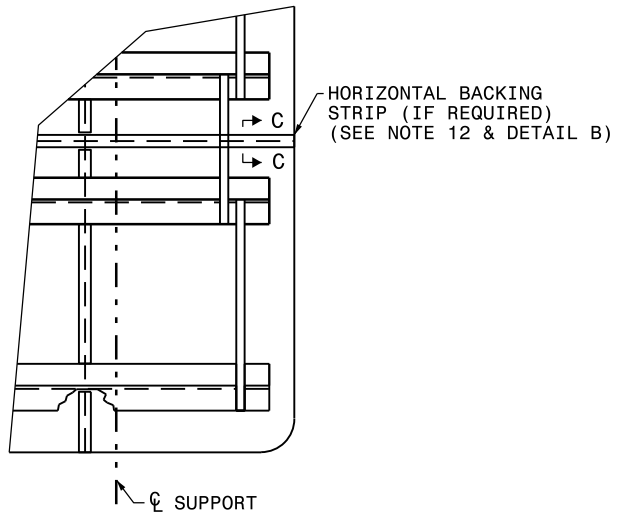


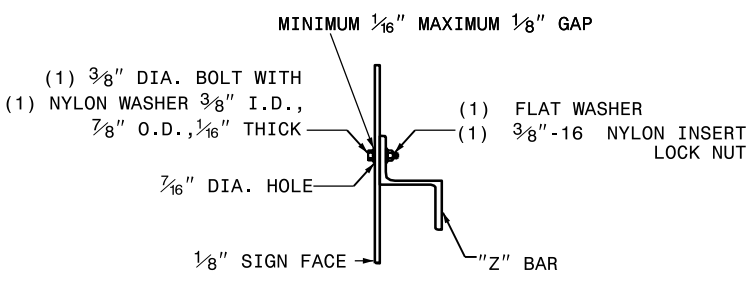
HORIZONTAL BACKING STRIP



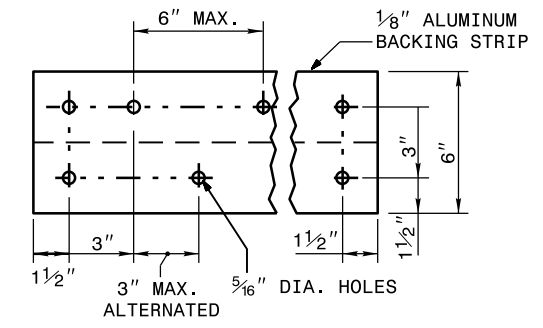
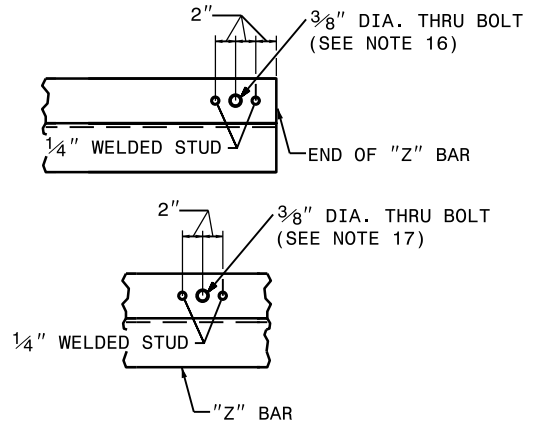
NOTES:

1. USE THE NUMBER AND SIZE OF SUPPORTS SHOWN ON THE SUPPORT CHART IN PROJECT PLANS.
2. FABRICATE SIGN PANEL SECTIONS WITH SHEETS 4'-0" WIDE. WHEN FABRICATING SIGNS WHICH ARE NOT MULTIPLES OF 4'-0" IN WIDTH, DO NOT CUT MORE THAN TWO SHEETS TO LESS THAN 4'-0" IN WIDTH. THESE PANELS SHALL NOT BE LESS THAN 1'-0" IN WIDTH.
3. SEE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, FOR TYPE OF MATERIAL TO BE USED FOR SIGN PANELS, HANGER ASSEMBLIES, AND SUPPORTS.
4. USE GALVANIZED STEEL FOR BACKING PLATES AND MOUNTING BOLTS.
5. SEE ROADWAY STANDARD 904.20 WHEN TYPE "B" SECONDARY SIGN MOUNTING IS REQUIRED.
6. DETAILS FOR TYPE "A" SECONDARY SIGNS SHALL BE THE SAME AS FOR TYPE "A" SIGNS.
7. THE VERTICAL DIMENSION BETWEEN PRIMARY AND SECONDARY SIGNS IS TWO (2) INCHES.
8. ADJUST STIFFENERS TO AVOID CONFLICT WITH SUPPORTS.
9. SEE ROADWAY STANDARD 901.70 FOR SUPPORT AND "Z" BAR SPACING.
10. FABRICATE SIGNS TALLER THAN 12'-0" AS TWO SEPARATE SIGNS WITH A HORIZONTAL SPLICE. LOCATE STRINGERS ON EACH SECTION OF THE SIGN BY THE SIGN STRINGER CHART. (SEE ROADWAY STANDARD 901.70)
11. FABRICATE SIGNS TALLER THAN 12'-0" BUT SHORTER THAN 14'-6" WITH A HORIZONTAL SPLICE LOCATED 7'-0" FROM BOTTOM OF SIGN.
12. FABRICATE SIGNS 14'-6" TALL AND TALLER WITH A HORIZONTAL SPLICE. LOCATE THE SPLICE AT LEAST HALF OF THE SIGN HEIGHT FROM THE BOTTOM AND AT LEAST 7'-0" FROM THE TOP.
13. THERE SHALL ONLY BE A 1/8" GAP BETWEEN THE VERTICAL BACKING STRIP AND THE "Z" BAR.
14. SEE ROADWAY STANDARD 901.80 FOR DETAILS SHOWING SIGN MOUNTING TO SUPPORTS.
15. PLACE NYLON WASHER UNDER HEAD OF 3/8" THRU BOLTS.
16. FABRICATE EACH SIGN WITH 3/8" DIA. THRU BOLT, 4" FROM EACH END OF EACH "Z" BAR THRU SIGN PANEL AND "Z" BAR. SEE DETAILS A & C.
17. FABRICATE EACH SIGN WITH 3/8" DIA. THRU BOLT CENTERED IN EACH PANEL THRU THE TOP AND BOTTOM "Z" BAR. CENTERED THRU BOLT REQUIRED IN END PANELS GREATER THAN 2'-0" WIDE. SEE DETAILS A & C.
18. THRU BOLTS WILL HAVE A MINIMUM 1/16" TO MAXIMUM 1/8" GAP

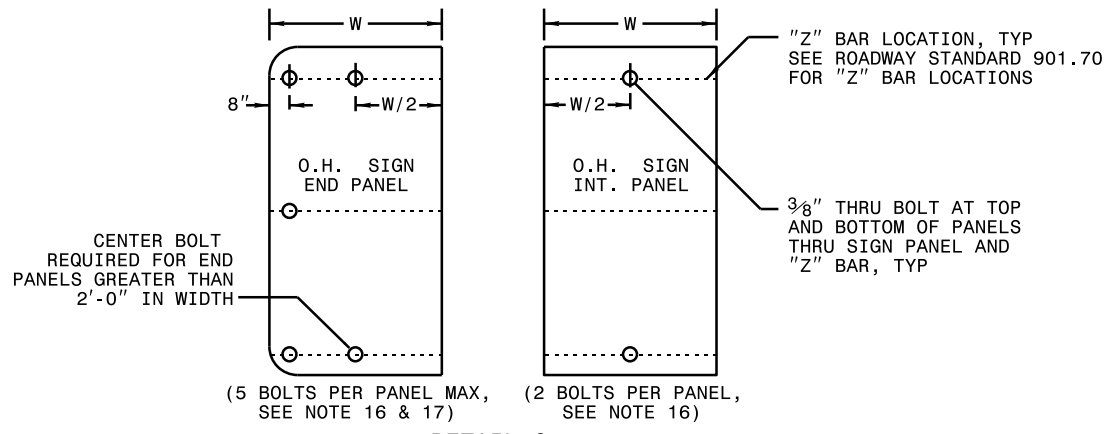
1-18



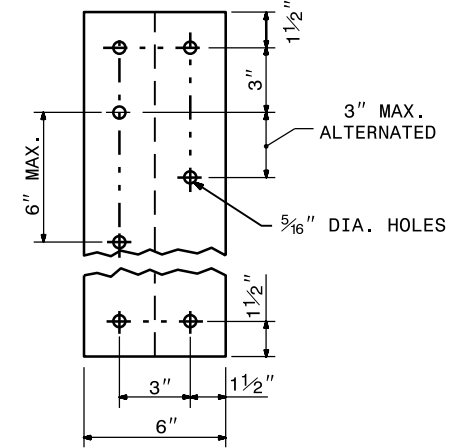
DETAIL A
THRU-BOLT CONNECTION



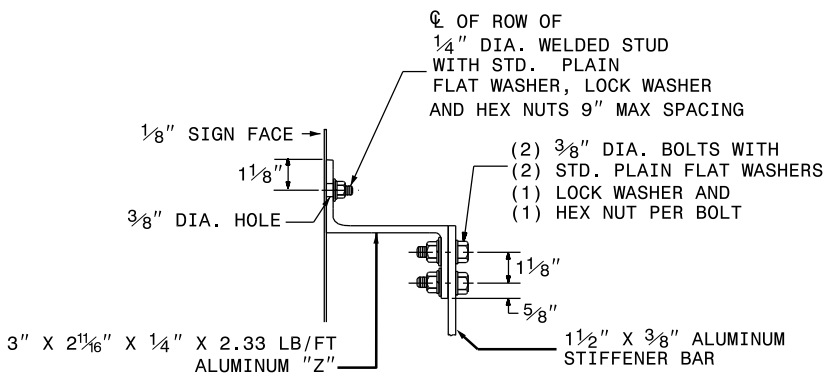
DETAIL B
TYPICAL HORIZ. JOINT HOLE PATTERN



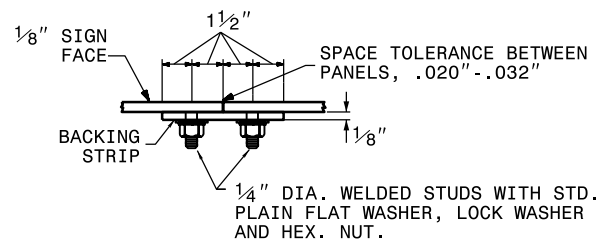
DETAIL C
THRU-BOLT LOCATIONS



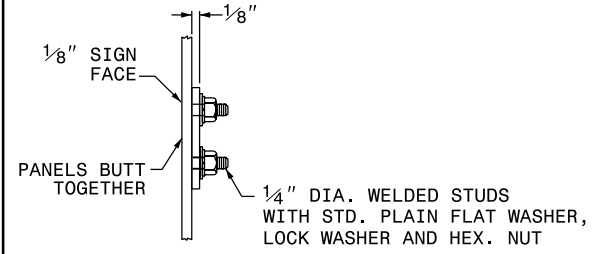
DETAIL D
BACKING STRIP HOLE PATTERN



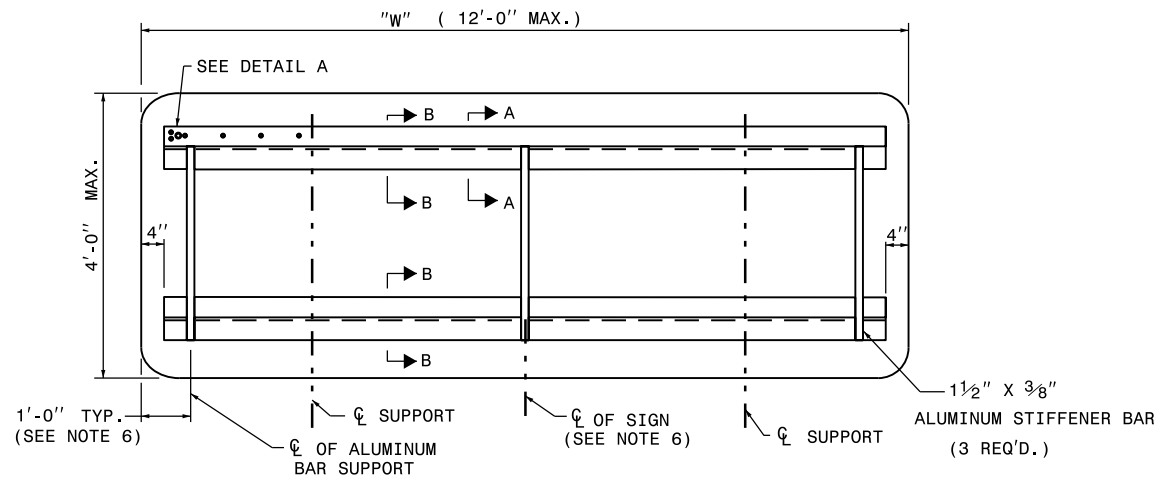
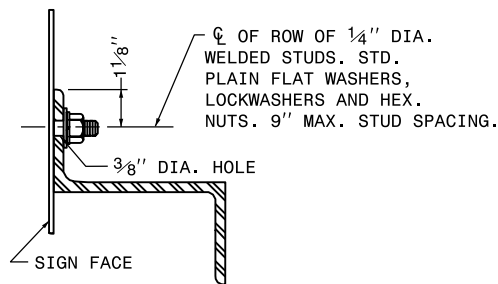
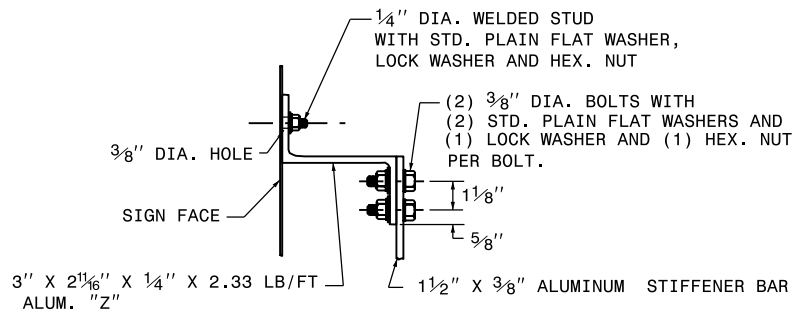
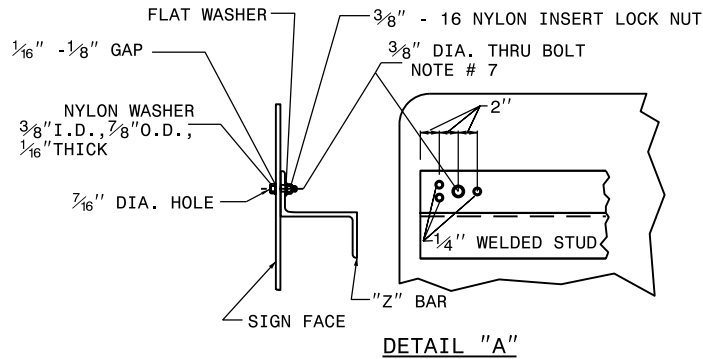
SECTION A-A



SECTION B-B



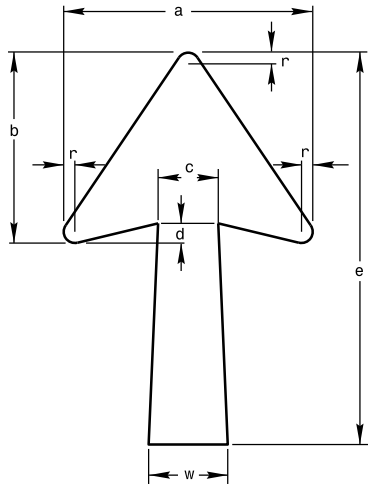
SECTION C-C



NOTES:

1. USE NUMBER AND SIZE OF SUPPORTS SHOWN ON SUPPORT CHART IN PROJECT PLAN SHEETS.
2. SEE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR THE TYPE OF MATERIAL TO BE USED FOR SIGN PANELS, HANGER ASSEMBLIES AND SUPPORTS.
3. FURNISH ALL MOUNTING HARDWARE.
4. USE GALVANIZED STEEL FOR BACKING PLATES AND MOUNTING BOLTS.
5. THE VERTICAL DIMENSION BETWEEN PRIMARY AND SECONDARY SIGNS IS TWO (2) INCHES.
6. ADJUST STIFFENERS TO AVOID CONFLICT WITH SUPPORTS.
7. FABRICATE EACH SIGN WITH A $\frac{3}{8}$ " DIA. BOLT 4" FROM EACH END OF EACH "Z" BAR THRU SIGN PANEL AND "Z" BAR.
8. SEE ROADWAY STANDARD 901.70 FOR SUPPORT AND "Z" BAR SPACING.
9. SEE ROADWAY STANDARD 901.80 FOR DETAILS SHOWING SIGN MOUNTING TO SUPPORTS.
10. PLACE NYLON WASHER UNDER HEAD OF $\frac{3}{8}$ " THRU BOLT.
11. THRU BOLTS WILL HAVE A MINIMUM $\frac{1}{16}$ " TO MAXIMUM $\frac{1}{8}$ " GAP.

DETAIL OF INTERSTATE ARROW



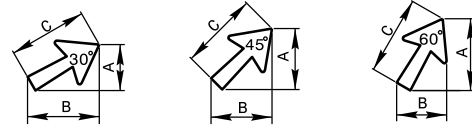
INTERSTATE TYPE "A" ARROW

LETTER SIZE (upper-case)	Arrow Dimensions in Inches						
	a	b	c	d	e	r	w
8"	15.13"	11.56"	3.75"	1.31"	25"	.81"	5"
10"-13.33"	18.25"	14"	4.50"	1.50"	30"	.75"	6"
15"CAPS-20"UC	22.25"	17"	5.38"	1.75"	35"	1"	7.06"

INTERSTATE TYPE "B" ARROW

LETTER SIZE (upper-case)	Arrow Dimensions in Inches						
	a	b	c	d	e	r	w
8"	15.13"	11.56"	3.75"	1.31"	17"	.81"	4.31"
10"-13.33"	18.25"	14"	4.50"	1.50"	20"	.75"	5.13"
15"CAPS-20"UC	22.25"	17"	5.38"	1.75"	25"	1"	6.19"

DETAIL OF DIAGONAL INTERSTATE ARROWS
FOR TYPE "A" & "B" SIGNS



INTERSTATE TYPE "A" ARROW

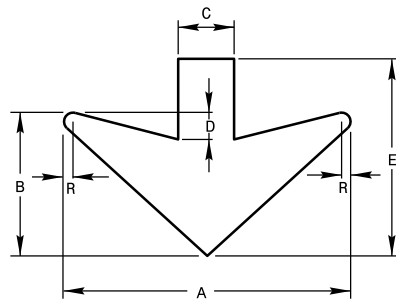
ANGLE Δ	ARROW SIZE TYPE "A"	A	B	C
30°	8" CAPS	15.88"	23"	25"
	10.67"-13.33"U.C.10"-12"CAPS	19"	27.50"	30"
	15" CAPS - 20" U.C.	22.38"	32.25"	35"
45°	8" CAPS	19.63"	19.63"	25"
	10.67"-13.33"U.C.10"-12"CAPS	23.50"	23.50"	30"
	15" CAPS - 20" U.C.	27.50"	27.50"	35"
60°	8" CAPS	23"	15.88"	25"
	10.67"-13.33"U.C.10"-12"CAPS	27.50"	19"	30"
	15" CAPS - 20" U.C.	32.25"	22.38"	35"

INTERSTATE TYPE "B" ARROW

ANGLE Δ	ARROW SIZE TYPE "B"	A	B	C
30°	8" CAPS	13.25"	15.88"	17"
	10.67"-13.33"U.C.10"-12"CAPS	16"	18.63"	20"
	15" CAPS - 20" U.C.	19.50"	23.25"	25"
45°	8" CAPS	13.75"	13.75"	17"
	10.67"-13.33"U.C.10"-12"CAPS	16.25"	16.25"	20"
	15" CAPS - 20" U.C.	20.13"	20.13"	25"
60°	8" CAPS	15.88"	13.25"	17"
	10.67"-13.33"U.C.10"-12"CAPS	18.63"	16"	20"
	15" CAPS - 20" U.C.	23.25"	19.50"	25"

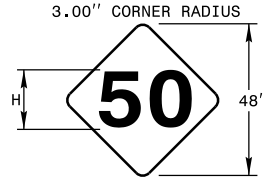
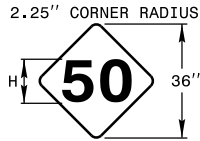
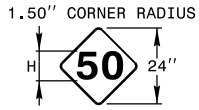
TYPE "C" ARROWS

ARROW SIZE	Arrow Dimensions in Inches					
	A	B	C	D	E	R
1/2 "C"	16"	8"	3.25"	1.50"	11"	.50"
2/3 "C"	21.31"	10.69"	4.31"	2"	14.69"	.69"
3/4 "C"	24"	12"	4.88"	2.25"	16.50"	.75"
STANDARD "C"	32"	16"	6.50"	3"	22"	1"



DETAIL OF TYPE "C" ARROW

DETAIL OF STATE SHIELDS



24" N.C. SHIELDS

NO. DIGITS	LETTER SERIES	LETTER HEIGHT "H"
1	"D"	12"
2	"C" OR "D"	10"
3	"C" OR "D"	7"
3	"C" OR "D"	8"

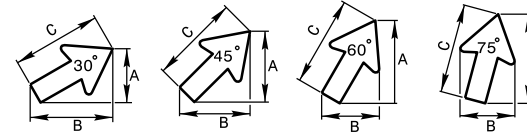
36" N.C. SHIELDS

NO. DIGITS	LETTER SERIES	LETTER HEIGHT "H"
1	"D"	18"
2	"C" OR "D"	15"
3	"C" OR "D"	12"
3	"D"	10"

48" N.C. SHIELDS

NO. DIGITS	LETTER SERIES	LETTER HEIGHT "H"
1	"D"	24"
2	"D"	20"
2	"D"	18"
3	"C" OR "D"	14"

DETAIL OF DIAGONAL ARROWS FOR TYPE "D" SIGNS



5" ARROW

ANGLE Δ	A	B	C
30°	4.95"	6.96"	7.5"
45°	5.97"	5.97"	7.5"
60°	6.96"	4.95"	7.5"
75°	7.49"	4.95"	7.5"

