

Section C: Traffic Control Plans

STATE OF SOUTH DAKOTA	PROJECT NH 0212(160)306	SHEET C1	TOTAL SHEETS C25
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Plotting Date: 07/20/2015

INDEX OF SHEETS

- C1 General Layout W/Index
- C2-C6 Estimate With General Notes & Tables
- C7-C14 Detour Layouts and Detour Signs
- C15 Pavement Marking Layout
- C16 Special Permanent Sign Designs
- C17-C20 Permanent Sign Installation Details
- C21-C25 Standard Plates

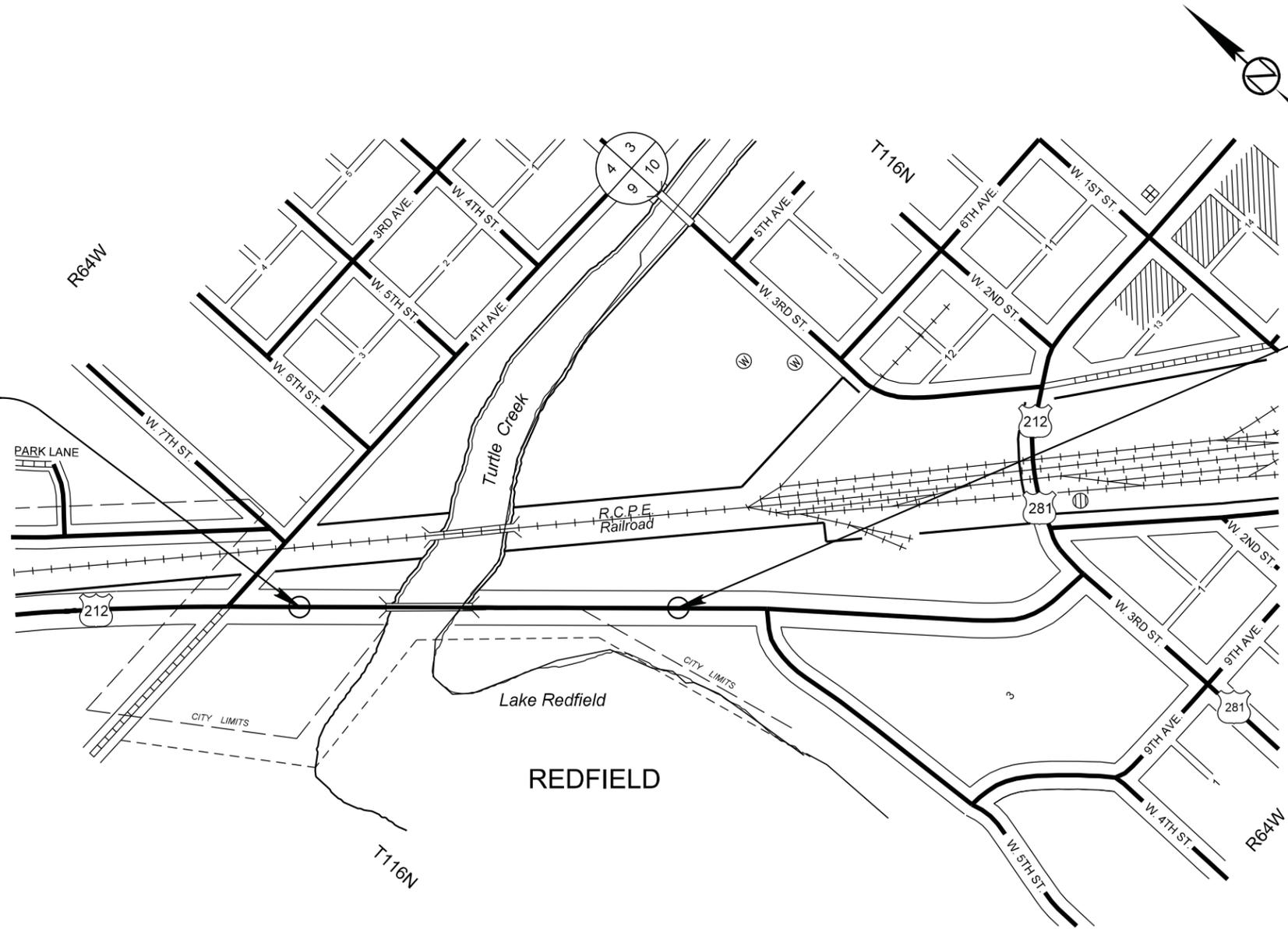
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BEGIN NH 0212(160)306
 Station 13+50
 MRM 306.00+0.016
 Str # 58-086-251

END NH 0212(160)306
 Station 26+00
 MRM 306+15+0.096



SECTION C ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0130	Remove Traffic Sign	1	Each
110E7150	Remove Sign for Reset	8	Each
632E1320	2.0"x2.0" Perforated Tube Post	79.0	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	5	Each
632E2220	Guardrail Delineator	16	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	18.3	SqFt
632E3500	Reset Sign	8	Each
633E0030	Cold Applied Plastic Pavement Marking, 24"	45	Ft
633E1300	Pavement Marking Paint, White	16	Gal
633E1305	Pavement Marking Paint, Yellow	10	Gal
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	1,051.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	16	Each
634E1002	Detour Signing	689.3	SqFt

SCOPE OF WORK

Work on this project involves, but is not limited to, replacement of bridge, grading, surfacing, guardrail, pavement marking, and erosion control.

SEQUENCE OF OPERATIONS

US 212 shall be closed to traffic to allow for replacement of the bridge, necessary grading work and surfacing. The in place structure shall not be closed or removed until the detour is properly signed and such time as continuous bridge construction and grading operations can be started and maintained.

The Contractor shall maintain access to all entrances and driveways at all times.

The following Sequence of Operations shall be adhered to. Any changes must be approved in writing by the Area Engineer prior to changes being made.

1. Complete signing upgrades and pavement markings on car detour route within city of Redfield.
2. Install erosion control measures.
3. Install detour signing prior to start of work.
4. Install road closures.
5. Remove bridge, complete grading, bridge construction and surfacing.
6. Install guardrail.
7. Complete permanent pavement markings and permanent signing.
8. Open bridge to traffic and remove detour signing.
9. Complete final items of work such as seeding and project cleanup.

GENERAL NOTES

All waste and excess material generated from the various construction activities shall be removed from the ROW as determined by the Engineer.

TRAFFIC CONTROL

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost of this work shall be incidental to the various contract items unless otherwise specified in the plans. Delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Standard Plates 634.01 and 634.23 have been included for traffic control for miscellaneous construction activities prior to structure being removed or after structure have been constructed.

Work activities during non-daylight hours are subject to prior approval.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

Traffic Control signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

UPGRADES TO CAR DETOUR ROUTE WITHIN THE CITY OF REDFIELD

The following upgrades shall be made to the car detour route:

1. Install 24" Cold Applied Plastic Pavement Marking for Stop Bar on Pope Lane at the US 212 Intersection. (Length = 45 Ft)
2. Install Railroad Crossing pavement markings per Standard Plate 633.10 on 4th Ave.
3. Install a yellow centerline skip on the car detour route. (Route Length = 0.6 miles)
4. Install a temporary STOP sign in the NW quadrant of the intersection of 4th Ave. and W. 3rd St. and a temporary Stop Ahead sign to the North of temporary STOP sign. (Included in Itemized List for Traffic Control Signs.)
5. Temporarily remove the Yield Sign in the SW quadrant of the intersection of 4th Ave. and W. 3rd St.

The Yield signs to be removed shall be replaced upon completion of the project. The Contractor shall be responsible for properly storing the signs and replacing any damaged or missing sign at the Contractors expense.

All costs associated with removal of Yield signs, existing posts, and replacement of Yield signs shall be incidental to other work and there will be no direct payment for this work.

DETOUR SIGNS

The Contractor shall furnish the advisory detour route signs, including posts and miscellaneous hardware. The cost of furnishing, installing, maintaining, relocating, covering, uncovering, and removing signs shall be incidental to the contract unit price per square foot for "Temporary Signing". The posts used for installing the signs shall yield upon impact and be as designated in the plans.

When the temporary signing is not required, the installed signs shall be covered or deactivated by a method as approved by the Engineer. If the signs are covered, the covering shall completely prevent viewing of the sign. Use of plywood, cardboard or other unsuitable materials as covering will not be permitted.

