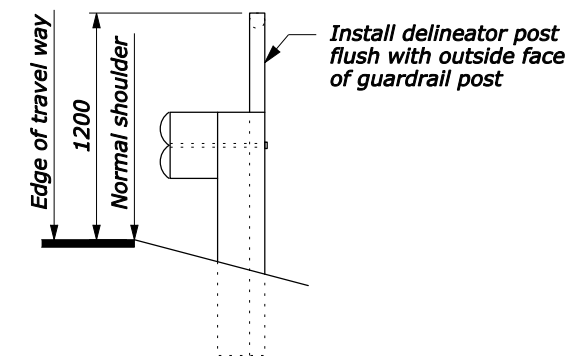
HORIZONTAL CURVES				
CURVE RADIUS (METERS)	SPACING ON EACH SIDE OF ROADWAY (METERS)			
	ON CURVE	BEYOND SC, CS, PC or PT		
		1st SPACE	2nd SPACE	3rd SPACE
1900	90	160	160	160
450 - 1899	45	90	160	160
150 - 449	30	60	90	160
75 - 149	25	45	70	160
< 75	15	30	45	90



VERTICAL CURVE

CREST VERTICAL CURVES						
K	SPACING ON EACH SIDE OF ROADWAY IN METERS					
	ON CURVE	BEYOND VPC or VPT				
		1st SPACE	2nd SPACE	3rd SPACE	4th SPACE	5th SPACE
165	160	160	160	160	160	160
120 - 164	90	160	160	160	160	160
60 - 119	60	90	160	160	160	160
30 - 59	30	45	60	90	160	160
15 - 29	25	30	45	60	90	160
< 15	15	25	30	45	60	90

$K = L/A$ where $L =$ Length of vertical curve in meters
 $A =$ Algebraic grade change in %



TYPICAL INSTALLATION WITH BEAM TYPE GUARD RAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

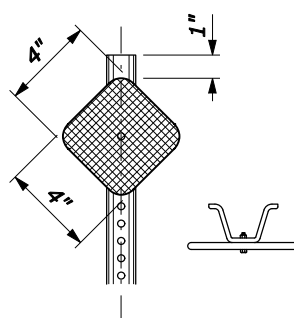
METRIC DETAIL

IDAHO DELINEATORS

DETAIL APPROVED FOR USE 9/2009
REVISED:

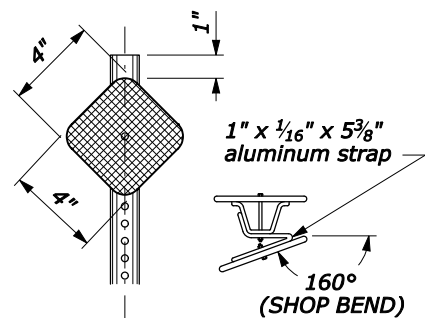
DETAIL
WM633-50

NO SCALE



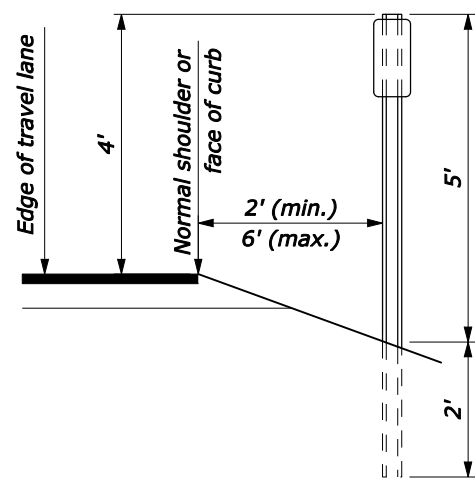
DESIGN A
(WHITE)

Use for delineation on tangents and on curves with $R > 1500'$.

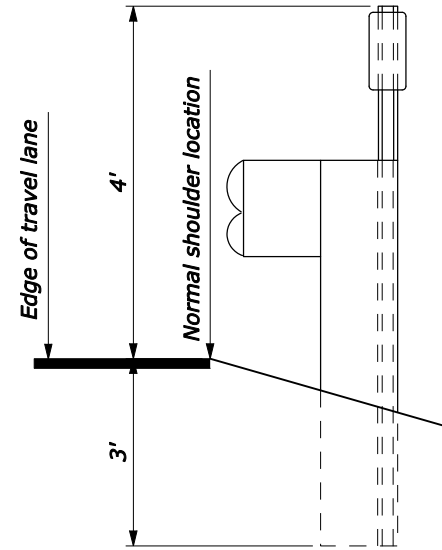


DESIGN C
(WHITE)

Use on curves with $R \leq 575'$



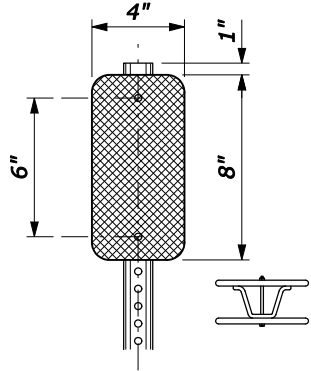
TYPICAL INSTALLATION



TYPICAL INSTALLATION WITH BEAM TYPE GUARD RAIL

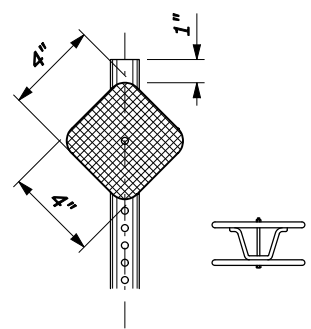
NOTE:

1. When the contract does not include the final surfacing, allow for the thickness of the final pavement structure when establishing the elevation of the traffic delineators.
2. Place delineators at a constant clearance distance from the edge of pavement except where guardrail or other obstructions interfere. Align delineators with the inside edge of obstruction. Install delineators located behind beam guardrail so that the delineator post is adjacent to the trailing edge of the nearest guardrail post. (See typical installation with beam type guardrail).
3. When a delineator falls within a cross road or approach, the delineator may be moved in either direction a distance not to exceed one quarter of the normal spacing. Eliminate the post if this allowance is exceeded.
4. Mount delineators on metal posts with $3/16"$ cadmium plated bolt(s). Drill or punch a minimum of twelve $3/8"$ diameter holes on 1-inch centers from the top of the post. $3/8"$ square holes may be used with large-headed bolt or an appropriate washer. Jam threads after tightening the nut to prevent removal.
5. All delineator reflectors have $3/4"$ corner radii.
6. Manufacture posts from flanged U-channel sections of steel meeting the requirements of ASTM A 36 and weighing not less than 1.25 pounds per foot or aluminum meeting the requirements of ASTM B 221, Alloy 6061-T6, with a minimum thickness of 0.125 inches. After fabrication galvanize steel posts in accordance with ASTM A 123.
7. When a route has a current ADT of 900 or greater, continuously delineate the roadway along the shoulder by means of post mounted reflectors. Spacing on tangent sections is 400 feet.



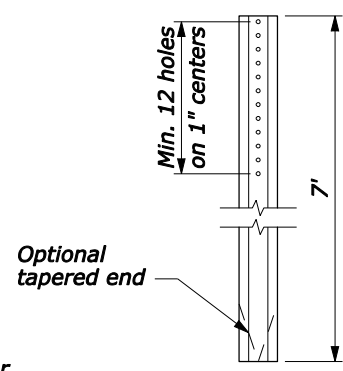
DESIGN D
(YELLOW)

Use at approaches with Stop or Yield signs.

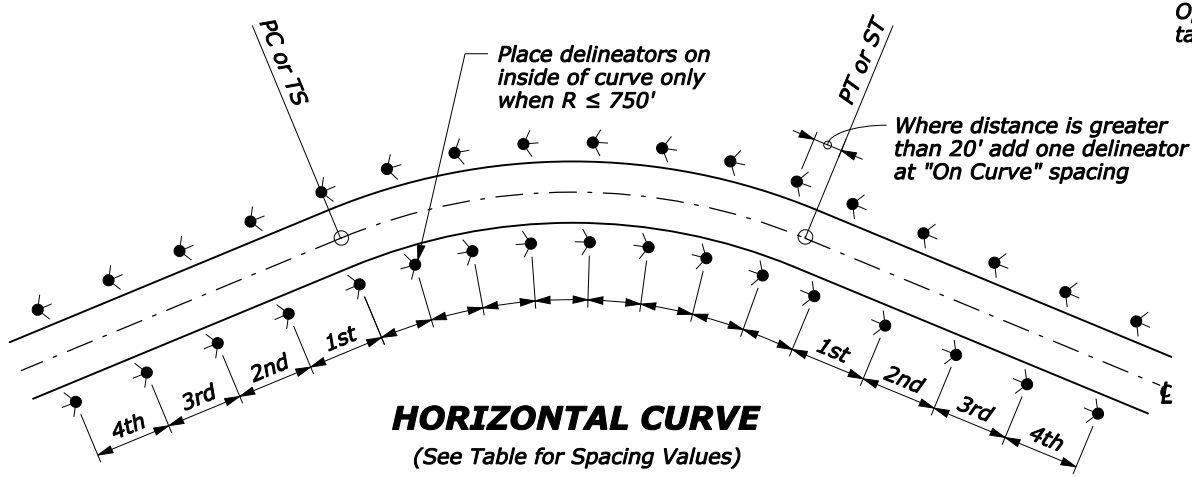
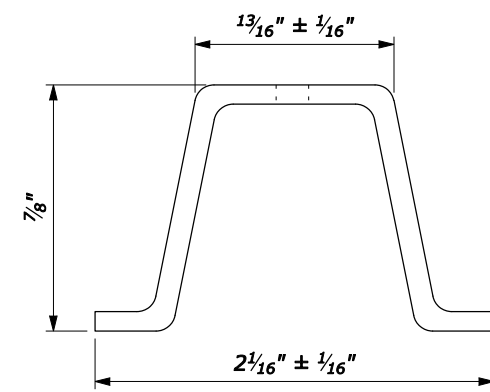


DESIGN F
(WHITE)

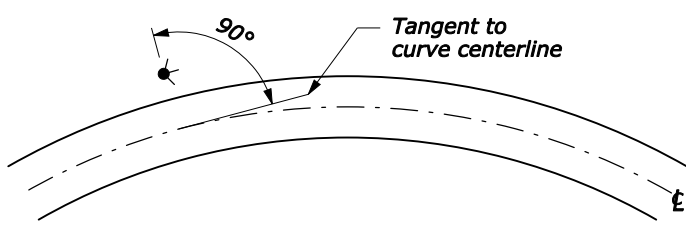
Use for curves with $R > 575'$ and $R \leq 1500'$.



DELINEATOR POST DETAILS
Rigid Steel or Aluminum



HORIZONTAL CURVE
(See Table for Spacing Values)



SIGN INSTALLATION ANGLE

RADIUS (ft)	SPACING ON CURVE (ft)	SPACING IN ADVANCE OF & BEYOND CURVE (ft)			
		1st SPACE	2nd SPACE	3rd SPACE	4th SPACE
≥ 5700	300	400	400	400	400
3000 to < 5700	225	400	400	400	400
2000 to < 3000	160	320	400	400	400
1500 to < 2000	130	260	400	400	400
1000 to < 1500	110	220	330	400	400
700 to < 1000	90	185	275	400	400
500 to < 700	75	150	230	300	400
300 to < 500	60	125	185	300	400
< 300	45	90	140	275	400

NO SCALE

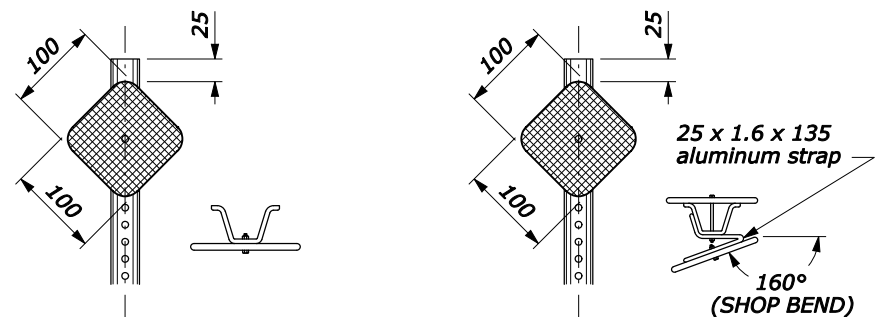
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

**MONTANA
DELINEATORS**

DETAIL APPROVED FOR USE 11/2006
REVISED: 1/2008

DETAIL
W633-60

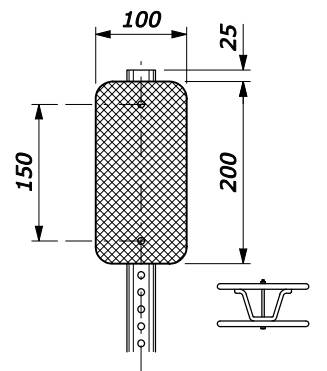


DESIGN A
(WHITE)

Use for delineation on tangents and on curves with $R > 450$ m.

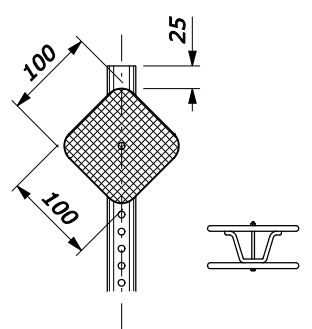
DESIGN C
(WHITE)

Use on curves with $R \leq 170$ m



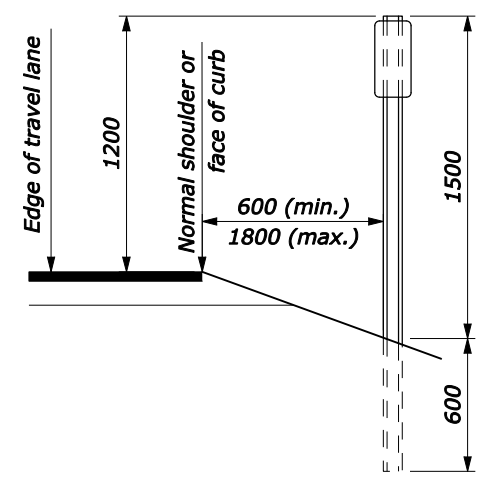
DESIGN D
(YELLOW)

Use at approaches with Stop or Yield signs.

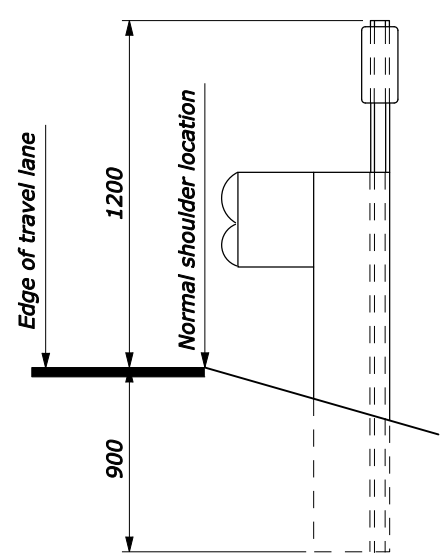


DESIGN F
(WHITE)

Use for curves with $R > 170$ m and $R \leq 450$ m.



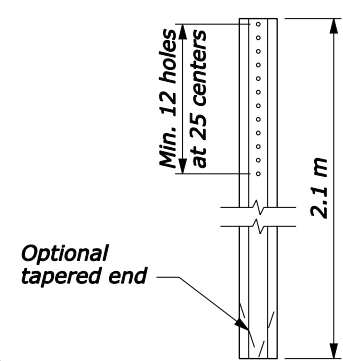
TYPICAL INSTALLATION



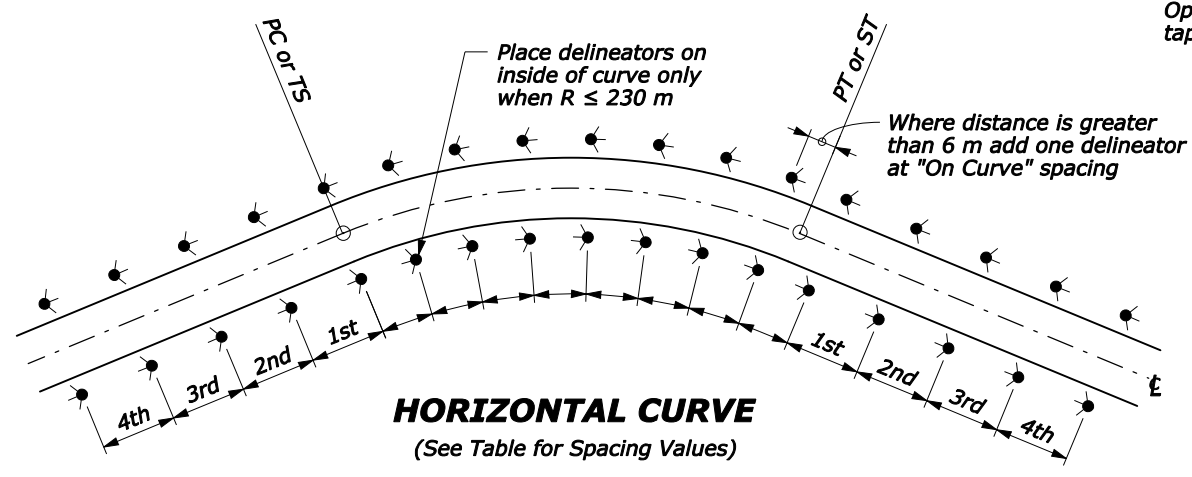
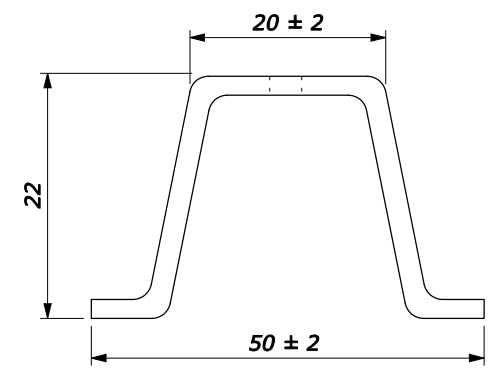
TYPICAL INSTALLATION WITH BEAM TYPE GUARD RAIL

NOTE:

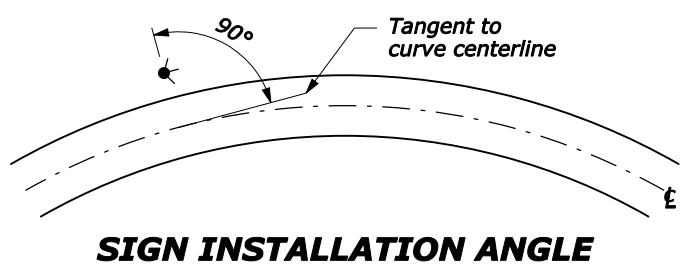
- When the contract does not include the final surfacing, allow for the thickness of the final pavement structure when establishing the elevation of the traffic delineators.
- Place delineators at a constant clearance distance from the edge of pavement except where guardrail or other obstructions interfere. Align delineators with the inside edge of obstruction. Install delineators located behind beam guardrail so that the delineator post is adjacent to the trailing edge of the nearest guardrail post. (See typical installation with beam type guardrail).
- When a delineator falls within a cross road or approach, the delineator may be moved in either direction a distance not to exceed one quarter of the normal spacing. Eliminate the post if this allowance is exceeded.
- Mount delineators on metal posts with M5 cadmium plated bolt(s). Drill or punch a minimum of twelve 9.5 mm diameter holes on 25 mm centers from the top of the post. 9.5 mm square holes may be used with large-headed bolt or an appropriate washer. Jam threads after tightening the nut to prevent removal.
- All delineator reflectors have 20 mm corner radii.
- Manufacture posts from flanged U-channel sections of steel meeting the requirements of ASTM A 36 and weighing not less than 1.86 kilograms per meter or aluminum meeting the requirements of ASTM B 221, Alloy 6061-T6, with a minimum thickness of 3.2 mm. After fabrication galvanize steel posts in accordance with ASTM A 123.
- When a route has a current ADT of 900 or greater, continuously delineate the roadway along the shoulder by means of post mounted reflectors. Spacing on tangent sections is 120 meters.
- Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are not available.
- Dimensions without units are millimeters.