6" ARROW

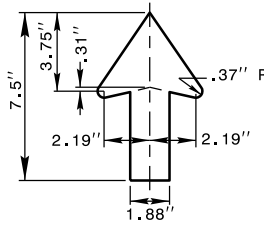
ANGLE Δ	A	B	C
30°	5.94"	8.36"	9"
45°	7.16"	7.16"	9"
60°	8.36"	5.94"	9"
75°	8.98"	5.95"	9"

8" ARROW

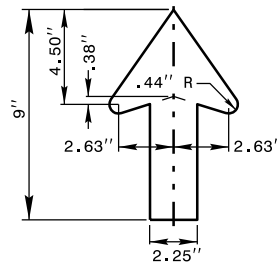
ANGLE Δ	A	B	C
30°	7.83"	11.14"	12"
45°	9.55"	9.55"	12"
60°	11.14"	7.83"	12"
75°	11.98"	7.88"	12"

10" ARROW

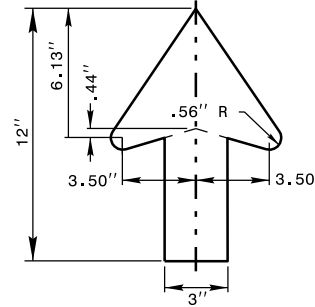
ANGLE Δ	A	B	C
30°	9.79"	13.93"	15"
45°	11.93"	11.93"	15"
60°	13.93"	9.79"	15"
75°	14.97"	9.83"	15"



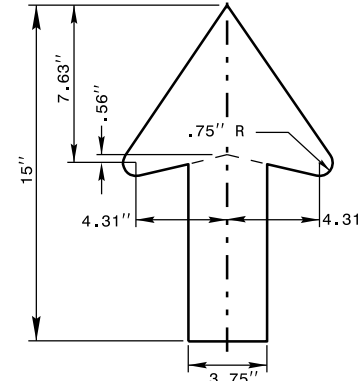
DETAIL OF 5" ARROW



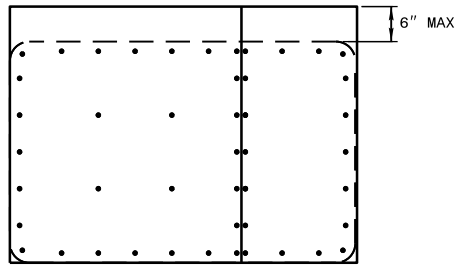
DETAIL OF 6" ARROW



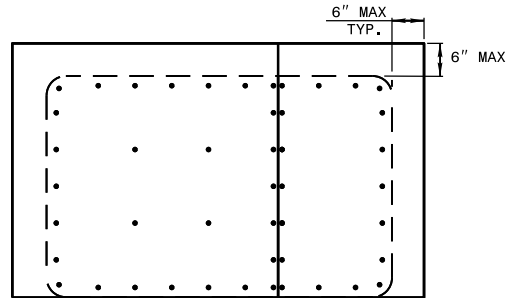
DETAIL OF 8" ARROW



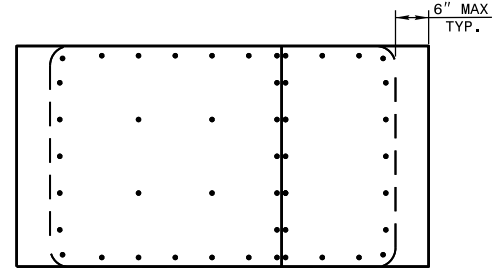
DETAIL OF 10" ARROW



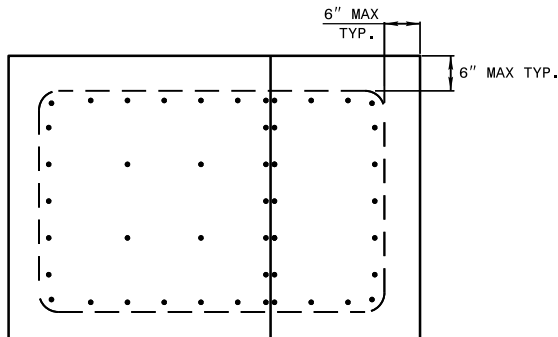
IF OVERLAYING SIGN OVERLAPS SIGN ON TOP ONLY
DETAIL NO.1



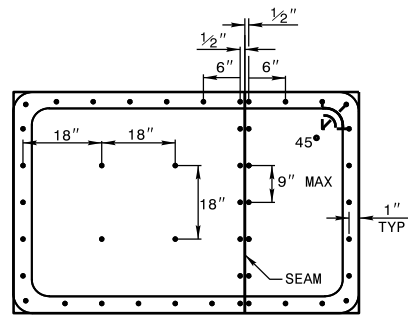
IF OVERLAYING SIGN OVERLAPS SIGN ON TOP AND SIDES
DETAIL NO.2



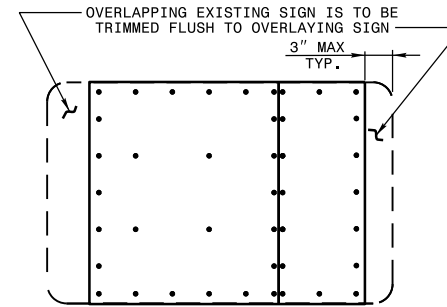
IF OVERLAYING SIGN OVERLAPS SIGN ON TWO SIDES
DETAIL NO.3



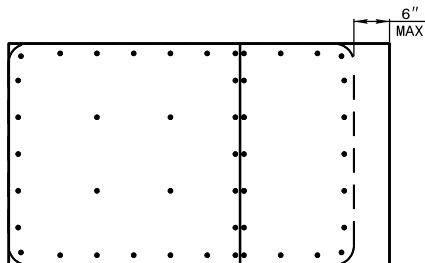
IF OVERLAYING SIGN OVERLAPS SIGN ON FOUR SIDES
DETAIL NO.4
(NOT TO BE USED ON OVERHEAD SIGNS)



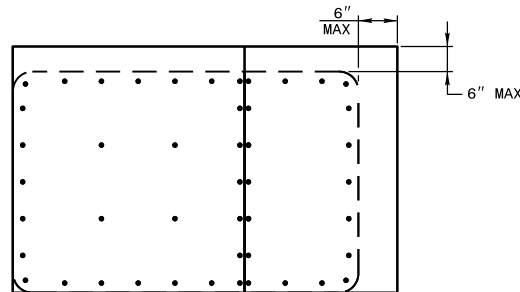
TYPICAL RIVET SPACING FOR OVERLAY SIGNS
DETAIL NO.5



IF EXISTING SIGN OVERLAPS OVERLAYING SIGN
DETAIL NO.6



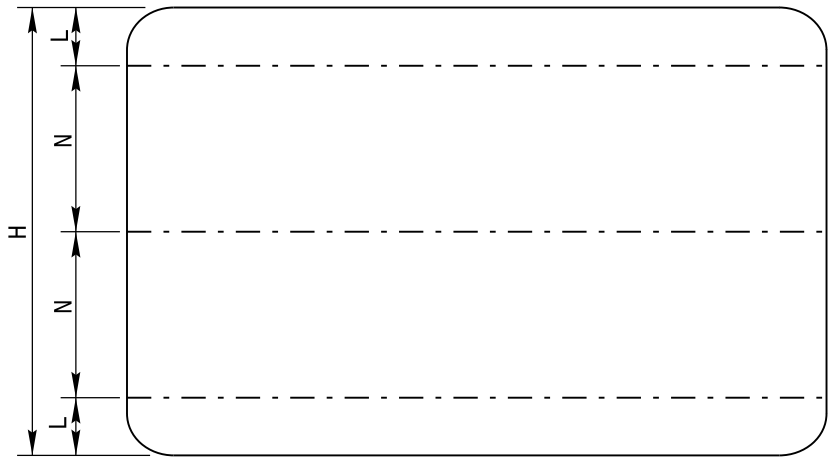
IF OVERLAYING SIGN OVERLAPS SIGN ON ONE SIDE
DETAIL NO.7



IF OVERLAYING SIGN OVERLAPS SIGN ON TOP AND ONE SIDE
DETAIL NO.8

NOTES:

1. A COMPLETE OVERLAY OF AN EXISTING O.H. SIGN IS NOT PERMISSIBLE



NOTES:

1. FABRICATE SIGNS TALLER THAN 12'-0" AS TWO SEPARATE SIGNS WITH A HORIZONTAL SPLICE.
 2. FABRICATE SIGNS TALLER THAN 12'-0" BUT SHORTER THAN 14'-6" WITH A HORIZONTAL SPLICE LOCATED 7'-0" FROM BOTTOM OF SIGN.
 3. FABRICATE SIGNS TALLER THAN 14'-6" WITH A HORIZONTAL SPLICE. LOCATE THE SPLICE AT LEAST HALF THE SIGN HEIGHT FROM THE BOTTOM AND AT LEAST 7'-0" FROM THE TOP.
- △ SUPPORT SPACING NOT APPLICABLE TO OVERHEAD SIGNS.

SECTION HEIGHTS FOR
SIGNS TALLER THAN 12' - 0"

HEIGHT	BOTTOM SECTION	HEIGHT	BOTTOM SECTION
14' - 6"	7' - 6"	19' - 6"	10' - 0"
15' - 0"	7' - 6"	20' - 0"	10' - 0"
15' - 6"	8' - 0"	20' - 6"	10' - 6"
16' - 0"	8' - 0"	21' - 0"	10' - 6"
16' - 6"	8' - 6"	21' - 6"	11' - 0"
17' - 0"	8' - 6"	22' - 0"	11' - 0"
17' - 6"	9' - 0"	22' - 6"	11' - 6"
18' - 0"	9' - 0"	23' - 0"	11' - 6"
18' - 6"	9' - 6"	23' - 6"	12' - 0"
19' - 0"	9' - 6"	24' - 0"	12' - 0"

NUMBER OF STRINGERS REQUIRED

0.080 AND 0.125 SIGN FACES

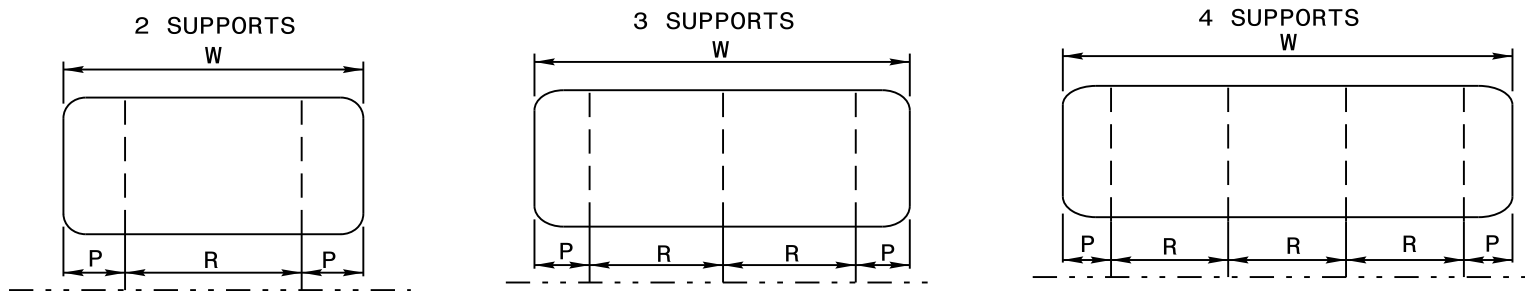
NUMBER OF STRINGERS	MAXIMUM SIGN HEIGHT	
	0.080 FACE	0.125 FACE
2	4' 6"	7' 0"
3	7' 0"	12' 0"
4	10' 0"	14' 0"
5	12' 0"	14' 6"
6	14' 0"	24' 0"
7	17' 0"	
8	20' 0"	
9	22' 0"	
10	24' 0"	

HEIGHT (H)	△ 2 STRINGERS L = .207H N = .586H		△ 3 STRINGERS L = .145H N = .355H		△ 4 STRINGERS L = .107H N = .262H		△ 5 STRINGERS L = .100H N = .200H		
	IN. FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	
24	2 - 0	0 - 6	1 - 0						
30	2 - 6	0 - 8	1 - 2						
36	3 - 0	0 - 8	1 - 8						
42	3 - 6	0 - 8.5	2 - 1						
48	4 - 0	0 - 10.0	2 - 4						
54	4 - 6	0 - 11.0	2 - 8						
60	5 - 0	1 - 0.5	2 - 11	0 - 9.0	1 - 9.0				
66	5 - 6	1 - 1.5	3 - 3	0 - 10.0	1 - 11.0				
72	6 - 0	1 - 3.0	3 - 6	0 - 10.5	2 - 1.5				
78	6 - 6	1 - 4.0	3 - 10	0 - 11.5	2 - 3.5				
84	7 - 0	1 - 5.5	4 - 1	1 - 0.0	2 - 6.0	0 - 9.0	1 - 10.0		
90	7 - 6			1 - 1.0	2 - 8.0	0 - 9.0	2 - 0.0		
96	8 - 0			1 - 2.0	2 - 10.0	0 - 10.5	2 - 1.0		
102	8 - 6			1 - 3.0	3 - 0.0	0 - 10.5	2 - 3.0		
108	9 - 0			1 - 3.5	3 - 2.5	1 - 0.0	2 - 4.0		
114	9 - 6			1 - 4.5	3 - 4.5	1 - 0.0	2 - 6.0		
120	10 - 0			1 - 5.5	3 - 6.5	1 - 1.5	2 - 7.0	1 - 0.0	2 - 0.0
126	10 - 6			1 - 6.5	3 - 8.5			1 - 1.0	2 - 1.0
132	11 - 0			1 - 7.0	3 - 11.0			1 - 1.0	2 - 2.5
138	11 - 6			1 - 8.0	4 - 1.0			1 - 2.0	2 - 3.5
144	12 - 0			1 - 9.0	4 - 3.0			1 - 2.0	2 - 5.0

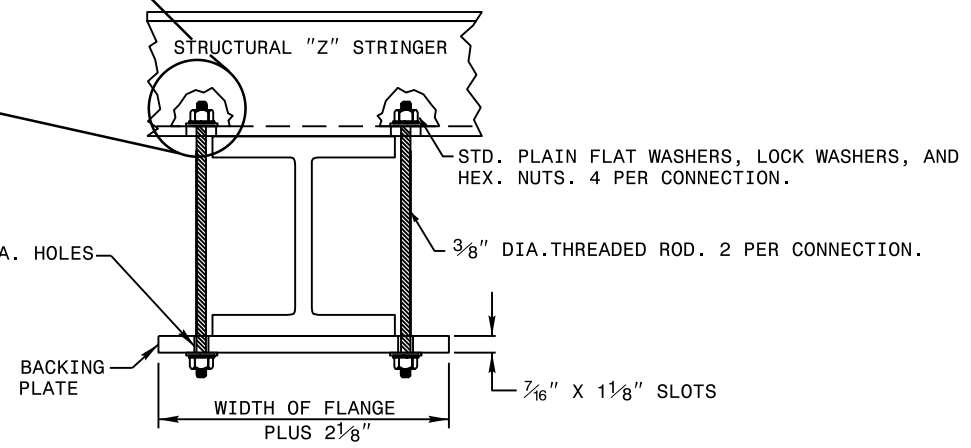
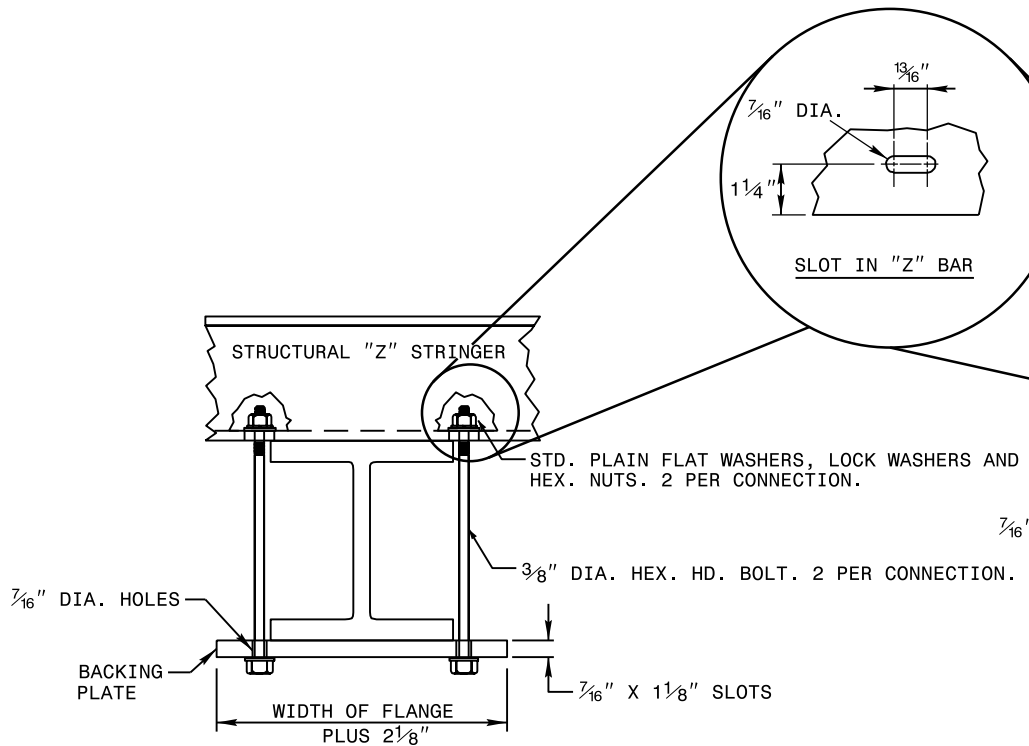
STRINGER SPACING

WIDTH (W)	△ 2 SUPPORTS P= .207W R= .586W		△ 3 SUPPORTS P= .145W R= .355W		△ 4 SUPPORTS P= .107W R= .262W		WIDTH (W)	△ 2 SUPPORTS P= .207W R= .586W		△ 3 SUPPORTS P= .145W R= .355W		△ 4 SUPPORTS P= .107W R= .262W		
	IN. FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.		IN. FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.	FT.-IN.
24	2 - 0	0 - 6 *	1 - 0 *				210	17 - 6	3 - 7.5	10 - 3	2 - 6.5	6 - 2.5	1 - 10.5	4 - 7.0
30	2 - 6	0 - 8 *	1 - 2 *				# 216	18 - 0	3 - 8.5	10 - 7 *	2 - 7.5	6 - 4.5	1 - 10.5*	4 - 9.0*
36	3 - 0	0 - 8	1 - 8				222	18 - 6			2 - 8.0	6 - 7.0	2 - 0.0	4 - 10.0
42	3 - 6	0 - 8.5	2 - 1 *				228	19 - 0			2 - 9.0	6 - 9.0	2 - 0.0*	5 - 0.0*
48	4 - 0	0 - 10.0	2 - 4				234	19 - 6			2 - 10.0	6 - 11.0	2 - 1.5*	5 - 1.0*
54	4 - 6	0 - 11.0	2 - 8 *				240	20 - 0			2 - 11.0	7 - 1.0	2 - 1.5	5 - 3.0
60	5 - 0	1 - 0.5	2 - 11				246	20 - 6			2 - 11.5	7 - 3.5	2 - 3.0*	5 - 4.0*
66	5 - 6	1 - 1.5	3 - 3 *				252	21 - 0			3 - 0.5	7 - 5.5	2 - 3.0	5 - 6.0
72	6 - 0	1 - 3.0	3 - 6				258	21 - 6			3 - 1.5	7 - 7.5	2 - 3.0*	5 - 8.0*
78	6 - 6	1 - 4.0	3 - 10 *				264	22 - 0			3 - 2.5	7 - 9.5	2 - 4.5*	5 - 9.0
84	7 - 0	1 - 5.5	4 - 1				270	22 - 6			3 - 3.0	8 - 0.0	2 - 4.5*	5 - 11.0*
90	7 - 6	1 - 6.5	4 - 5 *	1 - 1.0	2 - 8.0		276	23 - 0			3 - 4.0	8 - 2.0	2 - 6.0*	6 - 0.0*
96	8 - 0	1 - 8.0	4 - 8 *	1 - 2.0	2 - 10.0		282	23 - 6			3 - 5.0	8 - 4.0	2 - 6.0	6 - 2.0
102	8 - 6	1 - 9.0	5 - 0	1 - 3.0	3 - 0.0		288	24 - 0			3 - 6.0	8 - 6.0	2 - 7.5*	6 - 3.0*
108	9 - 0	1 - 10.5	5 - 3 *	1 - 3.5	3 - 2.5		294	24 - 6			3 - 6.5	8 - 8.5	2 - 7.5	6 - 5.0
114	9 - 6	1 - 11.5	5 - 7	1 - 4.5	3 - 4.5		300	25 - 0			3 - 7.5	8 - 10.5	2 - 7.5*	6 - 7.0*
120	10 - 0	2 - 1.0	5 - 10 *	1 - 5.5	3 - 6.5		306	25 - 6			3 - 8.5	9 - 0.5	2 - 9.0*	6 - 8.0
126	10 - 6	2 - 2.0	6 - 2	1 - 6.5	3 - 8.5		312	26 - 0			3 - 9.0	9 - 3.0	2 - 9.0*	6 - 10.0*
132	11 - 0	2 - 3.5	6 - 5 *	1 - 7.0	3 - 11.0		318	26 - 6			3 - 10.0	9 - 5.0	2 - 10.5*	6 - 11.0*
138	11 - 6	2 - 4.5	6 - 9	1 - 8.0	4 - 1.0		324	27 - 0			3 - 11.0	9 - 7.0	2 - 10.5	7 - 1.0
144	12 - 0	2 - 6.0	7 - 0 *	1 - 9.0	4 - 3.0	1 - 3.0*	330	27 - 6			4 - 0.0	9 - 9.0	3 - 0.0*	7 - 2.0*
150	12 - 6	2 - 7.0	7 - 4	1 - 10.0	4 - 5.0*	1 - 4.5*	336	28 - 0			4 - 0.5	9 - 11.5	3 - 0.0	7 - 4.0
156	13 - 0	2 - 8.5	7 - 7 *	1 - 10.5	4 - 7.5	1 - 4.5	342	28 - 6			4 - 1.5	10 - 1.5	3 - 0.0*	7 - 6.0*
162	13 - 6	2 - 9.5	7 - 11	1 - 11.5	4 - 9.5	1 - 6.0*	348	29 - 0			4 - 2.5	10 - 3.5	3 - 1.5*	7 - 7.0
168	14 - 0	2 - 11.0	8 - 2 *	2 - 0.5	4 - 11.5	1 - 6.0	354	29 - 6			4 - 3.5	10 - 5.5	3 - 1.5*	7 - 9.0*
174	14 - 6	3 - 0.0	8 - 6	2 - 1.0	5 - 2.0	1 - 6.0*	360	30 - 0			4 - 4.0	10 - 8.0	3 - 3.0*	7 - 10.0*
180	15 - 0	3 - 1.5	8 - 9 *	2 - 2.0	5 - 4.0	1 - 7.5	366	30 - 6			4 - 5.0	10 - 10.0	3 - 3.0	8 - 0.0
186	15 - 6	3 - 2.5	9 - 1	2 - 3.0	5 - 6.0	1 - 7.5*	372	31 - 0			4 - 6.0	11 - 0.0	3 - 4.5*	8 - 1.0*
192	16 - 0	3 - 3.5	9 - 5 *	2 - 4.0	5 - 8.0	1 - 9.0*	378	31 - 6			4 - 7.0	11 - 2.0	3 - 4.5	8 - 3.0
198	16 - 6	3 - 5.0	9 - 8	2 - 4.5	5 - 10.5	1 - 9.0	384	32 - 0			4 - 7.5	11 - 4.5	3 - 4.5*	8 - 5.0*
204	17 - 0	3 - 6.0	10 - 0 *	2 - 5.5	6 - 0.5	1 - 10.5*								

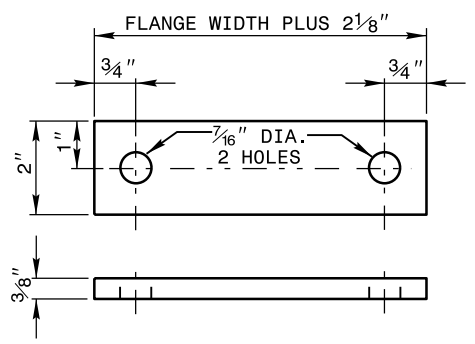
VALUES HAVE BEEN ROUNDED TO NEAREST 1/2 INCH.
 * THESE VALUES HAVE BEEN ADJUSTED TO BALANCE SPACING.
 # MAXIMUM WIDTH FOR 2 SUPPORTS. 250 SQ. FT. MAX. AREA FOR 2 SUPPORTS.
 △ SUPPORTS SPACING NOT APPLICABLE TO OVERHEAD SIGNS.