Signs shall be removed during long periods of deactivation (greater than 30 days).

Upon completion of the work the signs, posts, and hardware shall remain the property of the Contractor and shall be completely removed from the project.

EXISTING SIGNING TO BE MODIFIED

Existing signing will need to be temporarily removed or covered while the detours are in use. All costs associated with removal, storage, reinstallation and covering shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Those signs to be removed and replaced shall be properly stored to prevent damage to the signs. If the signs are lost or damaged, the Contractor shall be responsible for replacing the signs at his cost.

The signs to be covered shall be covered with flat sheeting that covers the entire message that is to be covered. The attachment of the cover to the sign shall not damage the sign. The color of the cover sheeting shall be green.

TABLE OF SIGNS TO REMOVE AND REPLACE

<u>Location</u>	<u>Sign Description</u>	<u>Comments</u>
450' NE of the West US212/US281 Intersection	US 212 Route Shield and Advance Turn Arrow	Remove during construction
NW corner of the West US212/US281 Intersection	US 212 Route Shield and Right Arrow	Remove during construction

TABLE OF SIGNS TO COVER

<u>Location</u>	<u>Sign Description</u>	<u>Comments</u>
250' NE of US212/US281 Intersection	Faulkton -> ^ to US14	Cover "Faulkton ->" during construction



PERMANENT PAVEMENT MARKING PAINT

Included in the Section C Estimate of Quantities is 3 gallons of Pavement Marking Paint, Yellow to mark the yellow centerline skips on the car detour route. (Rate 4.6 gallons per mile.)

Included in the Section C Estimate of Quantities is 8 gallons of Pavement Marking Paint, White to mark the 2 Railroad Crossings on the car detour route. (Rate 4 gallons per crossing marking.)

Included in the Section C Estimate of Quantities is 7 gallons of Pavement Marking Paint, Yellow to mark the centerline skips and no passing zones on US 212 upon completion of the surfacing. Also included is 8 gallons of Pavement Marking Paint, White to mark the edge lines on US 212 upon completion of the surfacing.

Pavement Marking Paint will be paid as plans quantity and will not be measured for payment.

Traffic Control shall be incidental to the cost of application. The striper and advance or trailing warning vehicle shall be equipped with flashing amber lights or advance warning arrow panel.

All materials shall be applied as per manufacturer's recommendations.

The Contractor shall advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones. All materials shall be applied as per manufacturer's recommendations.

COLD WEATHER, WATERBORNE PAINT

Waterborne paint applied after October 15 shall be formulated as cold weather, waterborne paint and shall be applied in accordance with manufacturer's recommendations, including minimum temperature requirements.

Cold weather, waterborne paint shall conform to Section 980 of the Specifications except for the following:

980.1: Resin Binder shall be Fastrack™ XSR manufactured by Dow, or approved equal.

980.1 A. Quantitative Requirements:

Pigment, percent by weight: 60.0 – 63.0 for white and 58.5 – 61.5 for yellow.

Pigment, percent by weight; tested in accordance with ASTM D3723: 60.0 – 63.0 for white and 56.1 – 59.2 for yellow.

Non-volatile Vehicle, percent by weight; tested in accordance with NIST 141C (Method 4051.1): 41.5 minimum for white and 51.5 minimum for yellow.

PERMANENT SIGNING

Existing signs that are to be moved as per the remarks in the signing table shall be staked in the field by the Contractor and checked by the Engineer. The Contractor shall give the Engineer a minimum of one week to check staked locations prior to sign/post installation.

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

Prior to ordering sign posts, the Contractor shall verify post lengths. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off.

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

REMOVE EXISTING SIGNS

Existing signs within the project limits are summarized in the Sign Table. This table provides the approximate Stationing for each sign.

All existing signs and hardware listed to be removed shall become the property of the Contractor

Holes remaining from the removal of 4"x6" wood posts shall 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 shall be incidental to the contract unit price per each for "Remove Traffic Sign".

All existing sign posts and/or sign bases shall be removed in their entirety.

Removal of any in place signing and delineation within the project limits, not indicated in the Permanent Sign Installation Table, shall be considered incidental to other work and there will be no direct payment for this work. Removed signs, delineation and posts shall become the property of the Contractor for his disposal.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(160)306	C4	C25

NEW PERMANENT SIGNING

New signs for installation are summarized in the Sign Table.

Sign Design

Signs shall be constructed as required per the Manual on Uniform Traffic Control Devices (MUTCD), the latest edition of "Standard Highway Signs", and as specified on the Special Sign Design sheets.

All upper/lower case letters and numerals shall be as required per the MUTCD, the latest edition of "Standard Highway Signs", and as illustrated on the Special Sign Design sheets.

The Contractor shall furnish the Aberdeen Region Traffic Engineer (P.O. Box 1767; Aberdeen, SD 57402) with a detailed sign layout sheet for each sign shown. These detailed sign layouts shall be approved by the Region Traffic Engineer prior to ordering the signs.

Sign Sheeting

Signs shall be constructed using High Intensity (ASTM D4956 Type IV) reflective sheeting as summarized in the US 212 Permanent Sign Installation Tables.

All signs shall be manufactured in accordance with the sheeting manufacturer's recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films. Digitally printed signs will not be accepted.

Sign Installation Hardware

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than 36 inches in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall 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 ¼ inch diameter drive rivets.

Refer to the Breakaway Sign Supports diagram for typical sign and stiffener details.

The Contractor shall 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 shall extend through each post.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware shall be incidental to the contract unit price per square foot for "Flat Aluminum Sign, Nonremovable Copy High Intensity".

SQUARE TUBE ANCHOR SLEEVE

The Contractor shall furnish and install new square tube anchor sleeve as follows:

2.5" x 18", 12 Gauge square tube anchor sleeve, (or equivalent components as approved by the Engineer).

A 2.25" x 2.25" x 4' perforated tube post (12 Gauge) shall be used as the anchor post for installation with the square tube anchor sleeve.

MILEAGE REFERENCE MARKERS

If a Mileage Reference Marker (MRM) is attached to a sign listed for replacement it shall be salvaged and reattached to the new sign in the same location. Payment for this work shall be incidental to the various signing contract items.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	1	30"	5.2	5.2
R11-2	ROAD CLOSED	4	48" x 30"	10.0	40.0
W3-1	STOP AHEAD (symbol)	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-2	DETOUR AHEAD	8	48" x 48"	16.0	128.0
W20-3	ROAD CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
M1-4	US ROUTE MARKER (3 digits)	57	30" x 24"	5.0	285.0
M3-2	DIRECTION MARKER - EAST	22	24" x 12"	2.0	44.0
M3-4	DIRECTION MARKER - WEST	35	24" x 12"	2.0	70.0
M4-4	TRUCK	38	24" x 12"	2.0	76.0
M4-8	DETOUR	57	24" x 12"	2.0	114.0
M4-8a	END DETOUR	3	24" x 18"	3.0	9.0
M4-10	DETOUR ARROW (L or R)	1	48" x 18"	6.0	6.0
M5-1L	ADVANCE TURN ARROW 90° (L or R)	9	21" x 15"	2.2	19.8
M5-1R	ADVANCE TURN ARROW 90° (L or R)	9	21" x 15"	2.2	19.8
M6-1	DIRECTION ARROW - Horizontal Single Head (L or R)	17	21" x 15"	2.2	37.4
M6-2L	DIRECTION ARROW - 45° Single Head (L or R)	1	21" x 15"	2.2	2.2
M6-3	DIRECTION ARROW - Vertical Single Head	6	21" x 15"	2.2	13.2
SPECIAL	CAR (Black Text of Orange Background)	19	24" x 12"	2.0	38.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					1051.6

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	16 Each

TABLE OF ADVISORY DETOUR SIGNING

Quantity	Sign Description	Sign Width (Ft)	Sign Height (Ft)	Total (Sq Ft)
5	US 212 Closed to Trucks 1 Mi West of Redfield - Use Alternate Route	9	6.5	292.5
7	US 212 Closed to Trucks 1 Mi West of Redfield - Use Truck Detour	8.5	6.5	386.75
5	Truck	2	1	10
TOTAL				689.25