DELINEATOR POST DETAILS
Rigid Steel or Aluminum



HORIZONTAL CURVE
(See Table for Spacing Values)



SIGN INSTALLATION ANGLE

RADIUS (m)	SPACING ON CURVE (m)	SPACING IN ADVANCE OF & BEYOND CURVE (m)			
		1st SPACE	2nd SPACE	3rd SPACE	4th SPACE
≥ 1750	90	120	120	120	120
900 to < 1750	65	120	120	120	120
600 to < 900	50	95	120	120	120
450 to < 600	40	75	120	120	120
300 to < 450	35	65	100	120	120
200 to < 300	25	55	80	120	120
150 to < 200	20	45	70	90	120
100 to < 150	20	35	55	90	120
< 100	15	25	40	80	120

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

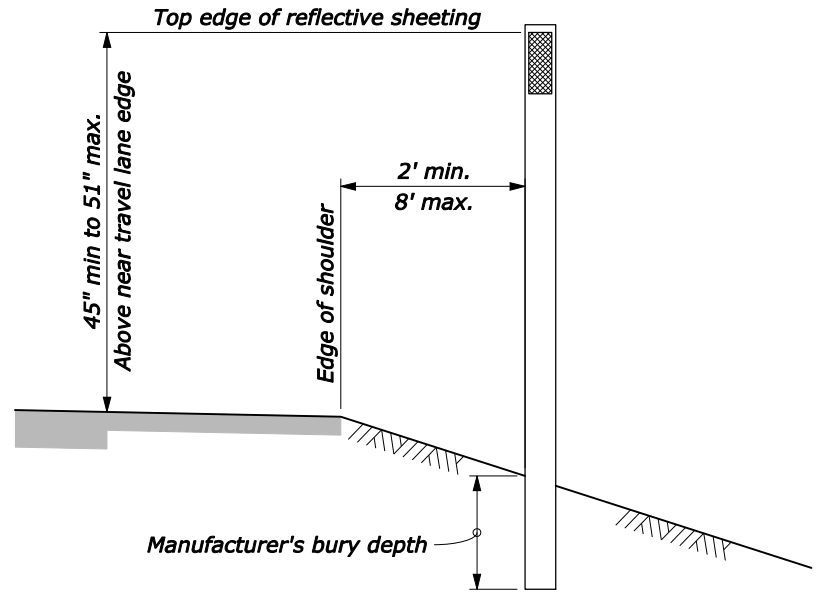
METRIC DETAIL

MONTANA
DELINEATORS

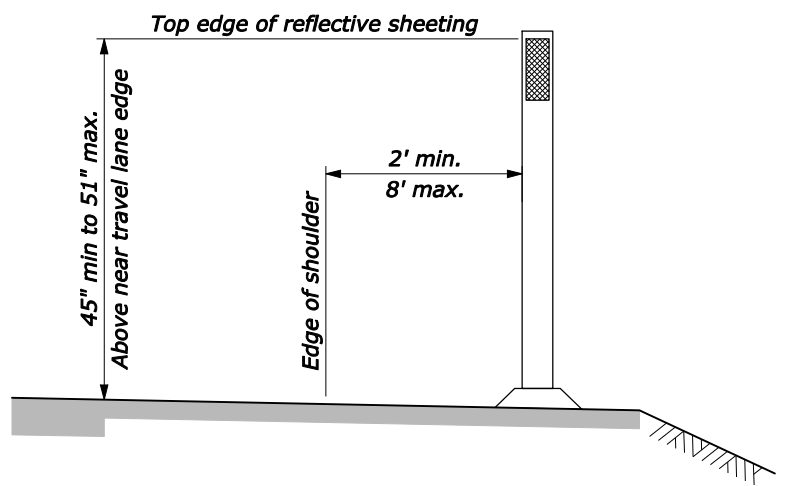
DETAIL APPROVED FOR USE 11/2006
REVISED: 1/2008

DETAIL
WM633-60

NO SCALE



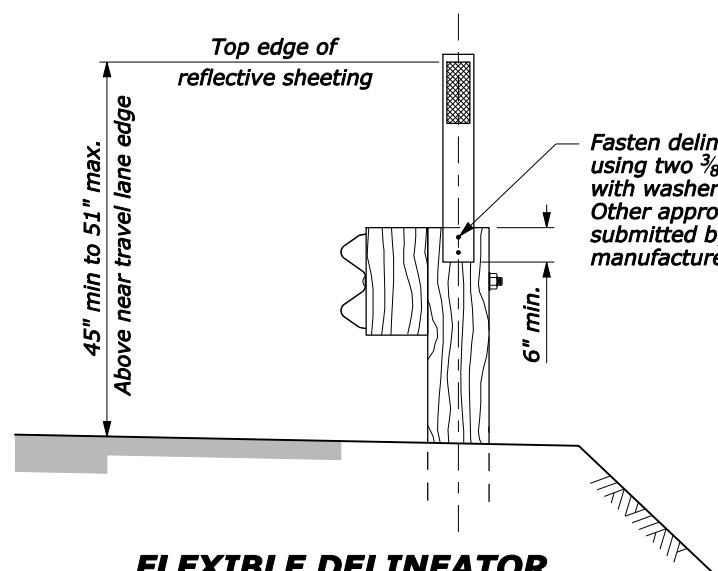
FLEXIBLE DELINEATOR
GROUND MOUNTED



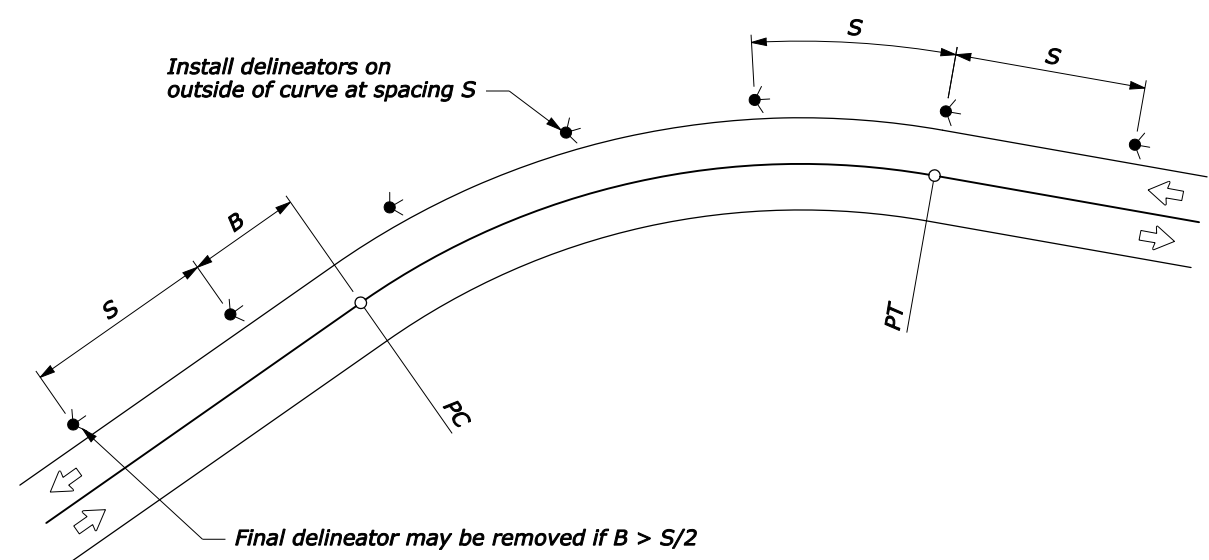
FLEXIBLE DELINEATOR
SURFACE MOUNTED

NOTE:

1. When a delineator falls within a cross road or approach, the delineator may be moved in either direction a distance not to exceed one quarter of the normal spacing. Eliminate the delineator if this allowance is exceeded.
2. Place delineators 2 feet from the edge of design shoulder unless otherwise specified.
3. Install delineators behind the rail at guardrail locations. Either drive the delineator in line with the guardrail posts or mount a shorter delineator onto the guardrail post as shown on this sheet.
4. When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
5. Use the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) as a guide for delineation layout.



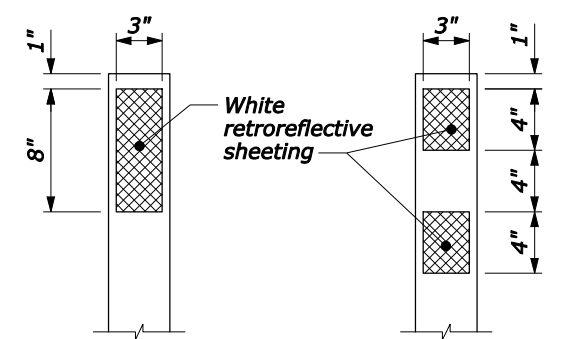
FLEXIBLE DELINEATOR
GUARDRAIL MOUNTED OPTION
(Use only with wood guardrail posts)



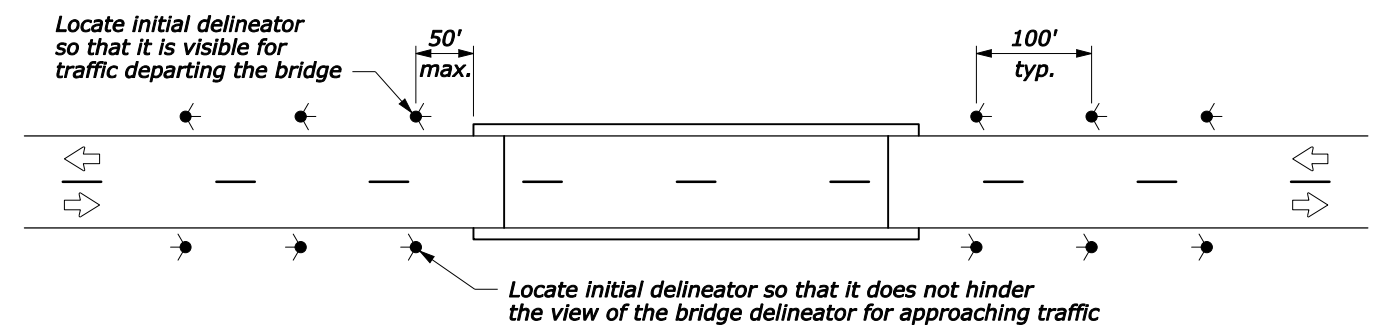
PLACEMENT ON HORIZONTAL CURVES

DELINEATOR SPACING ON HORIZONTAL CURVES	
CURVE RADIUS (FEET)	SPACING (S) (FEET)
50	20
115	25
180	35
250	40
300	50
400	55
500	65
600	70
700	75
800	80
900	85
1,000	90

Spacing for a specific curve may be interpolated from the table, or calculated using the formula:
 $Spacing = 3 \sqrt{R-50}$
 The minimum spacing should be 20 feet.
 Curve spacing should not exceed 300 feet.



REFLECTIVE SHEETING DETAIL
FACING TRAFFIC BACK SIDE



PLACEMENT AT BRIDGE APPROACHES

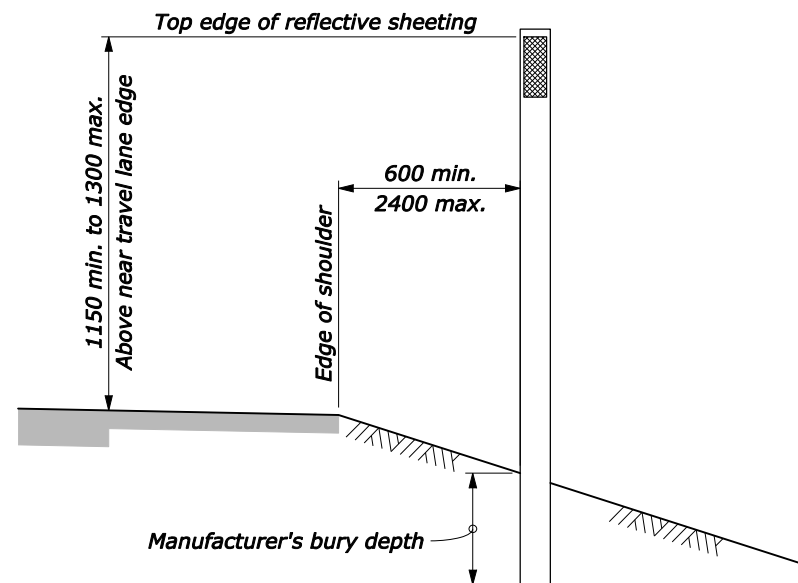
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

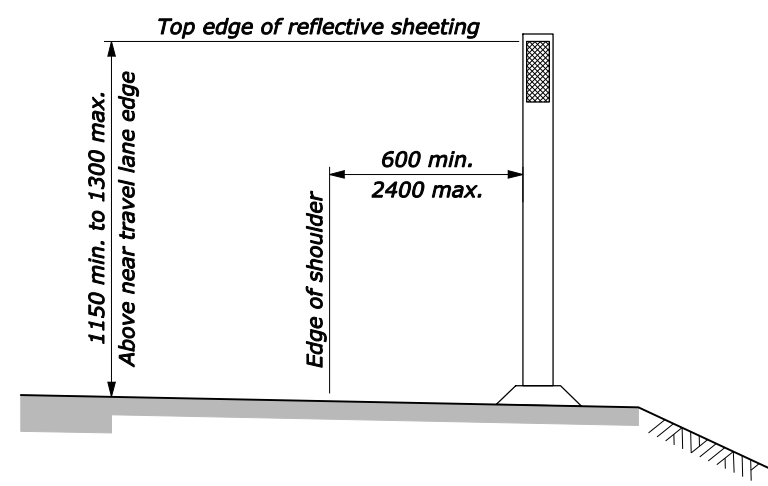
U.S. CUSTOMARY DETAIL

**WASHINGTON
 DELINEATORS**

DETAIL APPROVED FOR USE 1/2008
 REVISIONS: DETAIL W633-80



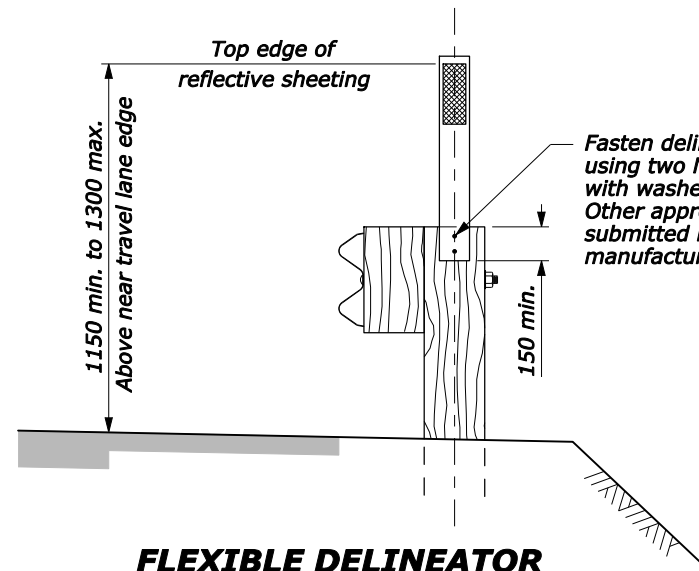
**FLEXIBLE DELINEATOR
GROUND MOUNTED**



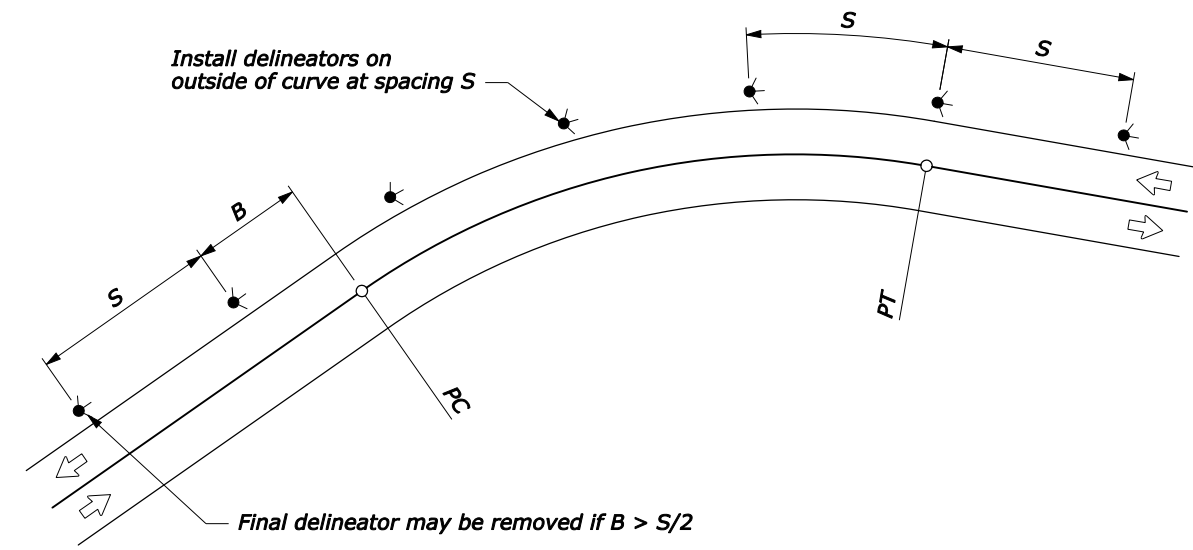
**FLEXIBLE DELINEATOR
SURFACE MOUNTED**

NOTE:

1. When a delineator falls within a cross road or approach, the delineator may be moved in either direction a distance not to exceed one quarter of the normal spacing. Eliminate the delineator if this allowance is exceeded.
2. Place delineators 600 mm from the edge of design shoulder unless otherwise specified.
3. Install delineators behind the rail at guardrail locations. Either drive the delineator in line with the guardrail posts or mount a shorter delineator onto the guardrail post as shown on this sheet.
4. When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
5. Use the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) as a guide for delineation layout.
6. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are not available.
7. Dimensions without units are millimeters.



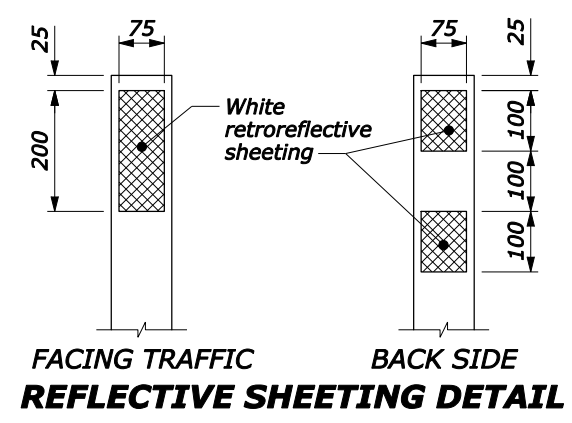
**FLEXIBLE DELINEATOR
GUARDRAIL MOUNTED OPTION
(Use only with wood guardrail posts)**



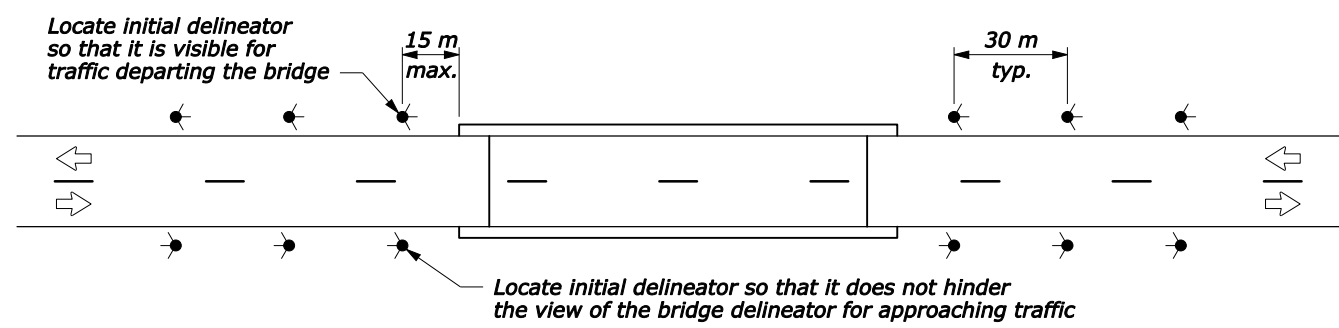
PLACEMENT ON HORIZONTAL CURVES

DELINEATOR SPACING ON HORIZONTAL CURVES	
CURVE RADIUS (m)	SPACING (S) (m)
15	6
35	8
55	11
75	13
95	15
125	18
155	20
185	22
215	24
245	26
275	27
305	29

Spacing for a specific curve may be interpolated from the table, or calculated using the formula:
 $Spacing = 1.7 \sqrt{R-15}$
 The minimum spacing should be 6 meters. Curve spacing should not exceed 90 meters.