SIGN SUPPORT SPACING



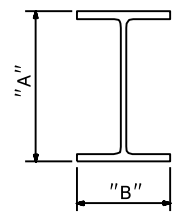
**BACKING PLATE
DETAIL**



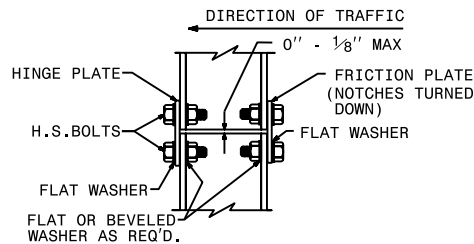
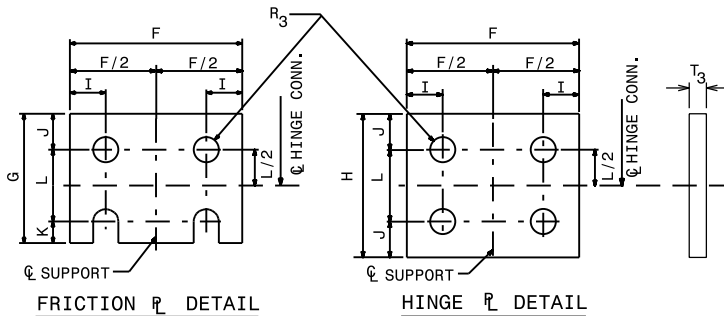
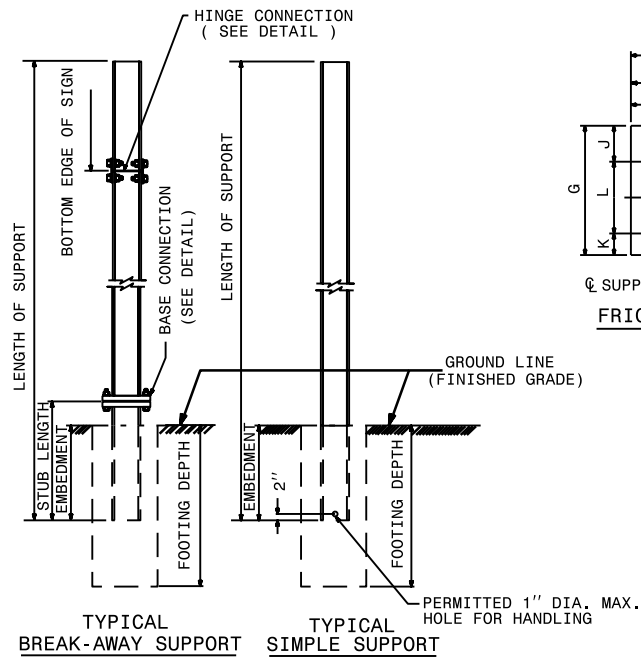
NOTES:

1. THE SUPPORT MOUNTING DETAIL SHOWS A "W" OR "S" BEAM. THIS DETAIL IS ALSO USED FOR MOUNTING SIGNS TO WOOD OR SQUARE TUBE SUPPORTS.
2. USE A36 STEEL FOR BACKING PLATES GALVANIZED IN ACCORDANCE WITH ASTM A123.
3. SEE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR TYPE OF MATERIAL TO BE USED FOR SIGN HANGER ASSEMBLIES AND SUPPORTS.
4. USE GALVANIZED STEEL FOR MOUNTING BOLTS AND THREADED RODS IN COMPLIANCE WITH ASTM A307 AND ASTM F2329.

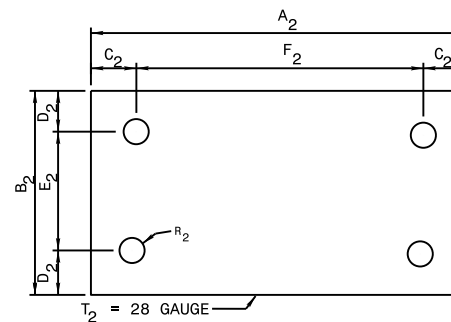
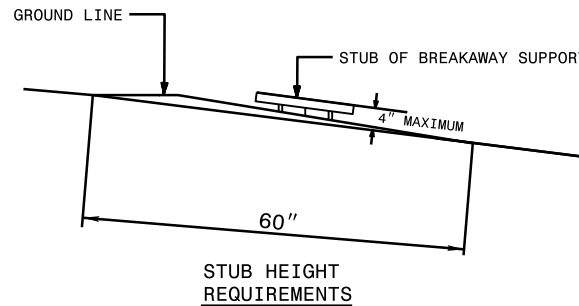
SIGN SUPPORTS SECTION DIMENSIONS



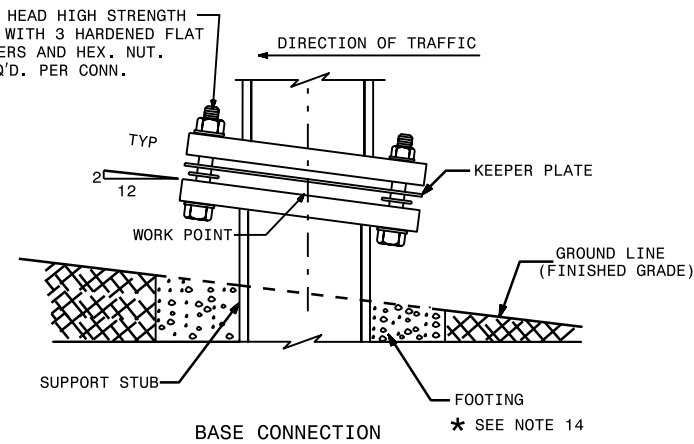
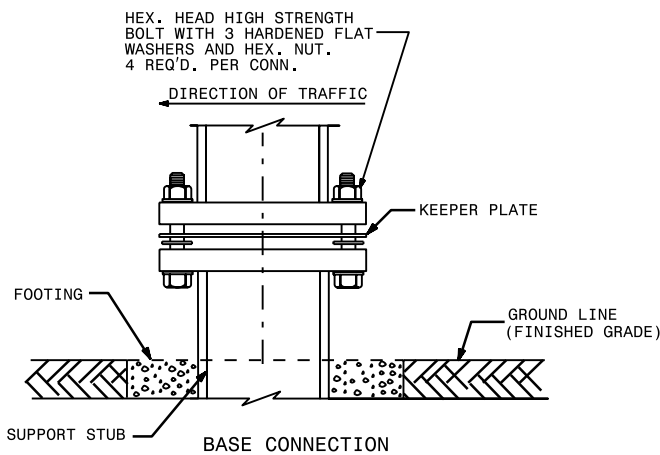
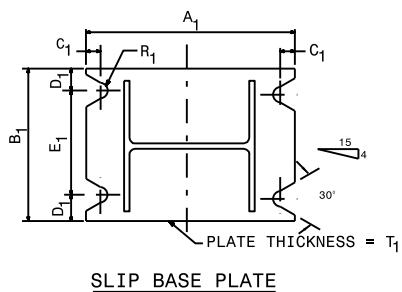
SECTION	A	B
S3 X 5.7	3"	2 3/8"
S4 X 7.7	4"	2 5/8"
W6 X 9	6"	4"
W6 X 12	6"	4"
W6 X 16	6 1/4"	4"
W8 X 18	8 1/8"	5 1/4"
W8 X 21	8 1/4"	5 1/4"
W10 X 22	10 1/8"	5 3/4"
W10 X 26	10 3/8"	5 3/4"
W12 X 26	12 1/4"	6 1/2"
W14 X 30	13 7/8"	6 3/4"
W16 X 31	15 7/8"	5 1/2"
W18 X 35	17 3/4"	6"
W18 X 40	17 7/8"	6"
W21 X 44	20 5/8"	6 1/2"



HINGE CONNECTION

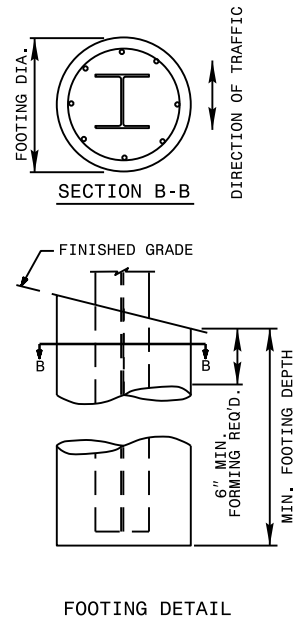
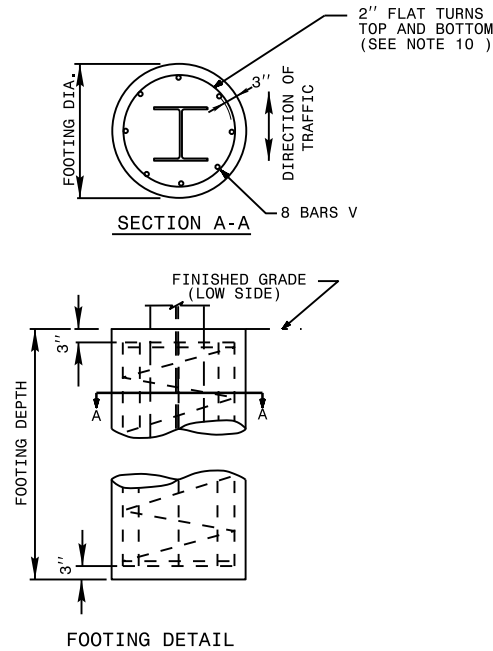


KEEPER PLATE



SEE SHEET 2 OF 3 FOR
 BASE CONNECTION DATA
 HINGE CONNECTION DATA
 & FOUNDATION DATA.
 SEE SHEET 3 OF 3 FOR
 GENERAL NOTES.

BEAM SHAPE	SLIP BASE PLATE DATA								KEEPER PLATE DATA						HINGE CONNECTION DATA							BREAK AWAY SUPPORT WEIGHT CONSTANT LBS.				
	BOLT SIZE	A ₁	B ₁	C ₁	D ₁	E ₁	T ₁	R ₁	A ₂	B ₂	C ₂	D ₂	E ₂	R ₂	T ₂	BOLT SIZE	F	G	H	I	J		K	L	R ₃	T ₃
S3X5.7	1/2"DIA.X 3/4"	7"	4"	1"	3/4"	2 1/2"	1"	9/32"	7"	4"	1"	3/4"	2 1/2"	9/32"	28 GAUGE	1/2"DIA.X1 3/4"	2 1/4"	3 1/2"	4"	1 1/2"	1"	1 1/2"	2"	9/32"	3/8"	18
S4X7.7	1/2"DIA.X 3/4"	8"	4"	1"	3/4"	2 1/2"	1"	9/32"	8"	4"	1"	3/4"	2 1/2"	9/32"	28 GAUGE	1/2"DIA.X1 3/4"	2 5/8"	3 1/2"	4"	1 1/2"	1"	1 1/2"	2"	9/32"	3/8"	20
W6X9	1/2"DIA.X 3/4"	10"	5"	1"	3/4"	3 1/2"	1"	9/32"	10"	5"	1"	3/4"	3 1/2"	9/32"	28 GAUGE	1/2"DIA.X1 3/4"	4"	3 1/2"	4"	3/4"	1"	1 1/2"	2"	9/32"	3/8"	32
W6X12	5/8"DIA.X 4"	11"	5"	1 1/4"	7/8"	3 1/4"	1 1/4"	1 1/32"	11"	5"	1 1/4"	7/8"	3 1/4"	1 1/32"	28 GAUGE	5/8"DIA.X 2"	4"	4"	4 1/2"	3/4"	1 1/8"	5/8"	2 1/4"	1 1/32"	3/8"	39
W6X16	5/8"DIA.X 4 1/2"	12"	6"	1 1/4"	7/8"	4 1/4"	1 1/2"	1 1/32"	12"	6"	1 1/4"	7/8"	4 1/4"	1 1/32"	28 GAUGE	5/8"DIA.X2 1/4"	4"	4"	4 1/2"	3/4"	1 1/8"	5/8"	2 1/4"	1 1/32"	1 1/2"	47
W8X18	5/8"DIA.X 4 1/2"	13 1/2"	6 1/2"	1 1/4"	7/8"	4 3/4"	1 1/2"	1 1/32"	13 1/2"	6 1/2"	1 1/4"	7/8"	4 3/4"	1 1/32"	28 GAUGE	5/8"DIA.X2 1/4"	5 1/4"	4"	4 1/2"	1"	1 1/8"	5/8"	2 1/4"	1 1/32"	1 1/2"	70
W8X21	3/4"DIA.X 4 1/2"	14"	7"	1 1/2"	1"	5"	1 1/2"	1 3/32"	14"	7"	1 1/2"	1"	5"	1 3/32"	28 GAUGE	3/4"DIA.X2 1/2"	5 1/4"	6"	7"	1"	1 3/4"	3/4"	3 1/2"	1 3/32"	1 1/2"	73
W10X22	3/4"DIA.X 4 1/2"	16"	8"	1 1/2"	1"	6"	1 1/2"	1 3/32"	16"	8"	1 1/2"	1"	6"	1 3/32"	28 GAUGE	3/4"DIA.X2 1/2"	5 3/4"	6"	7"	1"	1 3/4"	3/4"	3 1/2"	1 3/32"	1 1/2"	119
W10X26	3/4"DIA.X 5 1/2"	16 1/2"	8"	1 1/2"	1"	6"	1 3/4"	1 3/32"	16 1/2"	8"	1 1/2"	1"	6"	1 3/32"	28 GAUGE	3/4"DIA.X2 3/4"	5 3/4"	6"	7"	1"	1 3/4"	3/4"	3 1/2"	1 3/32"	5/8"	140
W12X26	3/4"DIA.X 5 1/2"	18 1/2"	9"	1 1/2"	1"	7"	1 3/4"	1 3/32"	18 1/2"	9"	1 1/2"	1"	7"	1 3/32"	28 GAUGE	3/4"DIA.X2 3/4"	6 1/2"	6"	7"	1"	1 3/4"	3/4"	3 1/2"	1 3/32"	5/8"	176
W14X30	1"DIA.X 6"	22"	9"	2"	1 1/2"	6"	2"	1 7/32"	22"	9"	2"	1 1/2"	6"	1 7/32"	28 GAUGE	1"DIA.X 3"	6 3/4"	7"	8"	1 1/4"	2"	1"	4"	1 7/32"	5/8"	205
W16X31	1"DIA.X 6"	24"	9"	2"	1 1/2"	6"	2"	1 7/32"	24"	9"	2"	1 1/2"	6"	1 7/32"	28 GAUGE	1"DIA.X 3"	5 1/2"	7"	8"	1 1/4"	2"	1"	4"	1 7/32"	3/4"	223
W18X35	1"DIA.X 6"	25"	9"	2"	1 1/2"	6"	2"	1 7/32"	25"	9"	2"	1 1/2"	6"	1 7/32"	28 GAUGE	1"DIA.X 3"	6"	7"	8"	1 1/4"	2"	1"	4"	1 7/32"	3/4"	243
W18X40	1"DIA.X 6 1/2"	26"	9"	2"	1 1/2"	6"	2 1/4"	1 7/32"	26"	9"	2"	1 1/2"	6"	1 7/32"	28 GAUGE	1"DIA.X3 1/2"	6"	7"	8"	1 1/4"	2"	1"	4"	1 7/32"	7/8"	278
W21X44	1"DIA.X 7"	29"	9"	2"	1 1/2"	6"	2 1/2"	1 7/32"	29"	9"	2"	1 1/2"	6"	1 7/32"	28 GAUGE	1"DIA.X3 1/2"	6 1/2"	7"	8"	1 1/4"	2"	1"	4"	1 7/32"	7/8"	310



FOUNDATION DATA *		
FOOTING DIAMETER	REINFORCEMENT	SPIRAL BAR
1'-6"	8 # 6 BARS	#3 BAR, 6" PITCH
2'	8 # 7 BARS	#3 BAR, 6" PITCH
2'-6"	8 # 9 BARS	#3 BAR, 6" PITCH
3'	8 # 11 BARS	#3 BAR, 6" PITCH
3'-6"	8 # 12 BARS	#3 BAR, 6" PITCH
4'	8 # 14 BARS	#3 BAR, 6" PITCH

* FOUNDATION DIMENSIONS ARE SHOWN IN PLANS

NOTES:

1. DESIGN CONFORMS WITH THE SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS - AASHTO.
2. USE MATERIALS, FABRICATE AND ERECT SIGNS AND SUPPORTS THAT CONFORM TO THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
3. USE HIGH STRENGTH BOLTS, NUTS AND WASHERS THAT CONFORM TO ASTM A-325 AND THAT ARE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR B695 CLASS 55.
4. USE BACKING PLATES, SLIP BASE PLATES, FRICTION PLATES, AND HINGE PLATES THAT CONFORM TO ASTM A-36 AND THAT ARE GALVANIZED IN ACCORDANCE WITH ASTM A-123 PRIOR TO GALVANIZING, GRIND SMOOTH ANY METAL PROJECTION BEYOND THE PLATE FACE.
KEEPER PLATES SHALL BE MANUFACTURED FROM 28 GAUGE SHEET STEEL THAT CONFORMS TO ASTM A-36 AND IS GALVANIZED IN ACCORDANCE WITH ASTM A-123
5. ASSEMBLE HINGE CONNECTIONS IN THE SHOP. THE SHOP SHALL TIGHTEN BOLTS BY USE OF EITHER A CALIBRATED POWER WRENCH OR A MANUAL TORQUE WRENCH. TIGHTEN EACH HINGE CONNECTION BOLT TO 1/3 PAST SNUG.
6. BASE PLATES DETAILS ARE FOR INSTALLATIONS ON THE RIGHT SHOULDER AND IN GORE AREAS.
7. ASSEMBLE UPPER SUPPORT TO STUB AS SHOWN IN DETAIL. SLIP BASE PLATES SHALL BE FILLET WELDED ONTO POSTS ALL AROUND THE STRUCTURAL SHAPE SO AS TO INSURE NO LOSS OF STRENGTH. ASSEMBLE IN EITHER SHOP OR FIELD. 28 GAUGE KEEPER PLATE IS PLACED BETWEEN SLIP BASE PLATES TO PREVENT BOLT SLIPPING. TIGHTEN BOLTS TO THE FOLLOWING PRESCRIBED TORQUE:

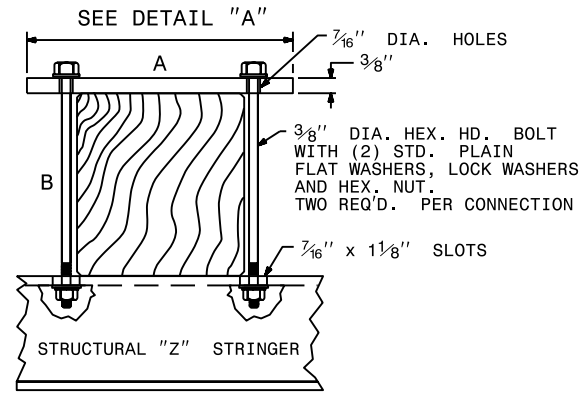
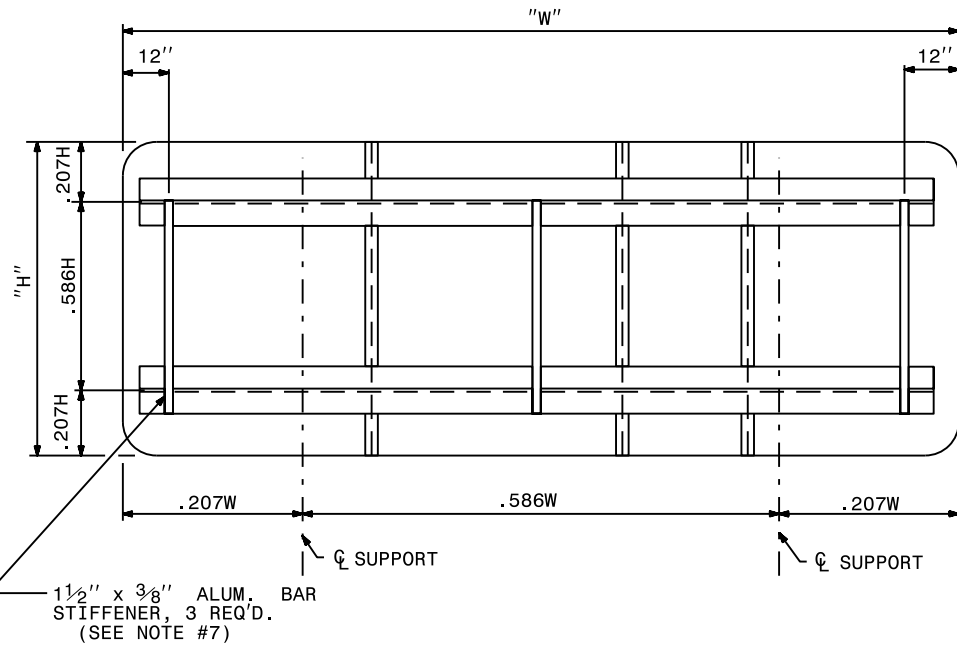
BOLT DIAMETER	TORQUE (LB. FT.)
1/2"	9
5/8"	22
3/8"	37
1"	48

COMPLETELY ASSEMBLE B/A POSTS PRIOR TO ERECTION. B/A POST TO BE SET IN ONE PIECE. AFTER SUPPORT HAS BEEN ERECTED AND THE CONCRETE FOOTINGS HAS CURED AT LEAST 48 HR'S., CLEAN CONCRETE FROM BASE CONNECTION BOLTS THEN LOOSEN AND RE TIGHTEN EACH BOLT IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. DO NOT OVER TIGHTEN. BURR ALL BOLT THREADS OF BASE CONNECTIONS TO PREVENT LOOSENING.