US 212 Permanent Sign Installation Table

Station	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	Flat Aluminum sign, Nonremovable Copy High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
14+02	Lt.	Adopt A Highway	ADO-5	36	36	9.0	11	1	1			SE	4" X 6" Wood	Replace Existing Sign Assembly with New Sign Assembly on New Post
		Bald Mountain Huskies 4-H Club	ADO-1	36	12	3.0						SE		
		Litter Crew Ahead	ADO-6	30	30	6.3						SE		
14+19	Rt.	Redfield Pop. 2333					11	1		1	1	NW	4" X 6" Wood	Reset Existing Sign Assembly on New Post
		Camper Dump Station										SE		
17+00	Lt.	No Passing Zone					11	1		1	1	NW	4" X 6" Wood	Reset Existing Sign on New Post
		Left Curve Arrow					12	1		1	1	SE		Reset Existing Sign on New Post at Station 17+40
17+81	Rt.	Turtle Creek								1	1	NW	Twin Telspar	Reset Existing Sign on Existing Posts
21+14	Lt.	Turtle Creek								1	1	SE	Twin Telspar	Reset Existing Sign on Existing Posts
22+20	Lt.	Speed Limit 45 MPH					11	1		1	1	SE	4" X 6" Wood	Reset Existing Sign Assembly on New Post
		No Parking Symbol										SE		
22+20	Rt.	Speed Limit 30 MPH					11	1		1	1	NW	Telespar	Reset Existing Sign Assembly on New Post
		No Parking Symbol										NW		
26+16	Rt.	Stop Ahead					12	1		1	1	NW	4" X 6" Wood	Reset Existing Sign on New Post
					TOTAL	18.3	79.0	7	1	8	8			

US 212 Delineation Table

Station	to	Station	Distance	Spacing	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post (Each)	Guardrail Delineator	Description
13+50		26+00	1250	528	5		Both Sides of Road/Staggered Spacing
						16	4 Delineators for Each Corner of the Bridge. See Standard Plate 632.40
					Totals	5	16

DETOUR SIGNING LAYOUT

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

STATE OF SOUTH DAKOTA	PROJECT NH 0212(160)306	SHEET NO. C7	TOTAL SHEETS C25
Plotting Date: 07/17/2015			

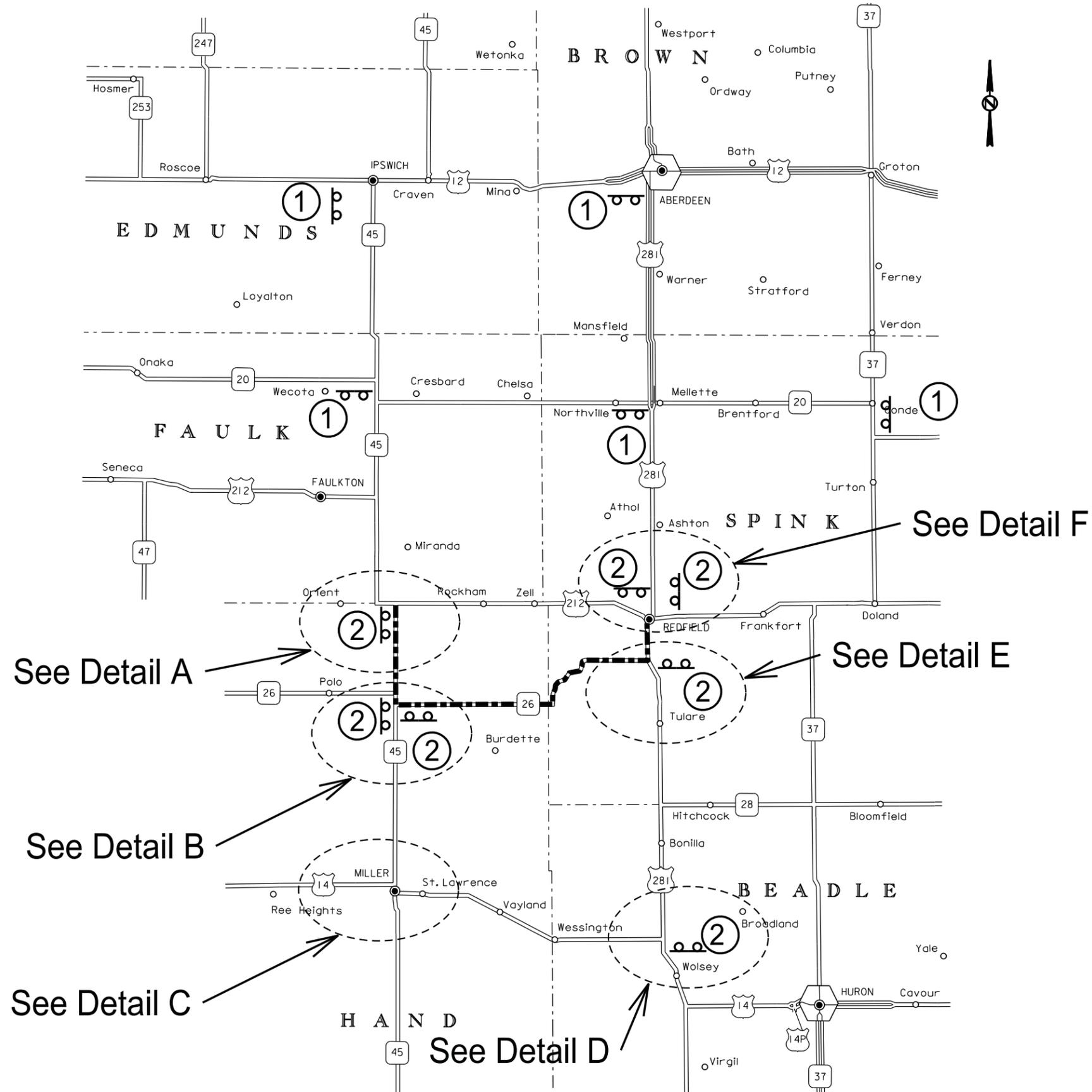
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PLOT SCALE - 1:55000