**FACING TRAFFIC
BACK SIDE
REFLECTIVE SHEETING DETAIL**



PLACEMENT AT BRIDGE APPROACHES

NO SCALE

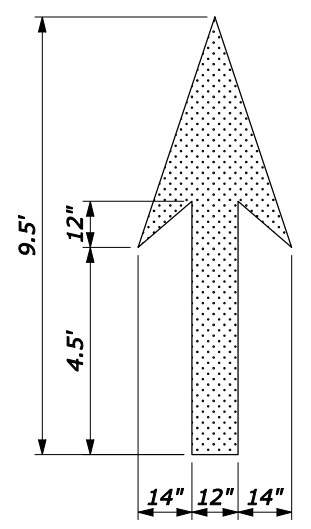
U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

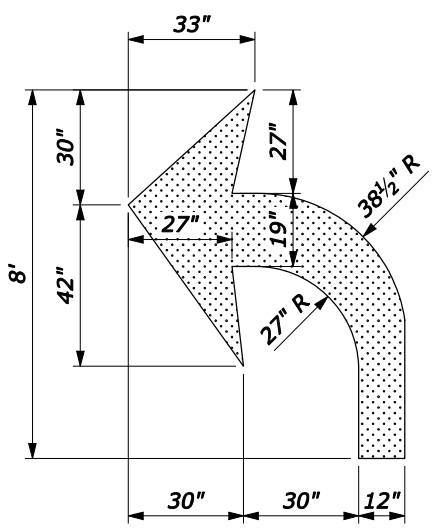
**WASHINGTON
DELINEATORS**

DETAIL APPROVED FOR USE 1/2008
 REVISIONS: _____

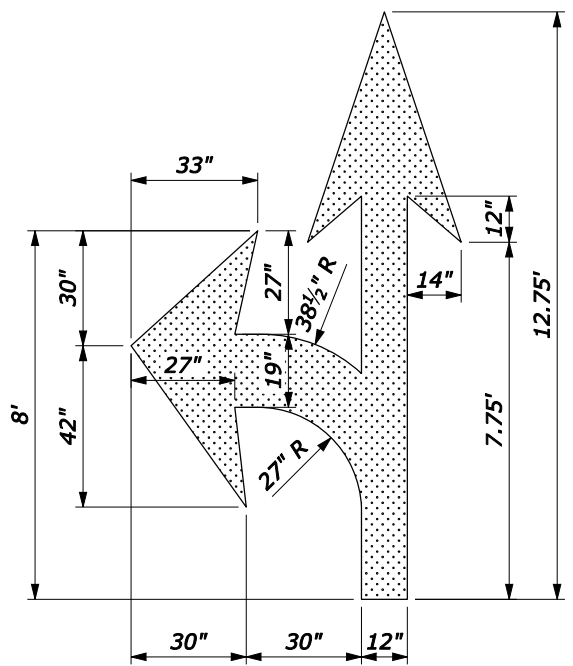
DETAIL
 WM633-80



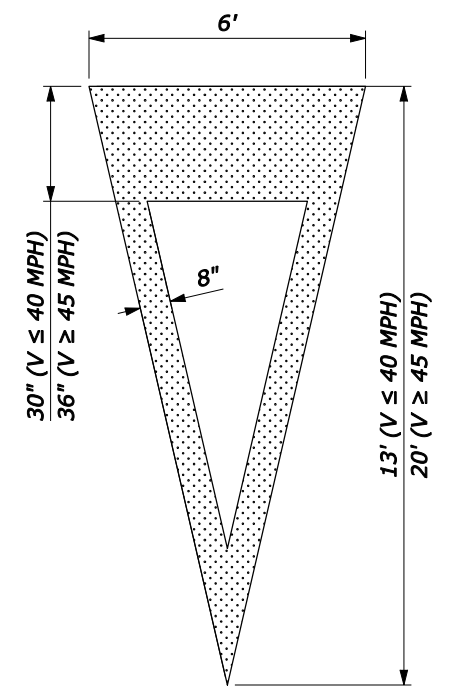
THROUGH LANE-USE ARROW



TURN LANE-USE ARROW



TURN AND THROUGH LANE-USE ARROW

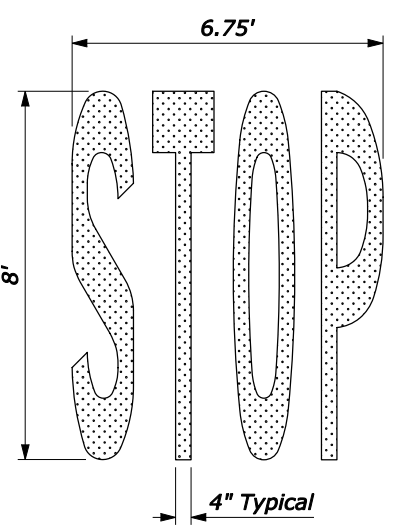


YIELD AHEAD TRIANGLE SYMBOL

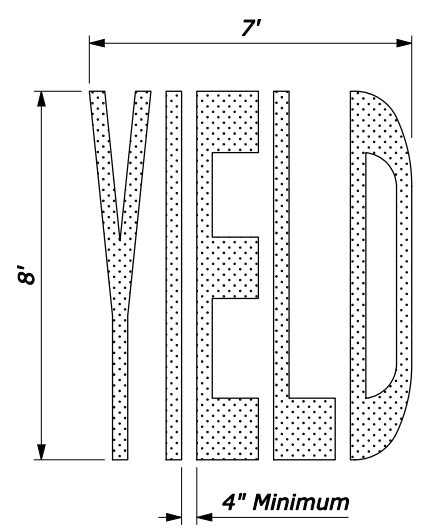
NOTE:

1. Place pavement word and symbol markings in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD), current edition.
2. All letters, numerals and symbols shall conform with the "Standard Highway Signs", current edition.
3. The Accessibility Parking Space marking only includes the accessibility symbol unless a border is indicated in the Striping Plans.

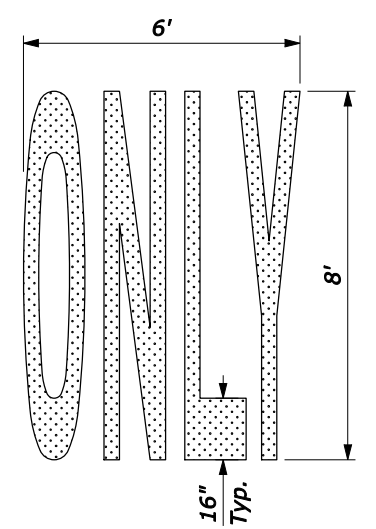
PAVEMENT MARKING AREAS	
TYPE	SQFT
Through Lane-Use Arrow	12
Turn Lane-Use Arrow	16
Turn and Through Lane-Use Arrow	26
Yield Ahead Triangle (V ≤ 40 MPH)	26
Yield Ahead Triangle (V ≥ 45 MPH)	37
Accessibility Marking (symbol only)	2
Accessibility Marking w/ border (White)	5
Accessibility Marking w/ border (Blue)	9
AHEAD Word Marking	30
ONLY Word Marking	21
SCHOOL Word Marking	33
STOP Word Marking	22
YIELD Word Marking	24



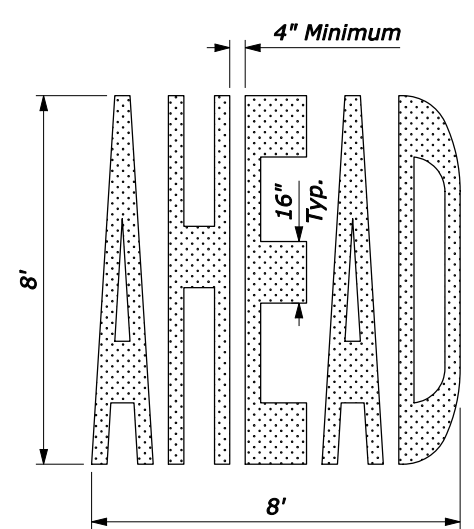
"STOP" WORD MARKING



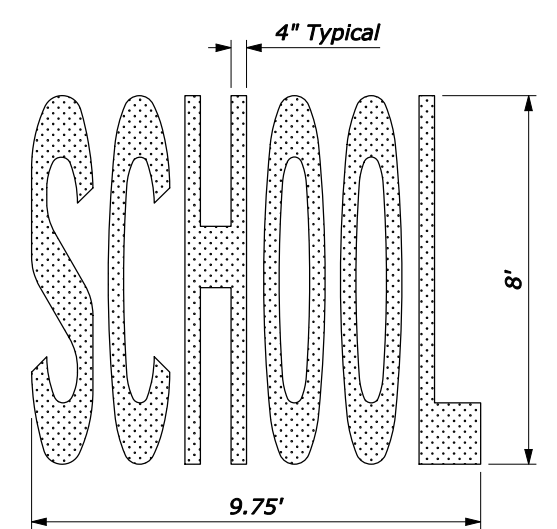
"YIELD" WORD MARKING



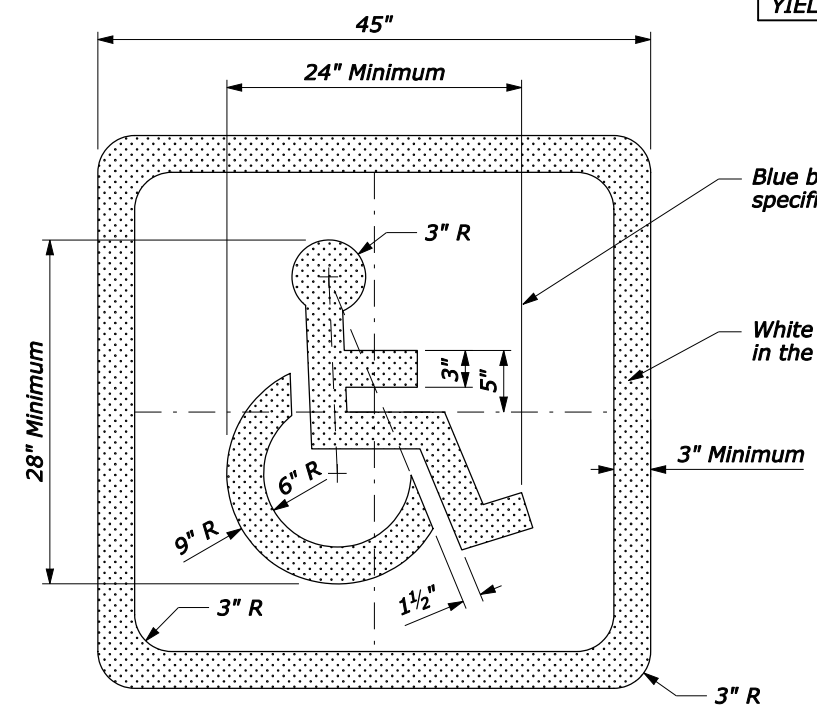
"ONLY" WORD MARKING



"AHEAD" WORD MARKING



"SCHOOL" WORD MARKING



ACCESSIBILITY PARKING SPACE MARKING

Blue background when border specified in the Striping Plans

White border when specified in the Striping Plans

NO SCALE

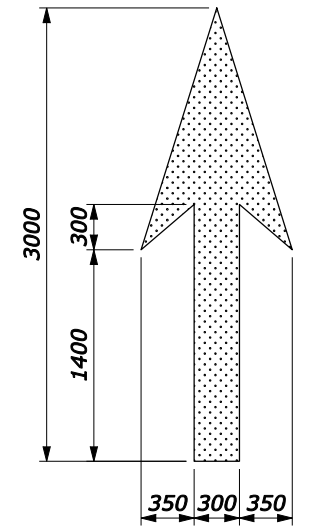
U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

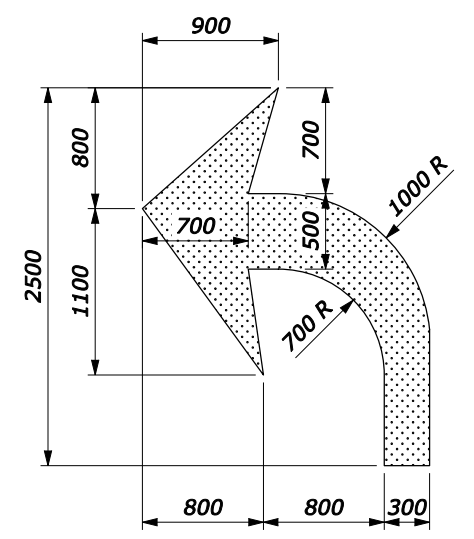
**PAVEMENT MARKINGS
 SYMBOLS AND WORDS**

DETAIL APPROVED FOR USE 3/2003
 REVISSED: 11/2006 10/2007

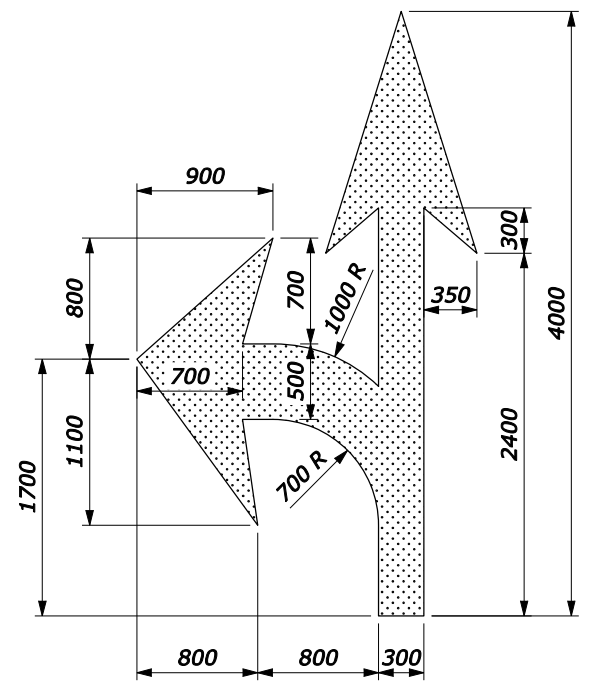
DETAIL
 W634-1



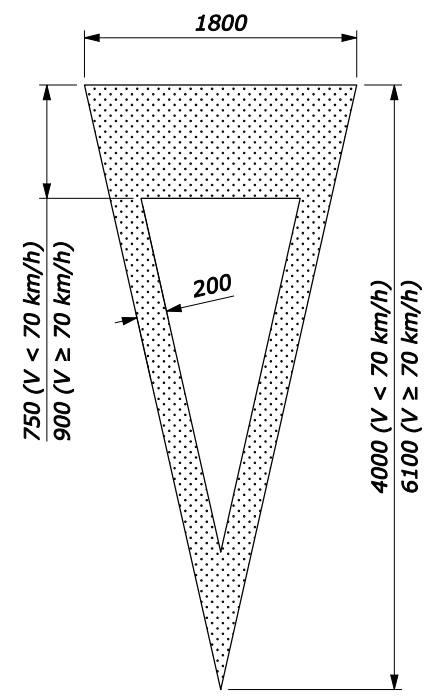
THROUGH LANE-USE ARROW



TURN LANE-USE ARROW



TURN AND THROUGH LANE-USE ARROW

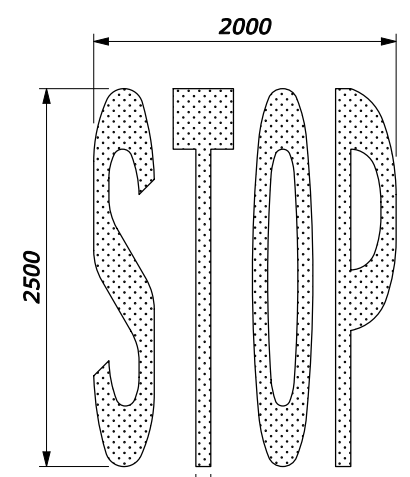


YIELD AHEAD TRIANGLE SYMBOL

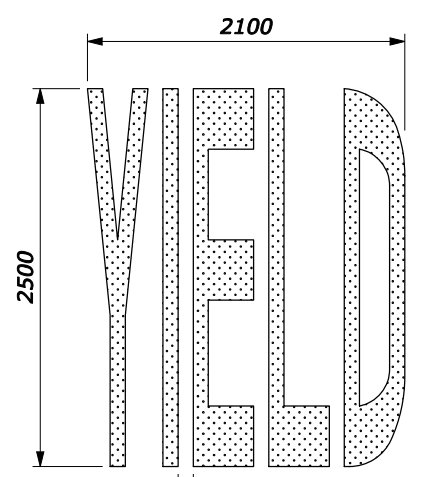
NOTE:

1. Place pavement word and symbol markings in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD), current edition.
2. All letters, numerals and symbols shall conform with the "Standard Highway Signs", current edition.
3. The Accessibility Parking Space marking only includes the accessibility symbol unless a border is indicated in the Striping Plans.
4. Dimensions without units are millimeters.

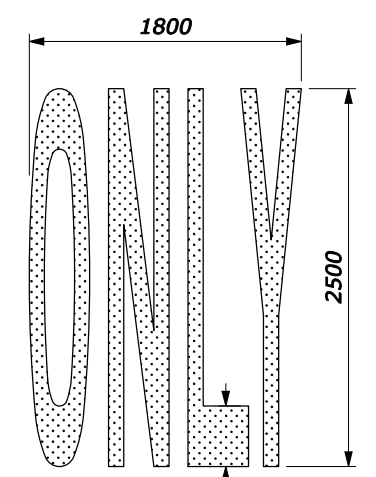
PAVEMENT MARKING AREAS	
TYPE	m ²
Through Lane-Use Arrow	1.1
Turn Lane-Use Arrow	1.5
Turn and Through Lane-Use Arrow	2.5
Yield Ahead Triangle (V < 70 km/h)	2.4
Yield Ahead Triangle (V ≥ 70 km/h)	3.3
Accessibility Marking (symbol only)	0.1
Accessibility Marking w/ border (White)	0.5
Accessibility Marking w/ border (Blue)	0.8
AHEAD Word Marking	2.8
ONLY Word Marking	2.0
SCHOOL Word Marking	3.1
STOP Word Marking	2.0
YIELD Word Marking	2.2



