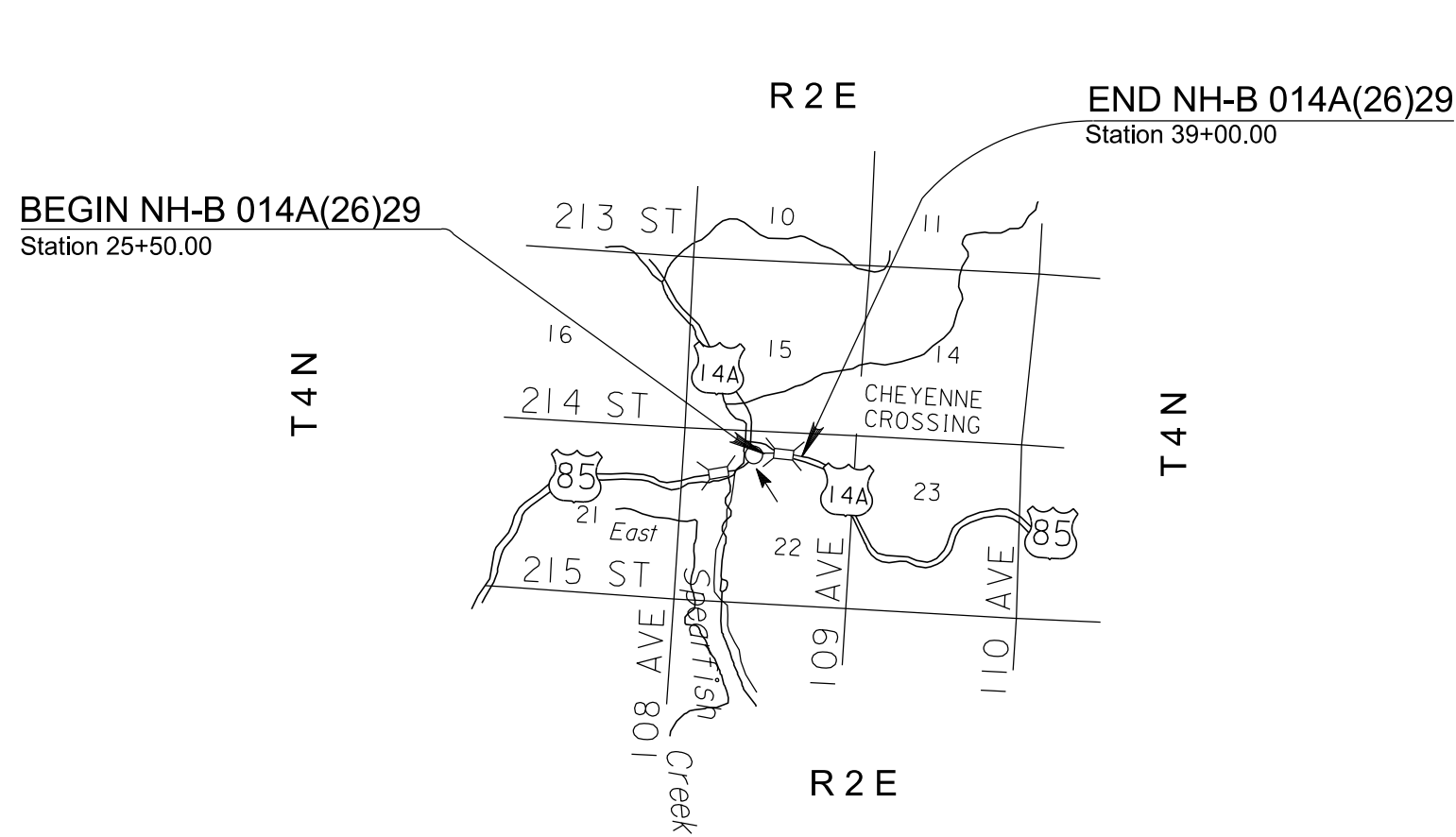


SECTION S: PERMANENT SIGNING PLANS

<div><div>SD</div><div>DOT</div></div> <div>Plotting Date: 5/16/2025</div>	PROJECT	SECTION	SHEET
	NH-B 014A(26)29	S	1/15

INDEX OF SHEETS

S1	General Layout with Index
S2-S4	Estimate with General Notes & Tables
S5-S8	Signing Location Details
S9	Typical Details
S10-S15	Standard Plates



SECTION S – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0130	Remove Traffic Sign	8	Each
110E7150	Remove Sign for Reset	3	Each
632E1320	2.0"x2.0" Perforated Tube Post	42.9	Ft
632E1340	2.5"x2.5" Perforated Tube Post	72.6	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	15	Each
632E2510	Type 2 Object Marker Back to Back	4	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	36.4	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	5.6	SqFt
632E3500	Reset Sign	3	Each

GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for “Remove Traffic Sign”. Quantities will be per assembly at the contract unit price per each.

REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for “Remove Sign for Reset”. All costs for resetting the existing signs will be incidental to the contract unit price per each for “Reset Sign”. All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

NEW PERMANENT SIGNING

All signs will be manufactured in accordance with the sheeting manufacturer’s recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films.

All Flat Aluminum Signs, Nonremovable Copy High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type IV. All Flat Aluminum Signs, Nonremovable Copy Super/Very High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type XI.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware will be incidental to the contract unit price per square foot for “Flat Aluminum Sign, Nonremovable Copy High Intensity” or “Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity”.



Plotting Date: 5/16/2025

PROJECT	SECTION	SHEET
NH-B 014A(26)29	S	2/15

SQUARE TUBE ANCHOR SLEEVE

The Contractor will furnish and install new 2.5” x 2.5” x 18”, 12 Gauge square tube anchor sleeve or equivalent components as approved by the Engineer for 2.0” x 2.0” perforated tube posts. A 2.25” x 2.25” x 4’, 12 Gauge perforated tube post will be used as the anchor post for installation with the square tube anchor sleeve.

SQUARE TUBE POST SLEEVE

All 2.5” x 2.5”, 10 Gauge perforated tube post will be sleeved with a 2-3/16” x 2-3/16” x 4’, 10 Gauge perforated tube post.

WINGED SLIP BASE ANCHOR

The Contractor will furnish and install new winged slip base anchors for 2.5” x 2.5” perforated tube posts as required in the Permanent Signing Table. Winged slip base anchors will be installed using the direct drive method. Winged slip base anchors will consist of a slip base (upper), a 48-inch long winged anchor (lower), and a hardware kit.

DIGITALLY PRINTED SIGNS

Digitally printed signs will be allowed on this project. If the Contractor elects to provide digitally printed signs, such signs will adhere to the following specifications.

PROTECTIVE OVERLAY FILM

Permanent traffic signs printed with digital ink systems will be fabricated with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. The overlamine will comply with the retroreflective sheeting manufacturer's recommendations to ensure proper adhesion and transparency and will also meet the reflective film durability as identified in Table 1.

Table 1: Retroreflective Film Minimum Durability Requirements

ASTM D4956 Type	Full Sign Replacement Term (years)	Sheeting Replacement Term (years)
I	0	7
III	7	10
IV	7	10
VIII	7	10
IX	7	12
XI	7	12

FABRICATION

Retroreflective sheeting will be applied to a properly cleaned and prepared aluminum sign blank in accordance with the retroreflective sheeting manufacturer's recommendations. Sign legend will be applied using digital print technologies and systems in accordance with the retroreflective sheeting manufacturer's recommendations and the requirements of these plans.