PLOT NAME - 2

FILE - ... OVERALL DETOUR LAYOUT.DGN

Truck Detour Route



①

**CLOSED
TO TRUCKS**

**1 MI WEST OF
REDFIELD**

USE ALTERNATE ROUTE

②

**CLOSED
TO TRUCKS**

**1 MI WEST OF
REDFIELD**

USE TRUCK DETOUR

See Detail A

See Detail B

See Detail C

See Detail D

See Detail E

See Detail F

PLOTTED FROM - TRAB17882

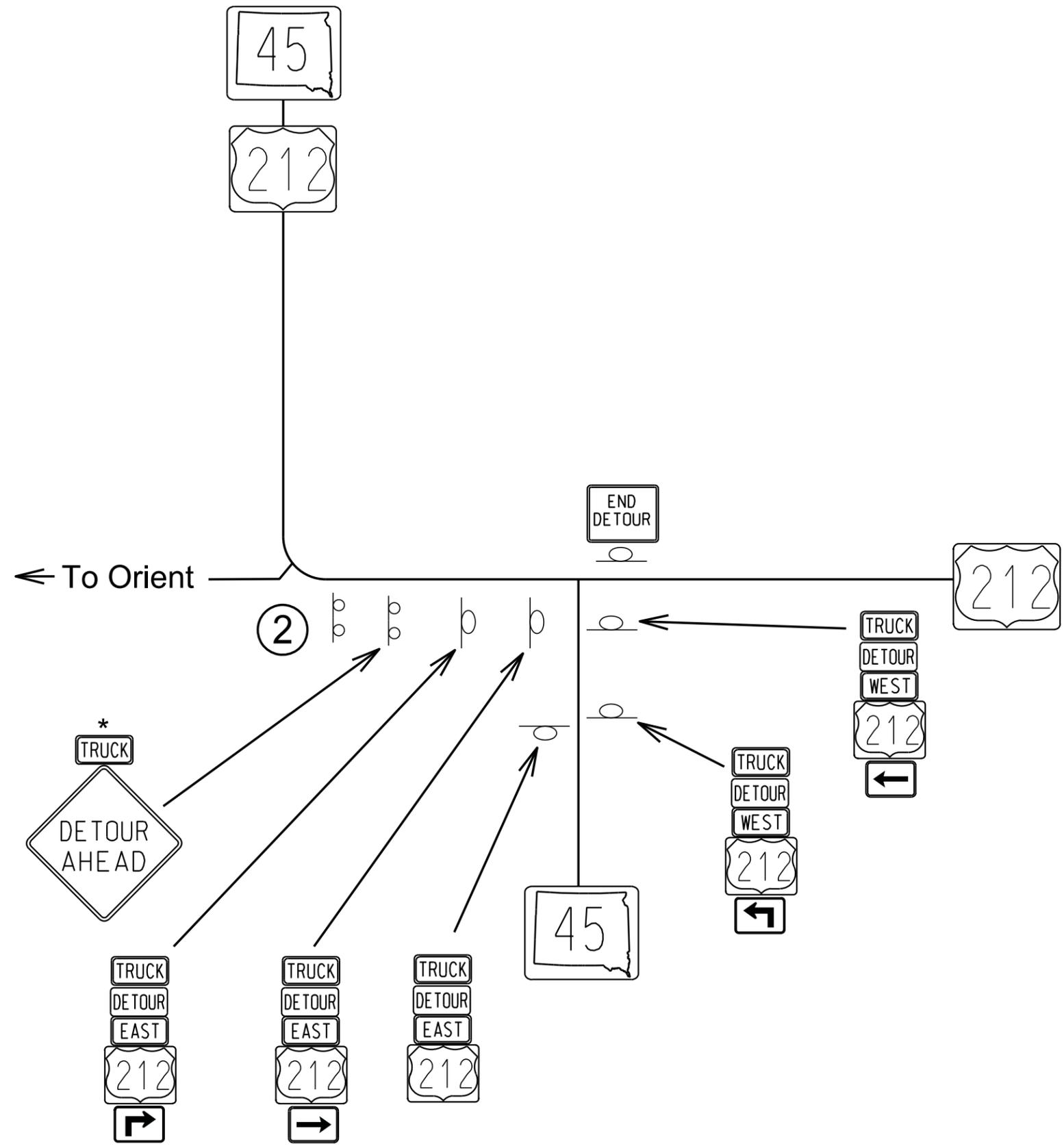
DETOUR SIGNING LAYOUT - DETAIL A

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212(160)306	C8	C25

Plotting Date: 07/17/2015

(Sheet 2 of 7)



②

212 CLOSED
TO TRUCKS
1 MI WEST OF
REDFIELD
USE TRUCK DETOUR

* See Special Sign Details

PLOT SCALE - 1:44000

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PLOT NAME - 3

FILE - ... \SECTION\DETOUR DETAIL A.DGN

DETOUR SIGNING LAYOUT - DETAIL B

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

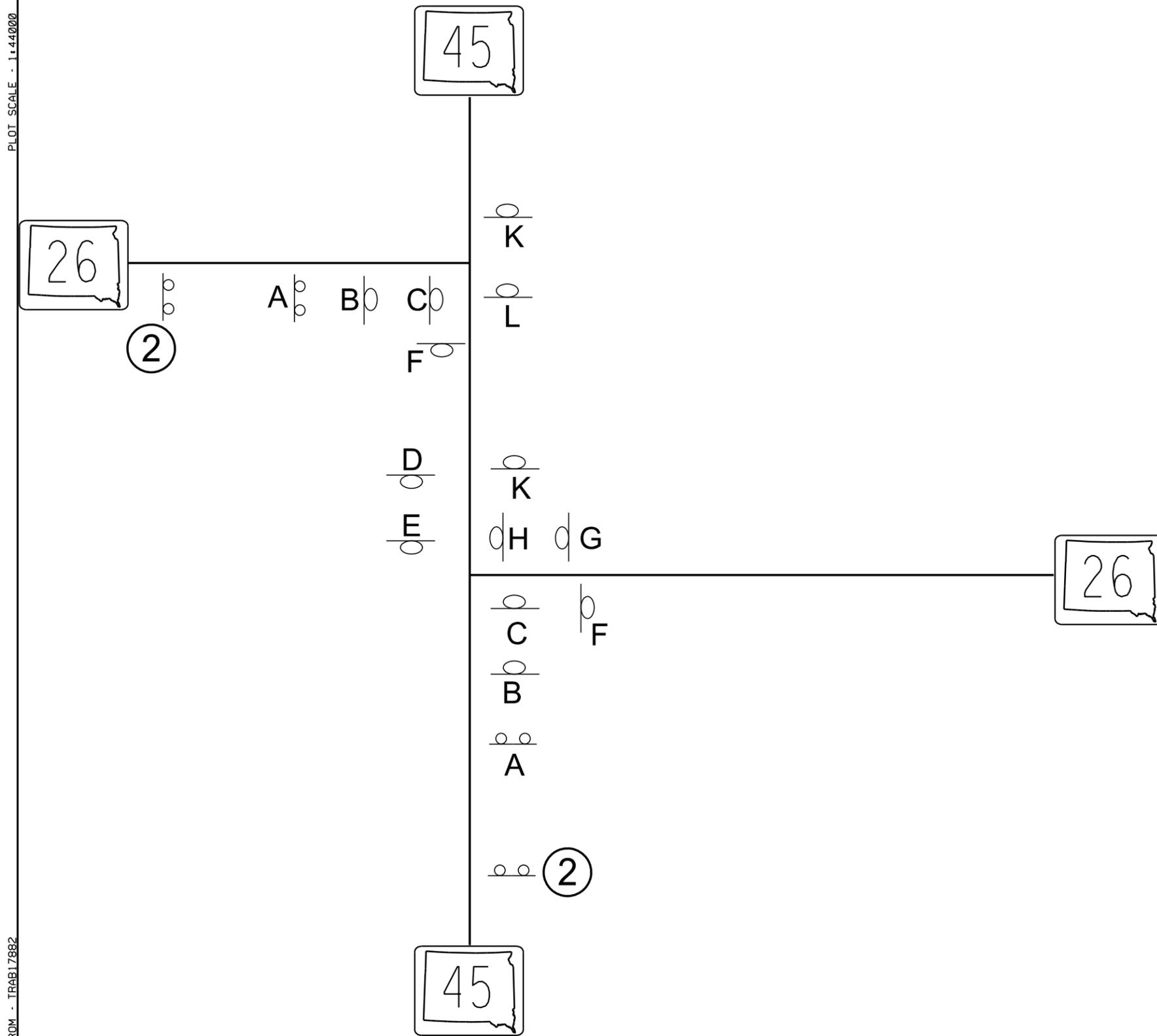
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Plotting Date: 07/17/2015			

(Sheet 3 of 7)

PLOT SCALE - 1:44000

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PLOT NAME - 4
FILE - ... \SECTION\DETOUR DETAIL B.DGN