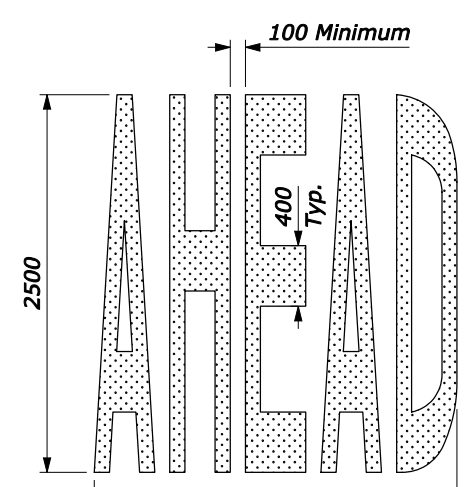
"STOP" WORD MARKING



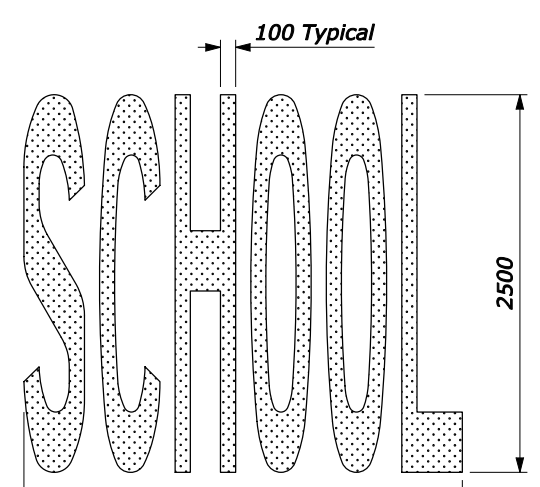
"YIELD" WORD MARKING



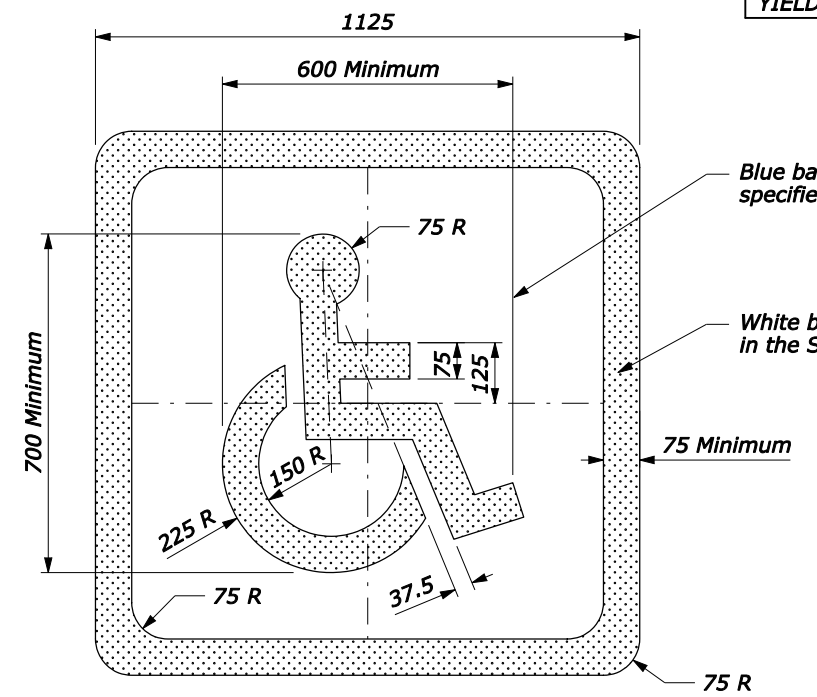
"ONLY" WORD MARKING



"AHEAD" WORD MARKING



"SCHOOL" WORD MARKING



ACCESSIBILITY PARKING SPACE MARKING

Blue background when border specified in the Striping Plans

White border when specified in the Striping Plans

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

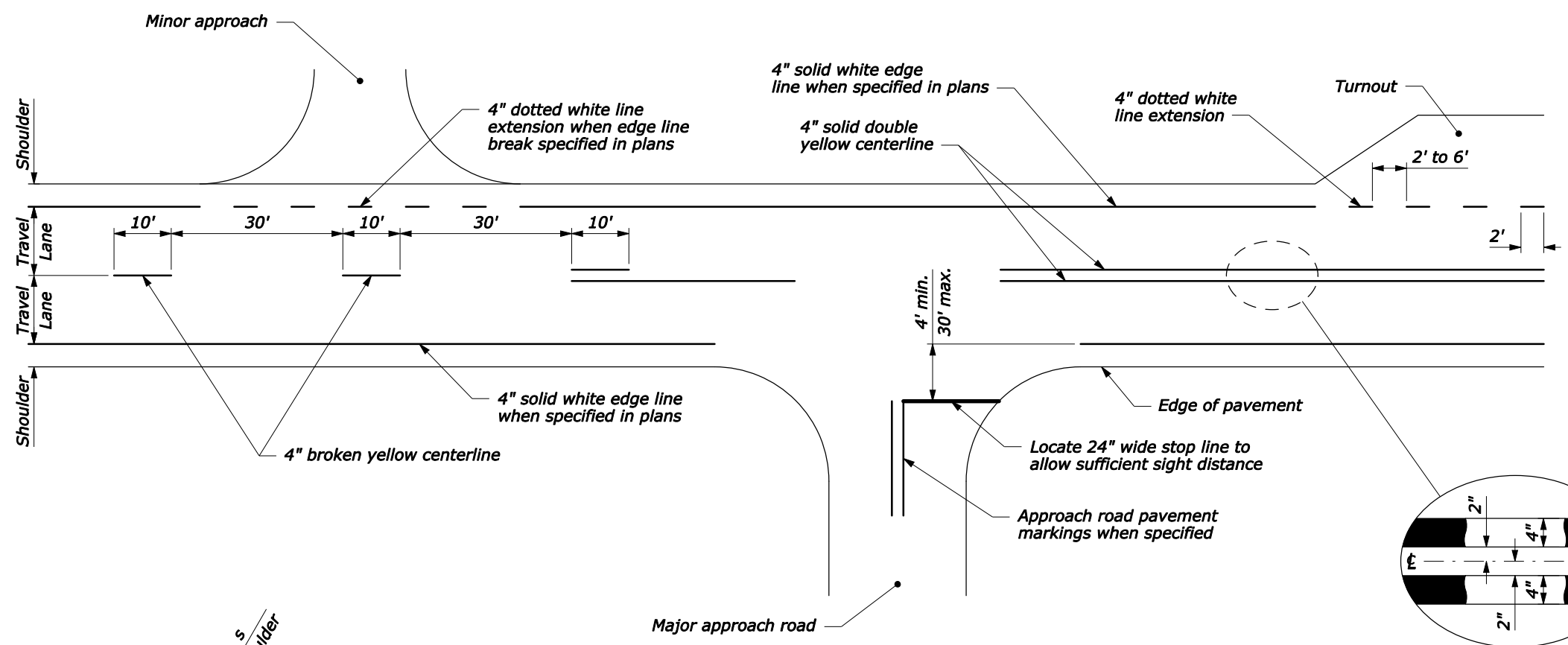
METRIC DETAIL

**PAVEMENT MARKINGS
 SYMBOLS AND WORDS**

DETAIL APPROVED FOR USE 12/2000
 REVISIONS: 3/2003 11/2006 10/2007

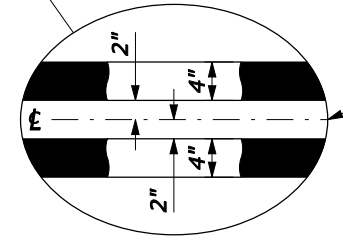
DETAIL
 WM634-1

NO SCALE



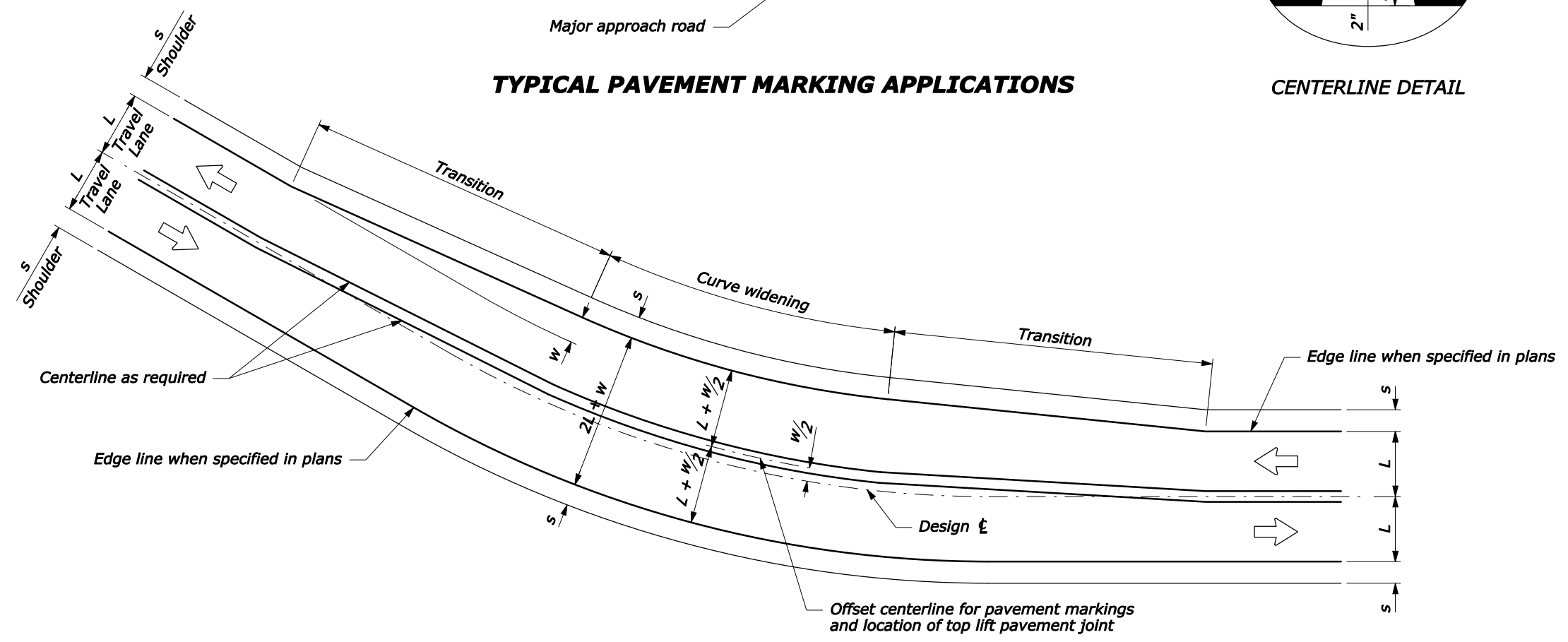
NOTE:

1. Place edge line pavement markings at asphalt/concrete curb interface when curb is present.
2. Paint centerline pavement markings on curves with curve widening "w" to achieve equal lane widths within the roadway. Maintain a constant shoulder width "s" throughout the curve widening area. See staking details for curve widening transition locations.
3. A typical pavement marking width of 4" is shown. Use wider pavement markings when specified on the plans or when required by the maintaining agency.



TYPICAL PAVEMENT MARKING APPLICATIONS

CENTERLINE DETAIL

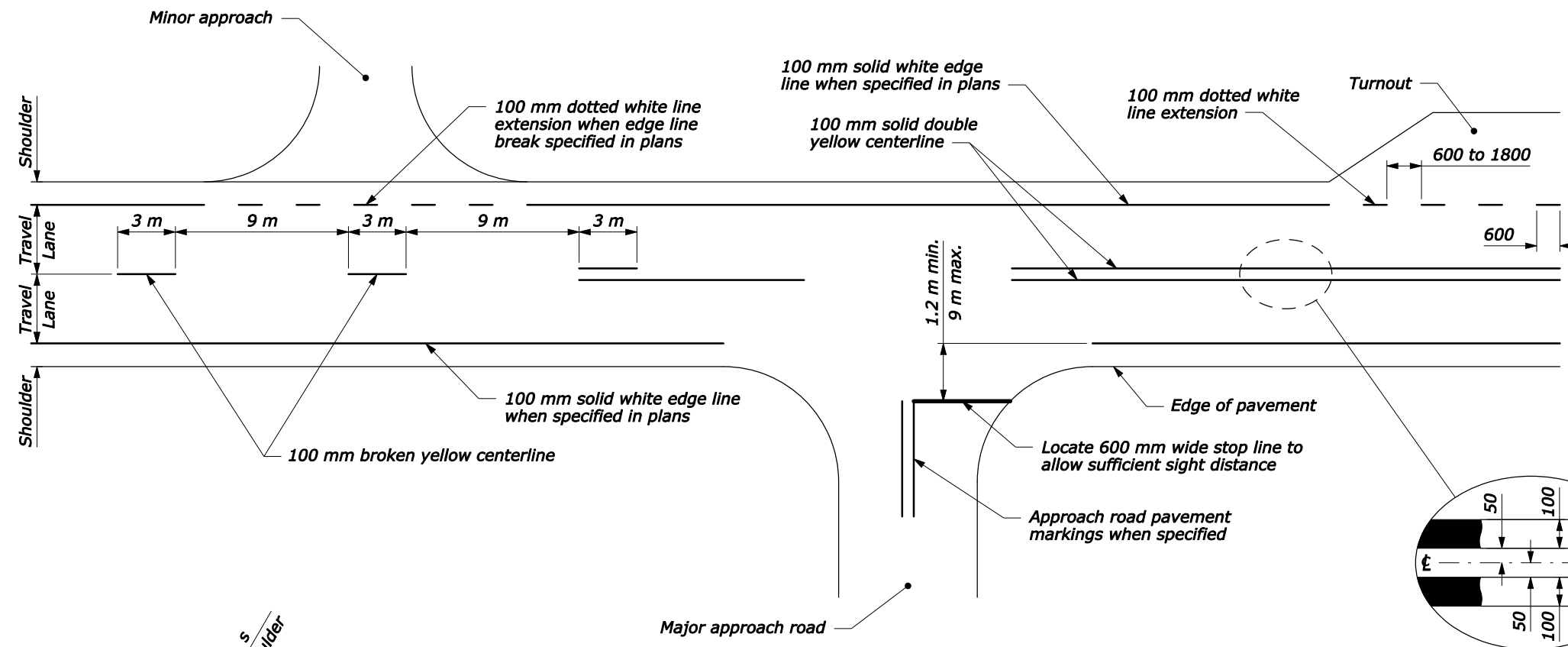


CENTERLINE MODIFICATION FOR CURVES WITH WIDENING APPLIED ON INSIDE

See Note 2 for treatment of curves when widening "w" is split equally on both sides of centerline

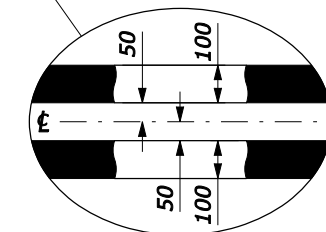
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
LINEAR PAVEMENT MARKINGS	
DETAIL APPROVED FOR USE 10/2007	DETAIL
REVISED:	W634-2



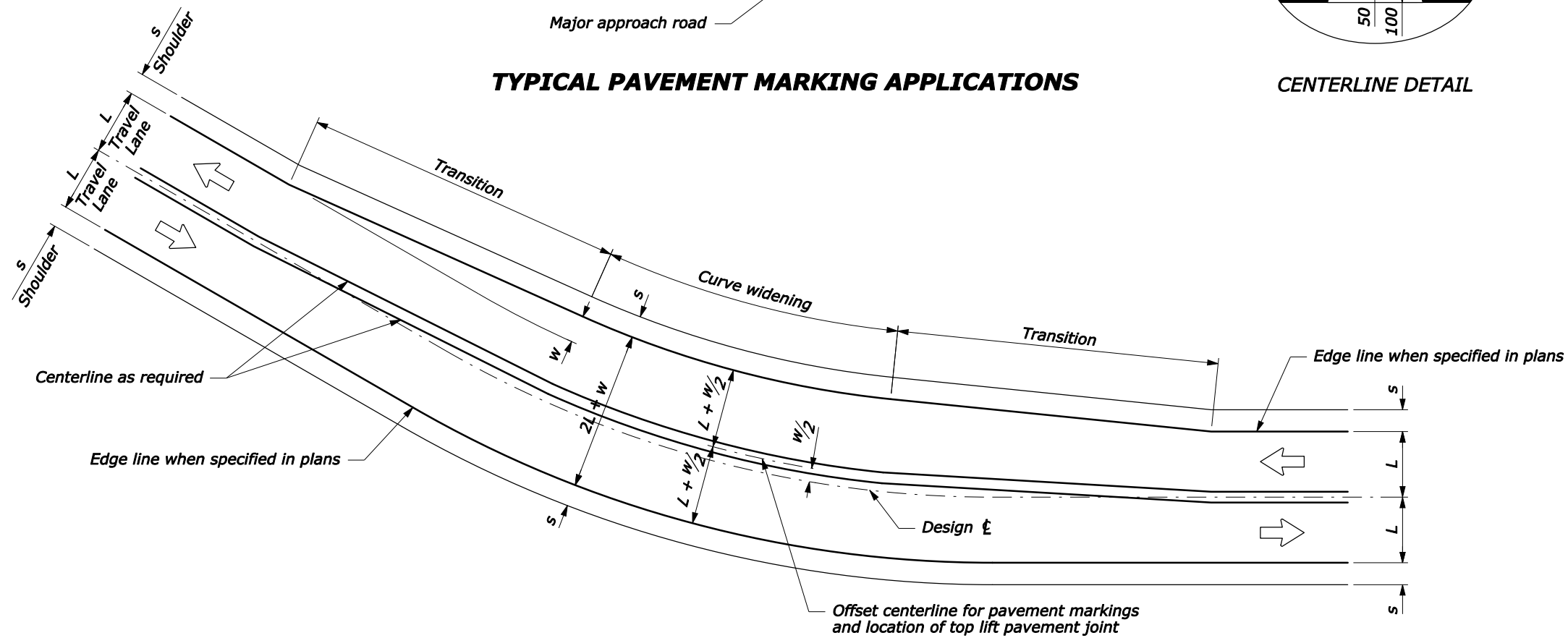
NOTE:

1. Place edge line pavement markings at asphalt/concrete curb interface when curb is present.
2. Paint centerline pavement markings on curves with curve widening "w" to achieve equal lane widths within the roadway. Maintain a constant shoulder width "s" throughout the curve widening area. See staking details for curve widening transition locations.
3. A typical pavement marking width of 100 mm is shown. Use wider pavement markings when specified on the plans or when required by the maintaining agency.
4. Dimensions without units are millimeters



TYPICAL PAVEMENT MARKING APPLICATIONS

CENTERLINE DETAIL

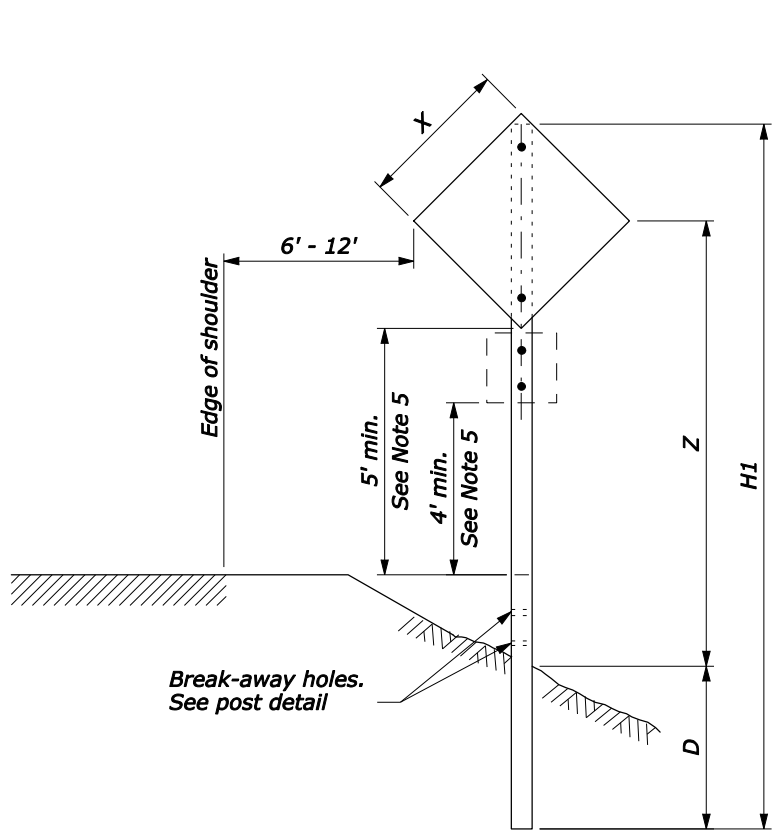


CENTERLINE MODIFICATION FOR CURVES WITH WIDENING APPLIED ON INSIDE

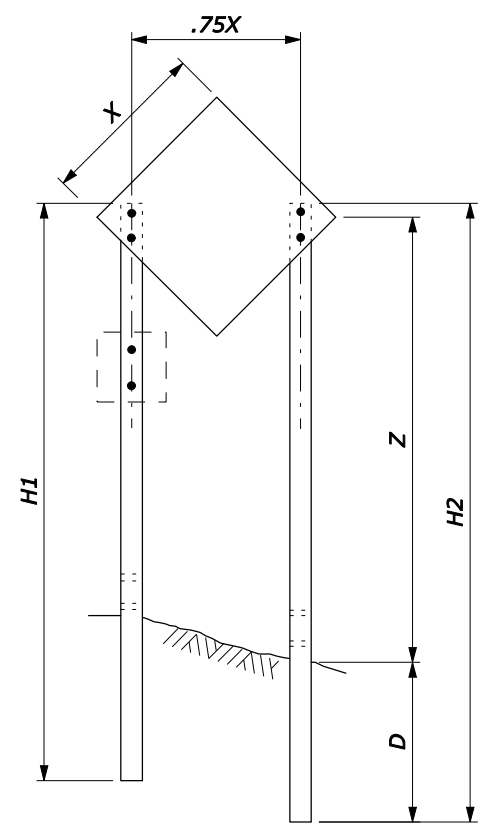
See Note 2 for treatment of curves when widening "w" is split equally on both sides of centerline

NO SCALE

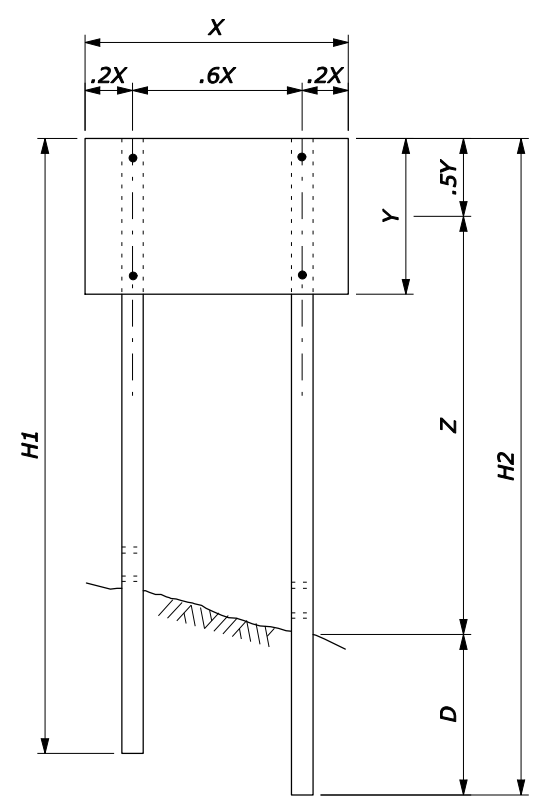
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
LINEAR PAVEMENT MARKINGS	
DETAIL APPROVED FOR USE 10/2007	DETAIL
REVISED:	WM634-2



SINGLE POST SIGN

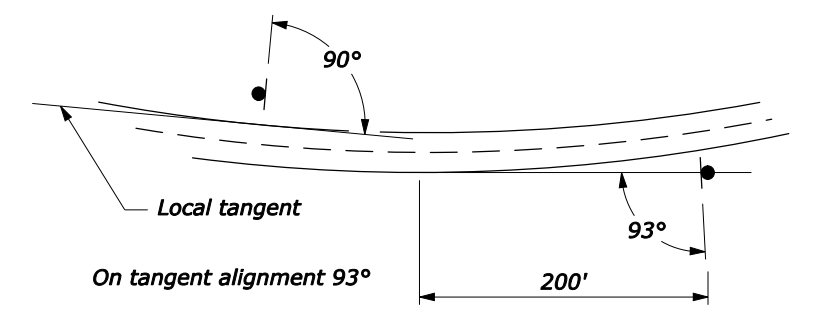


TWO POST SIGN



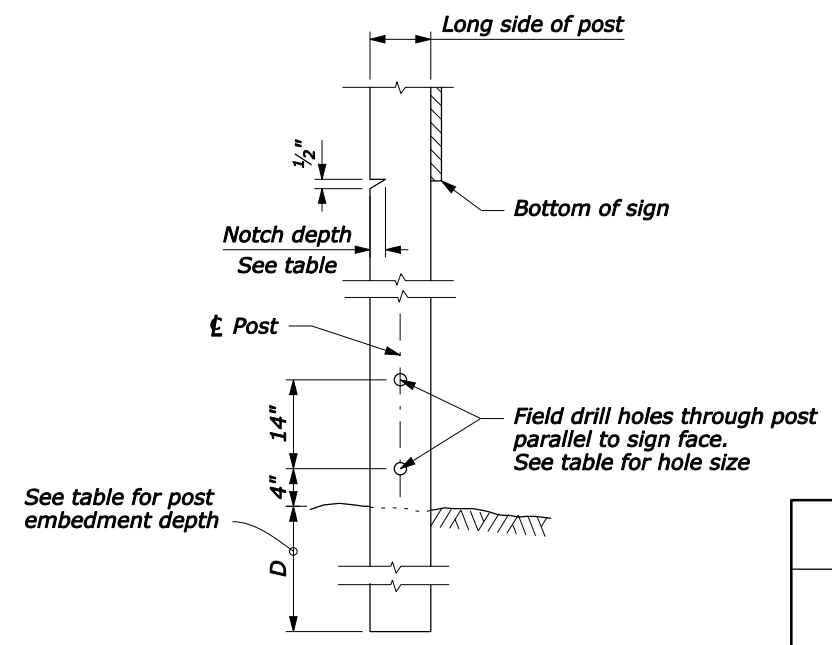
NOTE:

1. Attach sign panels with a minimum of 2 - 1/4" dia. bolts per post.
2. Mount signs smaller than listed on a single 4" x 4" post. For signs not shown, use next largest size.
3. H1 and H2 = Overall post length. Select post lengths to fit field conditions.
4. D = Post embedment depth for average soil conditions.
5. When pedestrians are present, or in areas where the view obstructed, use 7' minimum mounting height.