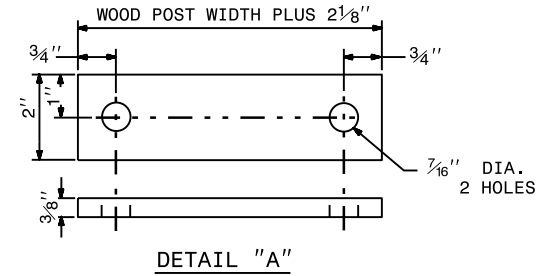
8. USE REINFORCED FOOTINGS WITH DIMENSIONS AS SHOWN IN PLANS. WHERE SOLID ROCK IS ENCOUNTERED, THE ENGINEER DIRECTS WHETHER TO PLACE THE FOOTING AT THE PRESCRIBED DEPTH OR EXTEND IT AT LEAST TWO FEET INTO THE ROCK. CONSTRUCT ALL FOOTINGS OF CLASS A CONCRETE.
9. FORM TOP 6" OF FOOTINGS. ENGINEER APPROVES THE METHOD USED.
10. THE FINAL FLAT TURN OF SPIRAL OR HOOPS NO. 3 OR LARGER PLACED 3" FROM TOP AND BOTTOM OF FOOTING MAY BE WELDED TO VERTICAL REINFORCING BARS. NO OTHER WELDING WILL BE PERMITTED.
11. ELIMINATE HINGE CONNECTION FOR ALL SINGLE SUPPORT SIGNS.
12. DETAIL IS FOR ONE DIRECTION BREAKAWAY. WHEN PLANS REQUIRE A TWO DIRECTION BREAKAWAY, TWO FRICTION PLATES SHALL BE USED IN LIEU OF ONE FRICTION PLATE AND ONE HINGE PLATE.
13. SHAPE THE TOPS OF THE FOOTINGS TO CONFORM WITH FINISHED GROUND ELEVATIONS SUCH THAT WATER WILL NOT COLLECT AGAINST THE SUPPORTS.
14. IF THE GROUNDWATER IS ENCOUNTERED AT AN DEPTH SHALLOWER THAN 7 FEET, THE SIGN FOUNDATION MUST BE REDESIGNED BASED UPON THE ACTUAL FIELD CONDITIONS. THE FOUNDATION DESIGN DOES NOT APPLY TO VERY SOFT OR LOOSE SOIL, MUCK, WEATHERED ROCK, OR HARD ROCK.

1-18 STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
GROUND MOUNTED SIGN SUPPORTS



WOOD SUPPORT MOUNTING DETAIL



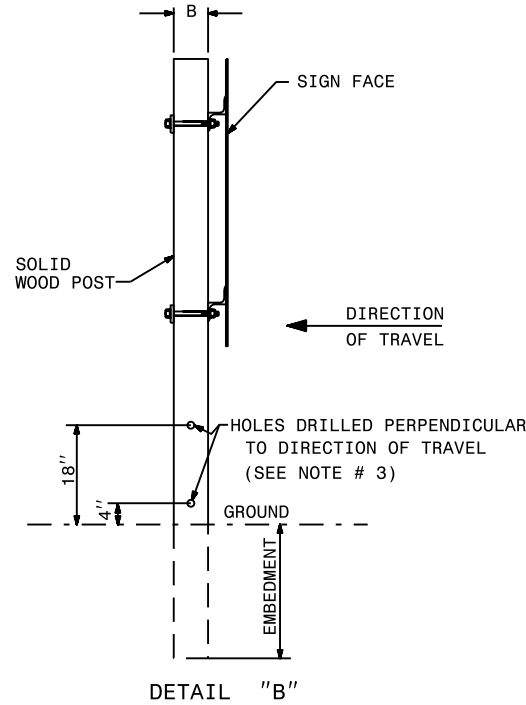
DETAIL "A"

NOTES:

- USE THE SIZE, NUMBER, LENGTH AND TYPE OF SUPPORTS SHOWN IN THE PLANS. USE WOOD POSTS THAT CONFORM TO SECTIONS 1082-2 AND 1082-3 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- MOUNT ALL WOOD POSTS THAT DO NOT HAVE DRILLED HOLES BEHIND GUARDRAIL, EXCEPT THE 4" X 4" WOOD POSTS.
- FOR WOOD POSTS, DRILL THE BOTTOM HOLE 4" ABOVE THE GROUND AND THE TOP HOLE 18" ABOVE THE GROUND (SEE DETAIL "B"). SEE CHART FOR POST SIZES AND DRILLED HOLE SIZES. DRILL HOLES PERPENDICULAR TO THE DIRECTION OF TRAVEL. DUAL SUPPORTS MUST BE AT LEAST 7 FEET APART.
- LOCATE ALL WOOD POSTS THAT ARE 8" X 8" EITHER BEHIND GUARDRAIL OR LOCATED SO THAT THE POSTS COULD NOT BE HIT BY TRAFFIC.
- FURNISH ALL MOUNTING HARDWARE.
- USE GALVANIZED STEEL BACKING PLATES AND MOUNTING BOLTS.
- ADJUST STIFFENERS TO AVOID CONFLICTS WITH SUPPORTS.
- DRILL HOLES IN THE CENTER OF THE SUPPORTS
- IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO WOOD SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN POSTS. NO MORE THAN TWO POSTS SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

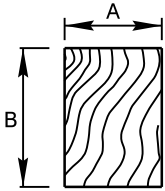
POST SIZE AND DRILLED HOLE SIZE

	A	B	HOLE SIZE	EMBEDMENT
	4.0"	4.0"	N/A	3.5 FT.
	4.0"	6.0"	1.5"	4.5 FT.
	6.0"	6.0"	2.0"	5.25 FT.
	6.0"	8.0"	3.0"	6.0 FT.
	8.0"	8.0"	N/A	6.5 FT.
M	8.0"	8.0"	SEE DETAIL	6.5 FT.
L	8.0"	15.0"	SEE DETAIL	6.5 FT.



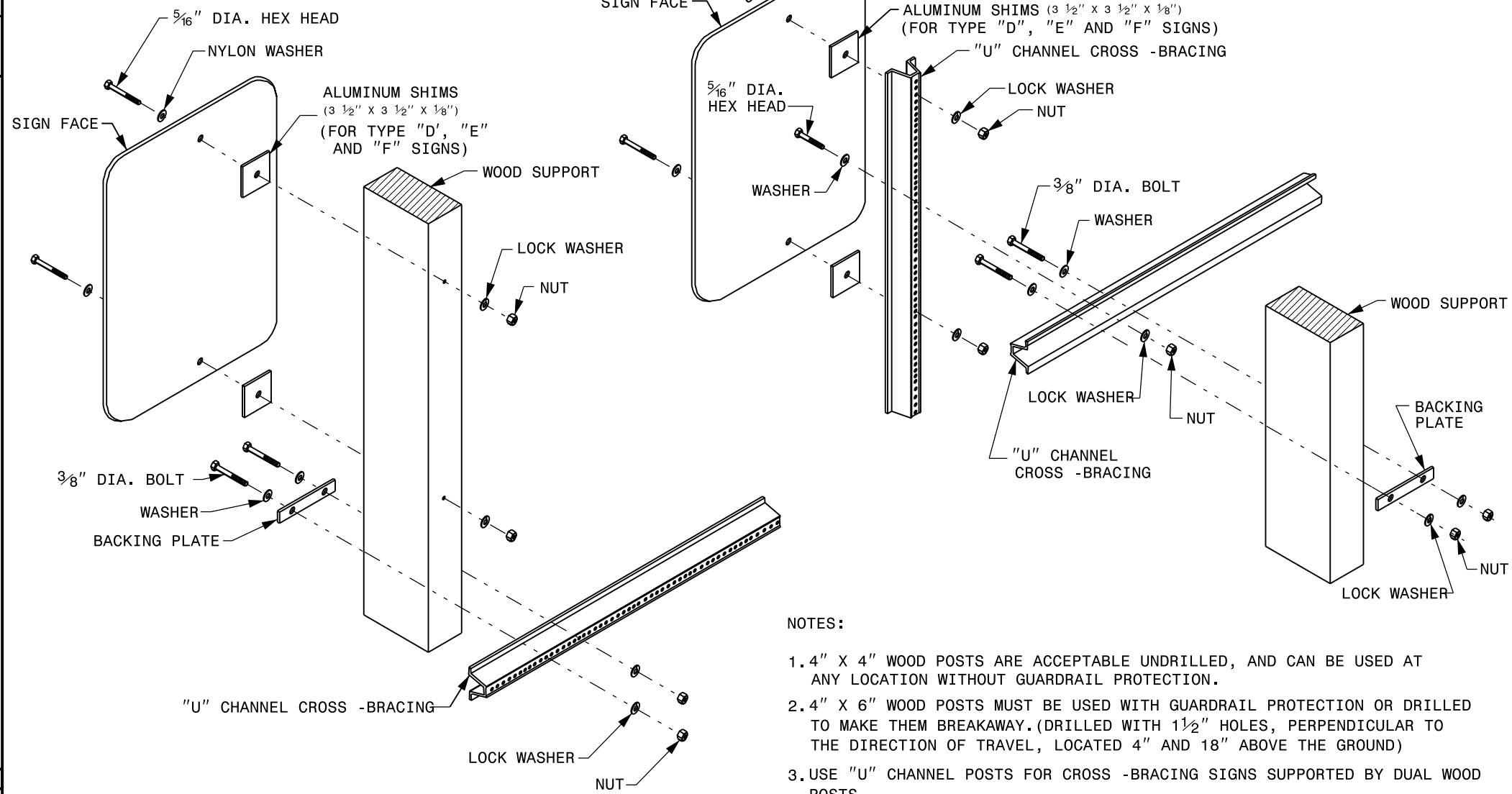
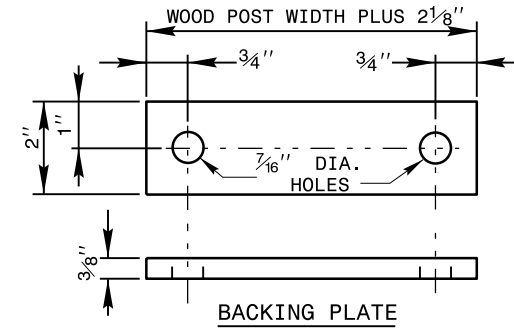
DETAIL "B"

POST SIZE AND DRILLED HOLE SIZE



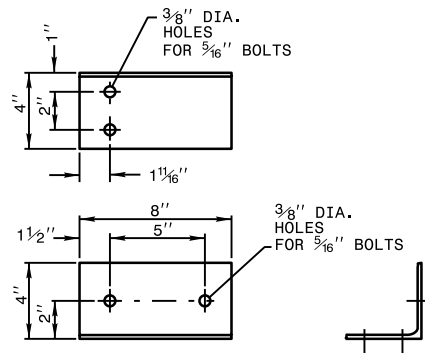
A	B	HOLE SIZE	EMBEDMENT
4.0"	4.0"	N/A	3.5 FT.
4.0"	6.0"	1.5"	4.5 FT.

ATTACHMENT METHODS

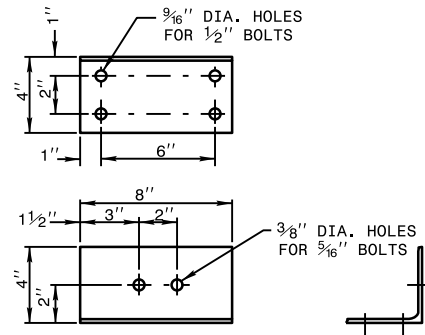


NOTES:

- 1.4" X 4" WOOD POSTS ARE ACCEPTABLE UNDRILLED, AND CAN BE USED AT ANY LOCATION WITHOUT GUARDRAIL PROTECTION.
- 2.4" X 6" WOOD POSTS MUST BE USED WITH GUARDRAIL PROTECTION OR DRILLED TO MAKE THEM BREAKAWAY. (DRILLED WITH 1 1/2" HOLES, PERPENDICULAR TO THE DIRECTION OF TRAVEL, LOCATED 4" AND 18" ABOVE THE GROUND)
- 3.USE "U" CHANNEL POSTS FOR CROSS -BRACING SIGNS SUPPORTED BY DUAL WOOD POSTS.



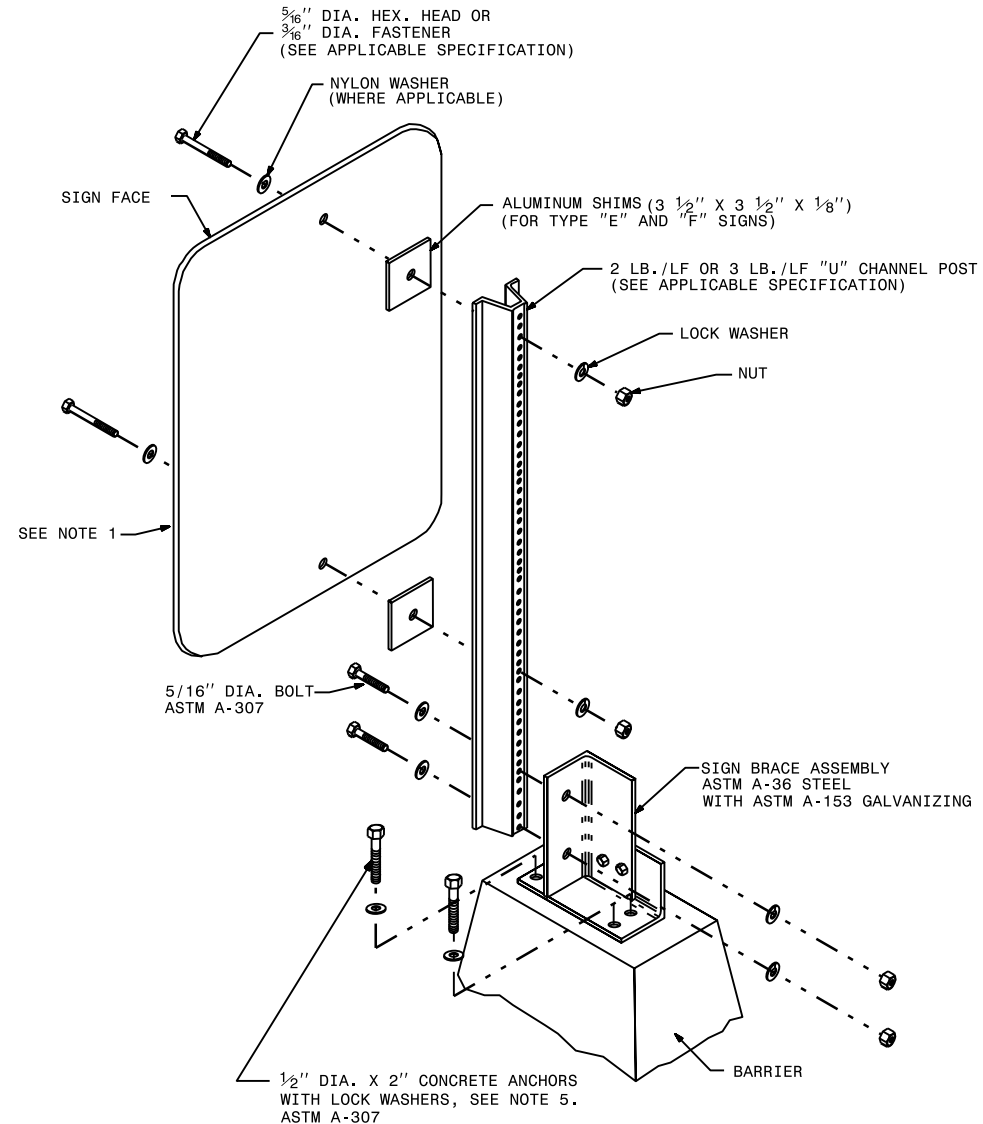
VERTICAL BRACE
4"x4"x1/4" ANGLE



HORIZONTAL BRACE
4"x4"x 3/16" ANGLE

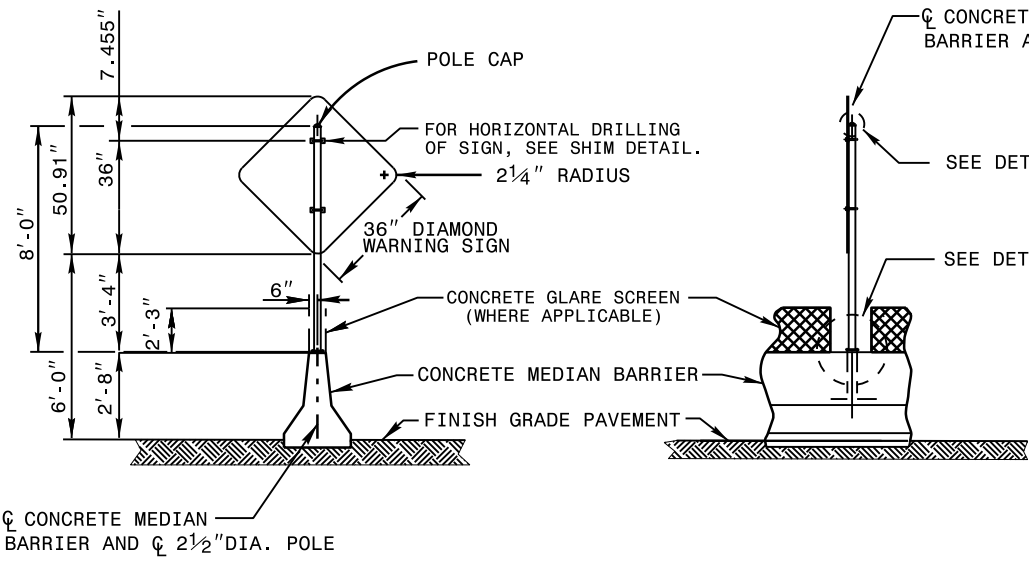
NOTES:

1. MAXIMUM SIGN SIZE IS 9.0 SQUARE FEET IN MAXIMUM WIND VELOCITY OF 80 MPH.
2. ERECT TYPE "E" AND "F" SIGNS WITH THE SAME SPECIFICATIONS AS "TYPICAL INSTALLATION OF SIGNS MOUNTED ON "U" CHANNEL POSTS.
3. ERECT MILE MARKERS WITH THE SAME SPECIFICATIONS AS "MILEPOST DETAILS AND PLACEMENT". SEE ROADWAY STANDARD NUMBER 904.40.
4. APPLICABLE SECTIONS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SHALL BE IN EFFECT.
5. ATTACH THE BRACE TO THE BARRIER BY MEANS OF 1/2" DIAMETER, 2" LONG CONCRETE ANCHORS WITH LOCK WASHERS. USE CONCRETE ANCHORS THAT ARE STAINLESS STEEL OR GALVANIZED IN ACCORDANCE WITH ASTM A-152. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