②

212 **CLOSED TO TRUCKS**
1 MI WEST OF REDFIELD
USE TRUCK DETOUR

A

* **TRUCK**

DETOUR AHEAD

B	C	D	E	F						L
TRUCK										
DETOUR										
EAST	WEST									
212										
→	→	↶	←	↑						

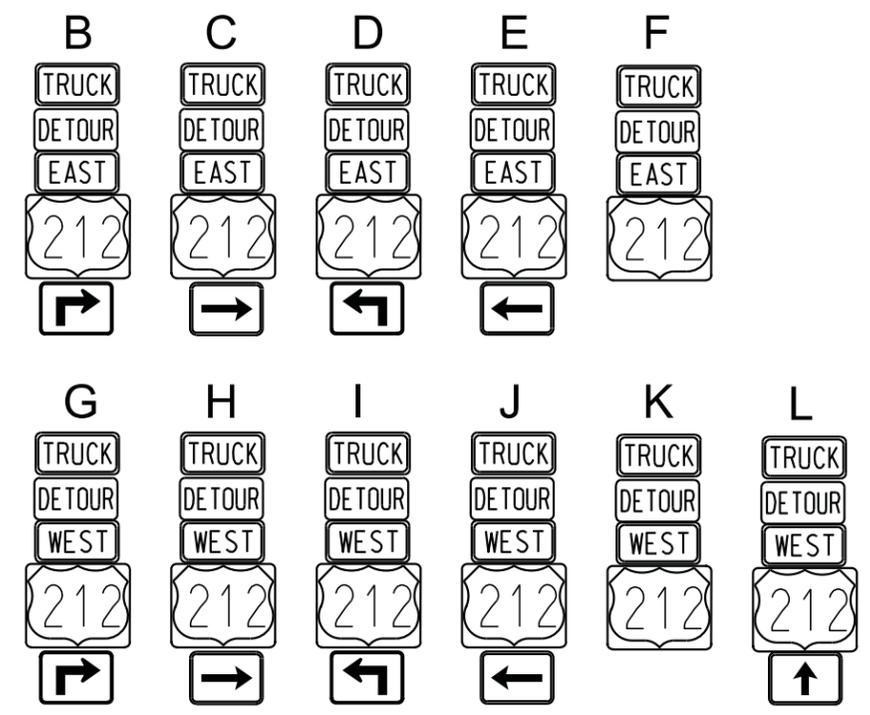
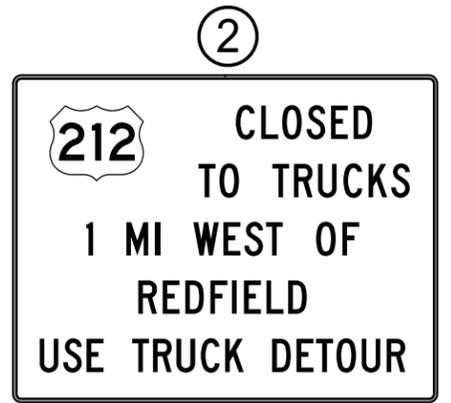
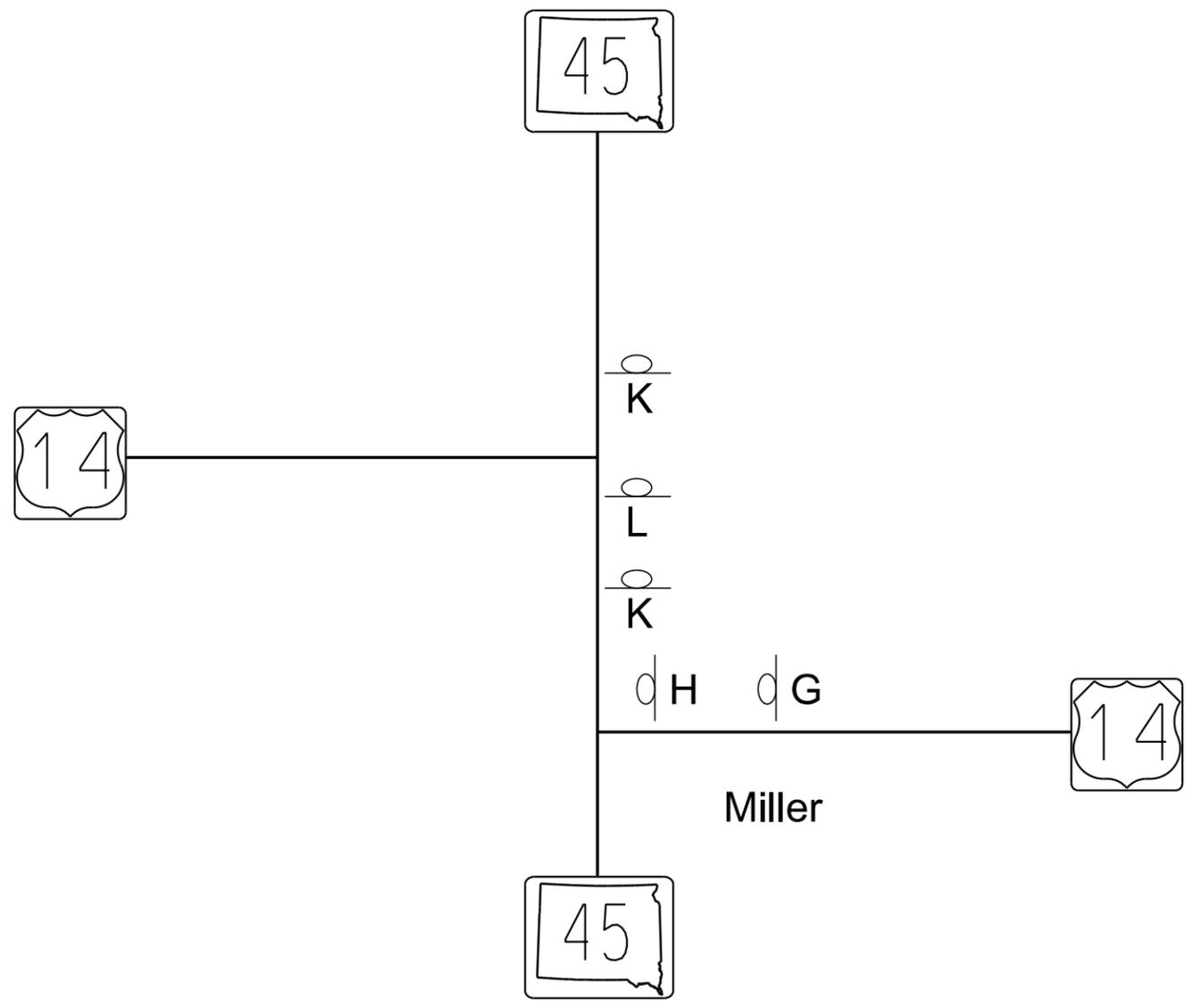
* See Special Sign Details

DETOUR SIGNING LAYOUT - DETAIL C

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

STATE OF SOUTH DAKOTA	PROJECT NH 0212 (160) 306	SHEET NO. C10	TOTAL SHEETS C25
Plotting Date: 07/17/2015			

(Sheet 4 of 7)



* See Special Sign Details

PLOT SCALE - 1:44000

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PLOT NAME - 5

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DETOUR SIGNING LAYOUT - DETAIL D