SIGN INSTALLATION ANGLE

WOOD POST SELECTION TABLE											
SIGN SHAPE	X x Y	GROUNDLINE TO CENTER OF SIGN HEIGHT (Z)									
		Z IS 10' OR LESS					Z IS GREATER THAN 10'				
		NUMBER OF POSTS	POST SIZE	D	HOLE SIZE	NOTCH DEPTH	NUMBER OF POSTS	POST SIZE	D	HOLE SIZE	NOTCH DEPTH
◊ ○	30" x 30"	1	4" x 4"	36"	0	0	1	4" x 6"	48"	1 1/2"	0
		or 2	4" x 4"	36"	0	0	or 2	4" x 4"	36"	0	0
◊ ○ ○	36" x 36"	1	4" x 6"	48"	1 1/2"	0	1	4" x 6"	48"	1 1/2"	0
		or 2	4" x 4"	36"	0	0	or 2	4" x 4"	36"	0	0
◊ ○	48" x 48"	1	4" x 6"	48"	1 1/2"	0	1	6" x 8"	48"	3"	0
◻	60" x 30"	2	4" x 4"	36"	0	0	2	4" x 6"	48"	1 1/2"	1 3/4"
◻	78" x 42"	2	4" x 6"	48"	1 1/2"	1 3/4"	2	4" x 6"	48"	1 1/2"	1 3/4"
◻	96" x 48"	2	4" x 6"	48"	1 1/2"	1 3/4"	2	6" x 8"	48"	3"	2 1/4"



POST DETAIL

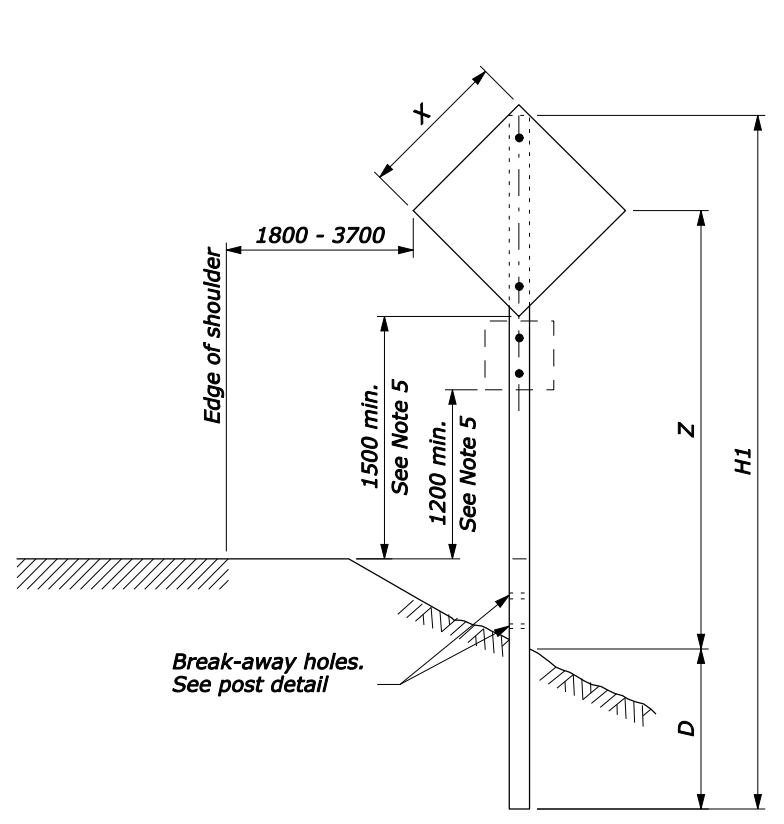
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

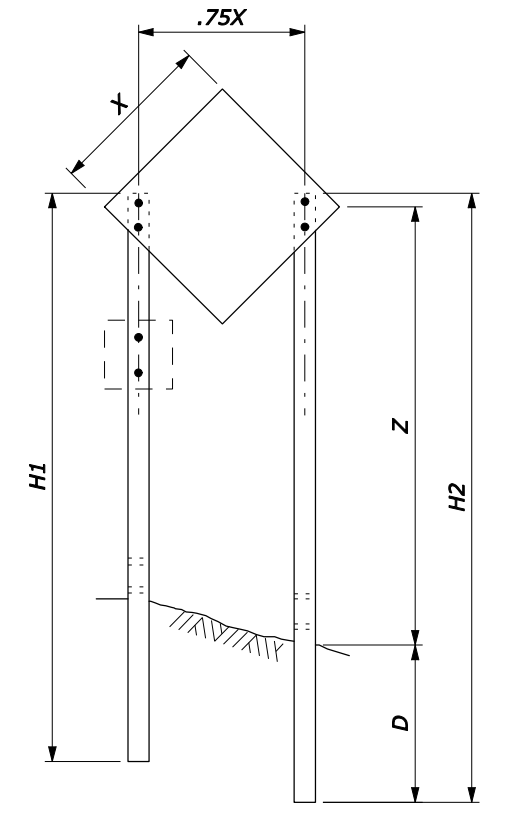
U.S. CUSTOMARY DETAIL
**CONSTRUCTION SIGN
 INSTALLATION
 WOOD POSTS**

DETAIL APPROVED FOR USE 12/2006
 REVISIONS: _____

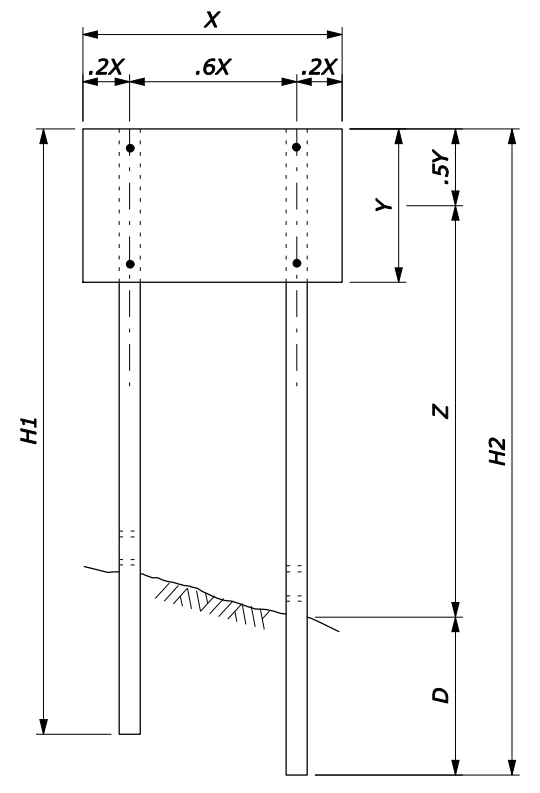
DETAIL
W635-20



SINGLE POST SIGN

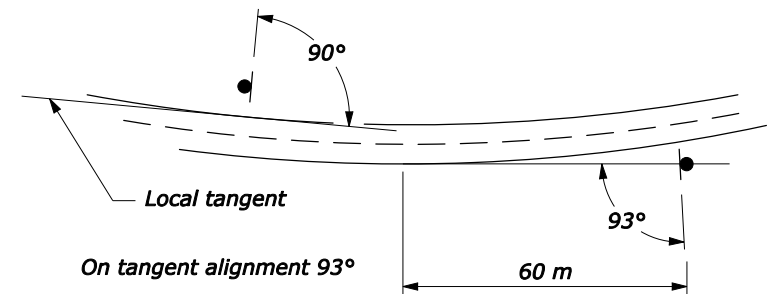


TWO POST SIGN



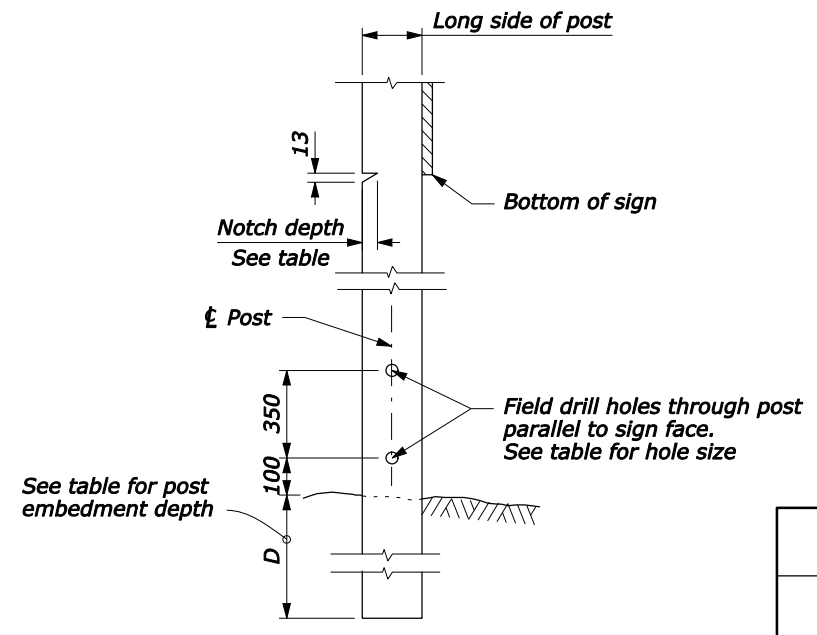
NOTE:

1. Attach sign panels with a minimum of 2 - M6 bolts per post.
2. Mount signs smaller than listed on a single 100 x 100 post. For signs not shown, use next largest size.
3. H1 and H2 = Overall post length. Select post lengths to fit field conditions.
4. D = Post embedment depth for average soil conditions.
5. When pedestrians are present, or in areas where the view is obstructed, use 2.1 m minimum mounting height.
6. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are not available.
7. Dimensions without units are millimeters.



SIGN INSTALLATION ANGLE

WOOD POST SELECTION TABLE											
SIGN SHAPE	X x Y	GROUNDLINE TO CENTER OF SIGN HEIGHT (Z)									
		Z IS 3 m OR LESS					Z IS GREATER THAN 3 m				
		NUMBER OF POSTS	POST SIZE	D	HOLE SIZE	NOTCH DEPTH	NUMBER OF POSTS	POST SIZE	D	HOLE SIZE	NOTCH DEPTH
◇	750 x 750	1	100 x 100	900	0	0	1 or 2	100 x 150 100 x 100	1200 900	40 0	0
◇	900 x 900	1 or 2	100 x 150 100 x 100	1200 900	40 0	0	1 or 2	100 x 150 100 x 100	1200 900	40 0	0
◇	1200 x 1200	1	100 x 150	1200	40	0	1 or 2	150 x 200 100 x 150	1200 1200	75 40	0 45
□	1500 x 750	2	100 x 100	900	0	0	2	100 x 150	1200	40	45
□	1950 x 1050	2	100 x 150	1200	40	45	2	100 x 150	1200	40	45
□	2400 x 1200	2	100 x 150	1200	40	45	2	150 x 200	1200	75	60



POST DETAIL

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

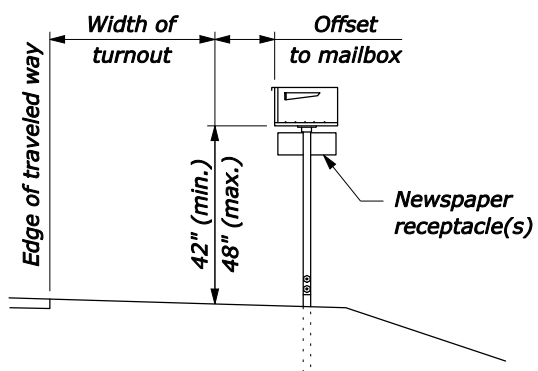
**CONSTRUCTION SIGN
 INSTALLATION
 WOOD POSTS**

DETAIL APPROVED FOR USE 12/2006

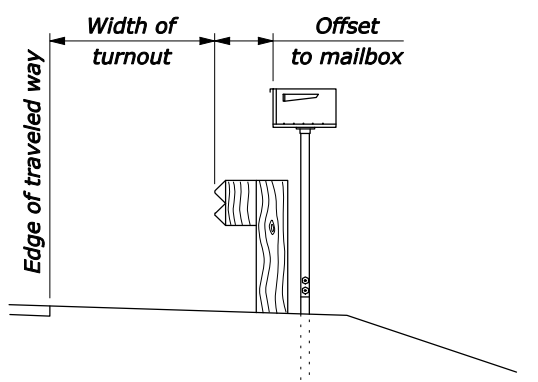
REVISID: _____

DETAIL
 WM635-20

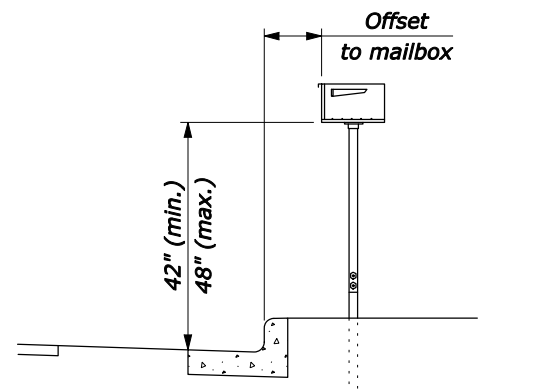
NO SCALE



MAILBOX TURNOUT



GUARDRAIL AREAS



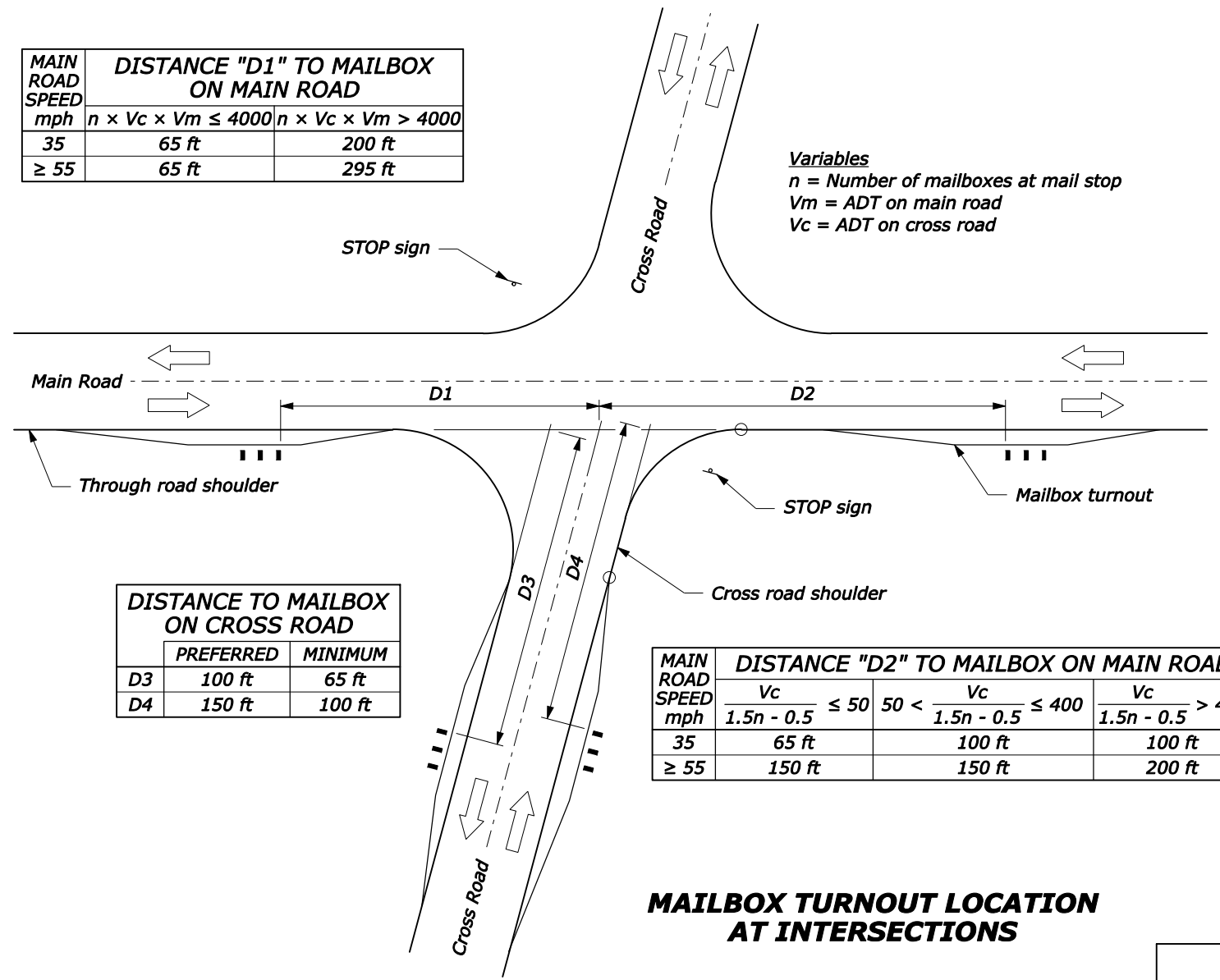
**RESIDENTIAL AREA WITH CURB
TYPICAL MAILBOX LOCATIONS**

MAIN ROAD SPEED mph	DISTANCE "D1" TO MAILBOX ON MAIN ROAD	
	$n \times Vc \times Vm \leq 4000$	$n \times Vc \times Vm > 4000$
35	65 ft	200 ft
≥ 55	65 ft	295 ft

	DISTANCE TO MAILBOX ON CROSS ROAD	
	PREFERRED	MINIMUM
D3	100 ft	65 ft
D4	150 ft	100 ft

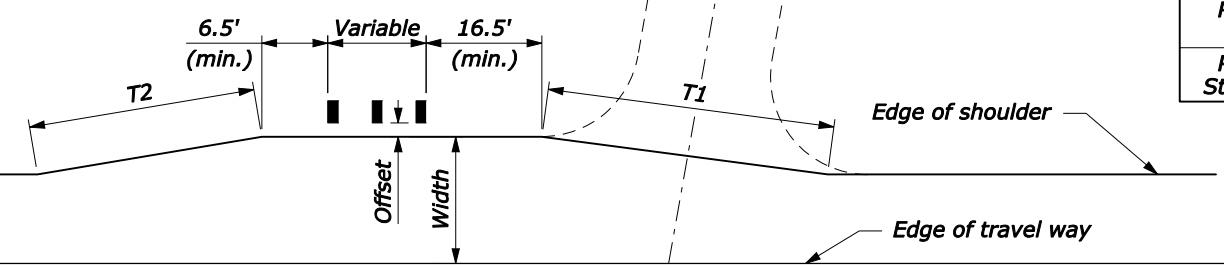
MAIN ROAD SPEED mph	DISTANCE "D2" TO MAILBOX ON MAIN ROAD		
	$\frac{Vc}{1.5n - 0.5} \leq 50$	$50 < \frac{Vc}{1.5n - 0.5} \leq 400$	$\frac{Vc}{1.5n - 0.5} > 400$
35	65 ft	100 ft	100 ft
≥ 55	150 ft	150 ft	200 ft

Variables
 n = Number of mailboxes at mail stop
 Vm = ADT on main road
 Vc = ADT on cross road



MAILBOX TURNOUT LOCATION AT INTERSECTIONS

SPEED mph	TAPER	
	T1	T2
≤ 40	4:1	2.5:1
> 40	20:1	12:1



DIRECTION OF TRAVEL

MAILBOX TURNOUT

NOTE:

1. Move mailbox turnout so that it does not overlap the intersection curve radii.
2. Do not skew mailbox turnouts, however, the adjacent approach may be skewed as shown. Blend the approach radius from the roadway shoulder to the turnout shoulder as shown in the Mailbox Turnout Detail. Place mail boxes on the far side of approach road entrances unless the minimum distances cannot be obtained.
3. The set back and required support also apply to mailbox receptacles. When the newspaper receptacles and mailboxes are mounted in combinations, mount the newspaper receptacle below the bottom surface of the mailbox.
4. Use the same pavement structure for mailbox turnouts as for the adjacent roadway section.
5. Mailbox supports shall conform to the requirements of the AASHTO Manual for Assessing Safety Hardware (MASH) or NCHRP Report 350.
6. Posts may be 4" x 4" or 4" diameter wood posts or 1.5" to 2" diameter standard steel or aluminum pipe posts embedded not more than 24" in the ground.