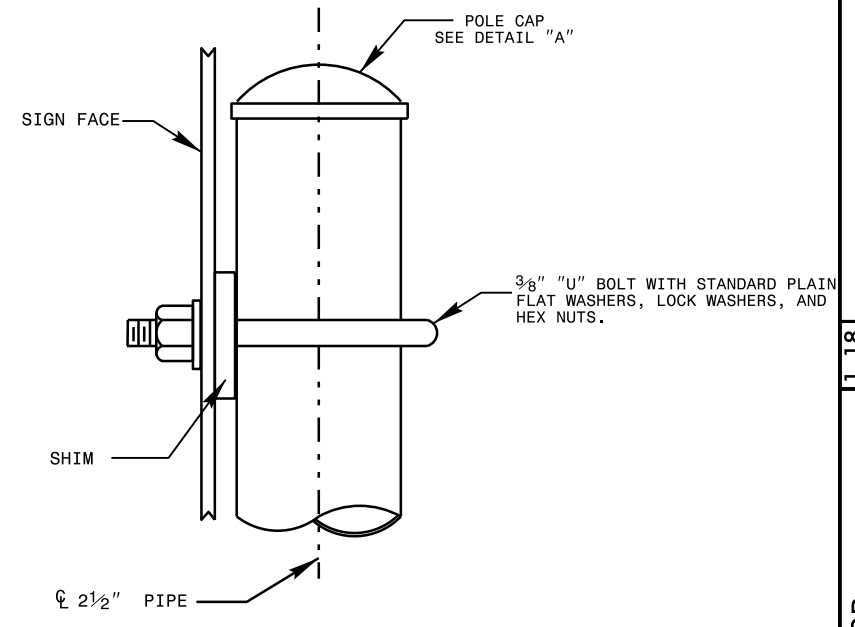
1-18

ROADWAY STANDARD DRAWING FOR
BARRIER SIGN SUPPORT ASSEMBLY

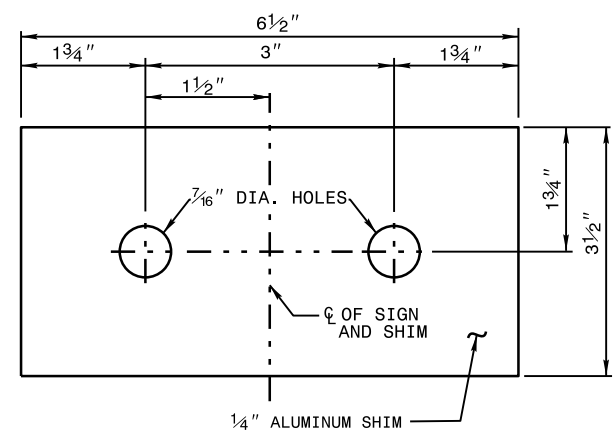


ELEVATION OF
REAR VIEW OF WARNING SIGN

ELEVATION OF
SIDE VIEW OF WARNING SIGN



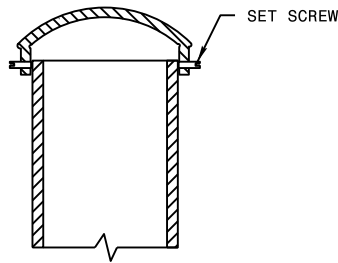
PIPE SUPPORT



ALUMINUM SHIM DETAIL

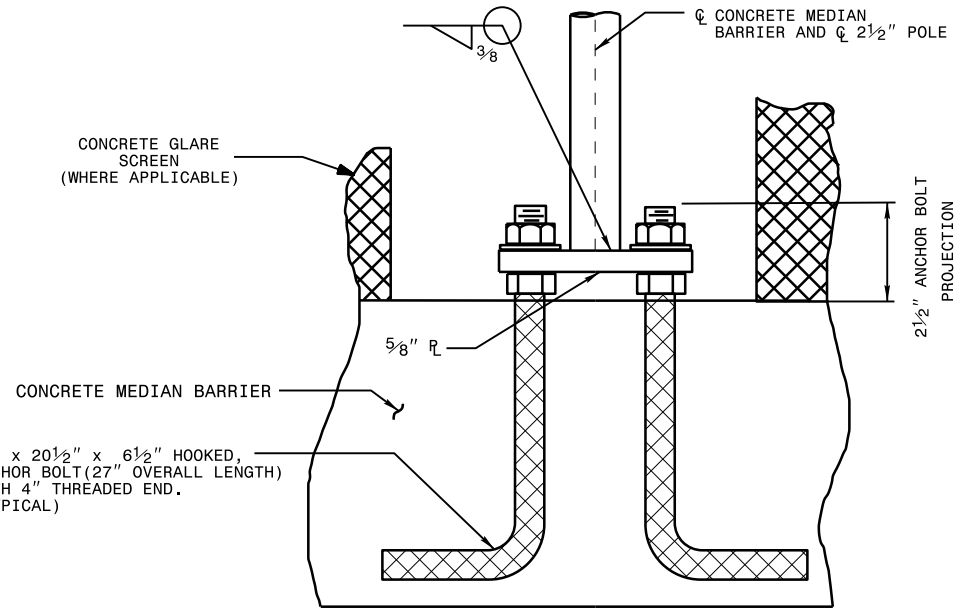
NOTES:

1. FURNISH ONE SET OF SIGN SUPPORTS FOR EACH SIGN.
2. SEE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SIGN SPECIFICATION SUPPLEMENT FOR THE TYPE OF MATERIAL TO BE USED FOR SIGN SUPPORTS.
3. FURNISH ALL MOUNTING HARDWARE.
4. THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WILL FURNISH SIGNS.
5. USE ASTM A-36 STEEL GALVANIZED "U" BOLTS AND NUTS IN ACCORDANCE WITH ASTM A-153.
6. USE ASTM A-36 ANCHOR BOLTS, GALVANIZED IN ACCORDANCE WITH ASTM A-153. OVERALL LENGTH OF ANCHOR BOLTS IS 27". ANCHOR BOLT PROJECTION, EMBEDMENT, AND HOOK TO BE AS SHOWN ON PLANS.
OR,
USE 5/8" x 7-5/8" DRILLED ADHESIVE ANCHOR GALVANIZED TO ASTM A-153. EACH ANCHOR SHALL BE PROVIDED WITH TWO (2) NUTS, ONE (1) FLAT WASHER, AND ONE (1) LOCK WASHER.

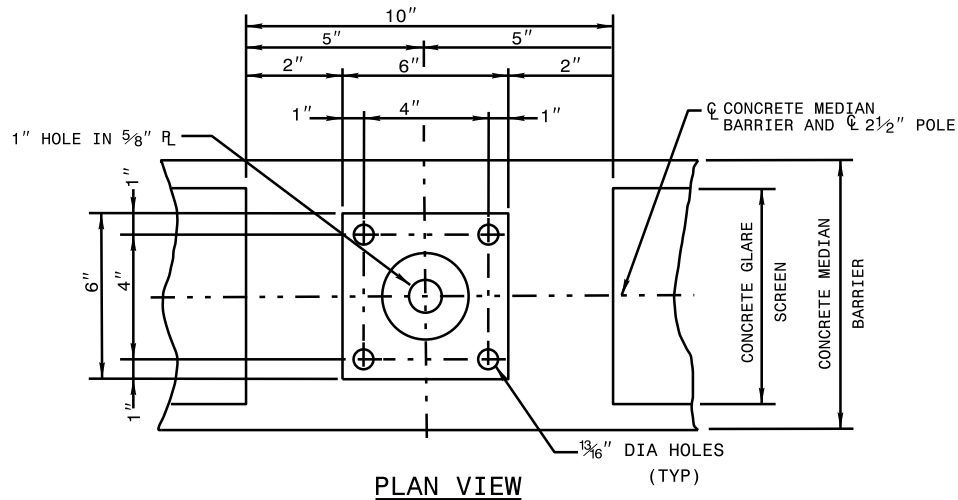


DETAIL "A"

FURNISH ALL TUBE OR PIPE SUPPORTS WITH A CAP. USE EITHER GALVANIZED STEEL OR A CAST ALUMINUM CAP TO MATCH THE MATERIAL OF THE POLE. USE FOUR SET SCREWS FOR ATTACHMENT TO SUPPORT.

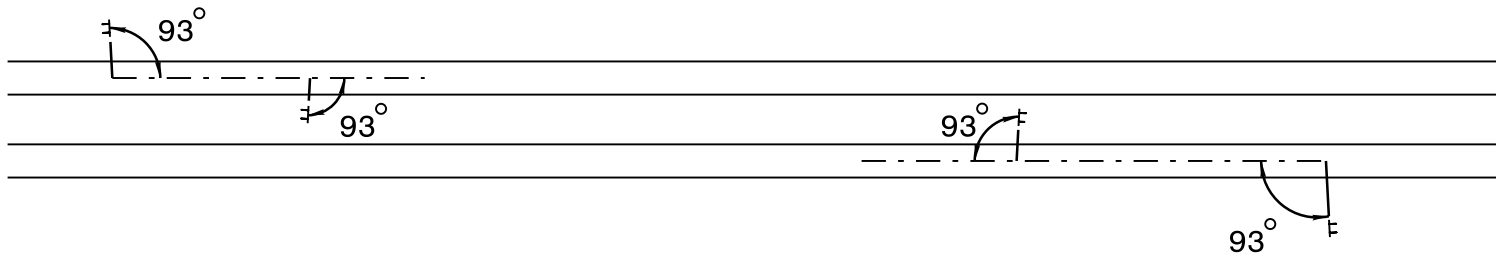


DETAIL "B"
WITH ANCHOR BOLT DETAIL



PLAN VIEW

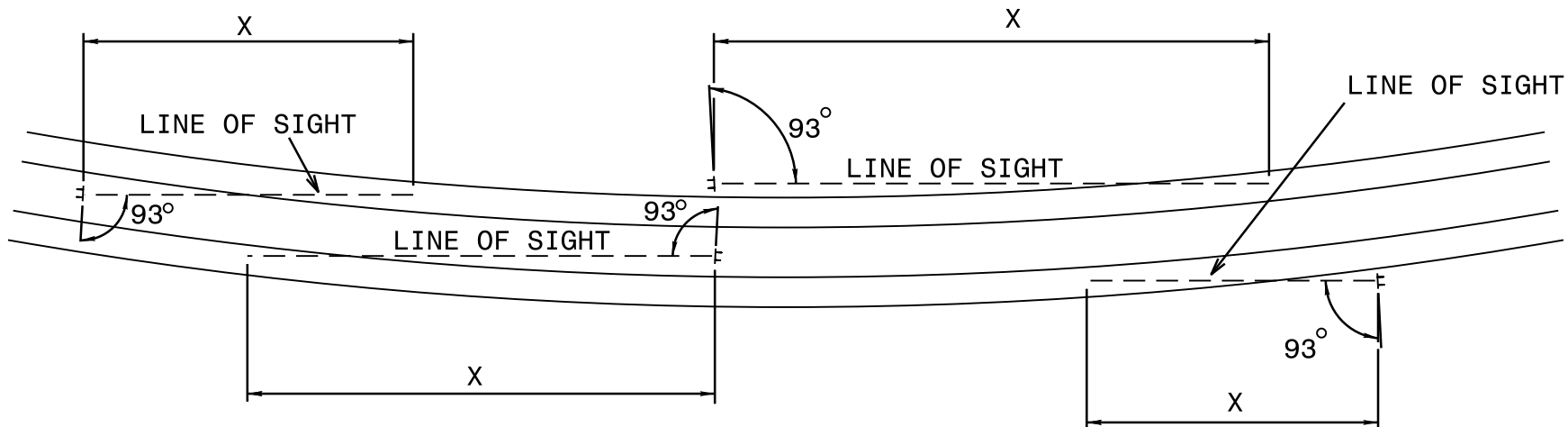
ROADWAY STANDARD DRAWING FOR
MEDIAN BARRIER SIGN SUPPORT AND ANCHORAGE



1-18

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

X = (60 FT. PER IN.) (HEIGHT OF LOWER CASE LETTER IN INCHES)
IF SIGN HAS NO LOWER CASE LETTERS, USE HEIGHT OF
UPPER CASE OR CAPITAL LETTERS IN MAJOR LINE OF COPY.

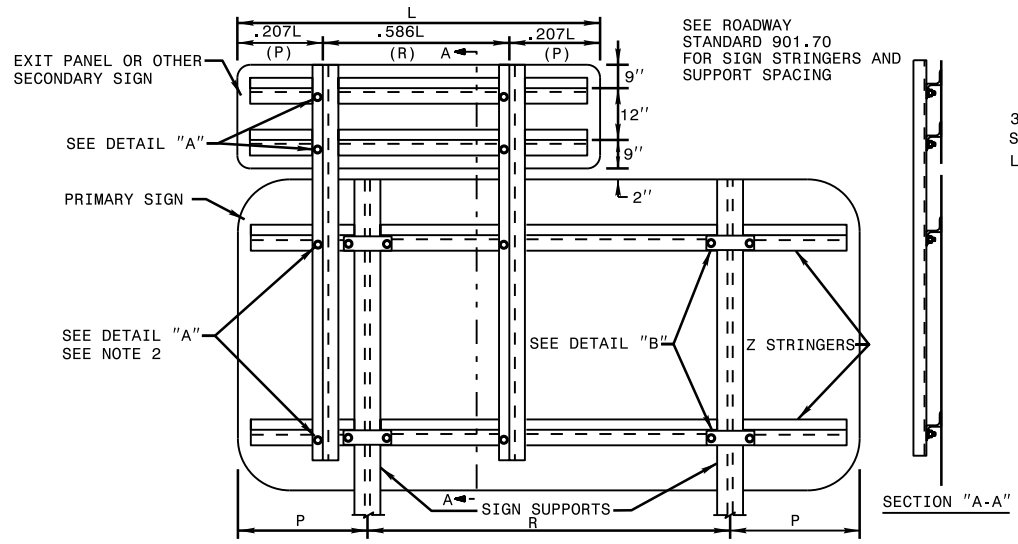


ROADWAY STANDARD DRAWING FOR

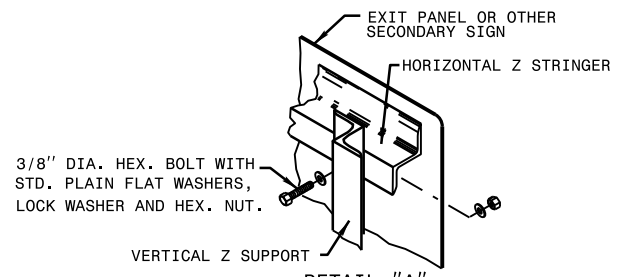
ORIENTATION OF GROUND MOUNTED SIGNS

SHEET 1 OF 1

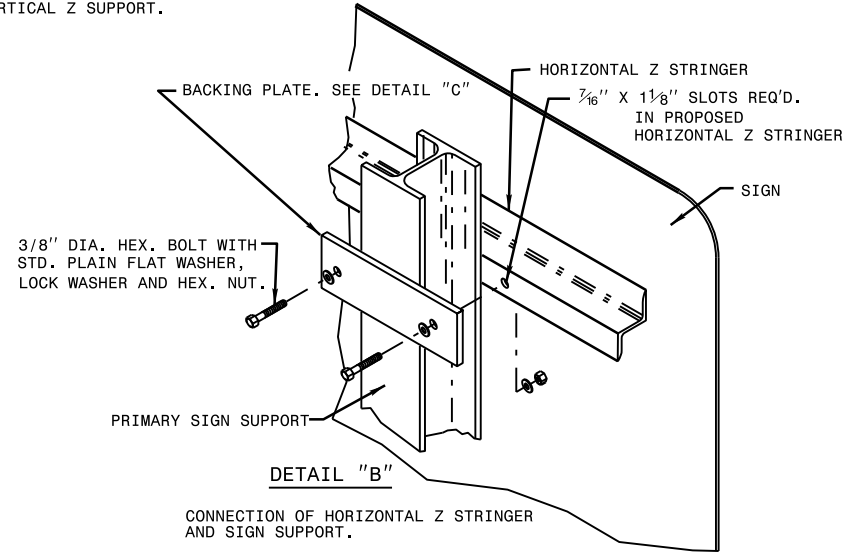
904.10



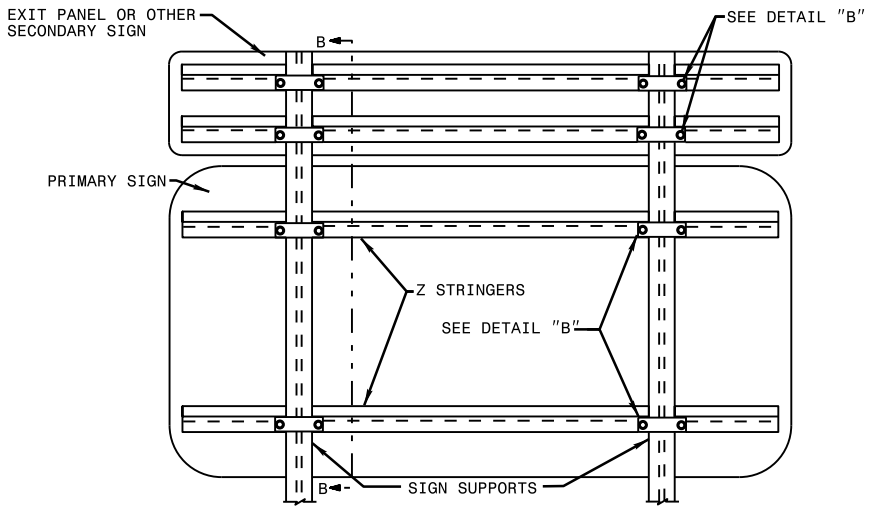
ATTACHMENT METHOD ONE RIGHT (1-R) OR ONE LEFT (1-L)
(EXIT PANEL OR OTHER SECONDARY SIGN ATTACHED TO VERTICAL Z SUPPORTS)



CONNECTION OF HORIZONTAL Z STRINGER AND VERTICAL Z SUPPORT.

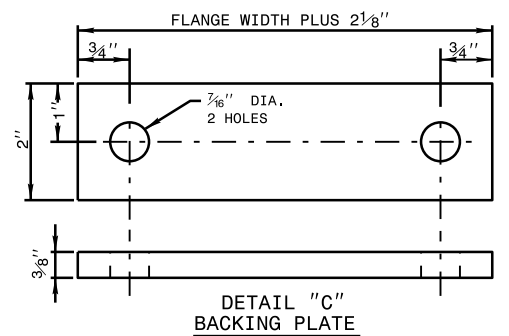


CONNECTION OF HORIZONTAL Z STRINGER AND SIGN SUPPORT.



ATTACHMENT METHOD TWO (II)

(EXIT PANEL OR OTHER SECONDARY SIGN ATTACHED TO PRIMARY SIGN SUPPORTS)

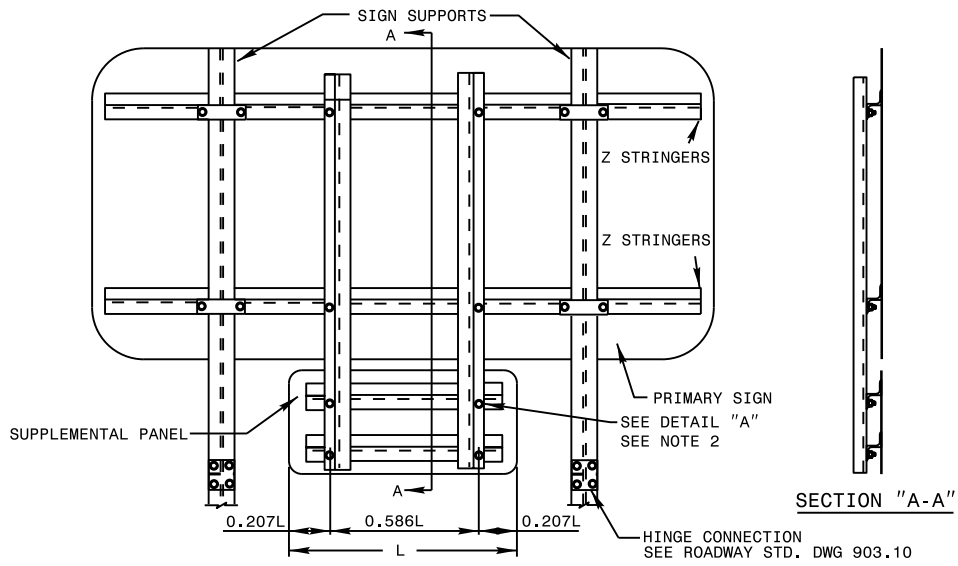


DETAIL "C" BACKING PLATE

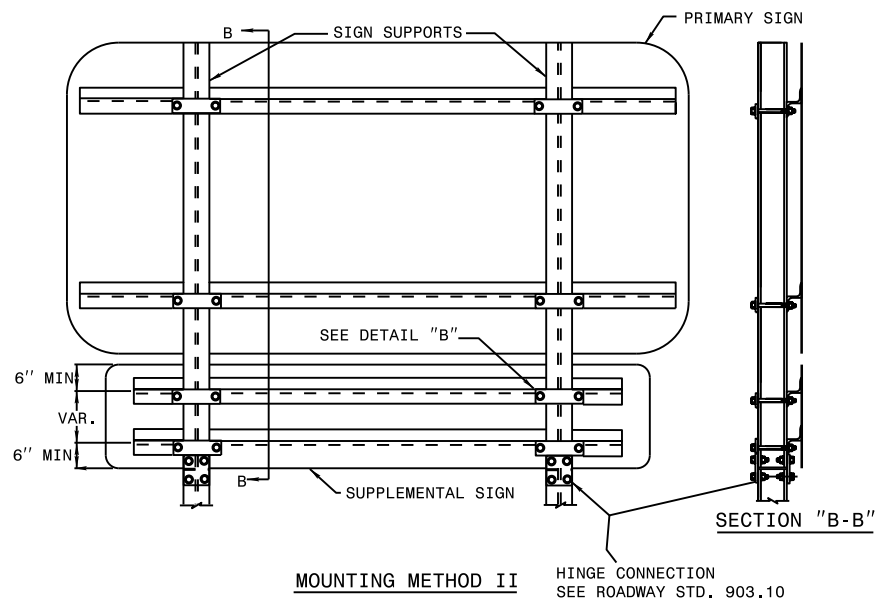
NOTES:

- FABRICATE VERTICAL AND HORIZONTAL Z'S OF ALUM. Z 3" X 2 1/16" X 1/4" X 2.33 LB/FT.
- ATTACH VERTICAL Z SUPPORT TO TOP TWO HORIZONTAL STRINGERS ON BACK OF PRIMARY SIGN.
- DO NOT PERMIT SLOTS IN HORIZONTAL STRINGERS FOR ATTACHMENT OF VERTICAL Z SUPPORTS.

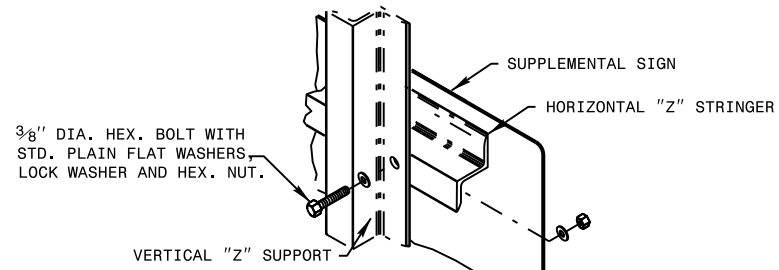
SECTION "B-B"



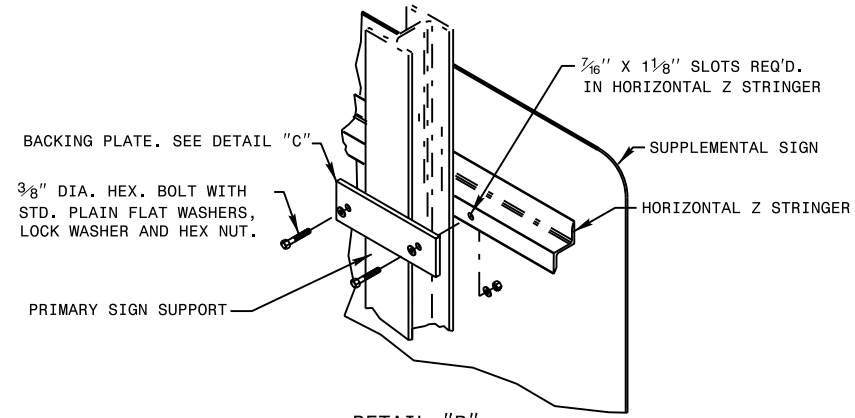
MOUNTING METHOD I



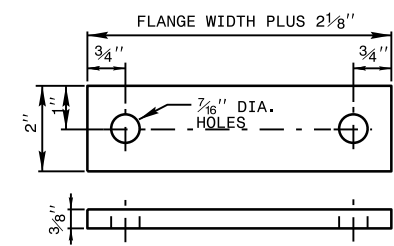
MOUNTING METHOD II



DETAIL "A"



DETAIL "B"



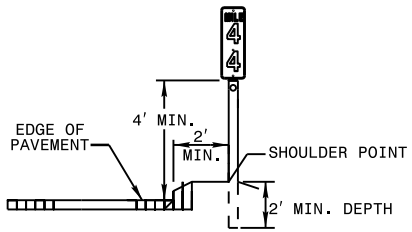
DETAIL "C"
BACKING PLATE

NOTES:

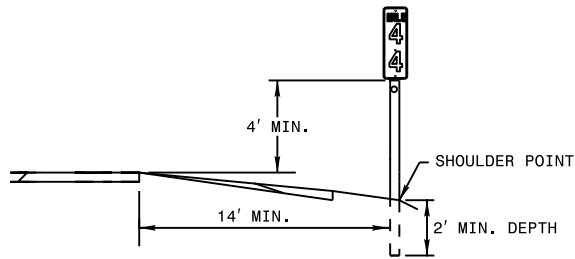
1. FABRICATE VERTICAL AND HORIZONTAL "Z'S" OF ALUM. Z 3" x 2-1/16" x 1/4" x 2.33 LB/FT.
2. ATTACH VERTICAL "Z" SUPPORT TO BOTTOM TWO HORIZONTAL STRINGERS ON BACK OF PRIMARY SIGN.
3. SLOTS ARE NOT ALLOWED IN HORIZONTAL STRINGERS FOR ATTACHMENT OF VERTICAL "Z" SUPPORTS.
4. THE HINGE CONNECTION IS LOCATED AT THE BOTTOM OF THE SUPPLEMENTAL PANEL FOR BREAKAWAY SUPPORTS.