Finished signs will be free of ragged edges and must be supplied clean and free of scratches, grease, oil, lubricants or other contaminants. Minor blemishes (dirt speck, dust, etc.) may settle on the fresh ink surface or become entrapped between the sheeting surface and transparent overlay film due to static charge within the sign shop environment. Any blemish must be minor and not interfere with the communication of the sign message to the motorist. The blemish must not be visible to the naked eye when viewed from 30 feet or greater.

After application of the retroreflective sheeting, sign blanks will be stacked and packaged face to face, back to back, and protected in accordance with the sheeting manufacturer's recommendations. Finished signs will be securely packaged to prevent damage during transit or storage according to the sheeting manufacturer's recommendations.

TRAFFIC SIGN PERFORMANCE WARRANTY PROVISIONS

Based on the ASTM Type of sheeting specified, traffic control signs will be warranted for the duration shown in Table 1. Full product terms and conditions are as established by each sheeting manufacturer and may contain certain limitations based on sheeting and ink colors, and geographic exposure of the sign. A copy of the warranty document with complete details of terms and conditions will be supplied if requested by the Engineer.

CERTIFIED DIGITAL SIGN FABRICATOR

Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.

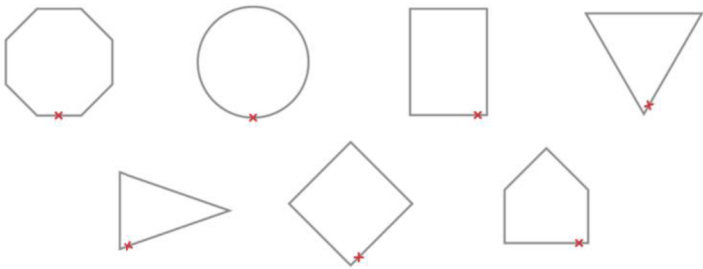
DATE TAGGING SIGNS WITH PERTINENT INFORMATION

All digitally printed signs are required to be date-tagged with the following 2 components:

1.

Date tags on the back of signs
Tags will have the following information and be fabricated with material and printing system that are as durable as the warranted sign.
 - Name of Sign Fabricator
 - Date the sign was fabricated (month and year)
 - Process that was used for sign fabrication (digitally printed)
 - Supplier of sheeting that was used for fabricating the sign.
2.

Border date
The month and year (mm/yyyy) of sign fabrication will be printed in the border of the sign in 3/8" sans serif font. Border date will be printed with the same warranted printed system as the sign face. The date should be printed in the locations indicated below.



DELINEATORS

The contractor will be responsible for installing new delineators for this project. All costs for materials, equipment and labor in install new delineators will be included in the cost for each "4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post".

DELINEATOR TABLE

	BEGIN	END	TOTAL SEGMENT LENGTH (MI)	TOTAL SEGMENT LENGTH (FT)									
STA	24+00	39+53	0.29	1,553									
			Curve Length	Deflection Angle	Degree of Curvature	Radius	Spacing	1st Delin. From Curve (2S)	2nd Delin. From Curve (3S)	3rd Delin. From Curve (6S)	# Delins. Outside of Curve	# Delins. Inside of Curve	Total Delins. Per Curve
STA	DIR CRV												
11+40	R		696.1	20.88	3.00	1910.0	130	260	300	300	5	1	12

Total Length of Curves (Ft)	696	Total Delineators for Curves (includes the 3 in advance of and also the 3 proceeding away from the curve for each location)	12
Total Length of Tangents (Ft)	857		
		TOTAL (4"x4" White Back to Back with 1.12 Lb/Ft Post) DELINEATORS	15

OBJECT MARKERS

The contractor will be responsible for installing new object markers as specified in the Standard Plates for this project. All costs for materials, equipment and labor in install new object markers will be included in the cost for each "Type 2 Object Marker Back to Back".