MAIN ROAD ADT	Width of Turnout		Offset to Mailbox	
	PREFERRED	MINIMUM	PREFERRED	MINIMUM
$> 10,000$	$> 12'$	12'	8" to 12"	0
1500 - 10,000	12'	10'	8" to 12"	0
400 - 1500	10'	8'	8" to 12"	0
< 400	8'	6'	8" to 12"	10"
Residential Street	6'	0	8" to 12"	10"
Residential Street w/curb	Not applicable		8" to 12"	6"

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

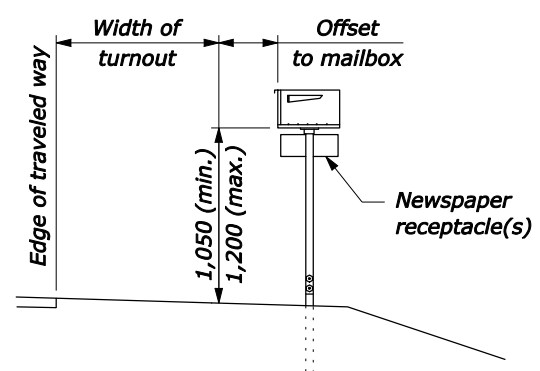
U.S. CUSTOMARY DETAIL

MAILBOX TURNOUT AND INSTALLATION

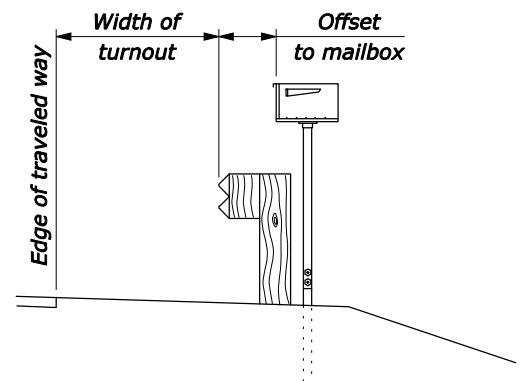
DETAIL APPROVED FOR USE --/---

REVISOR: DRAFT: 10/2009

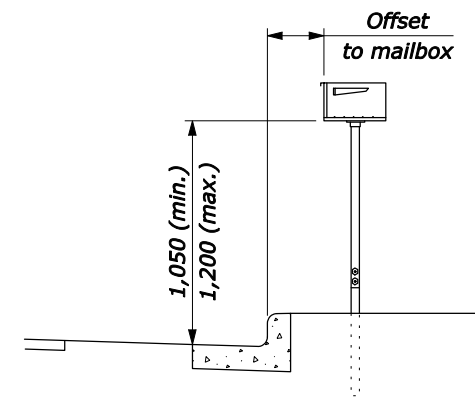
DETAIL W646-1



MAILBOX TURNOUT

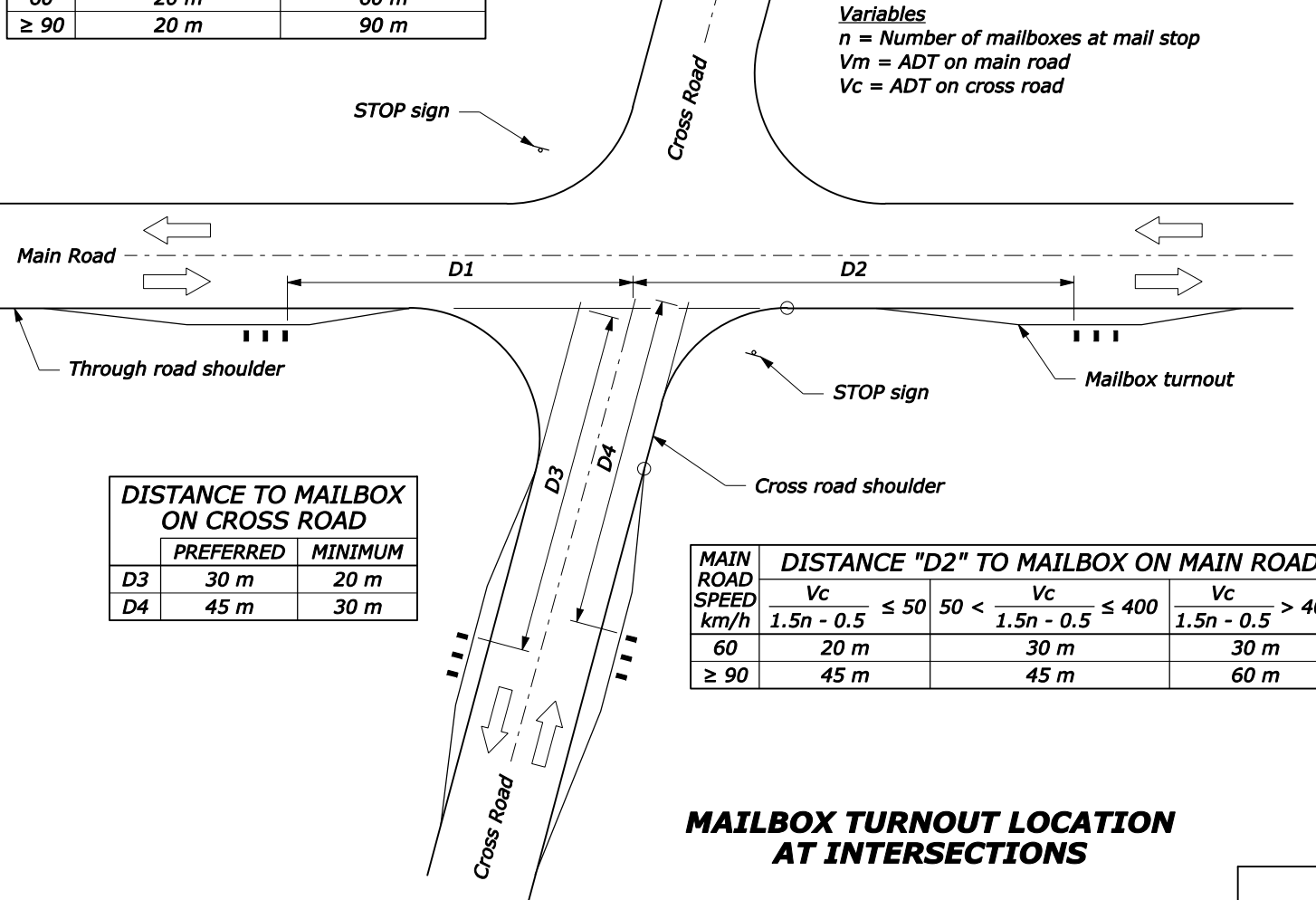


GUARDRAIL AREAS



TYPICAL MAILBOX LOCATIONS

MAIN ROAD SPEED km/h	DISTANCE "D1" TO MAILBOX ON MAIN ROAD	
	$n \times V_c \times V_m \leq 4000$	$n \times V_c \times V_m > 4000$
60	20 m	60 m
≥ 90	20 m	90 m



	DISTANCE TO MAILBOX ON CROSS ROAD	
	PREFERRED	MINIMUM
D3	30 m	20 m
D4	45 m	30 m

MAIN ROAD SPEED km/h	DISTANCE "D2" TO MAILBOX ON MAIN ROAD		
	$\frac{V_c}{1.5n - 0.5} \leq 50$	$50 < \frac{V_c}{1.5n - 0.5} \leq 400$	$\frac{V_c}{1.5n - 0.5} > 400$
60	20 m	30 m	30 m
≥ 90	45 m	45 m	60 m

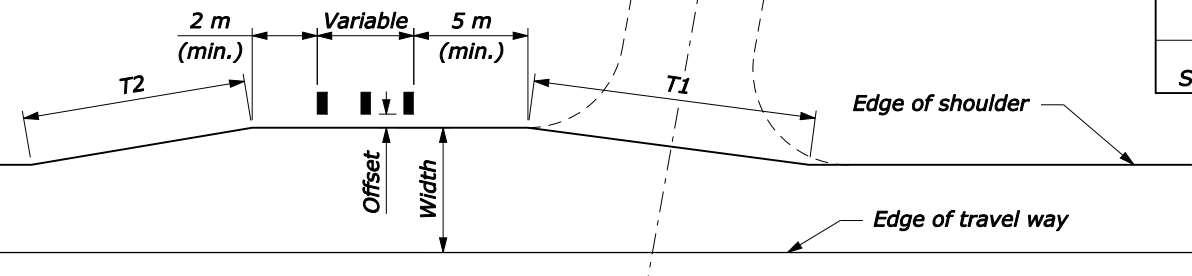
Variables
 n = Number of mailboxes at mail stop
 V_m = ADT on main road
 V_c = ADT on cross road

NOTE:

1. Move mailbox turnout so that it does not overlap the intersection curve radii.
2. Do not skew mailbox turnouts, however, the adjacent approach may be skewed as shown. Blend the approach radius from the roadway shoulder to the turnout shoulder as shown in the Mailbox Turnout Detail. Place mail boxes on the far side of approach road entrances unless the minimum distances cannot be obtained.
3. The set back and required support also apply to mailbox receptacles. When the newspaper receptacles and mailboxes are mounted in combinations, mount the newspaper receptacle below the bottom surface of the mailbox.
4. Use the same pavement structure for mailbox turnouts as for the adjacent roadway section.
5. Mailbox supports shall conform to the requirements of the AASHTO Manual for Assessing Safety Hardware (MASH) or NCHRP Report 350.
6. Posts may be 100 mm x 100 mm or 100 mm diameter wood posts or 38 mm to 50 mm diameter standard steel or aluminum pipe posts embedded not more than 600 mm in the ground.
7. Dimensions without units are millimeters.

MAILBOX TURNOUT LOCATION AT INTERSECTIONS

SPEED km/h	TAPER	
	T1	T2
< 70	4:1	2.5:1
≥ 70	20:1	12:1



MAIN ROAD ADT	Width of Turnout		Offset to Mailbox	
	PREFERRED	MINIMUM	PREFERRED	MINIMUM
> 10,000	> 3.6 m	3.6 m	200 to 300	0
1500 - 10,000	3.6 m	3.0 m	200 to 300	0
400 - 1500	3.0 m	2.4 m	200 to 300	0
< 400	2.4 m	1.8 m	200 to 300	200
Residential Street	1.8 m	0	200 to 300	200
Residential Street w/curb	Not applicable		200 to 300	150

DIRECTION OF TRAVEL

MAILBOX TURNOUT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

MAILBOX TURNOUT AND INSTALLATION

DETAIL APPROVED FOR USE --/----

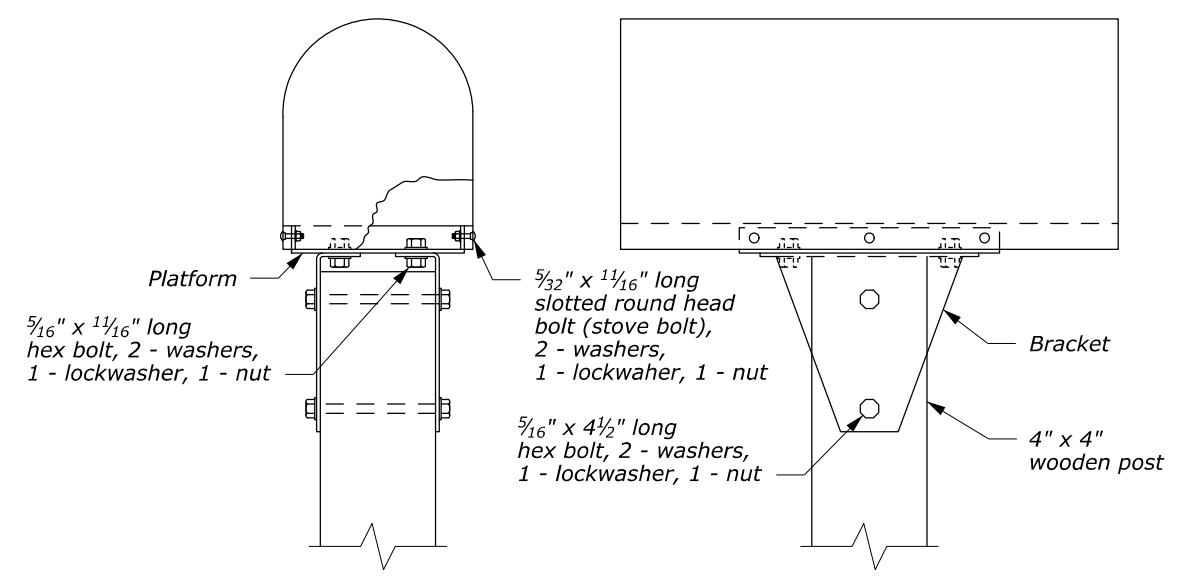
REVIS: 10/2009
 DRAFT: 10/2009

DETAIL WM646-1

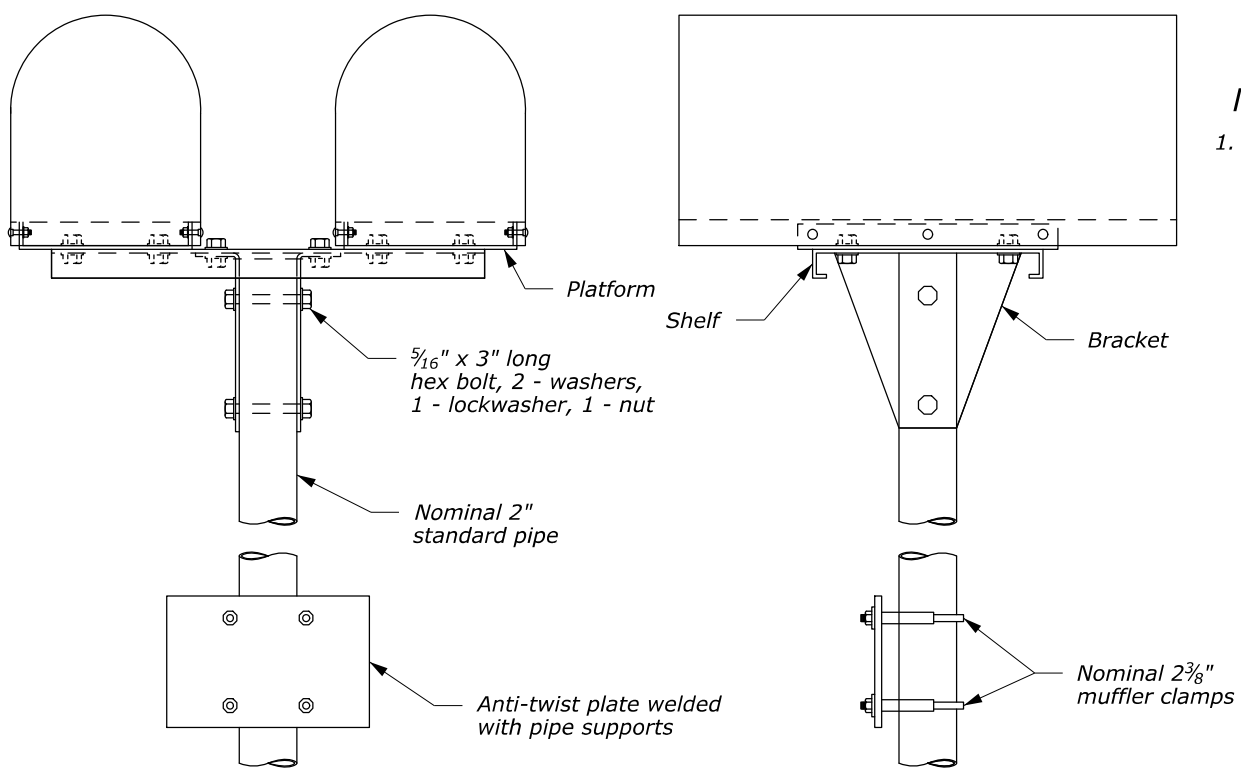
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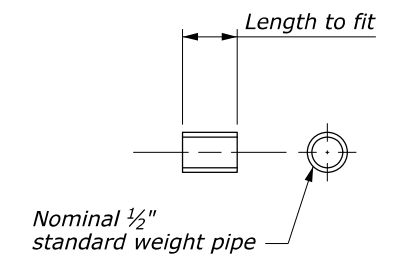
NOTE:
 1. Spacing between multiple mailboxes and height of mailbox above ground level are as established by the U.S. Postal Service. H is usually 3'-4" to 4'-0".



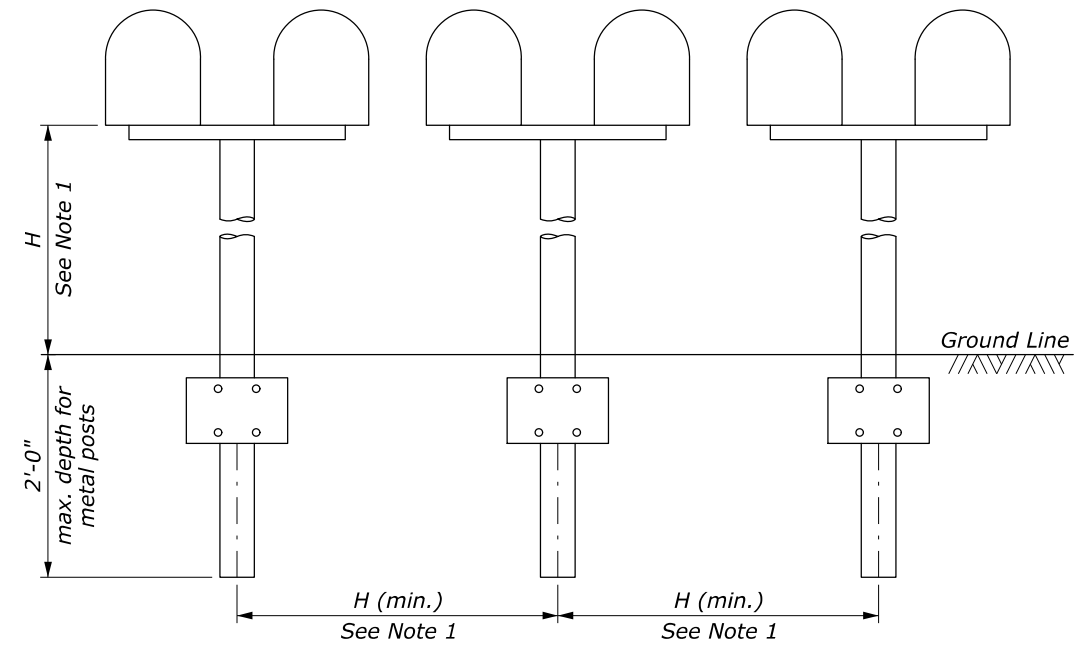
SINGLE MAILBOX INSTALLATION



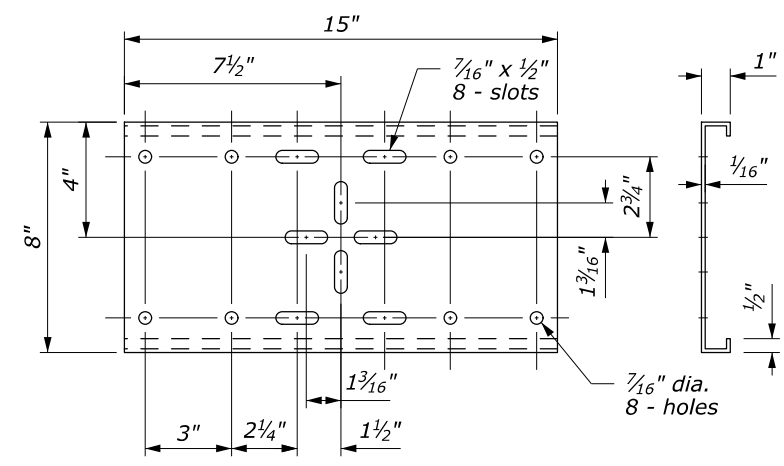
DOUBLE MAILBOX INSTALLATION



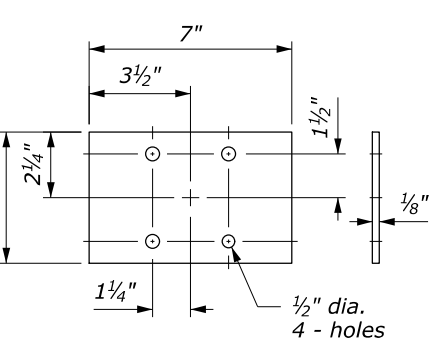
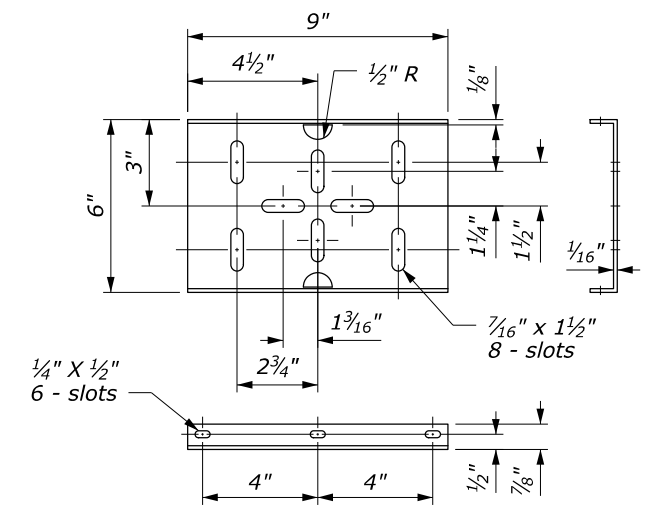
SPACER