MILEPOST PLACEMENT

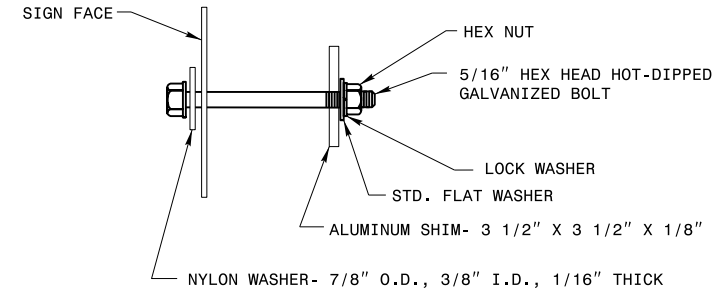
ROADWAY WITH CURB



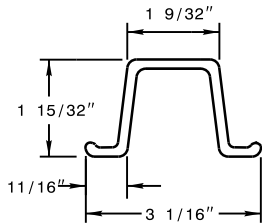
ROADWAY WITH PAVED SHOULDER



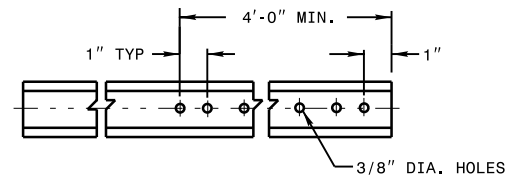
FASTENER



POST DETAILS

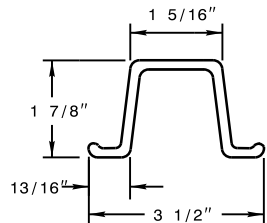


2-LB U-CHANNEL

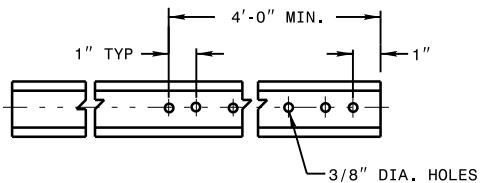


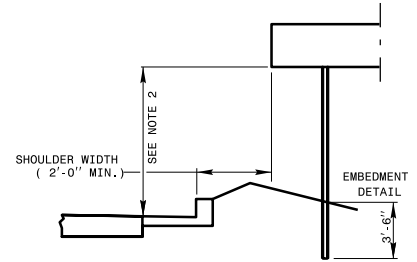
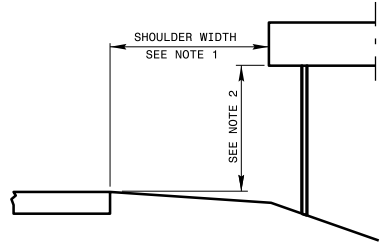
NOTES:

1. A MILEPOST SIGN SHALL CONSIST OF ONE (1) 12" X 24", 12" X 36" OR 12" X 48" SIGN PANEL. AN ENHANCED REFERENCE LOCATION SIGN SHALL CONSIST OF ONE (1) 18" X 54" SIGN PANEL. AN INTERMEDIATE ENHANCED REFERENCE LOCATION SIGN SHALL CONSIST OF ONE (1) 18" X 60" SIGN PANEL.
2. FABRICATE SIGNS FROM .080" SHEET ALUMINUM. EACH SIGN SHALL HAVE WHITE STUCK-ON MESSAGE AND BORDER ON GREEN BACKGROUND. MESSAGE, BORDER AND BACKGROUND TO BE REFLECTORIZED.
3. MILEPOST LOCATION SIGNS REQUIRE ONE (1) 2-LB GALVANIZED STEEL U-CHANNEL POST AND ENHANCED REFERENCE LOCATION SIGNS REQUIRE ONE (1) 3-LB GALVANIZED STEEL U-CHANNEL POST. THE POST'S LENGTH MUST MEET THE REQUIREMENTS SHOWN IN THESE STANDARDS.
4. POSTS SHALL BE DRIVEN. THE TOP OF POST SHALL NOT PROJECT ABOVE THE TOP OF SIGN.
5. ATTACH EACH SIGN TO THE WIDE FACE (FLANGES) OF THE POST BY MEANS OF THE FOLLOWING COMBINATION- 5/16" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT. FULL CONTACT BETWEEN THE SIGN AND THE POST SHALL BE ACHIEVED. NO BUCKLING OF THE SIGN WILL BE PERMITTED.
6. PLACE MILEPOST SIGNS AT THE SHOULDER POINT UNLESS THE ENGINEER DIRECTS OTHERWISE.

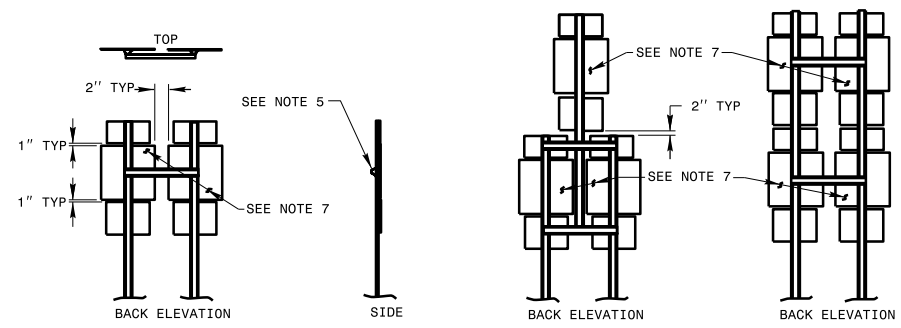


3-LB U-CHANNEL

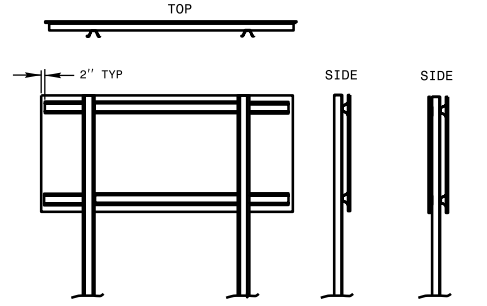




HORIZONTAL AND VERTICAL CLEARANCES



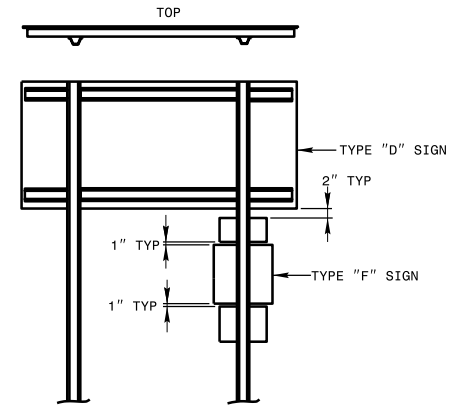
FRAMING AND CROSS-BRACING DETAILS
TYPE "F" SIGNS



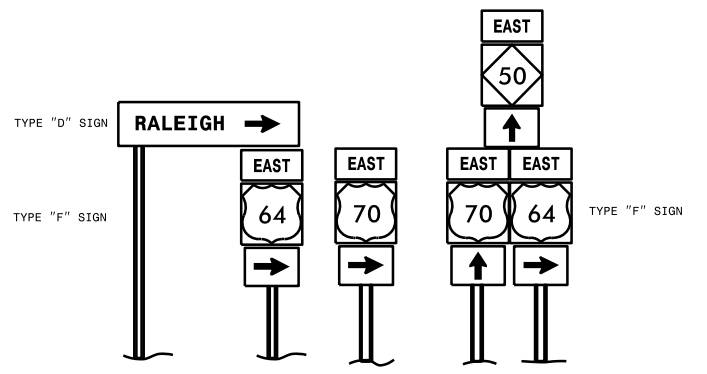
TYPE "D" & "E" SIGN
CROSS BRACING

FRAMING AND CROSS BRACE DETAILS
FOR COMBINATION TYPE "D" & "E" SIGNS

WIDE SIDE OF CROSS BRACE GOES TO BACK OF SIGN



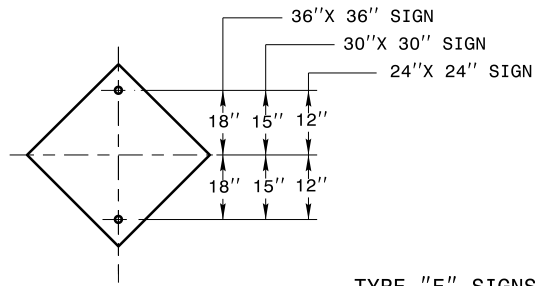
FRAMING AND CROSS BRACE DETAILS
FOR COMBINATION TYPE "D" & "F" SIGNS
WIDE SIDE OF FLANGE TO BACK OF "F" SIGN



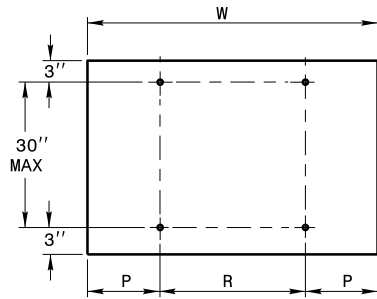
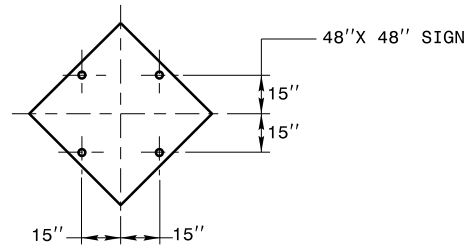
TYPICAL SIGN SHAPES AND COMBINATIONS

NOTES:

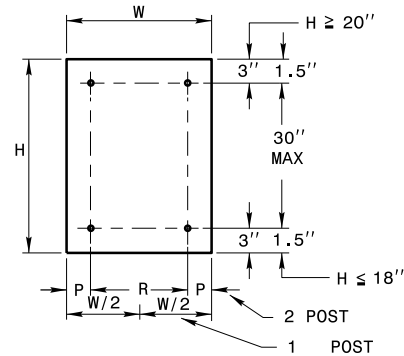
1. ERECT TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER "D", "E", AND "F" SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (6 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
2. ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
3. THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
4. ATTACH SIGN W/ 5/16" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT. NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET# 2 OF 904.50.
5. FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES W/ APPROVED. ZINC PAINT
6. INSTALL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "F" SIGNS.
7. THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".
8. IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN POSTS. NO MORE THAN TWO POSTS SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.



TYPE "E" SIGNS



TYPE "D" SIGNS



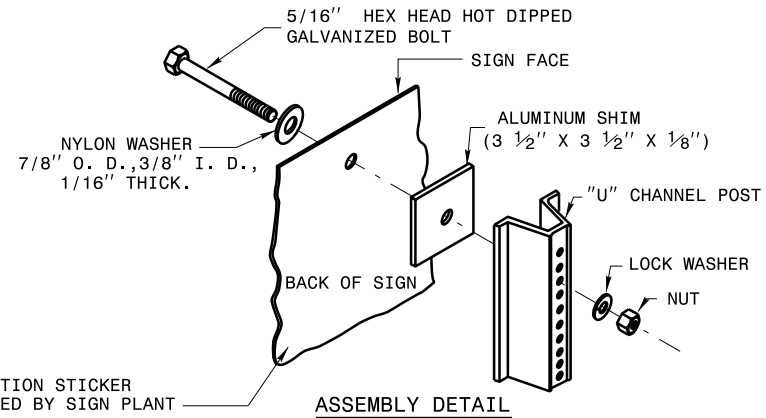
TYPE "E" AND "F" SIGNS

	NO. SUPPORTS		
	2	3 *	4 *
P	.207W	.145W	.107W
R	.586W	.355W	.262W

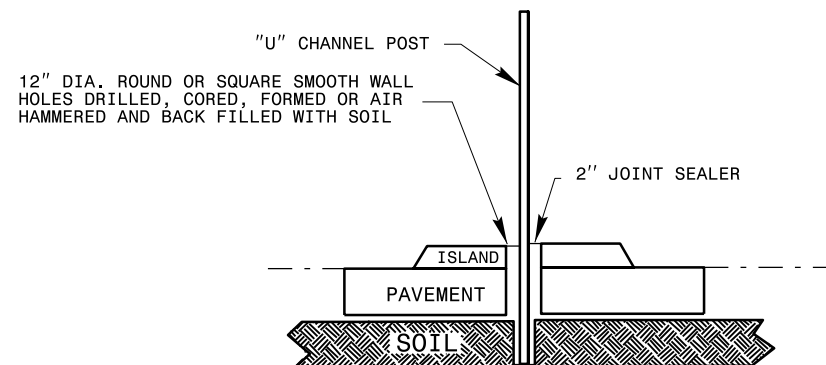
UNITS ON ATTACHED SHEET

* MINIMUM 4 FT. BETWEEN CHANNEL POSTS

HOLE PUNCHING DETAIL



ASSEMBLY DETAIL



DETAIL FOR INSTALLATION OF CHANNEL POST IN CONCRETE

ENGLISH STANDARD DRAWING FOR

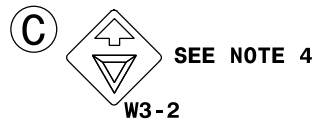
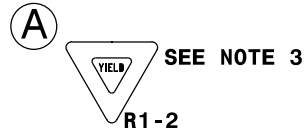
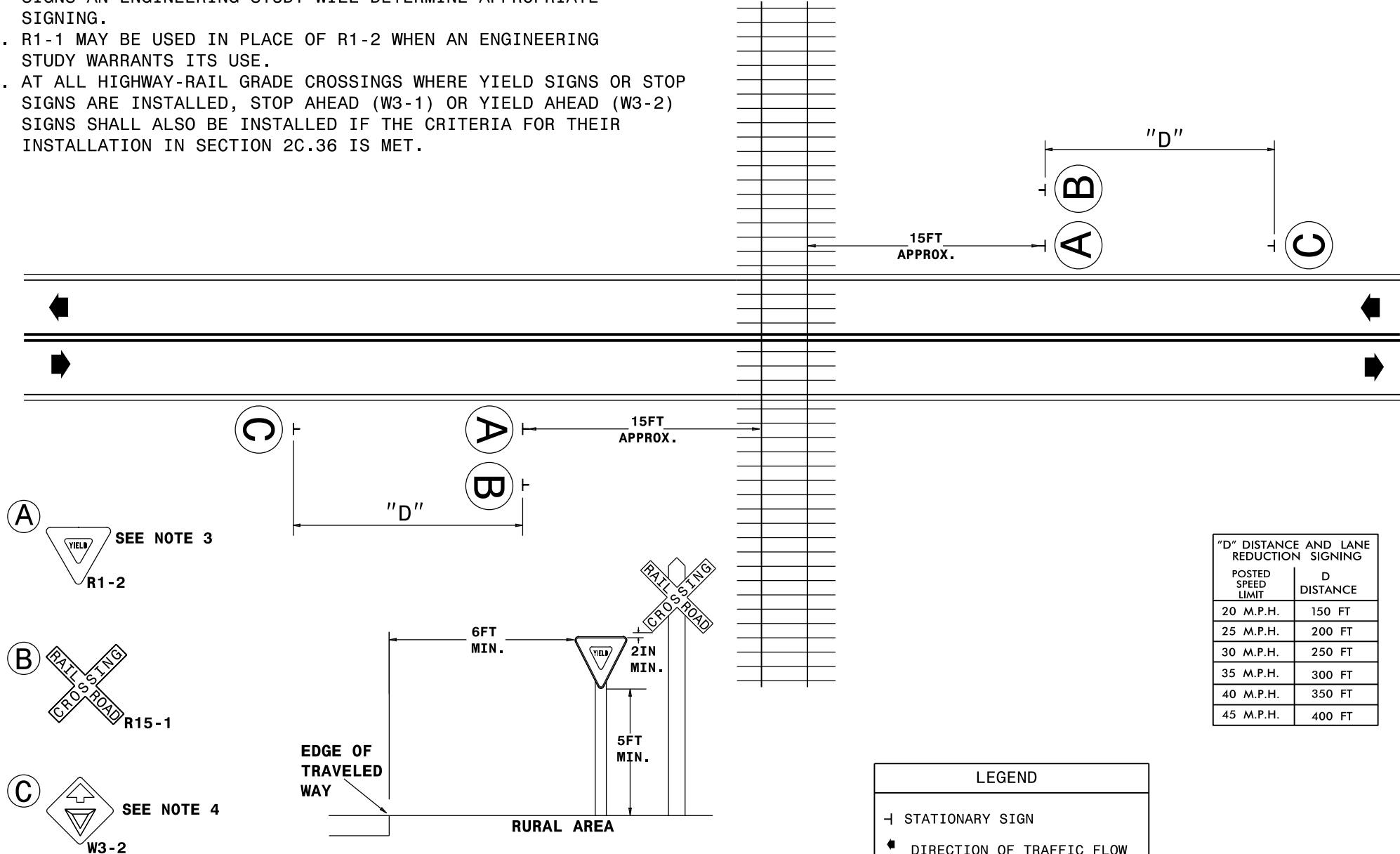
**MOUNTING OF
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS**

1-18

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

NOTES:

1. USE TABLES 2B-1, 2C-2 AND 7B-1 IN MUTCD FOR SIGN SIZES.
2. WHEN GEOMETRY DOES NOT PERMIT THE USE OF ALL REQUIRED SIGNS AN ENGINEERING STUDY WILL DETERMINE APPROPRIATE SIGNING.
3. R1-1 MAY BE USED IN PLACE OF R1-2 WHEN AN ENGINEERING STUDY WARRANTS ITS USE.
4. AT ALL HIGHWAY-RAIL GRADE CROSSINGS WHERE YIELD SIGNS OR STOP SIGNS ARE INSTALLED, STOP AHEAD (W3-1) OR YIELD AHEAD (W3-2) SIGNS SHALL ALSO BE INSTALLED IF THE CRITERIA FOR THEIR INSTALLATION IN SECTION 2C.36 IS MET.



"D" DISTANCE AND LANE REDUCTION SIGNING	
POSTED SPEED LIMIT	D DISTANCE
20 M.P.H.	150 FT
25 M.P.H.	200 FT
30 M.P.H.	250 FT
35 M.P.H.	300 FT
40 M.P.H.	350 FT
45 M.P.H.	400 FT

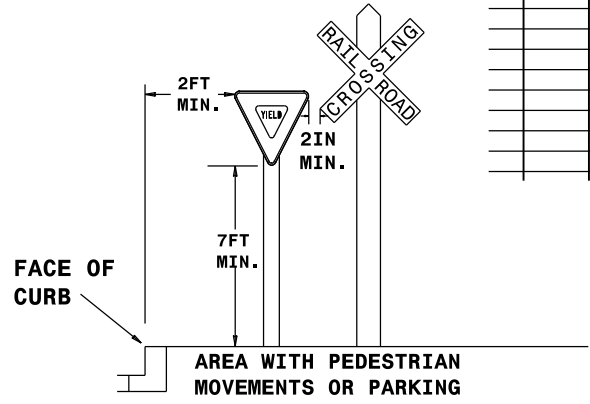
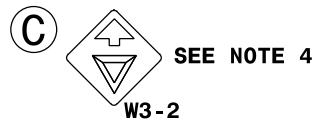
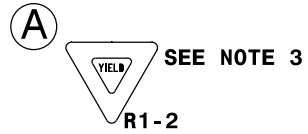
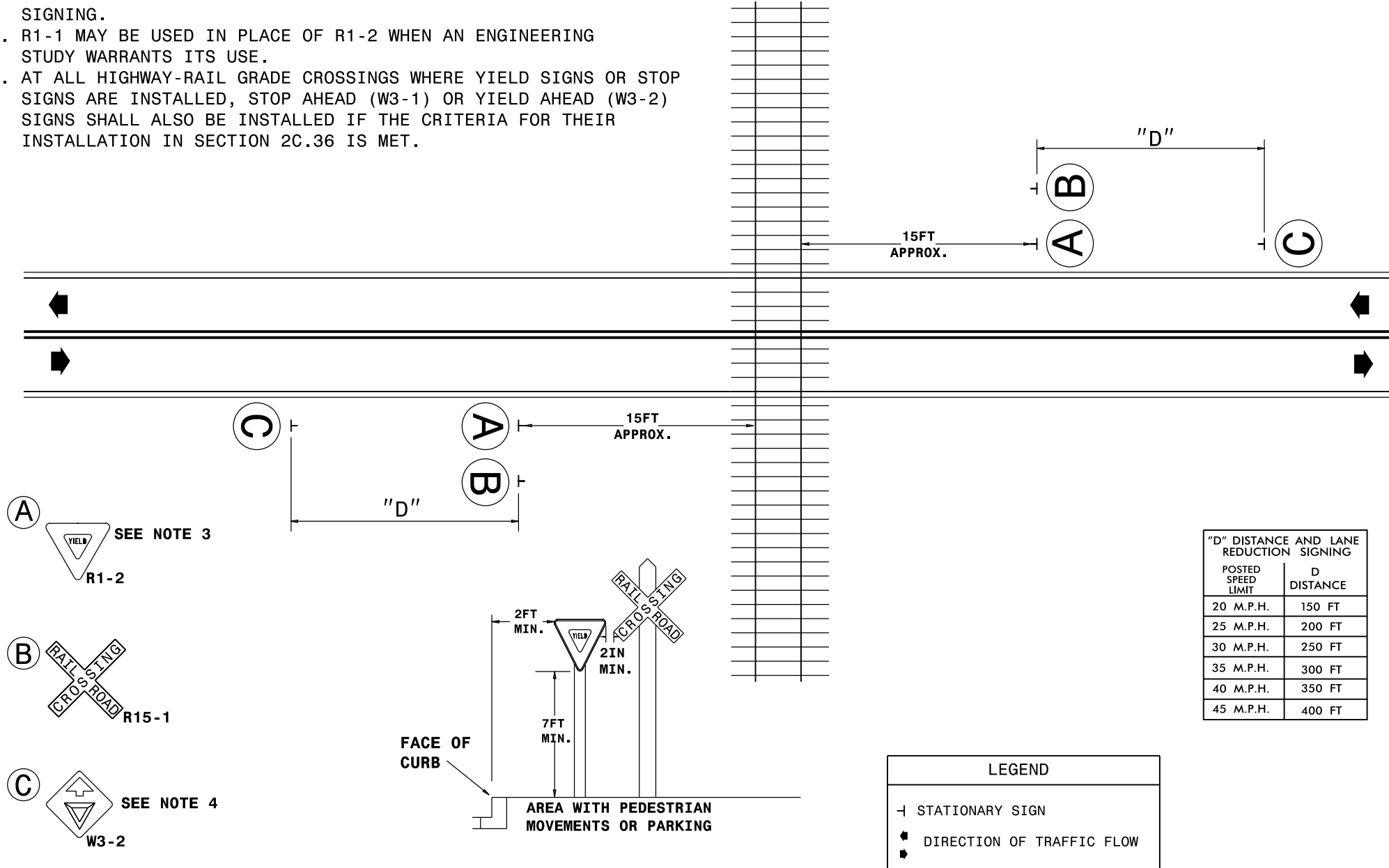
LEGEND

—|— STATIONARY SIGN

➔ DIRECTION OF TRAFFIC FLOW

NOTES:

1. USE TABLES 2B-1, 2C-2 AND 7B-1 IN MUTCD FOR SIGN SIZES.
2. WHEN GEOMETRY DOES NOT PERMIT THE USE OF ALL REQUIRED SIGNS AN ENGINEERING STUDY WILL DETERMINE APPROPRIATE SIGNING.
3. R1-1 MAY BE USED IN PLACE OF R1-2 WHEN AN ENGINEERING STUDY WARRANTS ITS USE.
4. AT ALL HIGHWAY-RAIL GRADE CROSSINGS WHERE YIELD SIGNS OR STOP SIGNS ARE INSTALLED, STOP AHEAD (W3-1) OR YIELD AHEAD (W3-2) SIGNS SHALL ALSO BE INSTALLED IF THE CRITERIA FOR THEIR INSTALLATION IN SECTION 2C.36 IS MET.