PERMANENT SIGNING TABLE

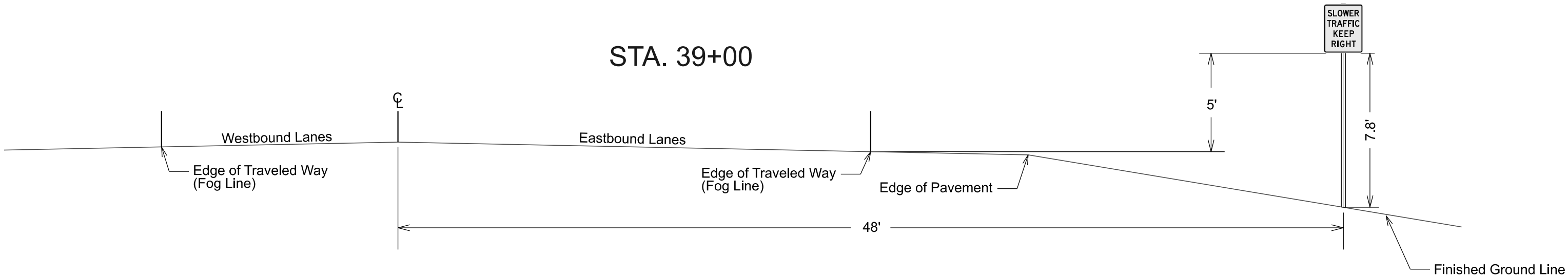
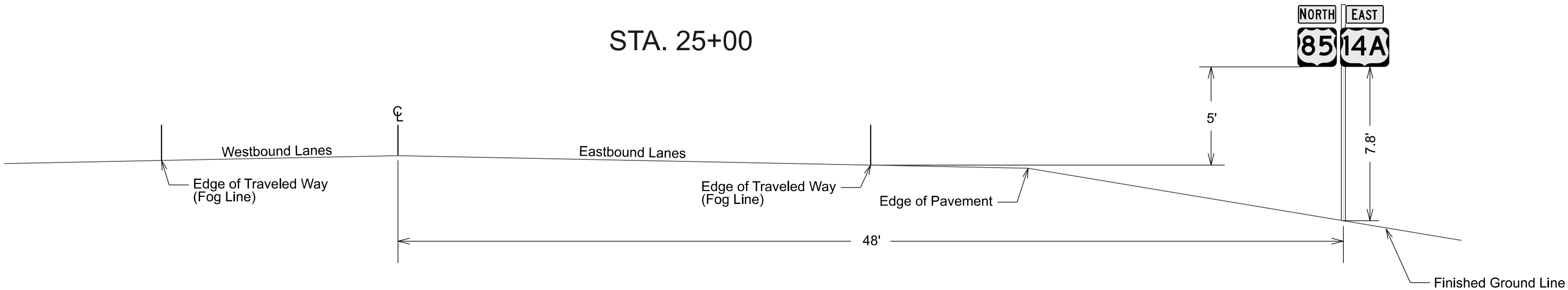
PCN 06XL - PERMANENT SIGNING																									FLAT ALUMINUM SIGN			REMOVE SIGN FOR RESET & RESET SIGN		
HWY	MRM	STA	SIGN										POST										SIGN DESCRIPTION	WORK TO BE DONE	LF of 2.0"	LF of 2.5"	SQFT IV	SQFT XI	REMOVE SIGN	
			Side of Road	Width (in)	Height (in)	Direction Facing	Location	New Sign	Sign Type	Remove Existing	Square Footage	Sheeting Type	New Post	Length Post #1 (ft)	Offset to center of Post #1 (ft)	Length Post #2 (ft)	Offset to center of Post #2 (ft)	Size (in)	# of Posts	Shear Slip Base										
014A	29.15+0.037		Right	24	30	West	ROW	YES	FLAT ALUM	YES	5.0	IV	NO									R2-1: SPEED LIMIT 55	Remove sign. Install new sign on existing post.			5.0		1		
014A	29.15+0.074		Right	36	30	West	ROW	NO	FLAT ALUM	NO	7.5	IV	NO									ADOPT-A-HIGHWAY LITTER CONTROL	Leave sign in place.							
			Right	30	30	West		NO	FLAT ALUM	NO	6.3	XI										LITTER CREW AHEAD - HINGED								
014A	29.15+0.109	Existing: 24+67 New: 24+75	Left	84	18	East	ROW	NO	FLAT ALUM	YES	10.5	IV	YES	9.3	36.0	10.0	40.2	2.5	2	YES	D1-1D: TOWN BOARD - CHEYENNE CROSSING	Remove sign for reset and remove posts. Reset existing signs on new posts.		19.3				1		
014A	29.15+0.114	Existing: 24+93 New: 25+00	Right	24	12	West	ROW	YES	FLAT ALUM	YES	2.0	IV	YES	11.0	48.0		2.0	1	NO	M3-2A: DIRECTIONAL MARKER - EAST - US	Remove signs and post. Install new signs on new post.	11.0		2.0		1				
				24	12	West		YES	FLAT ALUM	YES	2.0	IV								M3-1A: DIRECTIONAL MARKER - NORTH - US				2.0						
				30	24	West		YES	FLAT ALUM	YES	5.0	IV								M1-4: ROUTE MARKER (US HIGHWAYS) - US 14A				5.0						
				24	24	West		YES	FLAT ALUM	YES	4.0	IV								M1-4: ROUTE MARKER (US HIGHWAYS) - US 85				4.0						
014A	29.15+0.146	Existing: 26+86	Right	30	30	West	ROW	NO	FLAT ALUM	YES	6.3	XI	NO								ICY ROAD (HINGED)	Remove sign and post.					1			
014A	29.15+0.147	Existing: 26+64 New: 26+75	Left	108	42	East	ROW	NO	FLAT ALUM	YES	31.5	IV	YES	11.3	36.0	12.3	41.7	2.5	2	YES	D1-3: DESTINATION BOARD Newcastle, WY 45 up arrow Spearfish Canyon right arrow Spearfish 19 right arrow	Remove sign for reset and remove posts. Reset existing sign on new posts.		23.6				1		
014A	29.15+0.172	Existing: 27+96 New: 28+75	Left	30	24	East	ROW	YES	FLAT ALUM	YES	5.0	IV	YES	11.3	36.0		2.0	1	NO	M1-4: ROUTE MARKER (US HIGHWAYS) - US 14A	Remove sign and posts. Install new signs on new post.	11.3		5.0		1				
				24	24	East		YES	FLAT ALUM	YES	4.0	IV								M1-4: ROUTE MARKER (US HIGHWAYS) - US 85				4.0						
				21	15	East		YES	FLAT ALUM	YES	2.2	IV								M5-2LA: ADVANCE TURN 45 DEGREE - LEFT - US				2.2						
				21	15	East		YES	FLAT ALUM	YES	2.2	IV								M5-1RA: ADVANCE TURN 90 DEGREE - RIGHT - US				2.2						
014A	29.33+0.001	Existing: 28+60	Right	12	36	West	ROW	NO	FLAT ALUM	YES	3.0	XI	NO								OM3-R: OBJECT MARKER - TYPE 3 - RIGHT MOUNT	Remove sign and posts.					1			
014A	29.33+0.013	Existing: 29+24	Left	30	30	East	ROW	NO	FLAT ALUM	YES	6.3	XI	NO								W1-4L: LEFT REVERSE CURVE ARROW	Remove sign and posts.				1				
				18	18	East		NO	FLAT ALUM	YES	2.3	XI									W13-1P: ADVISORY SPEED PLATE 45 MPH									
014A	29.33+0.098	Existing: 33+73 New: 30+75	Left	30	48	SouthEast	ROW	NO	FLAT ALUM	YES	10.0	XI	YES	14.7	36.0	15.0	37.5	2.5	2	YES	SAFE SPEED 40 MPH	Remove sign for reset and remove posts. Reset existing signs on new posts. Mounting will be done to ensure proper functionality of Vehicle Speed Feedback Sign		29.7		1				
				28	33	SouthEast		NO	FLAT ALUM	YES	6.4	IV									VEHICLE SPEED FEEDBACK SIGN									
014A	29.33+0.102	Existing: 33+96	Right	30	30	West	ROW	NO	FLAT ALUM	YES	6.3	XI	NO								W1-2R: RIGHT CURVE ARROW	Remove sign and posts.					1			
014A	29.33+0.2	Existing: 39+53 New: 39+00	Right	24	30	NorthWest	ROW	YES	FLAT ALUM	YES	5.0	IV	YES	10.3	48.0			2.0	1	NO	R4-3: SLOWER TRAFFIC KEEP RIGHT	Remove sign and posts. Install new signs on new post.	10.3		5.0					
014A	29.33+0.2	Existing: 39+53 New: 39+53	Right	48	36	SouthEast	ROW	YES	FLAT ALUM	YES	5.6	XI	YES	10.3	48.0			2.0	1	NO	W14-3: NO PASSING ZONE	Remove sign and posts. Install new signs on new post.	10.3			5.6	1			
TOTALS:																							42.9	72.6	36.4	5.6	8	3		

SIGN CROSS SECTION



Plotting Date: 5/16/2025

PROJECT		SECTION	SHEET
NH-B 014A(26)29		S	5/15



NOTE: Station is from MAINLINE alignment. Sign section views are shown based on the direction the sign panel is facing.
Dimensions shown are based on the typical section. The contractor will still be responsible for verifying all lengths and heights before manufacturing each post.