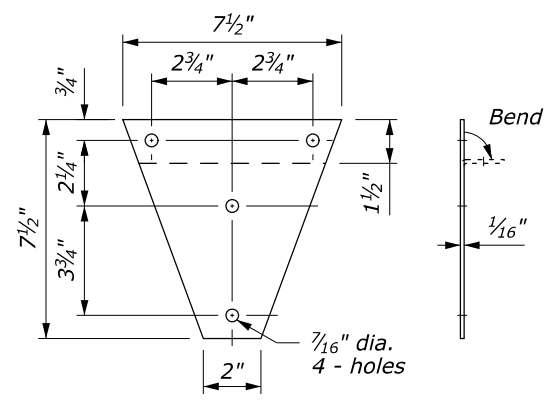
SPACING FOR MULTIPLE INSTALLATION



PLATFORM

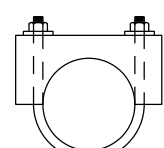


ANTI-TWIST PLATE



BRACKET

SHELF

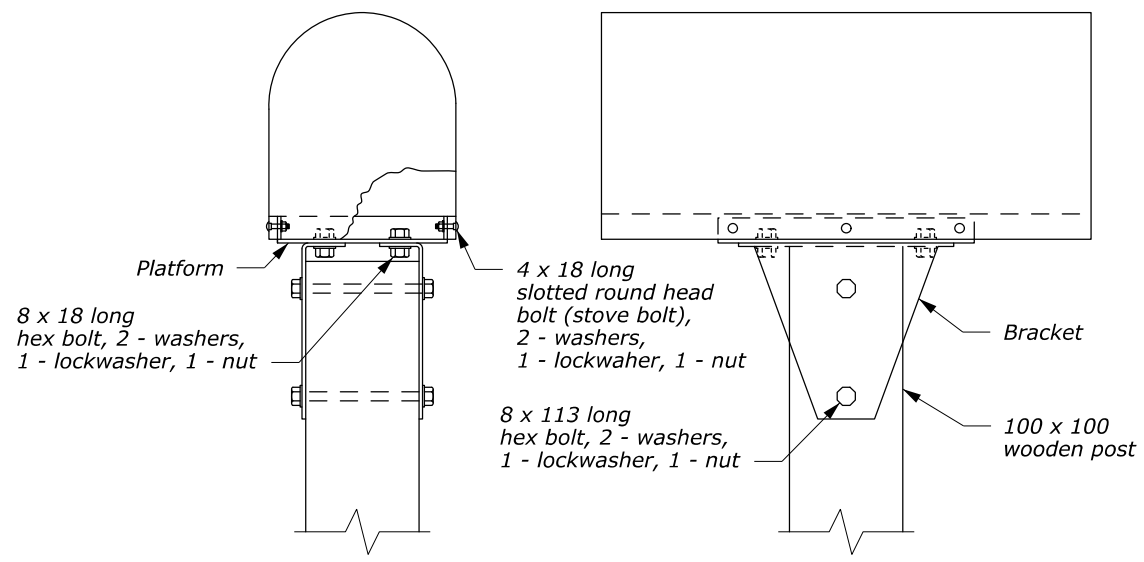


CLAMP

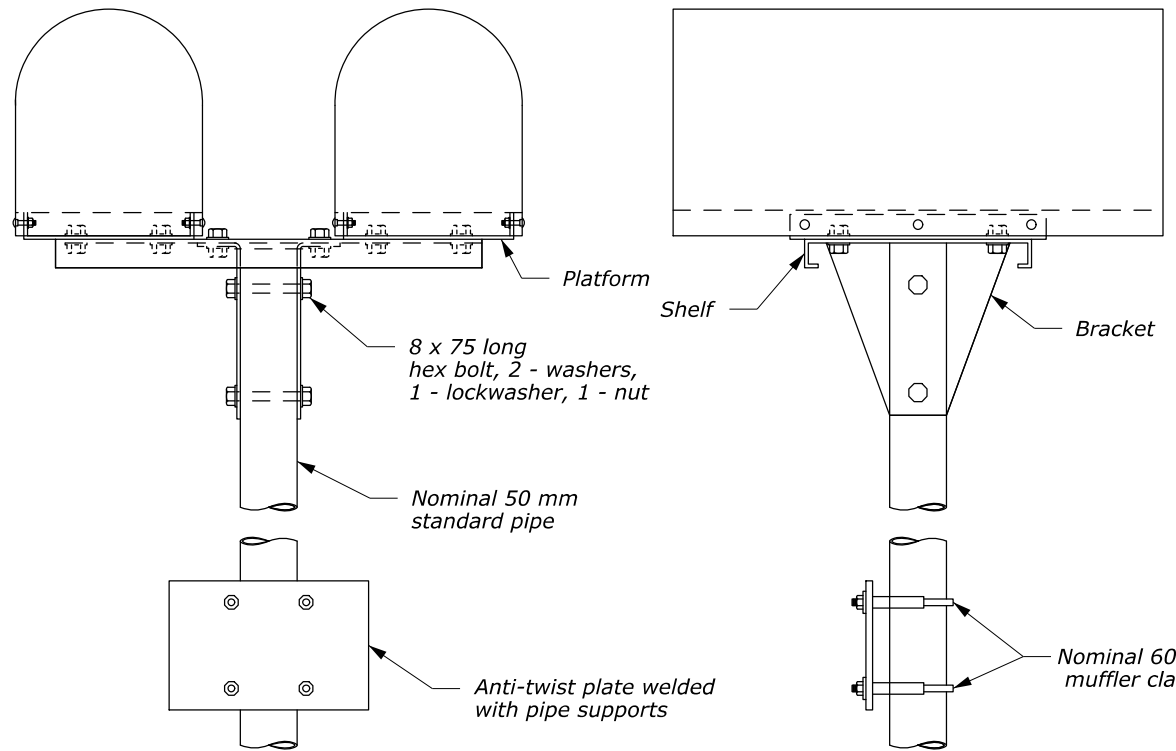
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
MAILBOX ASSEMBLY SERIES A	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 1/2010	W646-2

13 January 2010 2:26 PM H:\StanDraw\w64602.dgn [USC]



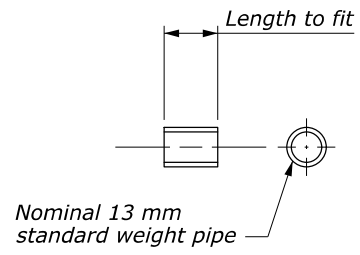
SINGLE MAILBOX INSTALLATION



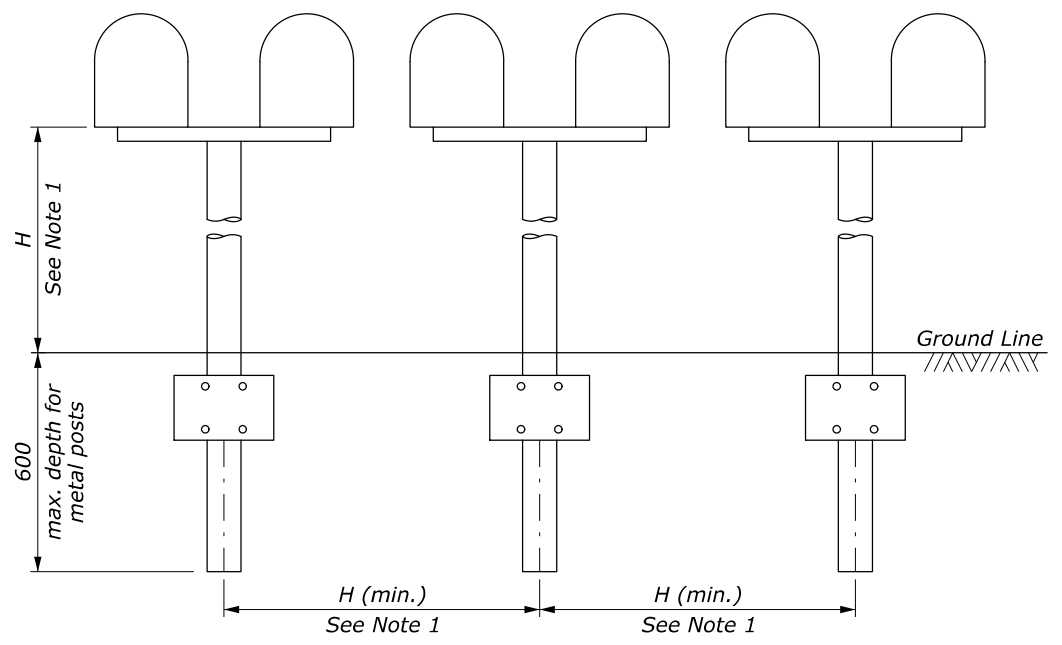
DOUBLE MAILBOX INSTALLATION

NOTE:

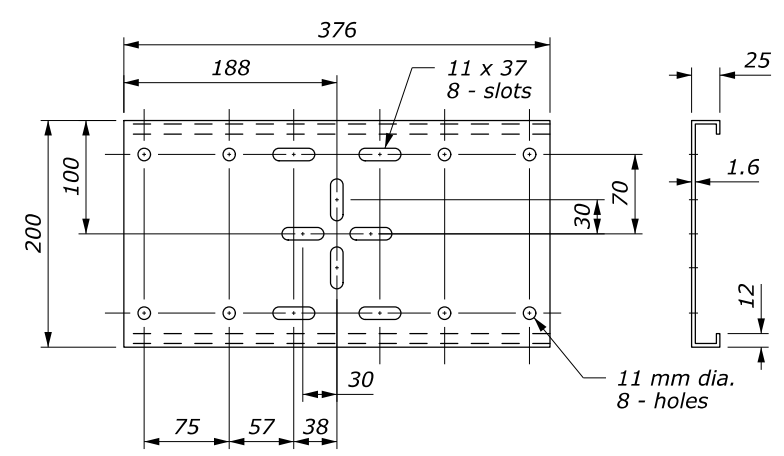
1. Spacing between multiple mailboxes and height of mailbox above ground level are as established by the the U.S. Postal Service. H is usually 1.0 m to 1.2 m.
2. Dimensions without units are millimeters.



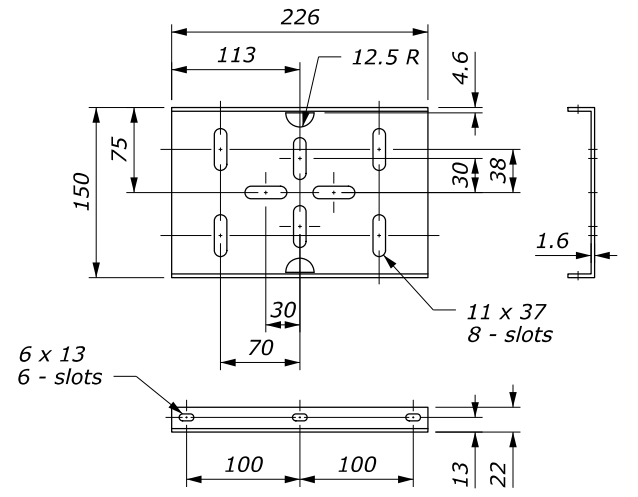
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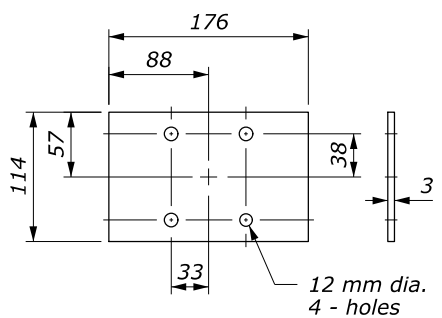
SPACING FOR MULTIPLE INSTALLATION



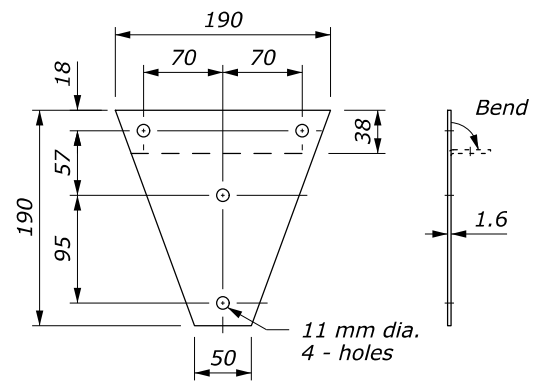
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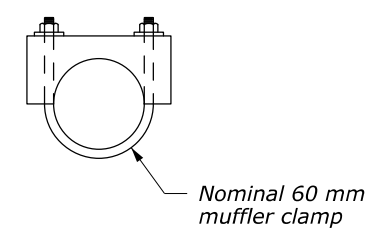
PLATFORM



ANTI-TWIST PLATE



BRACKET

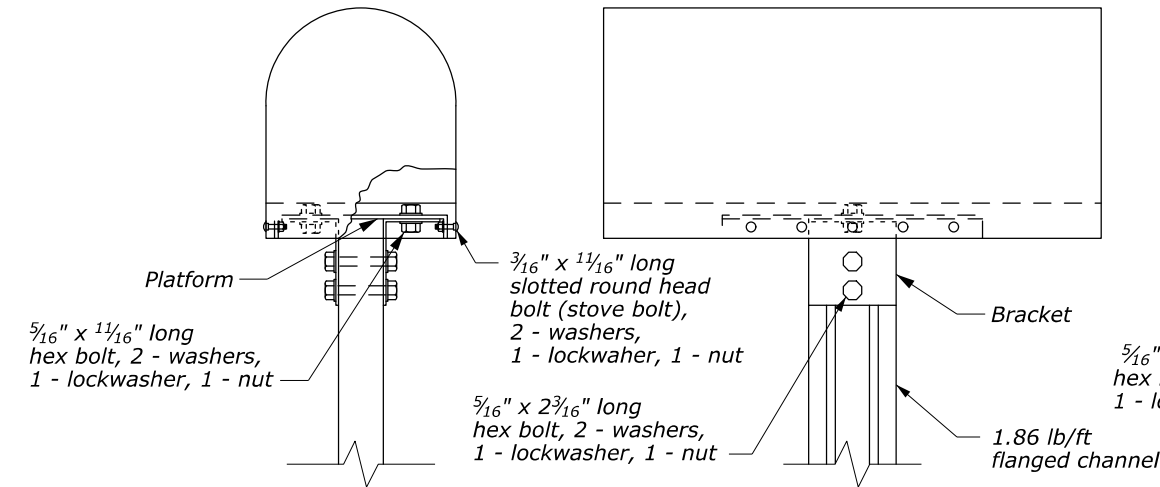


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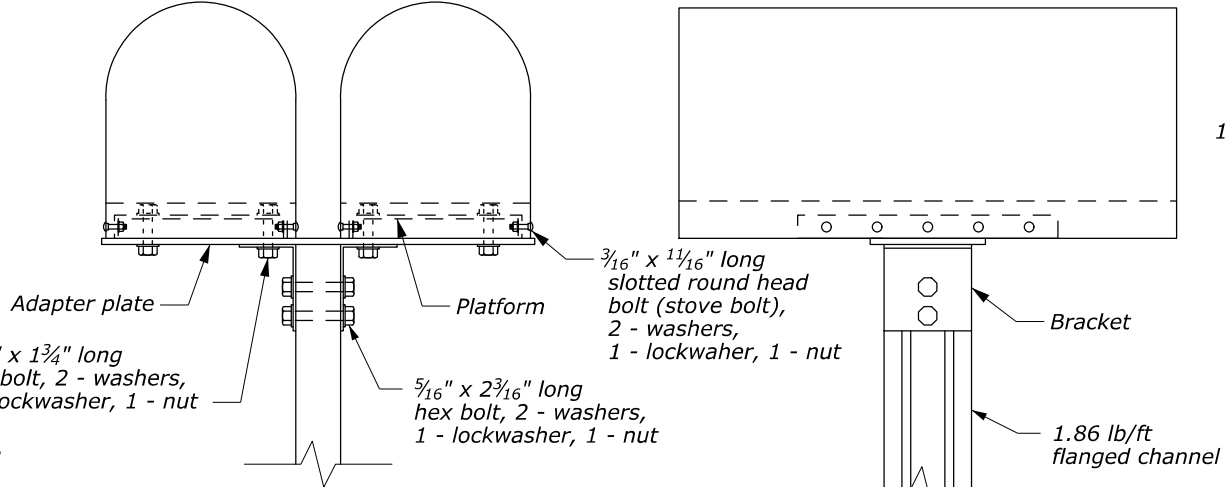
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
MAILBOX ASSEMBLY SERIES A	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 1/2010	WM646-2

NO SCALE

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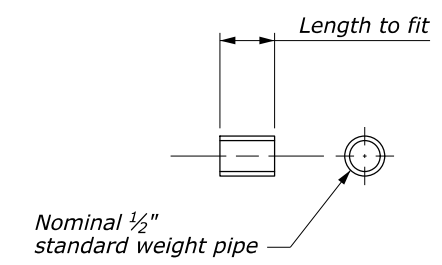


SINGLE MAILBOX INSTALLATION

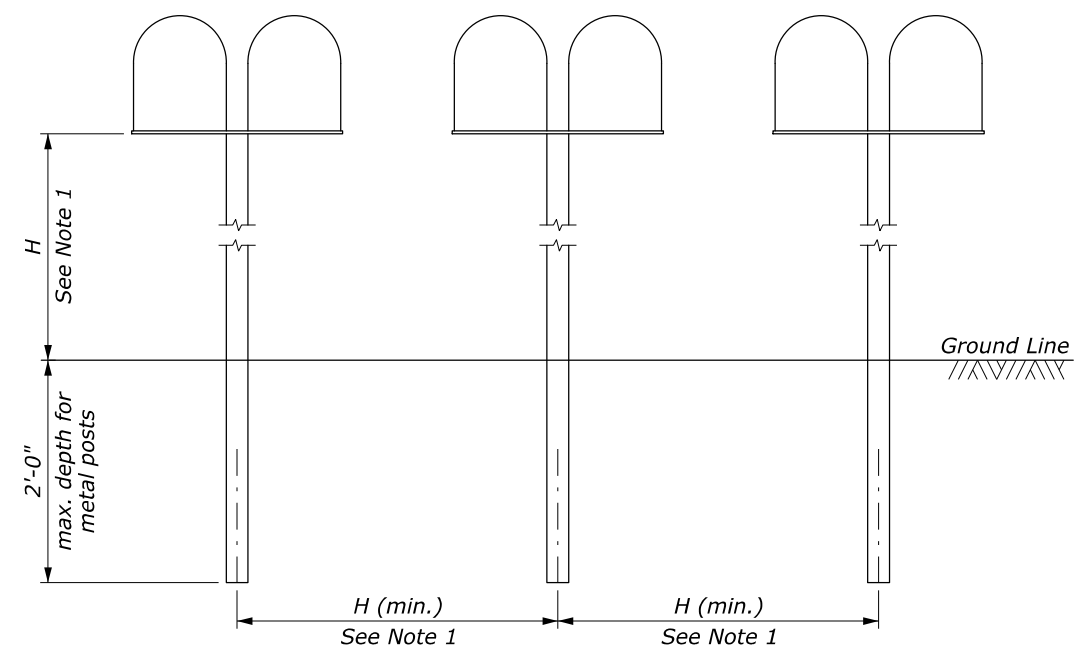


DOUBLE MAILBOX INSTALLATION

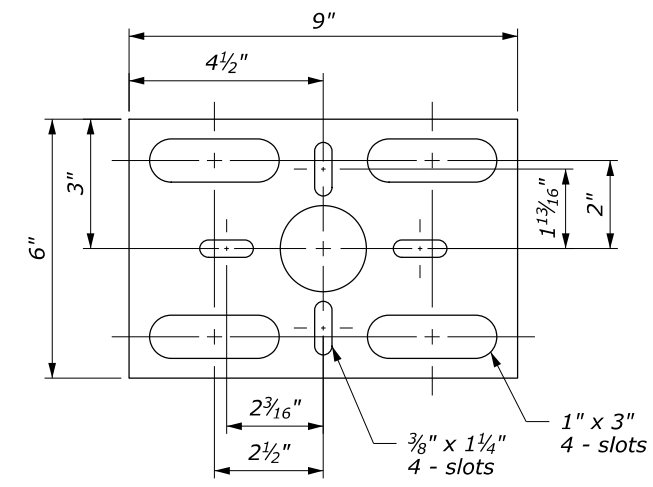
NOTE:
 1. Spacing between multiple mailboxes and height of mailbox above ground level are as established by the U.S. Postal Service. H is usually 3'-4" to 4'-0".



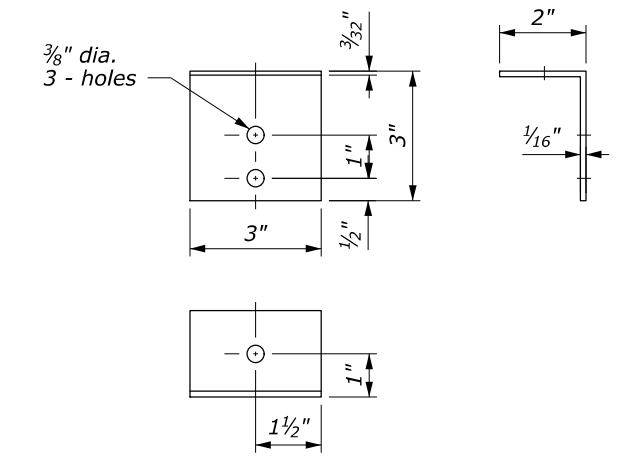
SPACER



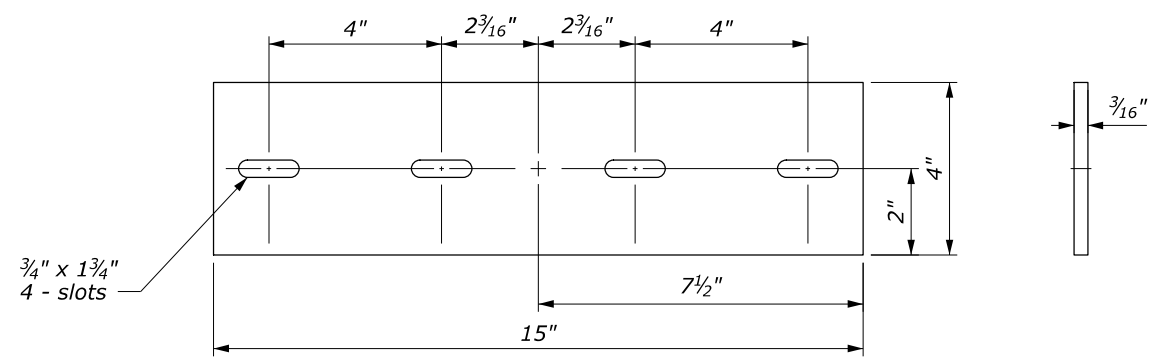
SPACING FOR MULTIPLE INSTALLATION



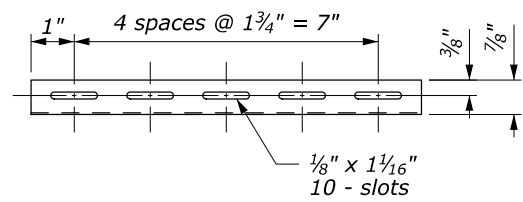
PLATFORM



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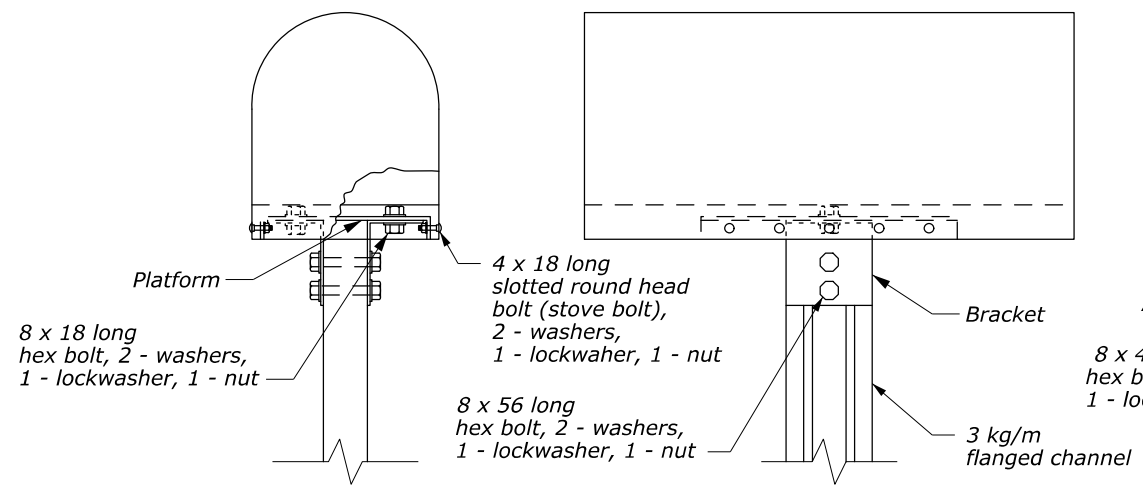