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

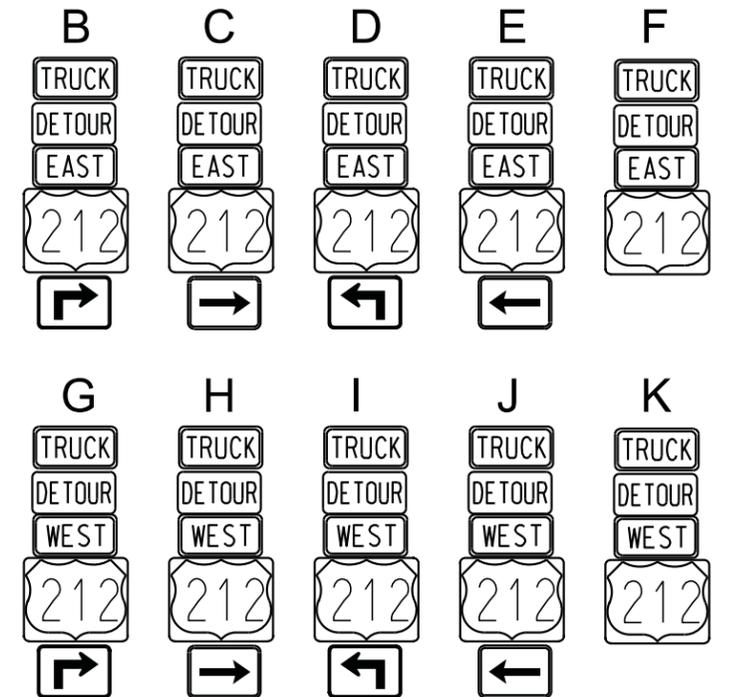
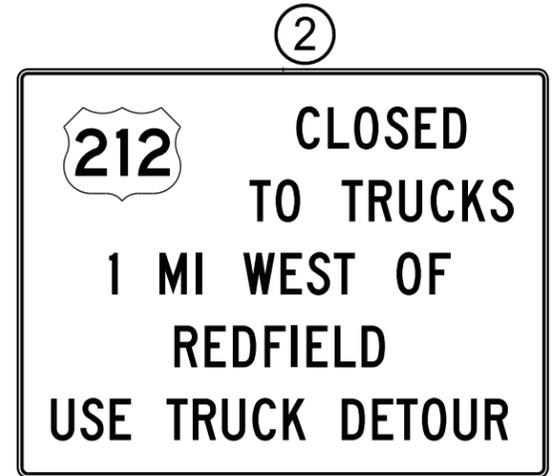
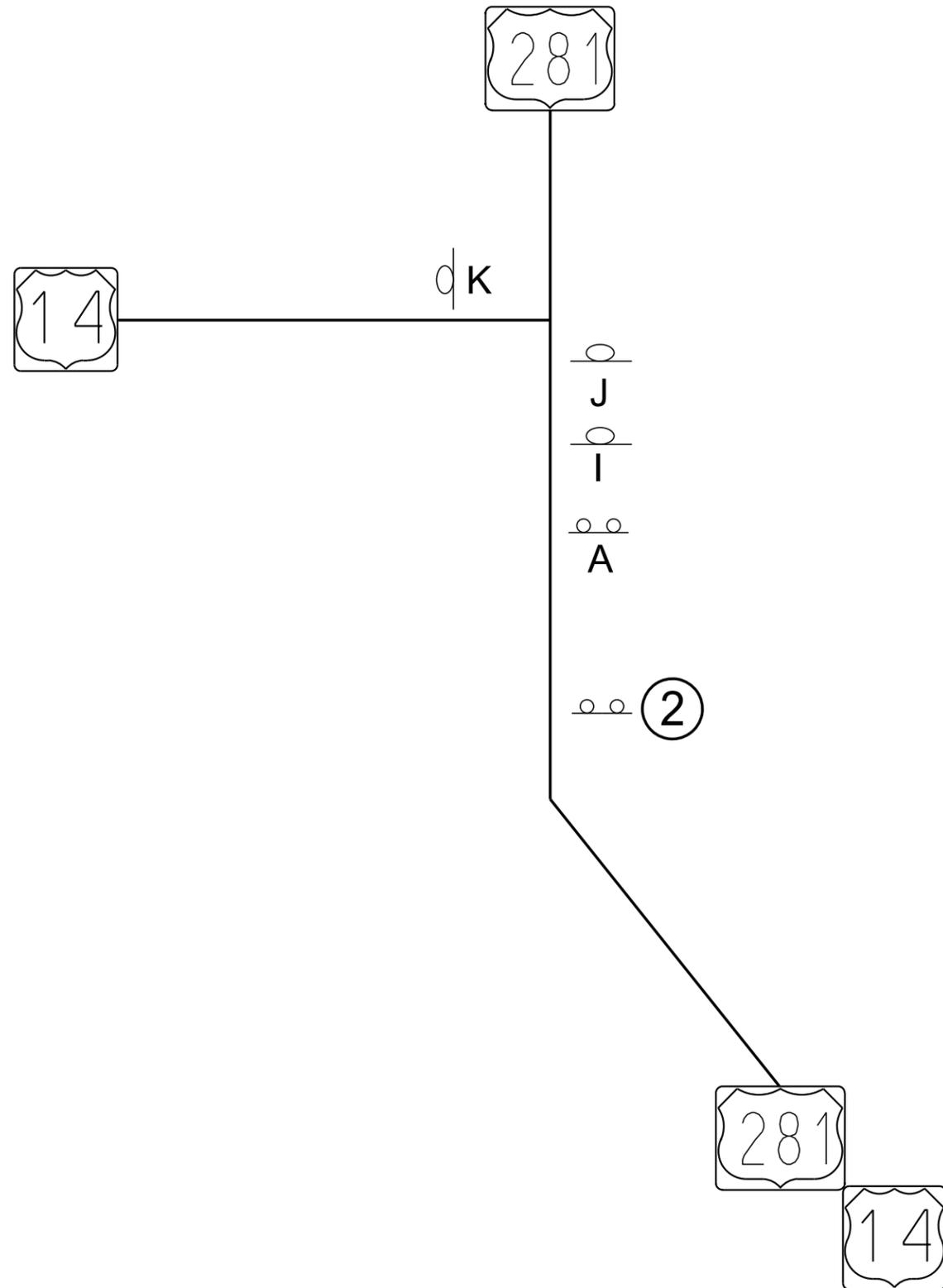
STATE OF SOUTH DAKOTA	PROJECT NH 0212(160)306	SHEET NO. C11	TOTAL SHEETS C25
Plotting Date: 07/17/2015			

(Sheet 5 of 7)

PLOT SCALE - 1:44000

PLOT NAME - 6

FILE - ... \SECTION\DETOUR DETAIL D.DGN



* See Special Sign Details

PLOTTED FROM - TRAB17882

DETOUR SIGNING LAYOUT - DETAIL E

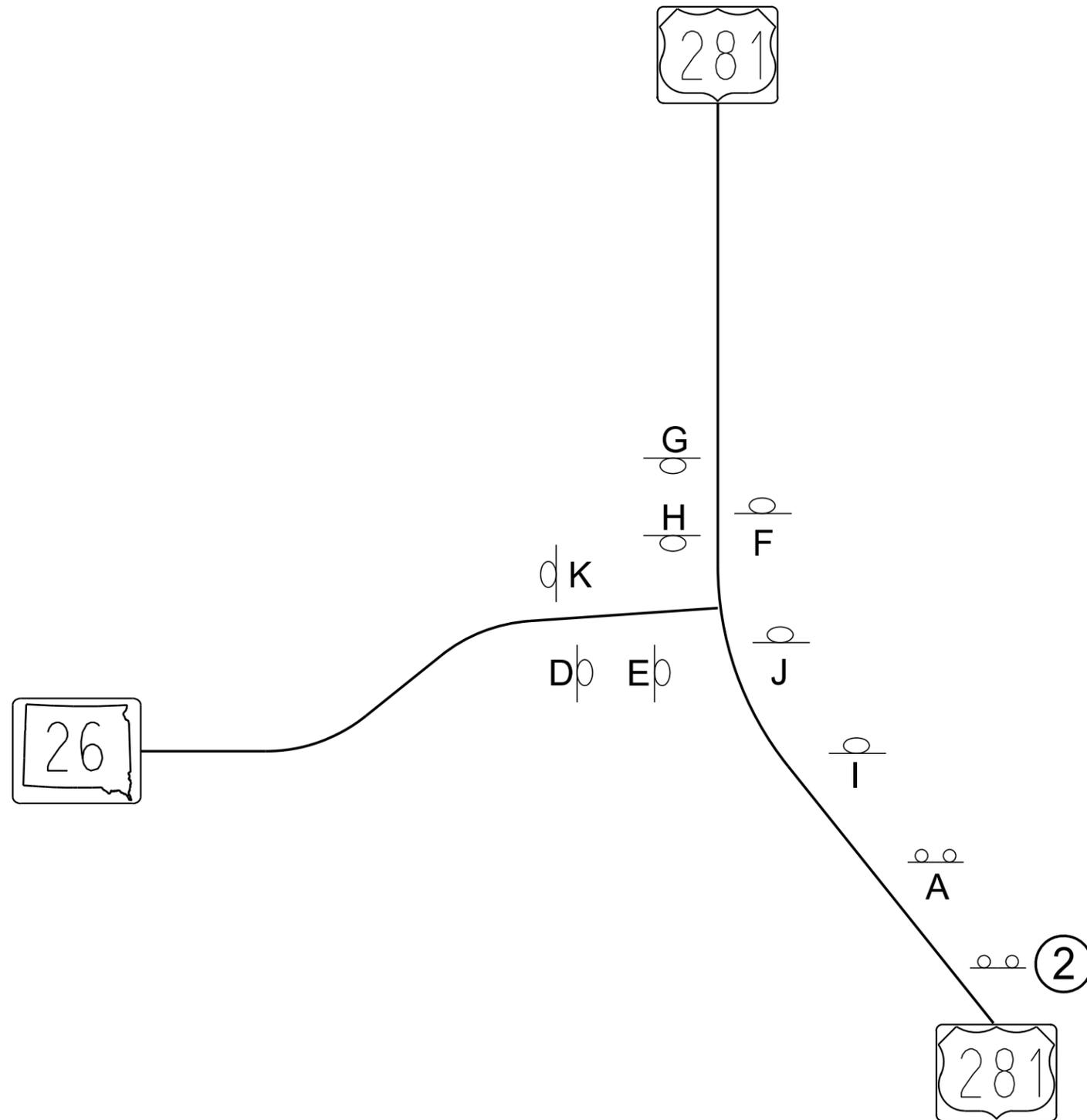
FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

STATE OF SOUTH DAKOTA	PROJECT NH 0212(160)306	SHEET NO. C12	TOTAL SHEETS C25
Plotting Date: 07/17/2015			

(Sheet 6 of 7)