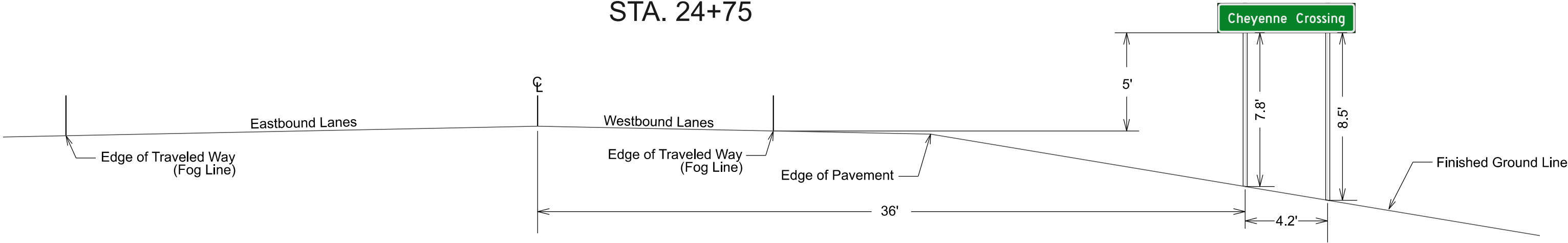
SIGN CROSS SECTION



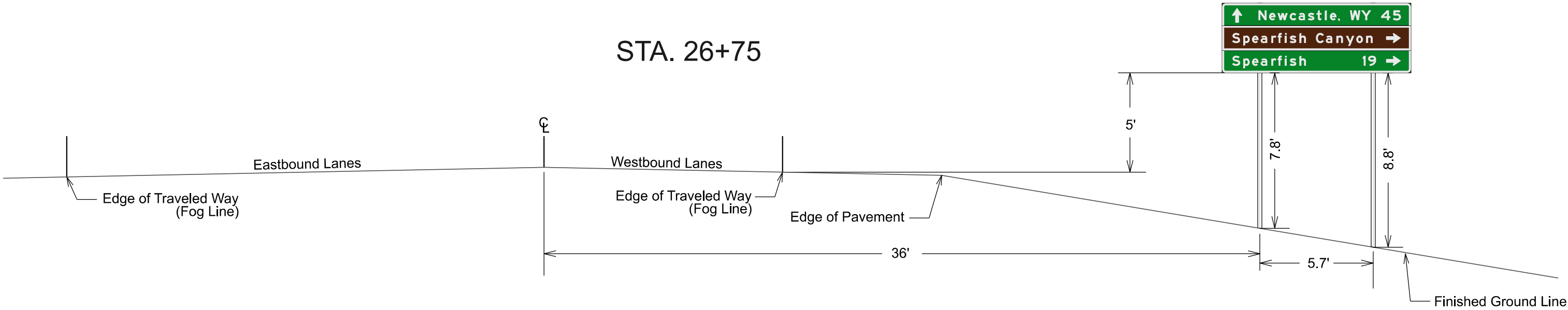
Plotting Date: 5/16/2025

PROJECT		SECTION	SHEET
NH-B 014A(26)29		S	6/15

STA. 24+75



STA. 26+75



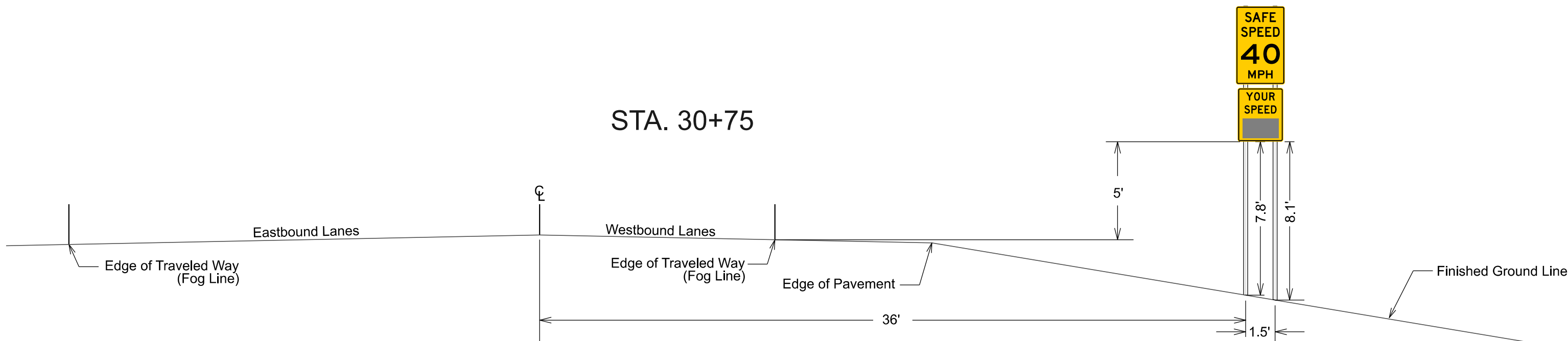
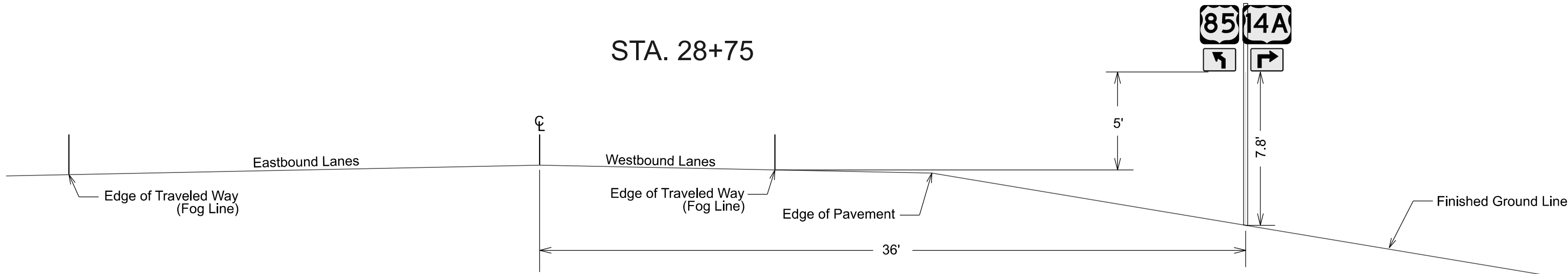
NOTE: Station is from MAINLINE alignment. Sign section views are shown based on the direction the sign panel is facing.
Dimensions shown are based on the typical section. The contractor will still be responsible for verifying all lengths and heights before manufacturing each post.

SIGN CROSS SECTION



Plotting Date: 5/16/2025

PROJECT		SECTION	SHEET
NH-B 014A(26)29		S	7/15



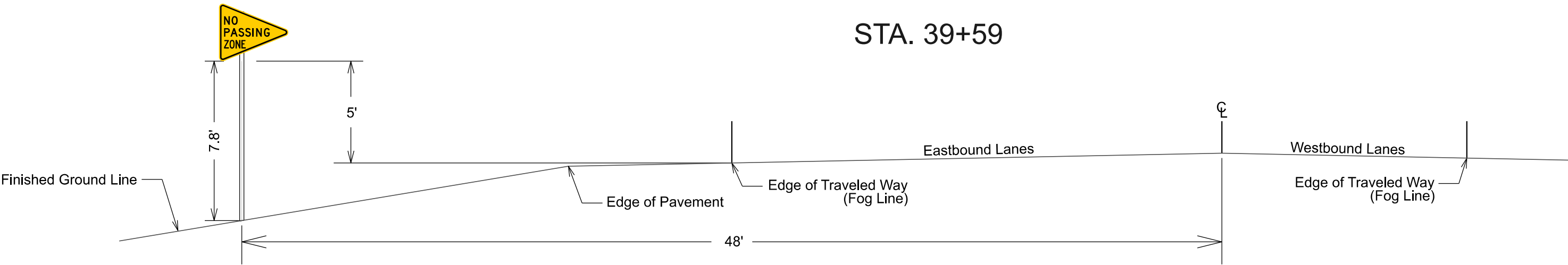
NOTE: Station is from MAINLINE alignment. Sign section views are shown based on the direction the sign panel is facing.
Dimensions shown are based on the typical section. The contractor will still be responsible for verifying all lengths and heights before manufacturing each post.

SIGN CROSS SECTION



Plotting Date: 5/16/2025

PROJECT		SECTION	SHEET
NH-B 014A(26)29		S	8/15



NOTE: Station is from MAINLINE alignment. Sign section views are shown based on the direction the sign panel is facing.
Dimensions shown are based on the typical section. The contractor will still be responsible for verifying all lengths and heights before manufacturing each post.