"D" DISTANCE AND LANE REDUCTION SIGNING	
POSTED SPEED LIMIT	D DISTANCE
20 M.P.H.	150 FT
25 M.P.H.	200 FT
30 M.P.H.	250 FT
35 M.P.H.	300 FT
40 M.P.H.	350 FT
45 M.P.H.	400 FT

LEGEND

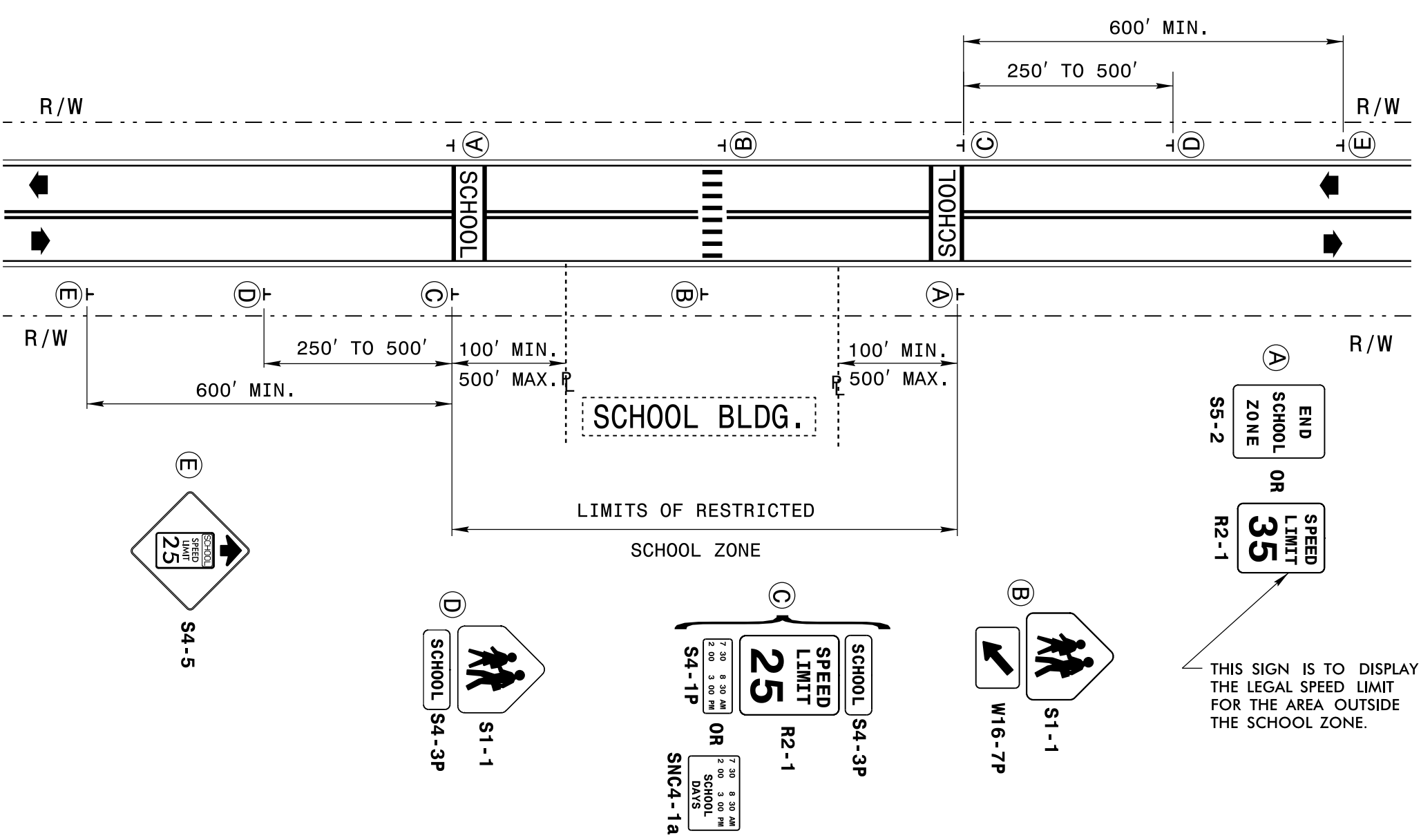
—| STATIONARY SIGN

➔ DIRECTION OF TRAFFIC FLOW

1-18

ROADWAY STANDARD DRAWING FOR

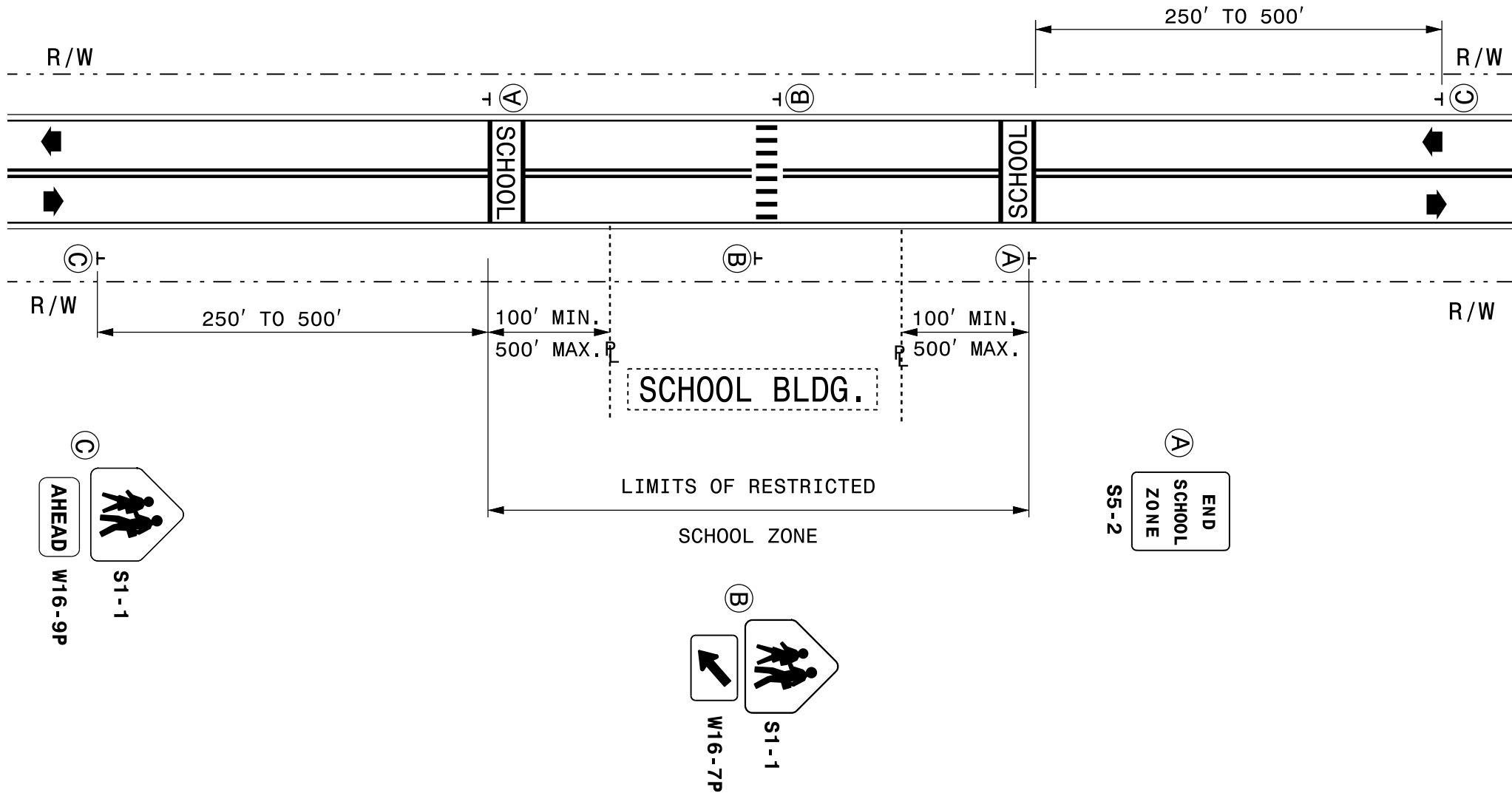
**SIGNING SCHOOL ZONE WITH
MARKED CROSSWALK
WHERE SPEED REDUCTION IS REQUIRED**



THIS SIGN IS TO DISPLAY THE LEGAL SPEED LIMIT FOR THE AREA OUTSIDE THE SCHOOL ZONE.

- NOTES:
1. USE TABLES 2B-1, 2C-2 AND 7B-1 IN MUTCD FOR SIGN SIZES.
 2. WHEN GEOMETRIC DOES NOT PERMIT THE USE OF ALL REQUIRED SIGNS AN ENGINEERING STUDY WILL DETERMINE APPROPRIATE SIGNING.

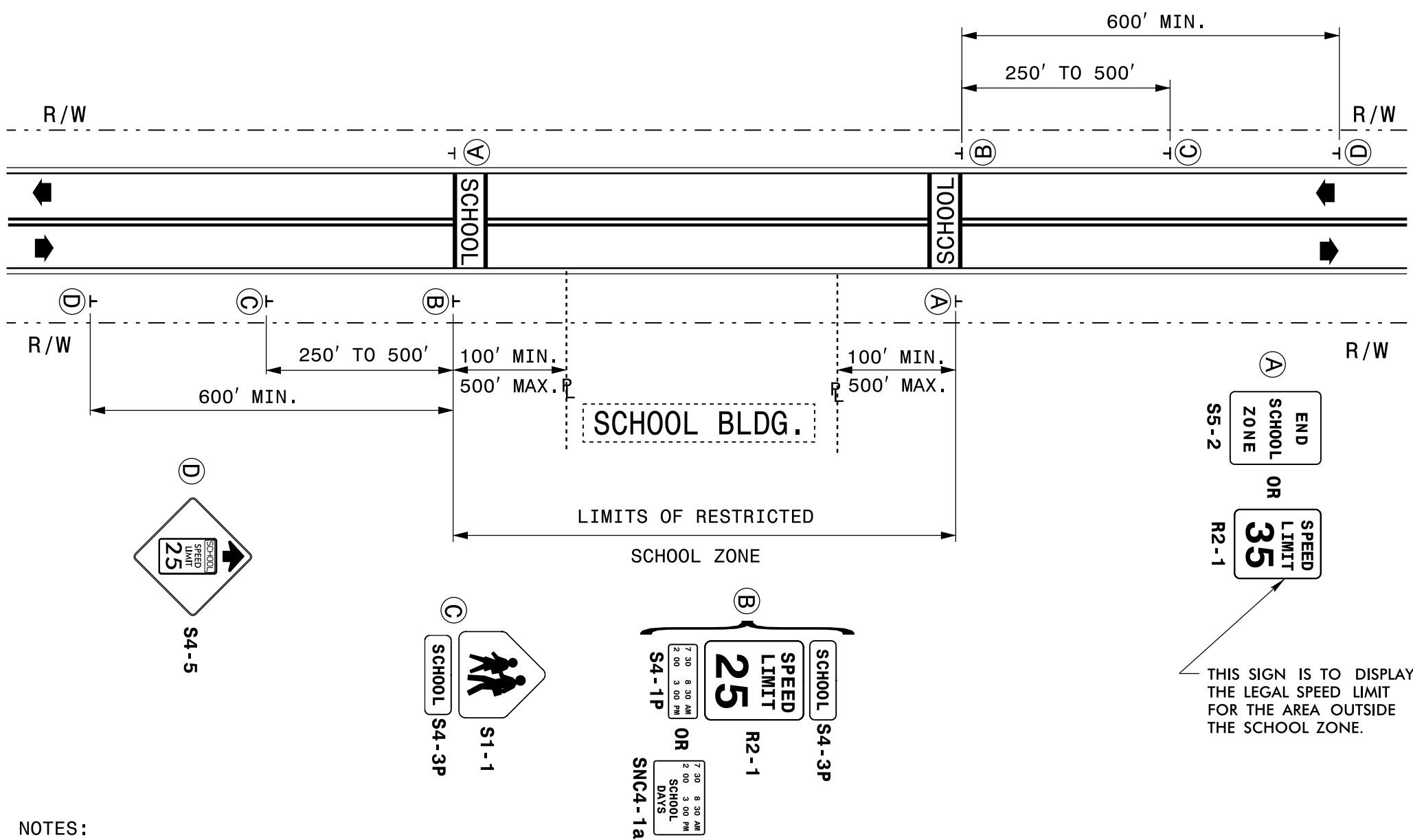
LEGEND	
	PROPERTY LINE
	STATIONARY SIGN
	DIRECTION OF TRAFFIC FLOW



NOTES:

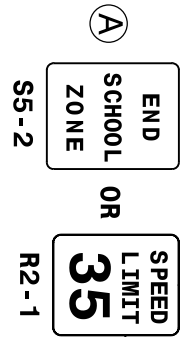
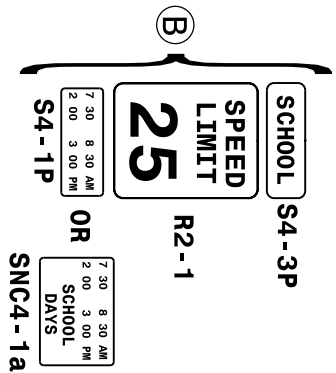
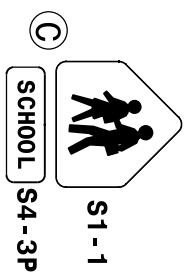
1. USE TABLES 2B-1, 2C-2 AND 7B-1 IN MUTCD FOR SIGN SIZES.
2. WHEN GEOMETRIC DOES NOT PERMIT THE USE OF ALL REQUIRED SIGNS AN ENGINEERING STUDY WILL DETERMINE APPROPRIATE SIGNING.

LEGEND	
	PROPERTY LINE
	STATIONARY SIGN
	DIRECTION OF TRAFFIC FLOW



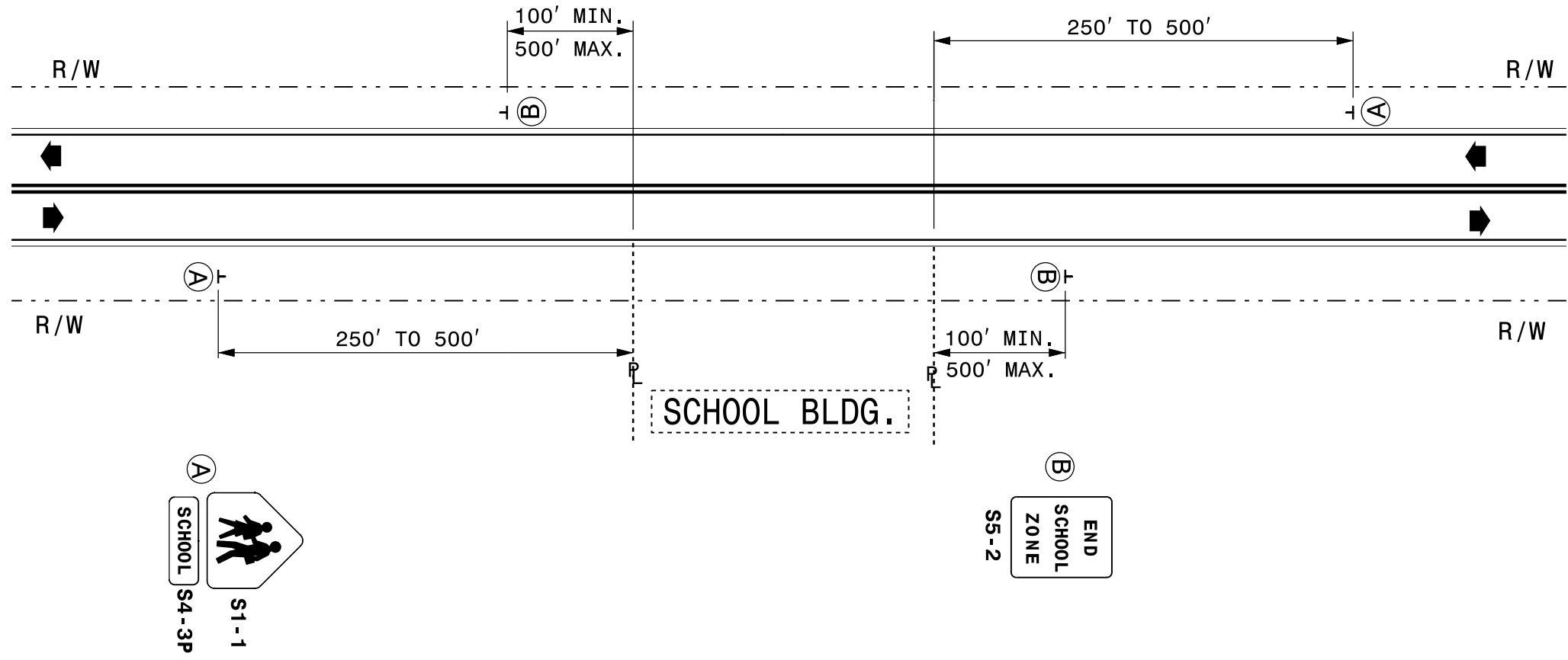
- NOTES:
- USE TABLES 2B-1, 2C-2 AND 7B-1 IN MUTCD FOR SIGN SIZES.
 - WHEN GEOMETRIC DOES NOT PERMIT THE USE OF ALL REQUIRED SIGNS AN ENGINEERING STUDY WILL DETERMINE APPROPRIATE SIGNING.

THIS SIGN IS TO DISPLAY THE LEGAL SPEED LIMIT FOR THE AREA OUTSIDE THE SCHOOL ZONE.