PLOT SCALE - 1:44000

PLOT NAME - 7



②

212 **CLOSED**
TO TRUCKS

1 MI WEST OF
REDFIELD

USE TRUCK DETOUR

A

* **TRUCK**

DETOUR
AHEAD

B	C	D	E	F
TRUCK DETOUR EAST	TRUCK DETOUR EAST	TRUCK DETOUR EAST	TRUCK DETOUR EAST	TRUCK DETOUR EAST
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↗	→	↖	←	
G	H	I	J	K
TRUCK DETOUR WEST	TRUCK DETOUR WEST	TRUCK DETOUR WEST	TRUCK DETOUR WEST	TRUCK DETOUR WEST
212	212	212	212	212
↘	→	↖	←	

* See Special Sign Details

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FILE - ... \SECTION\DETOUR DETAIL E.DGN

DETOUR SIGNING LAYOUT - DETAIL F

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

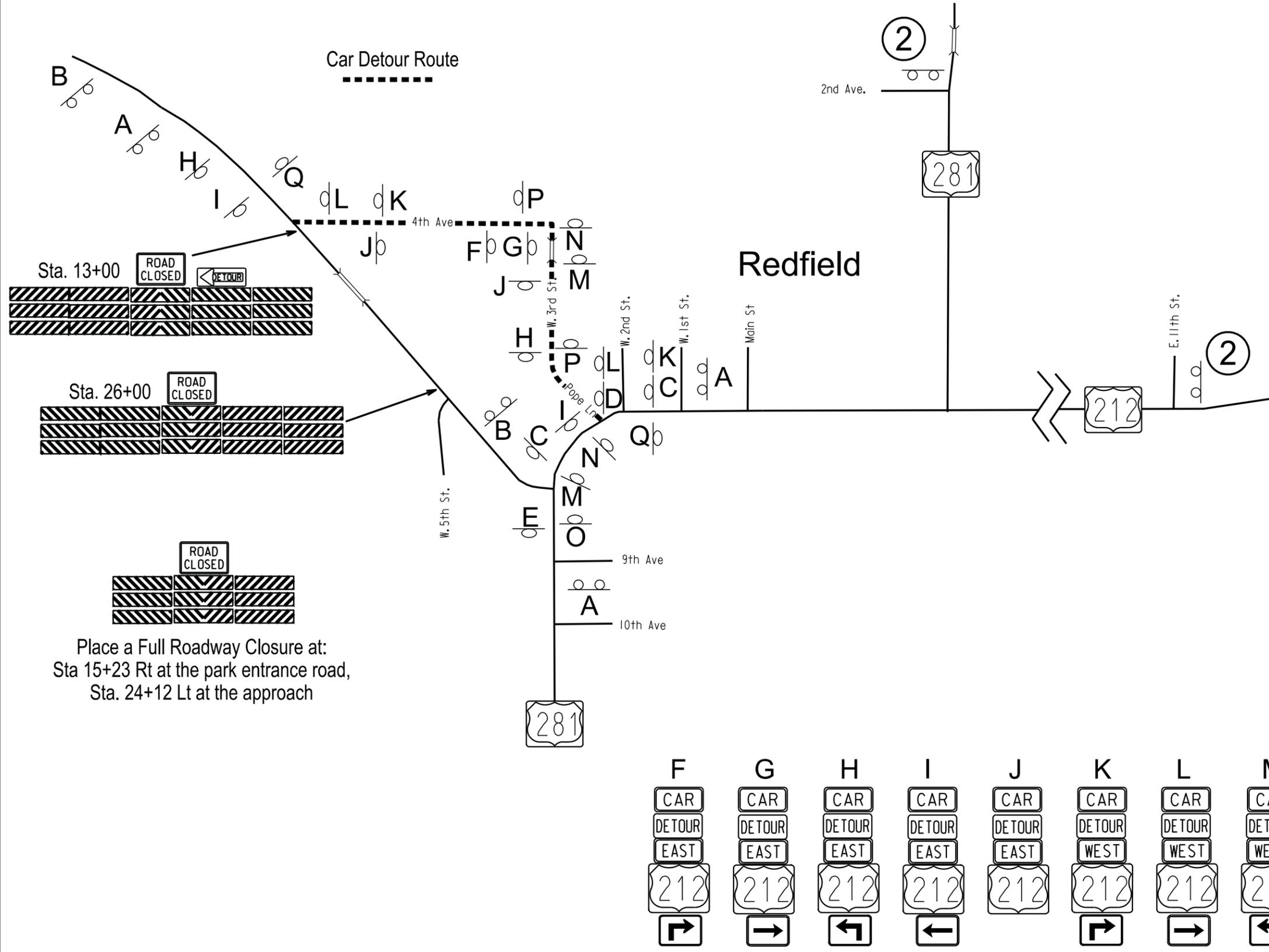
STATE OF SOUTH DAKOTA	PROJECT NH 0212(160)306	SHEET NO. C13	TOTAL SHEETS C25
Plotting Date: 07/17/2015			

(Sheet 7 of 7)