SIGN BASE DETAIL

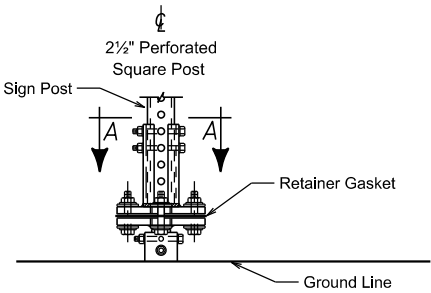


Plotting Date: 5/16/2025

PROJECT	SECTION	SHEET
NH-B 014A(26)29	S	9/15

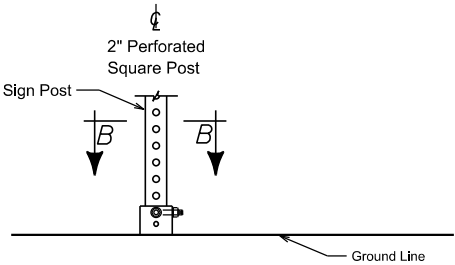
BREAKAWAY SIGN SUPPORTS

SLIP BASE DESIGN

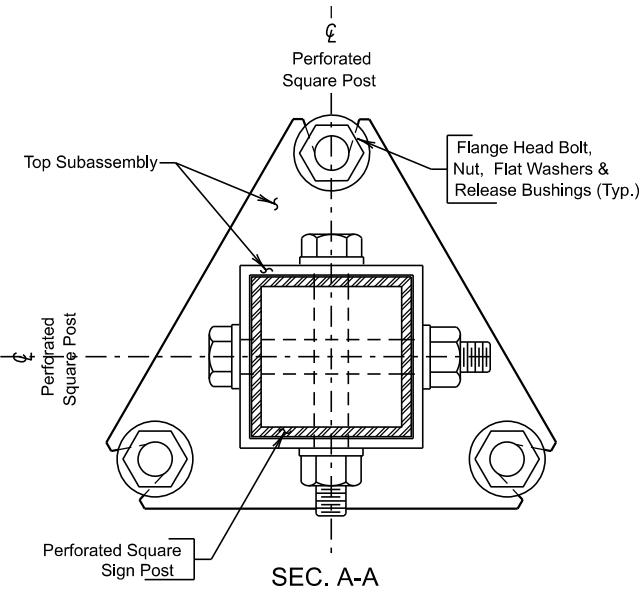


ELEVATION

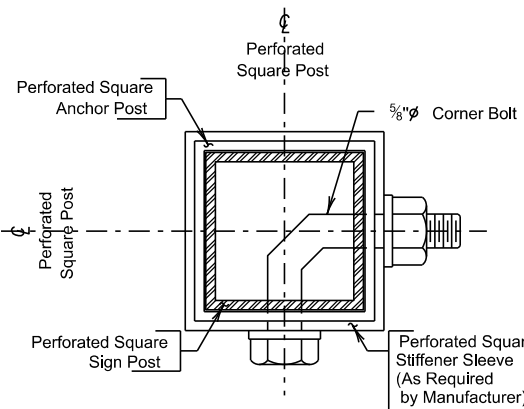
STUB POST DESIGN



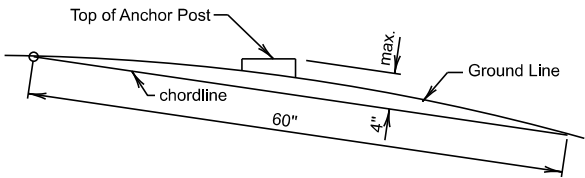
ELEVATION



SEC. A-A



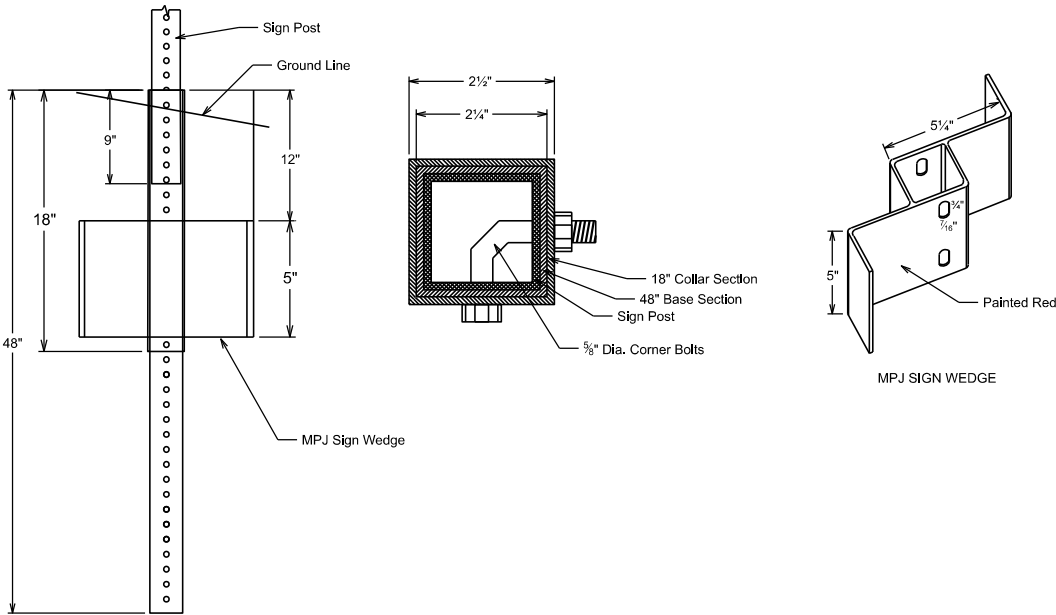
SEC. B-B



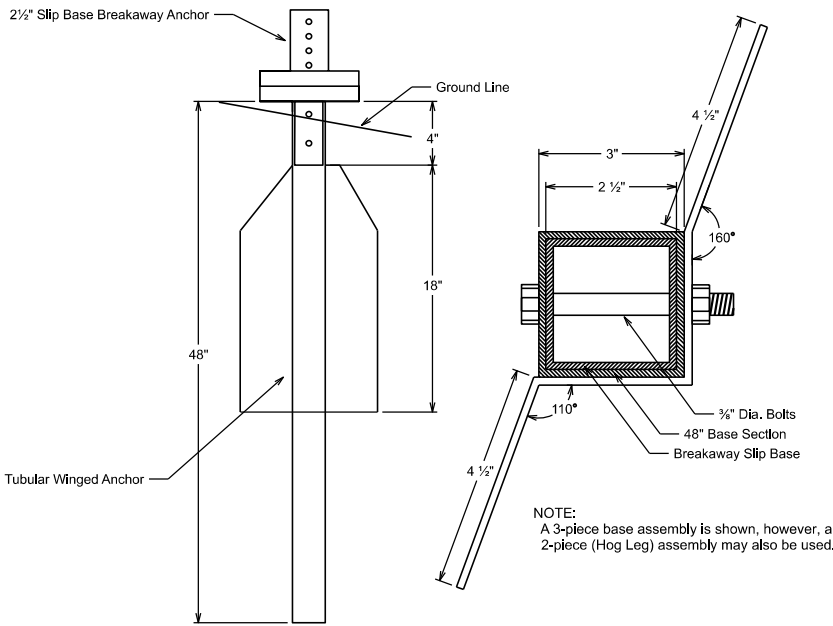
BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

NOTE: The top of anchor post will NOT extend more than 4" max above the chordline within a 60" chord.