ADAPTER PLATE

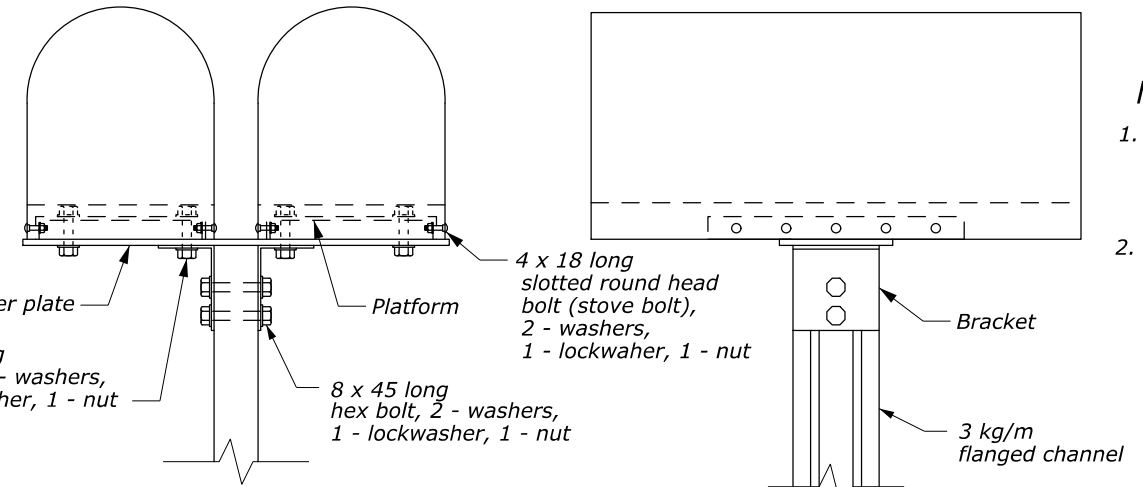


NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
MAILBOX ASSEMBLY SERIES B	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 1/2010	W646-3



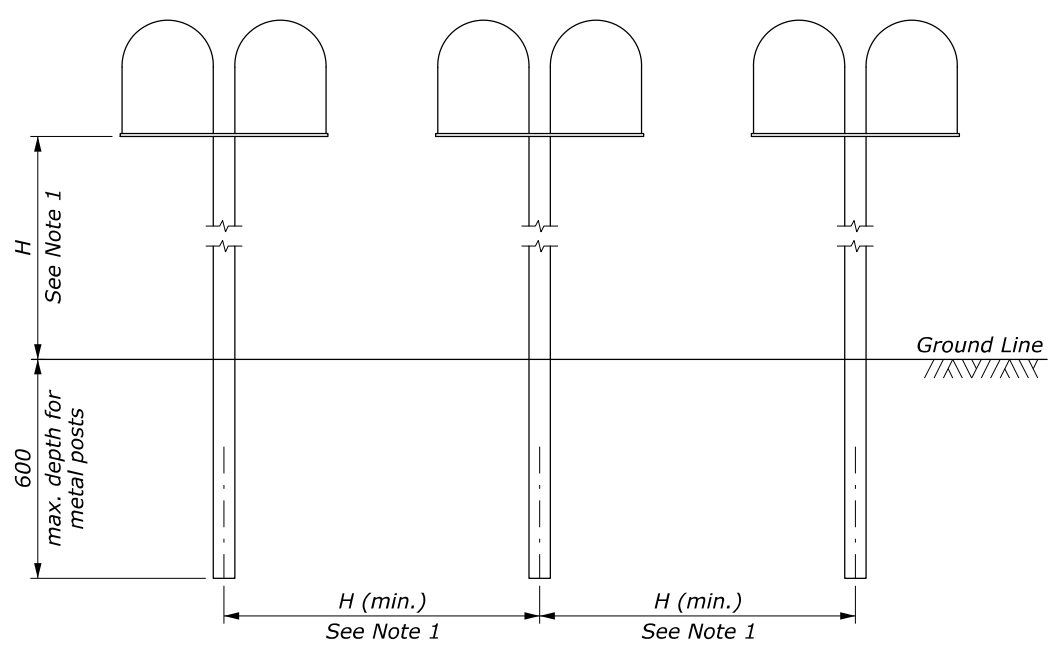
SINGLE MAILBOX INSTALLATION



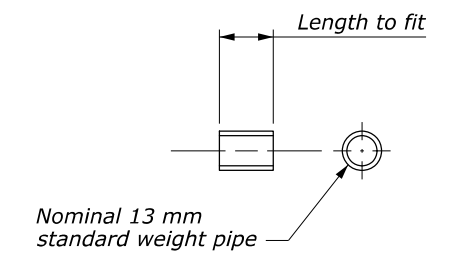
DOUBLE MAILBOX INSTALLATION

NOTE:

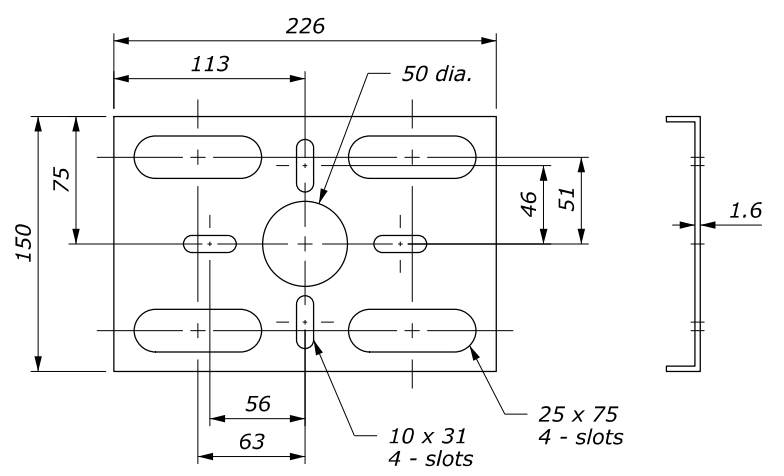
- Spacing between multiple mailboxes and height of mailbox above ground level are as established by the the U.S. Postal Service. H is usually 1.0 m to 1.2 m.
- Dimensions without units are millimeters.



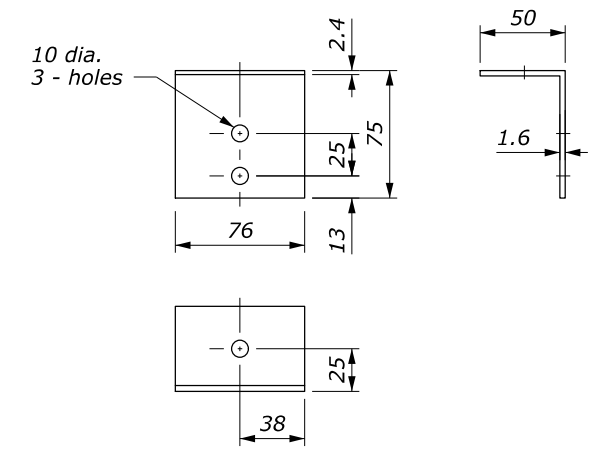
SPACING FOR MULTIPLE INSTALLATION



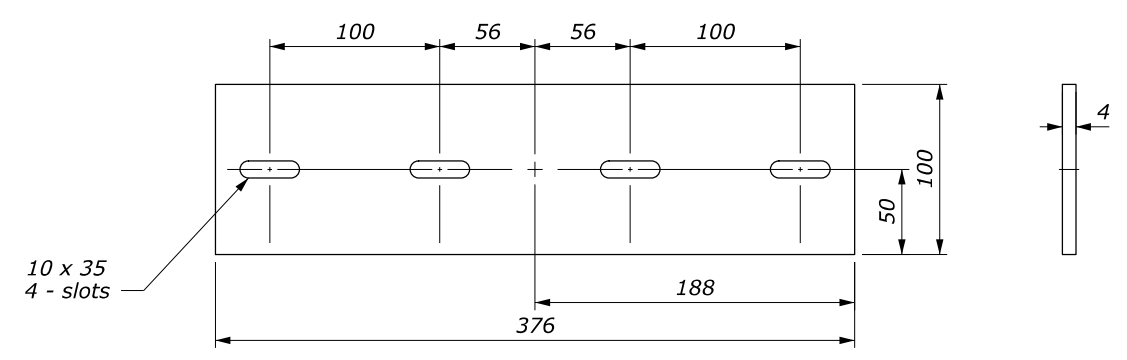
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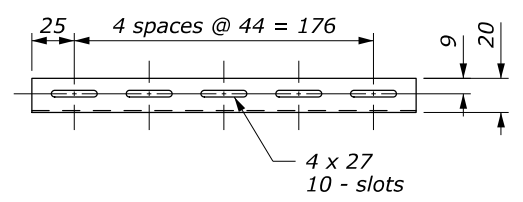
PLATFORM



BRACKET



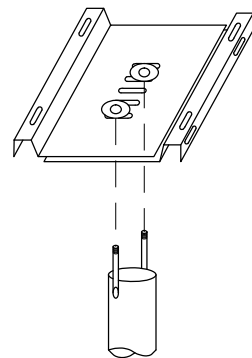
ADAPTER PLATE



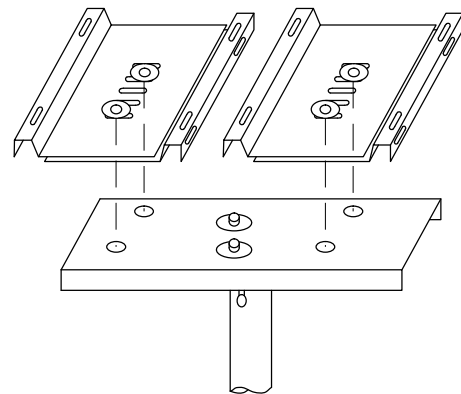
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
MAILBOX ASSEMBLY SERIES B	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 1/2010	WM646-3

NO SCALE

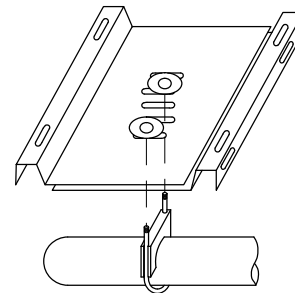
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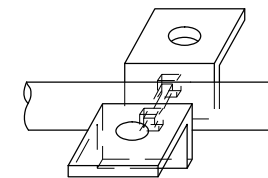
SINGLE MAILBOX MOUNT



DOUBLE MAILBOX MOUNT



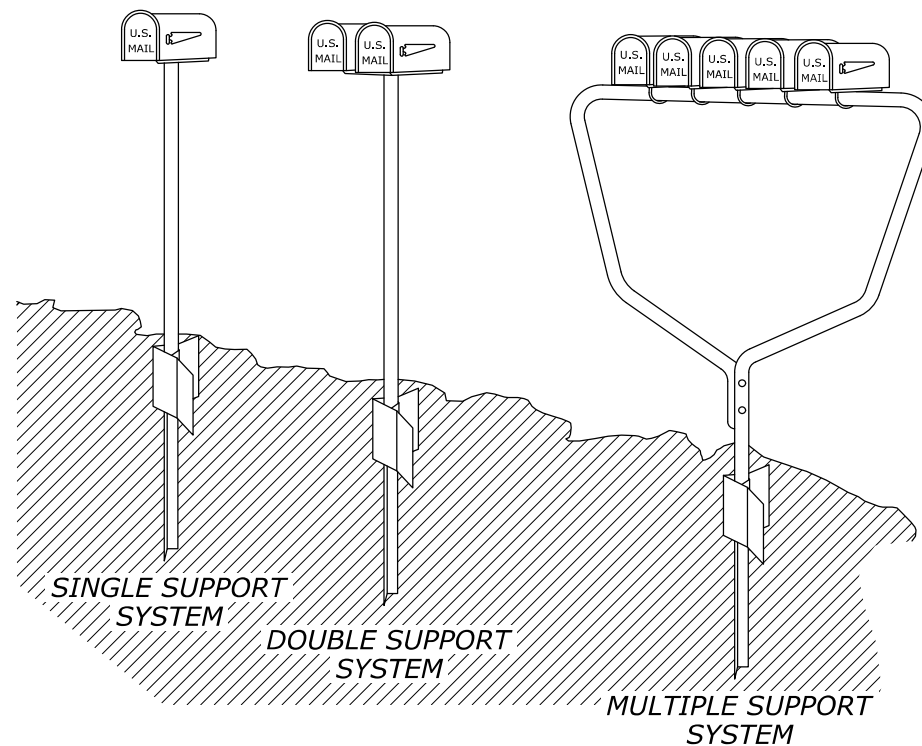
MULTIPLE MAILBOX MOUNT



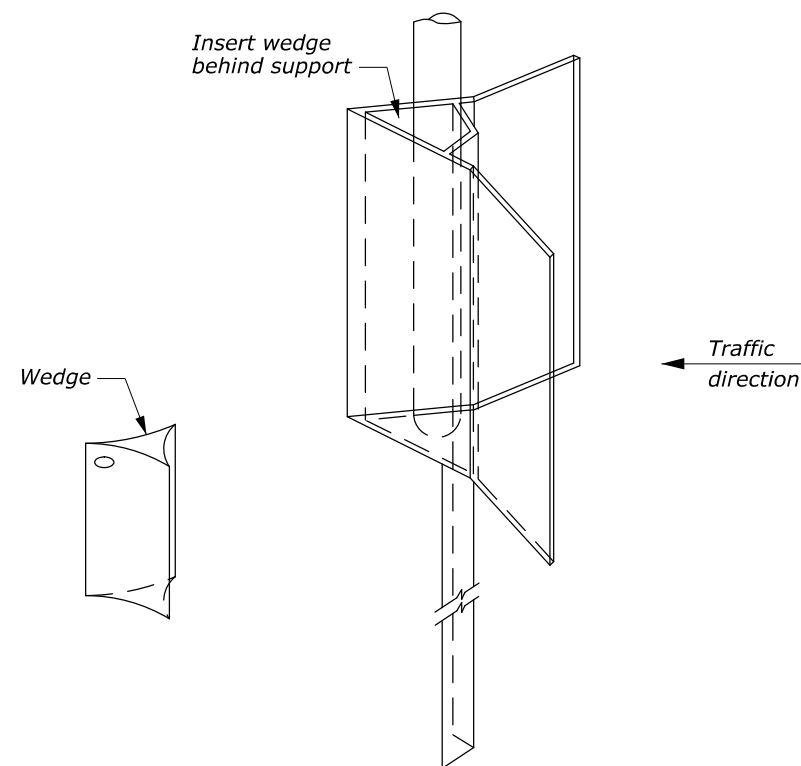
BRACKET MOUNT ALTERNATIVE

NOTE:

1. Opposite orientation with wedge on traffic approach side of post is allowable but not preferred.
2. Support frame and foundation are proprietary products commercially available.



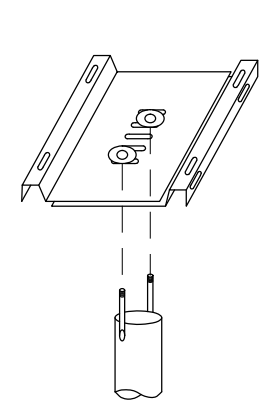
MAILBOX SUPPORT SYSTEM



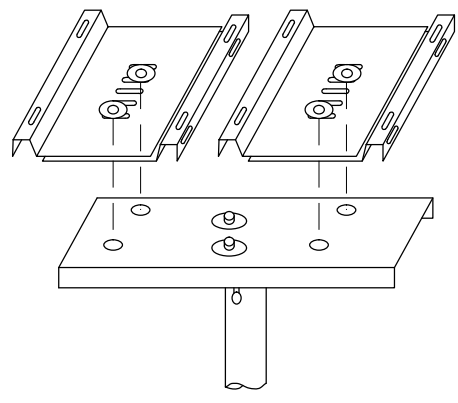
SUPPORT FRAME

NO SCALE

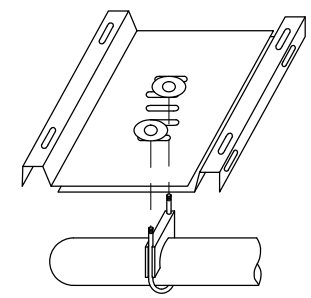
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
MAILBOX ASSEMBLY SERIES C	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 1/2010	W646-4



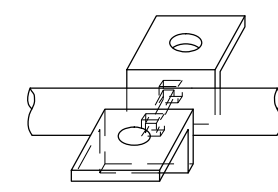
SINGLE MAILBOX MOUNT



DOUBLE MAILBOX MOUNT



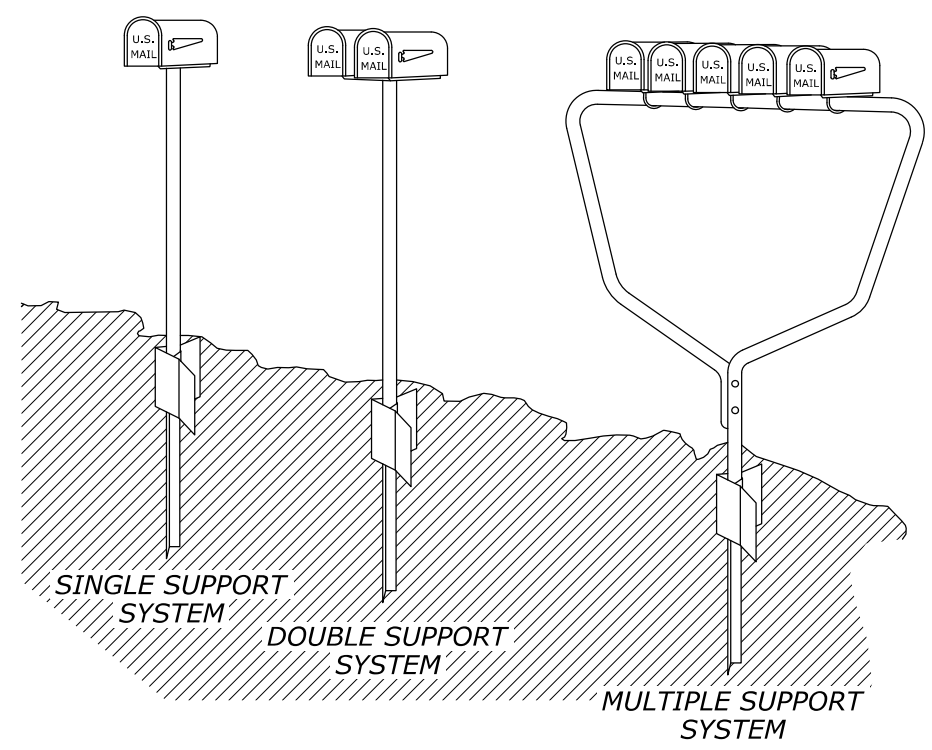
MULTIPLE MAILBOX MOUNT



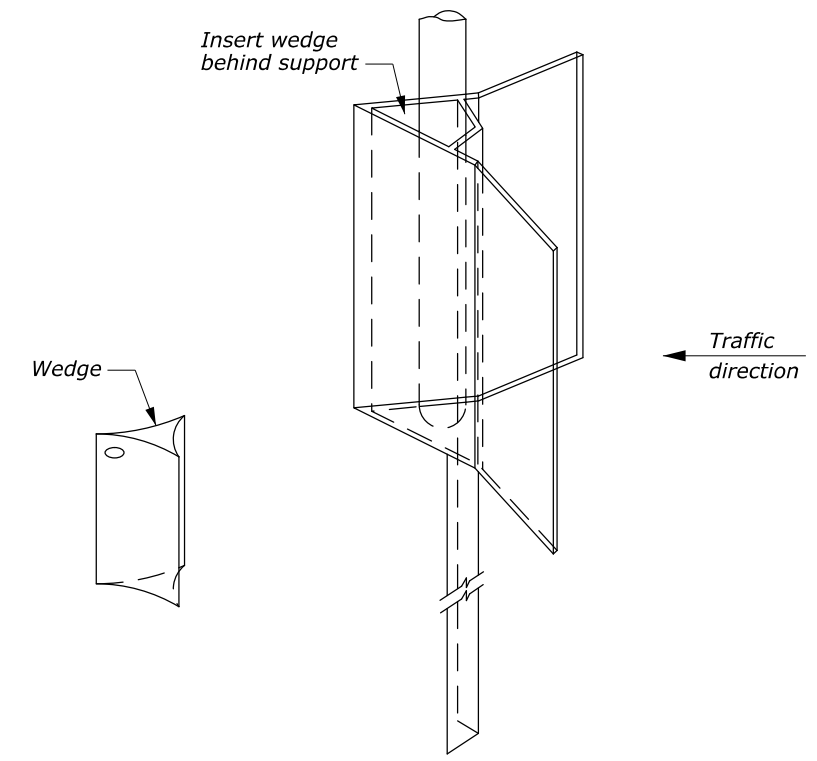
BRACKET MOUNT ALTERNATIVE

NOTE:

1. Opposite orientation with wedge on traffic approach side of post is allowable but not preferred.
2. Support frame and foundation are proprietary products commercially available.



MAILBOX SUPPORT SYSTEM



SUPPORT FRAME

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
MAILBOX ASSEMBLY SERIES C	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 1/2010	WM646-4