1-18

ROADWAY STANDARD DRAWING FOR
SIGNING SCHOOL ZONE



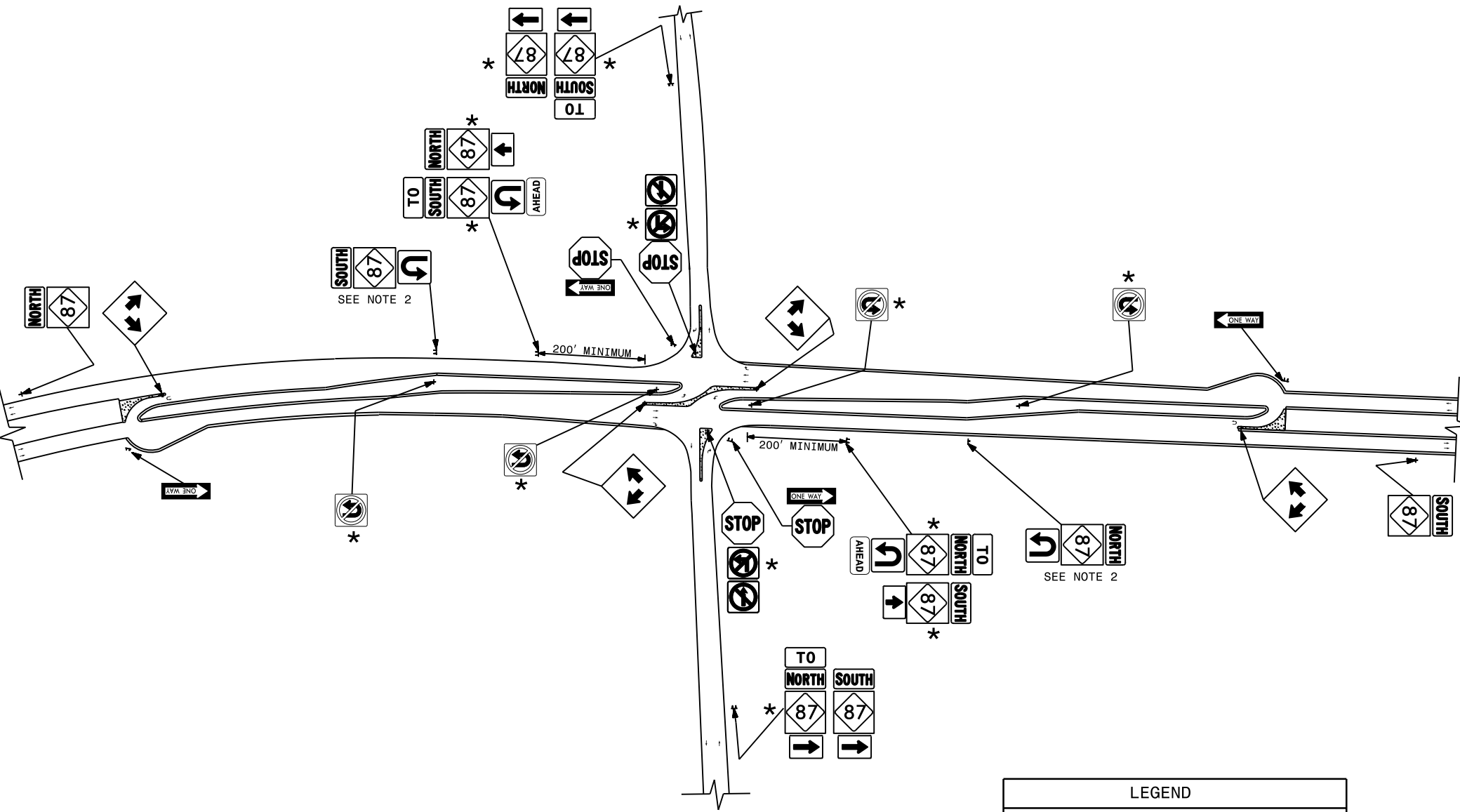
NOTES:

1. USE TABLES 2B-1, 2C-2 AND 7B-1 IN MUTCD FOR SIGN SIZES.
2. WHEN GEOMETRIC DOES NOT PERMIT THE USE OF ALL REQUIRED SIGNS AN ENGINEERING STUDY WILL DETERMINE APPROPRIATE SIGNING.

LEGEND	
	PROPERTY LINE
	STATIONARY SIGN
	DIRECTION OF TRAFFIC FLOW

1-18

ROADWAY STANDARD DRAWING FOR
SIGNING UNSIGNALIZED SUPERSTREET

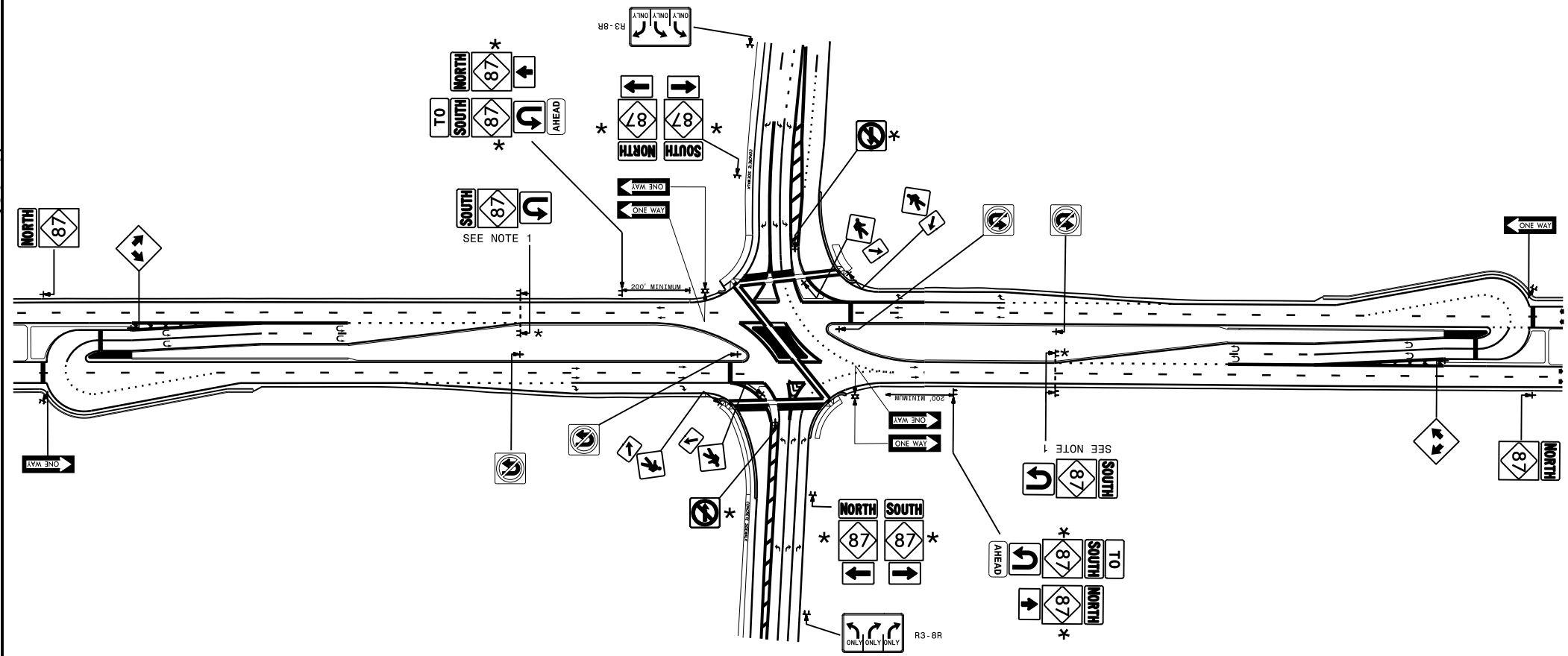


- NOTES:
1. IF MEDIAN STOP SIGN IS USED, LOCATE SIGN SO THAT IT DOES NOT OBSTRUCT THE VIEW OF THE MOTORIST WHEN LOOKING LEFT.
 2. TYPICALLY LOCATED NEAR BEGINNING OF TAPER.

LEGEND	
*	OPTIONAL
⊥	STATIONARY SIGN ON ONE SUPPORT
⊥	STATIONARY SIGN ON TWO SUPPORTS

1-18

ROADWAY STANDARD DRAWING FOR
**SIGNING SIGNALIZED SUPERSTREET
LEFT OUT / DUAL U-TURN**

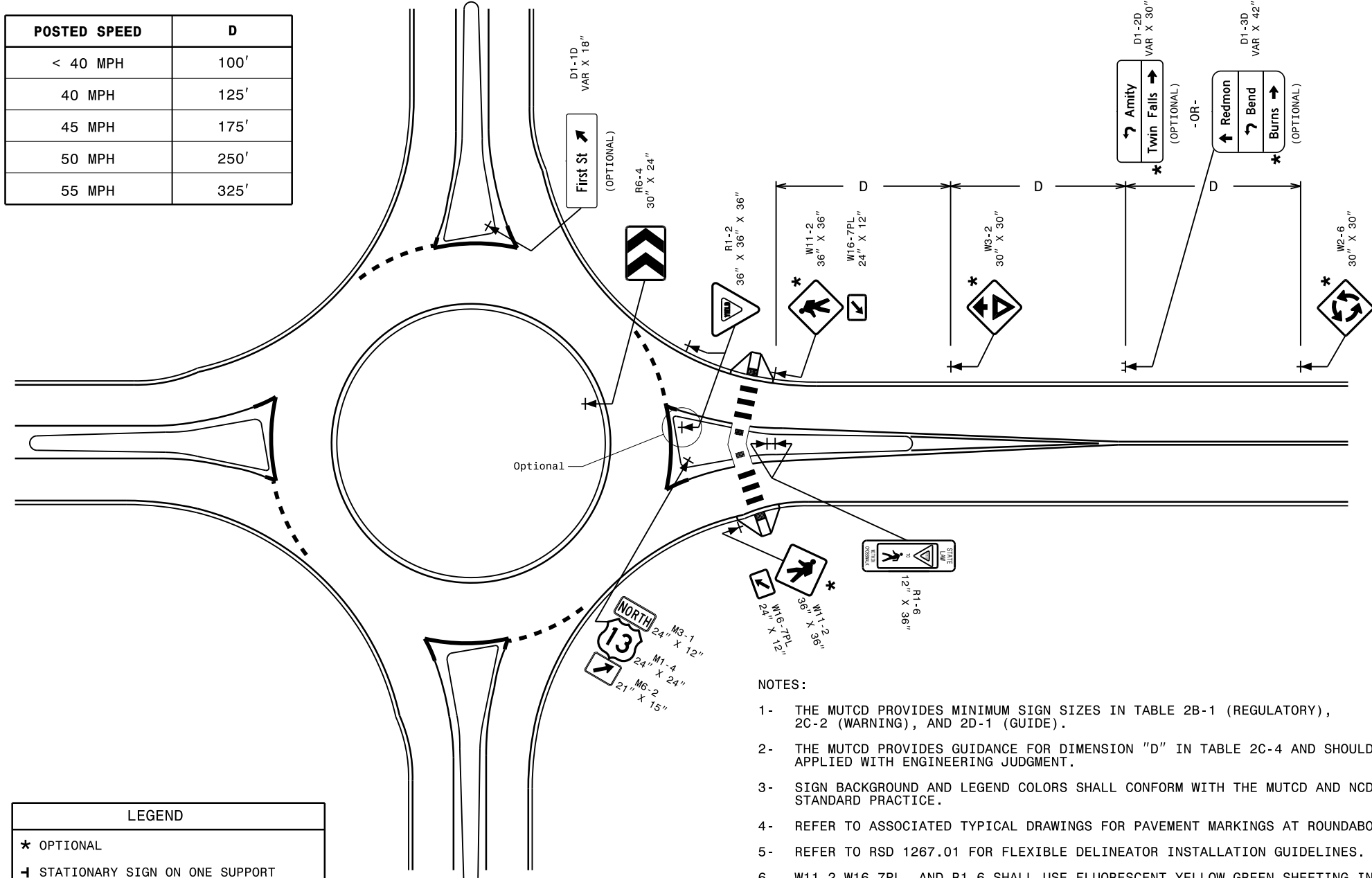


NOTES:

1. TYPICALLY LOCATED NEAR BEGINNING OF TAPER.
2. OPTIONAL SIGNS ARE TO BE INSTALLED AT THE DISCRETION OF THE DIVISION ENGINEER.
3. ALL SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
4. FOR REGULATORY SIGN AND PLAQUE SIZES USE TABLE 2B-1 IN MUTCD.

LEGEND	
*	OPTIONAL
⊥	STATIONARY SIGN ON ONE SUPPORT
⊥	STATIONARY SIGN ON TWO SUPPORTS

POSTED SPEED	D
< 40 MPH	100'
40 MPH	125'
45 MPH	175'
50 MPH	250'
55 MPH	325'



LEGEND	
★	OPTIONAL
⊣	STATIONARY SIGN ON ONE SUPPORT
⊢	STATIONARY SIGN ON TWO SUPPORTS

NOTES:

- 1- THE MUTCD PROVIDES MINIMUM SIGN SIZES IN TABLE 2B-1 (REGULATORY), 2C-2 (WARNING), AND 2D-1 (GUIDE).
- 2- THE MUTCD PROVIDES GUIDANCE FOR DIMENSION "D" IN TABLE 2C-4 AND SHOULD BE APPLIED WITH ENGINEERING JUDGMENT.
- 3- SIGN BACKGROUND AND LEGEND COLORS SHALL CONFORM WITH THE MUTCD AND NCDOT STANDARD PRACTICE.
- 4- REFER TO ASSOCIATED TYPICAL DRAWINGS FOR PAVEMENT MARKINGS AT ROUNDABOUTS.
- 5- REFER TO RSD 1267.01 FOR FLEXIBLE DELINEATOR INSTALLATION GUIDELINES.
- 6- W11-2, W16-7PL, AND R1-6 SHALL USE FLUORESCENT YELLOW-GREEN SHEETING IN PLACE OF YELLOW SHEETING.
- 7- OPTIONAL SIGNS THAT COULD BE INSTALLED WITH W2-6 WOULD ALSO INCLUDE W13-1P, W16-17P AND W16-12P. OPTIONAL SIGNS SHALL BE INSTALLED AT THE DISCRETION OF THE ENGINEER.
- 8- RIGHT SIDE POST-MOUNTED YIELD SIGNS SHALL BE ANGLED TO FORM AN EXTENSION OF THE YIELD LINE.

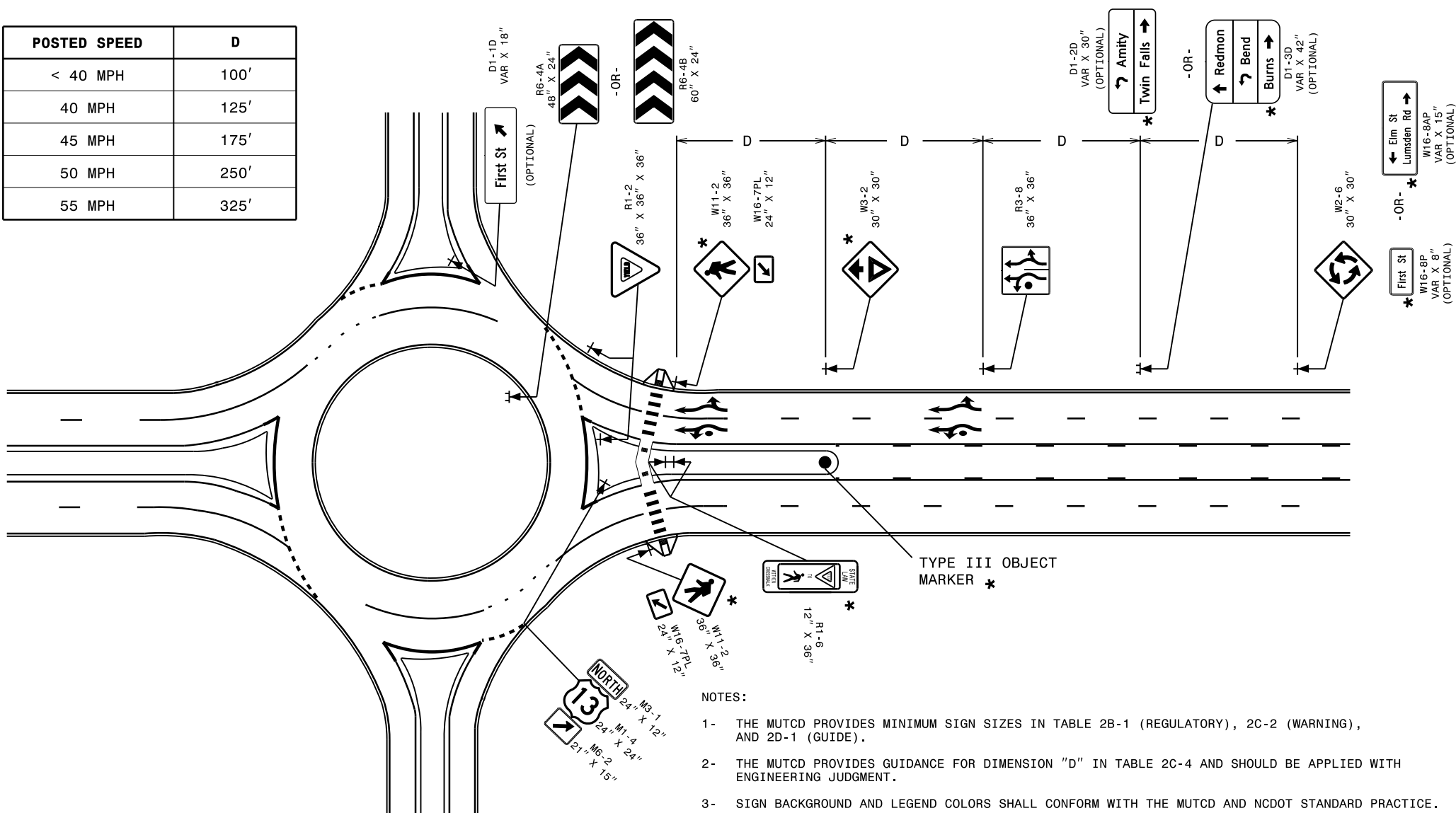
1-18

ROADWAY STANDARD DRAWING FOR
**SINGLE LANE ROUNDABOUT
SIGNING, WITH PEDESTRIANS**

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

SHEET 1 OF 2
910.40

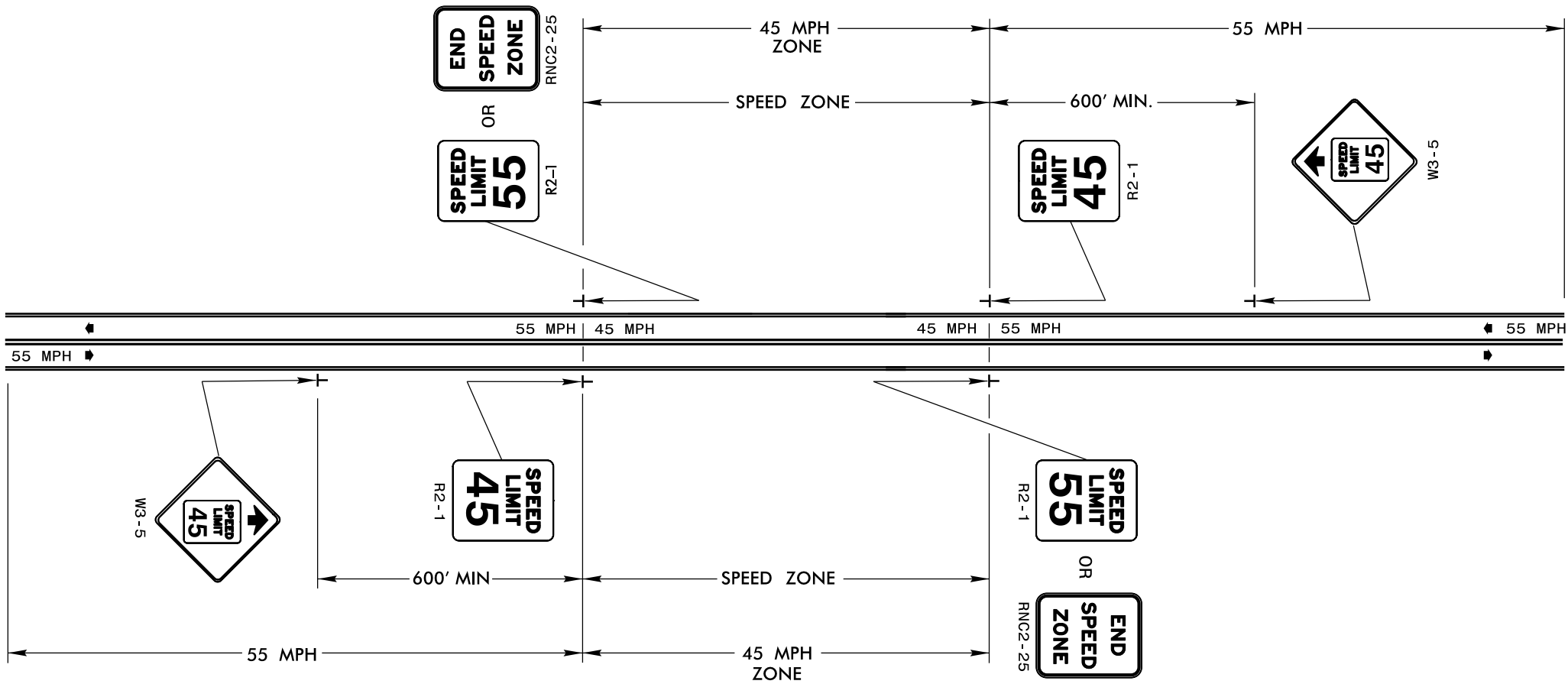
POSTED SPEED	D
< 40 MPH	100'
40 MPH	125'
45 MPH	175'
50 MPH	250'
55 MPH	325'



LEGEND	
*	OPTIONAL
↕	STATIONARY SIGN ON ONE SUPPORT
⏏	STATIONARY SIGN ON TWO SUPPORTS

NOTES:

- 1- THE MUTCD PROVIDES MINIMUM SIGN SIZES IN TABLE 2B-1 (REGULATORY), 2C-2 (WARNING), AND 2D-1 (GUIDE).
- 2- THE MUTCD PROVIDES GUIDANCE FOR DIMENSION "D" IN TABLE 2C-4 AND SHOULD BE APPLIED WITH ENGINEERING JUDGMENT.
- 3- SIGN BACKGROUND AND LEGEND COLORS SHALL CONFORM WITH THE MUTCD AND NCDOT STANDARD PRACTICE.
- 4- REFER TO ASSOCIATED TYPICAL DRAWINGS FOR PAVEMENT MARKINGS AT ROUNDABOUTS.
- 5- REFER TO RSD 1267.01 FOR FLEXIBLE DELINEATOR INSTALLATION GUIDELINES.
- 6- W11-2, W16-7PL, AND R1-6 SHALL USE FLUORESCENT YELLOW-GREEN SHEETING IN PLACE OF YELLOW SHEETING.
- 7- OPTIONAL SIGNS THAT COULD BE INSTALLED WITH W2-6 WOULD ALSO INCLUDE W13-1P, W16-17P AND W16-12P. OPTIONAL SIGNS SHALL BE INSTALLED AT THE DISCRETION OF THE ENGINEER.
- 8- RIGHT SIDE POST-MOUNTED YIELD SIGNS SHALL BE ANGLED TO FORM AN EXTENSION OF THE YIELD LINE.
- 9- ADVANCE LANE CONTROL ARROW MARKINGS SHALL MATCH THE LANE CONTROLS DEPICTED IN R3-8 SIGN WHICH SHALL MATCH THE LANE CONTROLS OF THE ROUNDABOUT AND SHALL UTILIZE FISHHOOK ARROWS.



NOTES:

1. USE TABLES 2B-1 AND 2C-2 IN MUTCD FOR SIGN SIZES.
2. SIGNS INDICATING A REDUCTION IN SPEED LIMIT SHALL BE DUAL MOUNTED ON MULTILANE DIVIDED FACILITIES WITH MEDIANS.
3. IF USED, REDUCED SPEED LIMIT AHEAD (W3-5) SIGN SHALL BE INSTALLED AT LEAST 600 FEET IN ADVANCE OF THE BEGINNING OF THE SPEED ZONE, INDICATING A CHANGE IN THE SPEED LIMIT.

LEGEND	
⊥	STATIONARY SIGN
◀▶	DIRECTION OF TRAFFIC FLOW