SIGN BASE DETAILS FOR A 2" SIGN POST



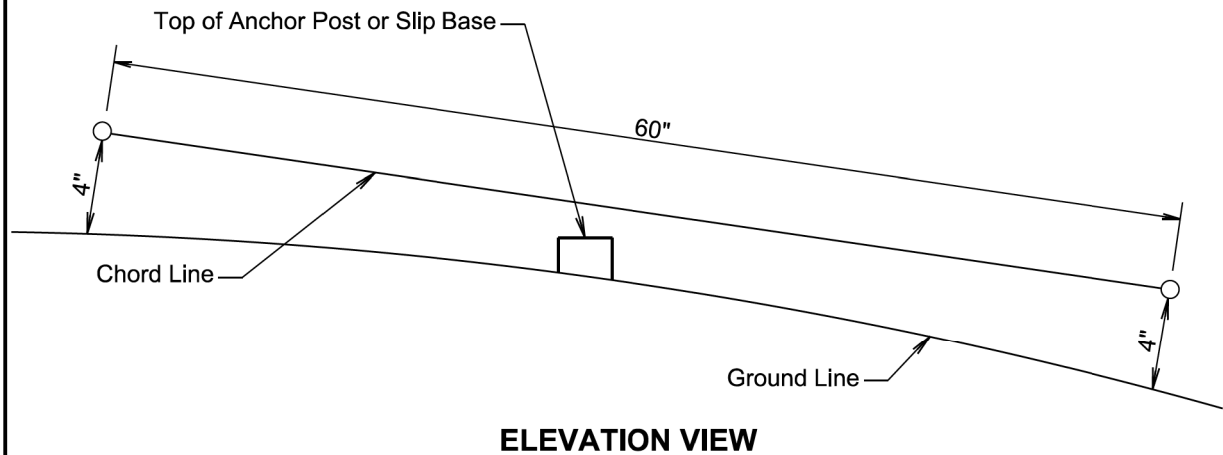
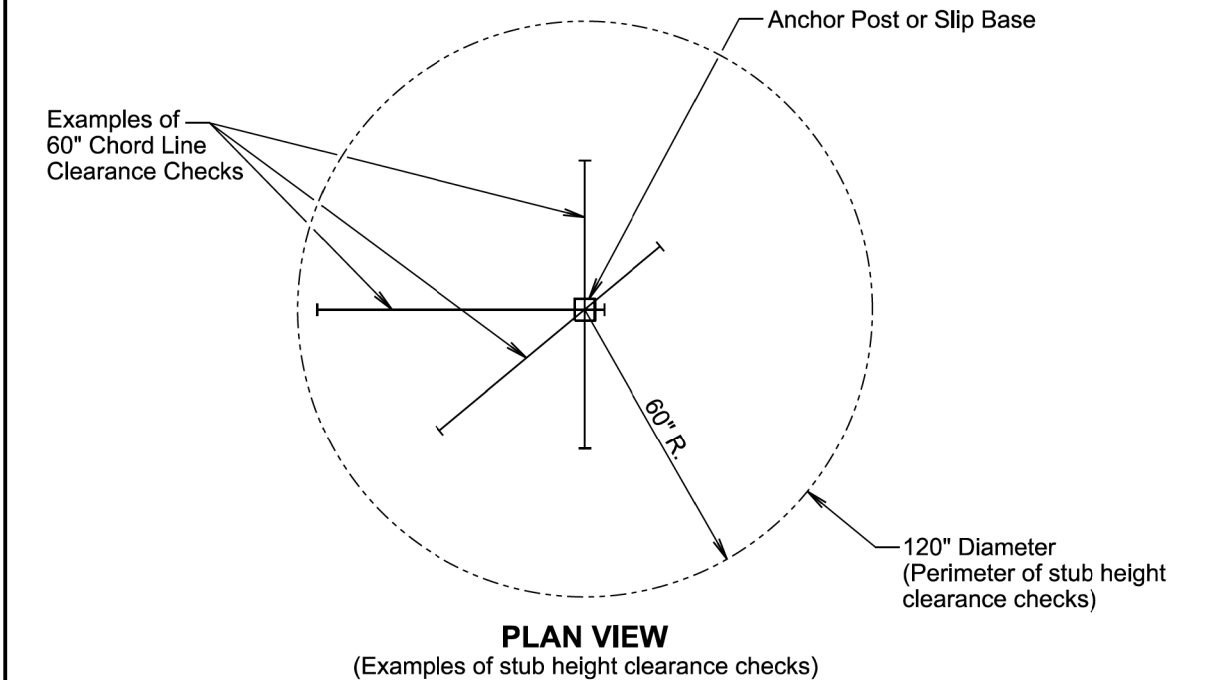
SIGN BASE DETAILS FOR A 2 1/2" SIGN POST



NOTE: A 3-piece base assembly is shown, however, a 2-piece (Hog Leg) assembly may also be used.

General Notes:

- Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Latest Edition.
- The manufacturer will provide certification that the posts and hardware furnished have essentially the same chemistry, mechanical properties and geometry as that used in the FHWA tests, and that it will meet the FHWA change in velocity requirements.
- The manufacturer will also provide certification that the breakaway system furnished will develop the full shear and bending yield strength of the sign post section being spliced.
- All posts will be galvanized in accordance with ASTM A653, Des. G-90.
- All hardware will be galvanized in accordance with ASTM A153.



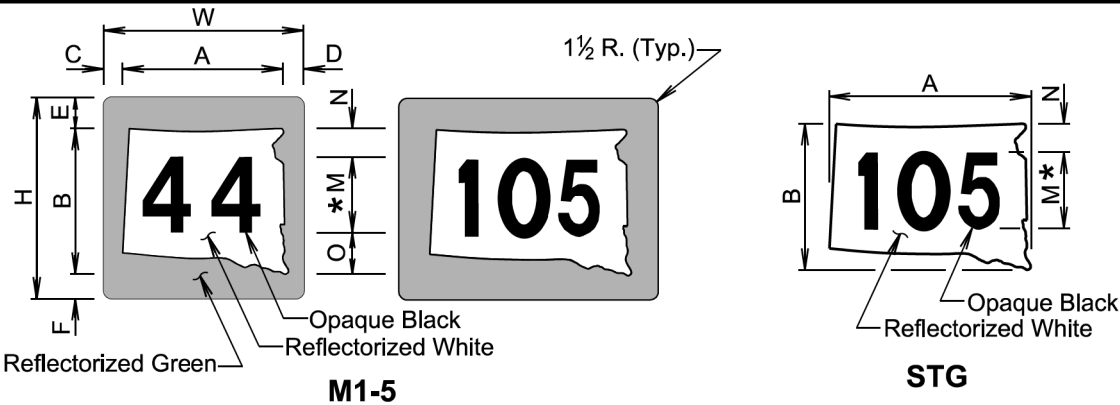
GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

January 22, 2021

<i>Published Date: 2026</i>	SD DOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 632.18
			Sheet 1 of 1

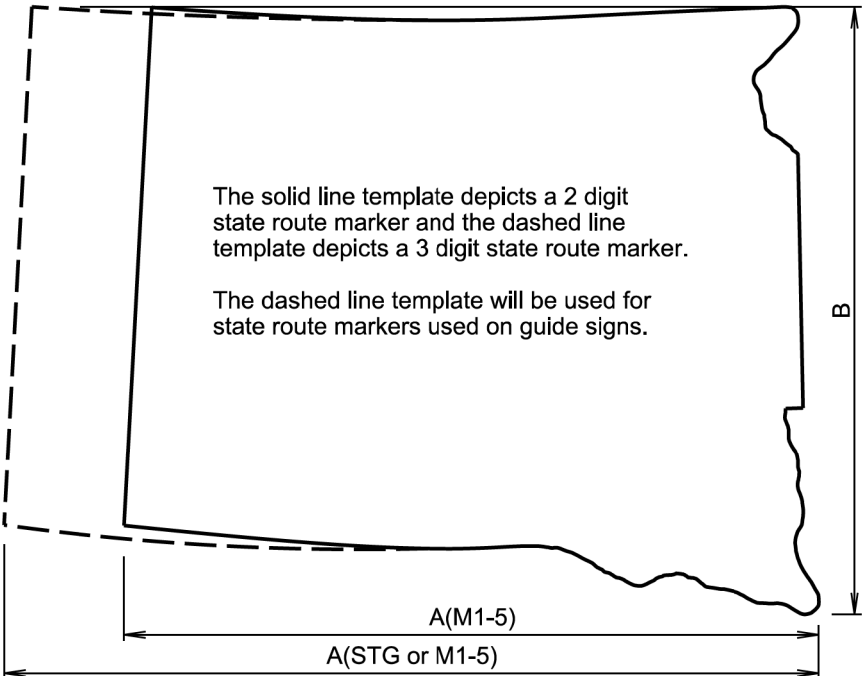


SIGN CODE	WxH	A	B	C	D	E	F	M*	N	O
M1-5	24x24	20½	18	2	1½	3½	2½	12D	2	4
M1-5 **	30x24	24	18	2¼	1¾	3½	2½	12D	2	4
M1-5	30x30	25⅝	22½	2½	1⅞	4⅝	3⅞	15D	2½	5
M1-5	36x36	30¾	27	3	2¼	5¼	3¾	18D	3	6

SIGN CODE	AxB	M*	N
STG-24	24x18	10D	4
STG-32	32x24	12D	4¾
STG-48	48x36	18D	7
STG-64	64x48	24D	9½

* In the few cases where there is not enough space for the numerals, the standard D series font may be replaced with C series font if approved by the Engineer.

** 3 Digits



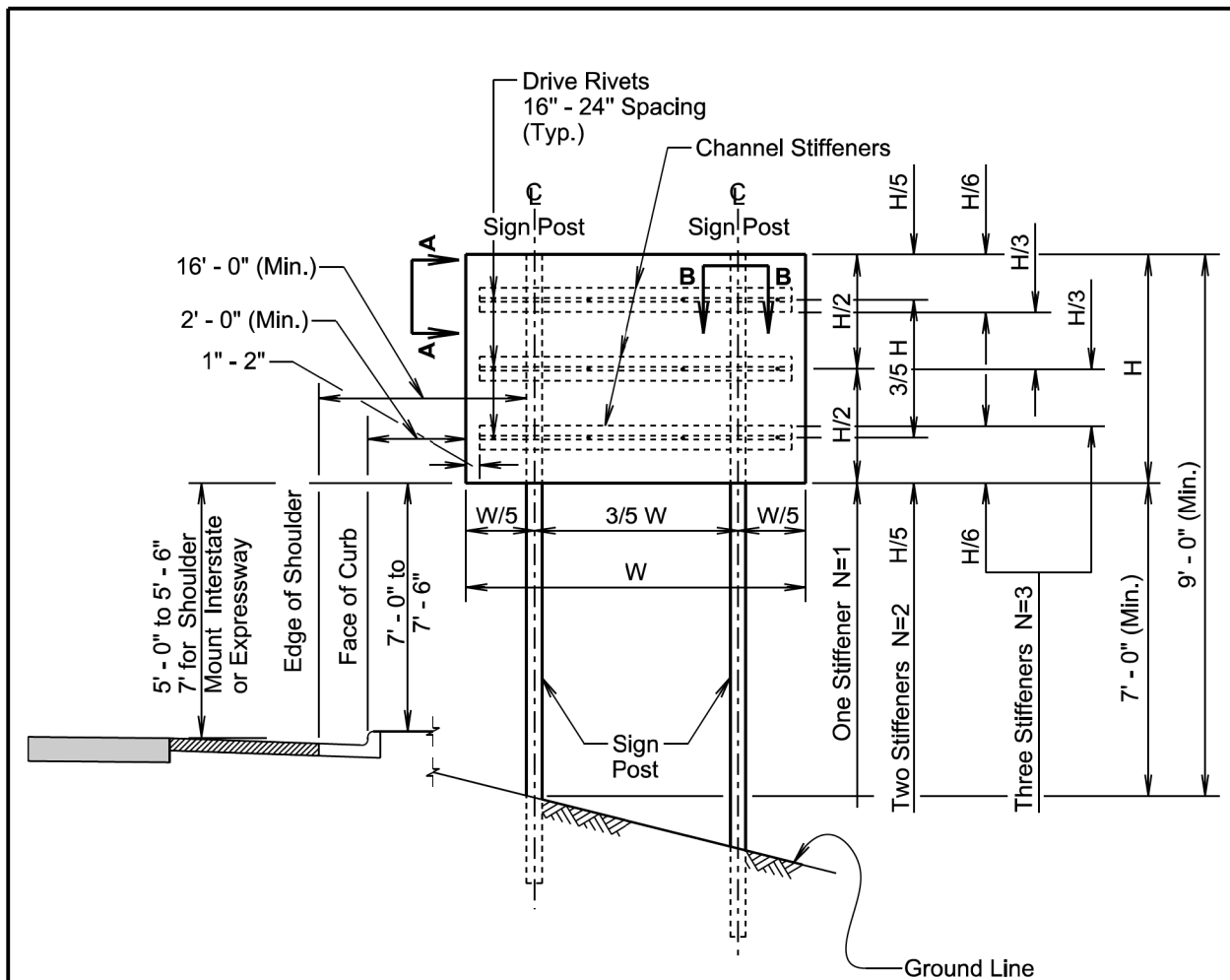
GENERAL NOTES:

The unit for all dimensions shown is inches.

Numerals will be D series font for all state route markers except as noted above.

December 23, 2019

<i>Published Date: 2026</i>	SD DOT	STATE ROUTE MARKERS	PLATE NUMBER 632.20
			Sheet 1 of 1



TWO POST BREAKAWAY SIGN SUPPORTS

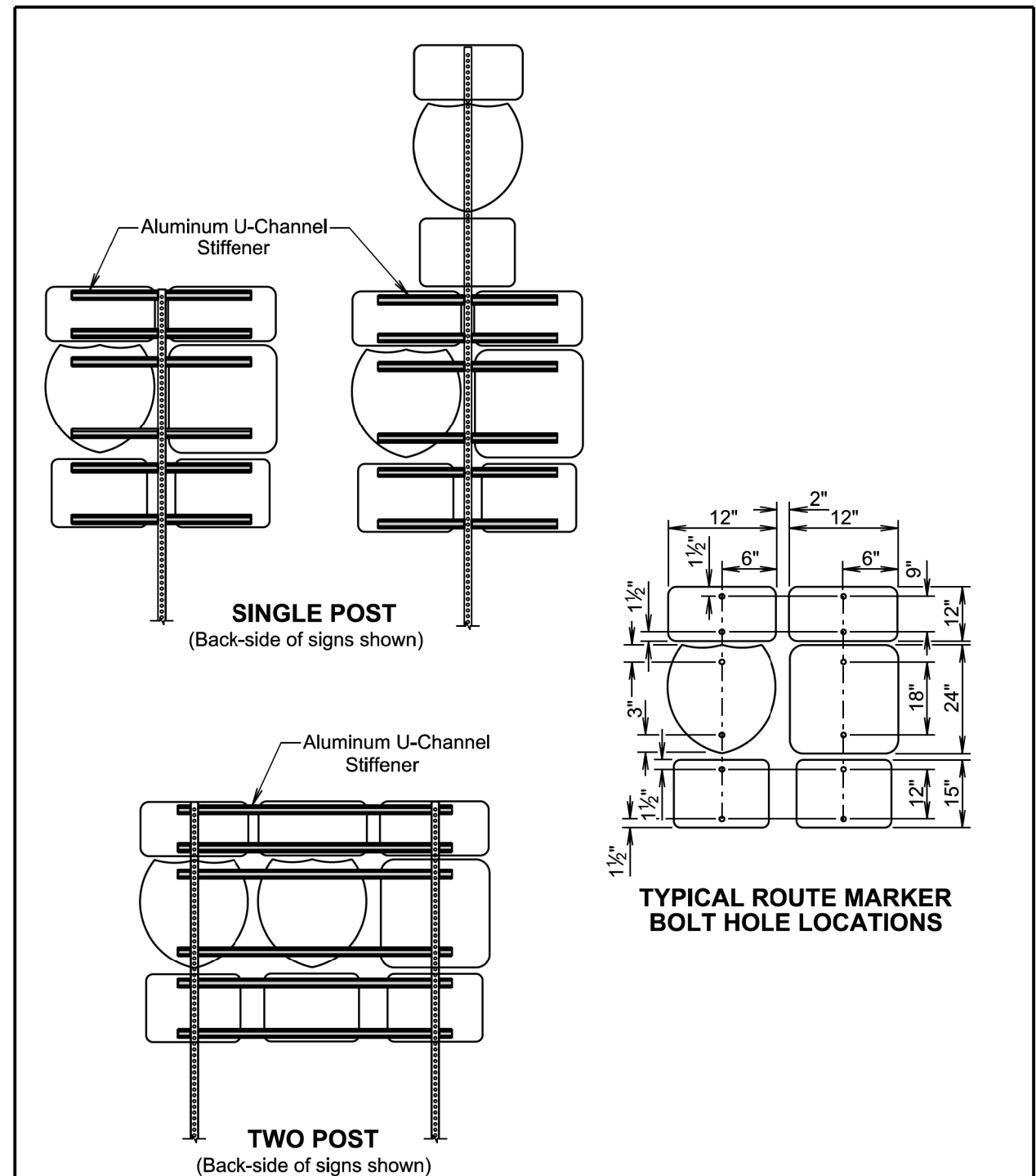
GENERAL NOTES:

The number of stiffeners used (N) will be as follows:
If $H \leq 2' - 0"$ then $N = 1$
if $2' - 0" < H \leq 8' - 0"$ then $N = 2$
if $8' - 0" < H \leq 15' - 0"$ then $N = 3$
where H is the vertical dimension of the sign.

A minimum of two bolts will be required to fasten the sign to each post.

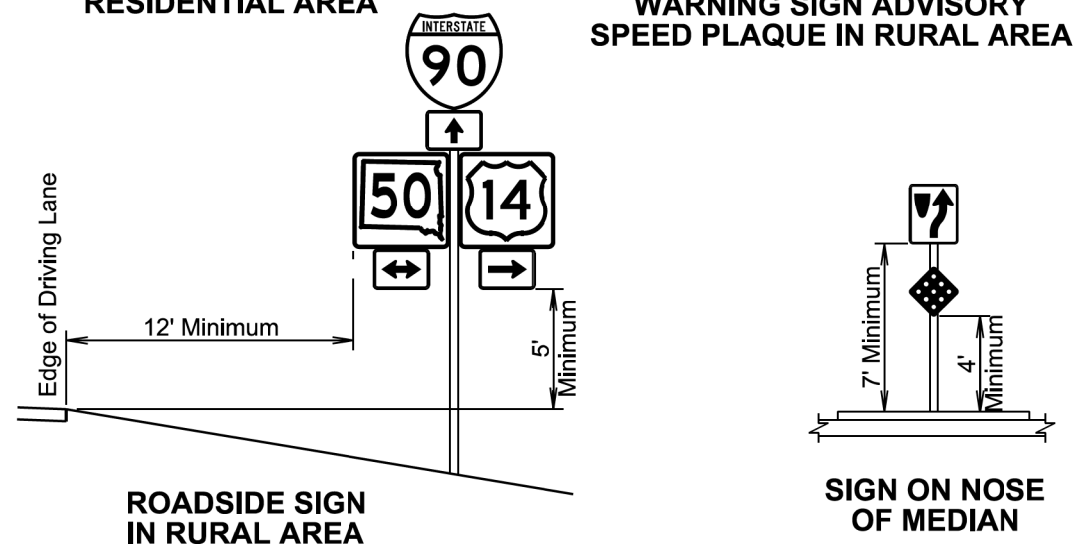
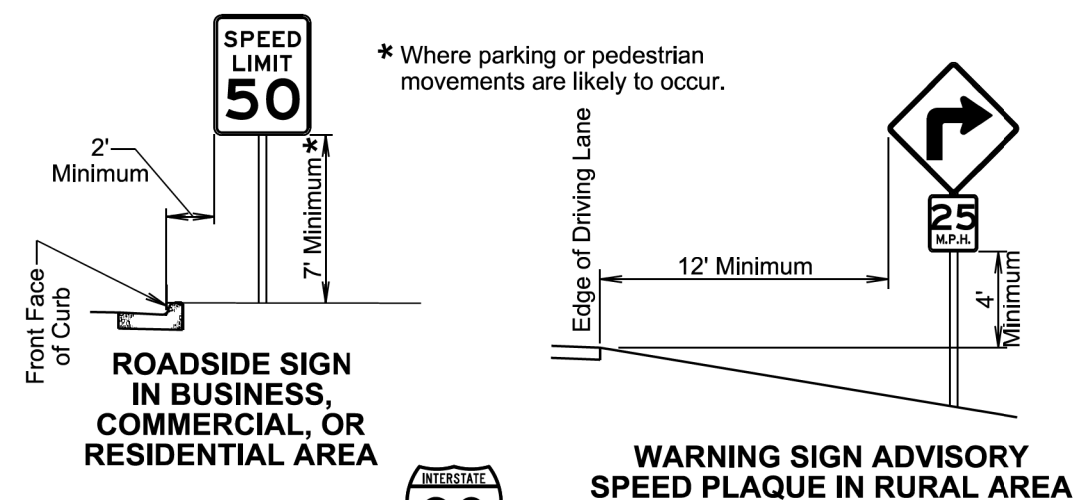
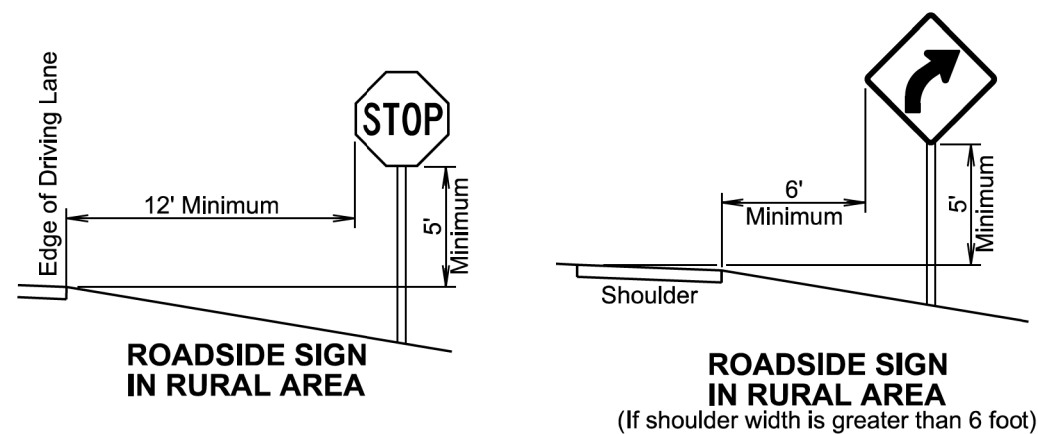
November 19, 2020

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			632.60
			Sheet 2 of 2



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Published Date: 2026	SD DOT	MULTIPLE ROUTE MARKER SIGN STIFFENER INSTALLATION DETAILS	PLATE NUMBER
			632.62
			Sheet 1 of 1



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			Sheet 1 of 1