PLOT SCALE - 1:44000

PLOT NAME - 8

FILE - ... \SECTION\DETOUR DETAIL F.DGN



212

CLOSED
TO TRUCKS

1 MI WEST OF
REDFIELD

USE TRUCK DETOUR

A

DETOUR
AHEAD

B

ROAD
CLOSED
AHEAD

C

TRUCK
DETOUR
WEST

212

↑

D

TRUCK
DETOUR
WEST

212

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TRUCK
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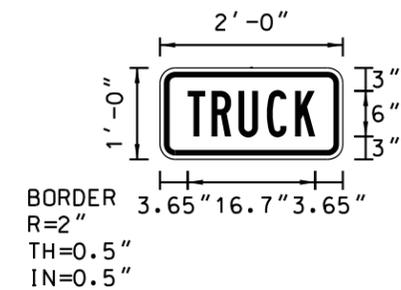
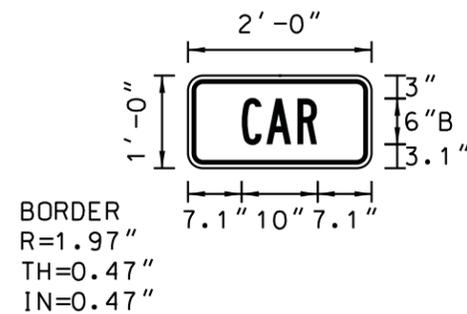
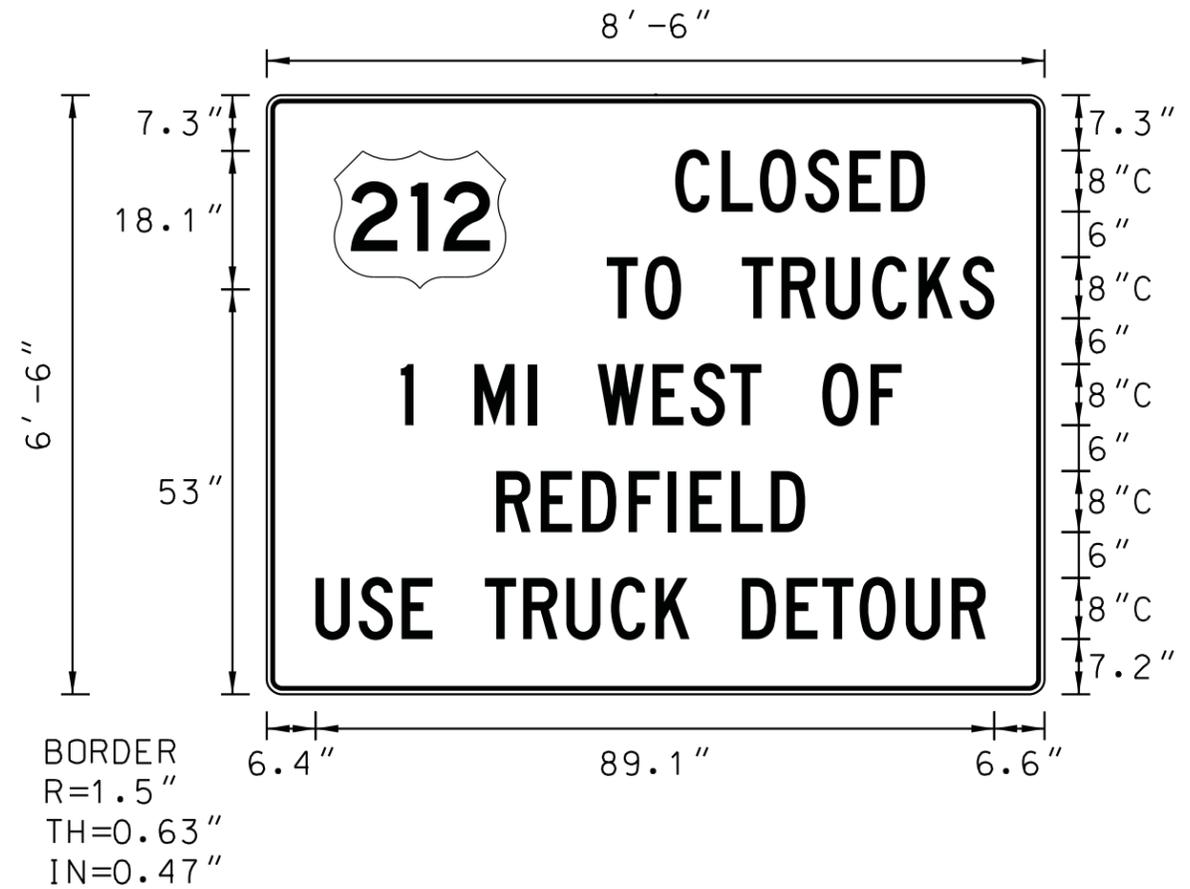
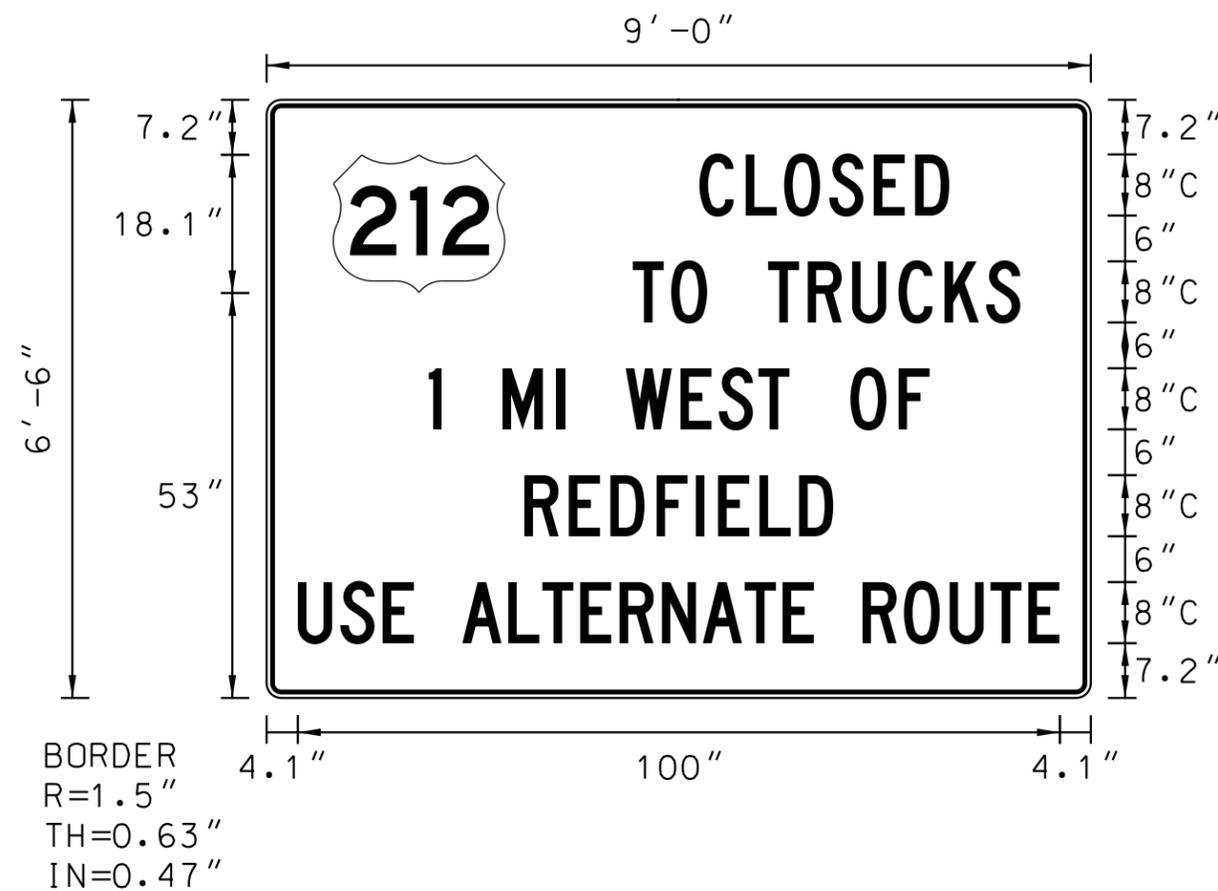
Q

END
DETOUR

PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212(160)306	C14	C25
Plotting Date: 07/17/2015			

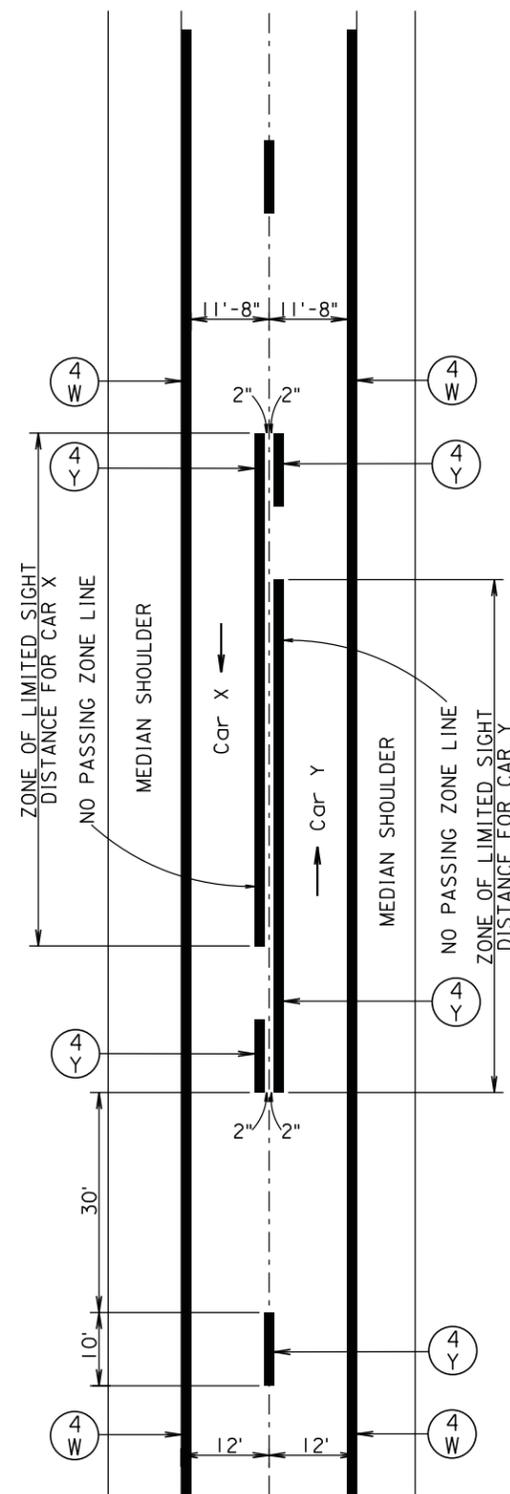
SPECIAL SIGN DESIGN



TRUCK signs to be placed above DETOUR AHEAD sign.

All signs on this sheet shall have a orange background with black legend and border

**TWO LANE
UNDIVIDED ROADWAY**



KEY	ITEM
(4) W	4" White
(4) Y	4" Yellow

FURNISHING AND APPLYING PAVEMENT MARKING PAINT

1. The approximate paint application rates shall be as follows:

Undivided Roadway	Divided Roadway
Yellow Centerline 12± Gallons/Pass-Mile (Includes No-passing lines)	White Centerline 4.60 Gallons/Pass-Mile
White Edgeline 16.90 Gallons/Pass-Mile (Solid Line)	Yellow or White Edgeline 16.90 Gallons/Pass-Mile (Solid Line)

2. The typical pavement markings as shown on this sheet shall be applied throughout the entire length of the project.

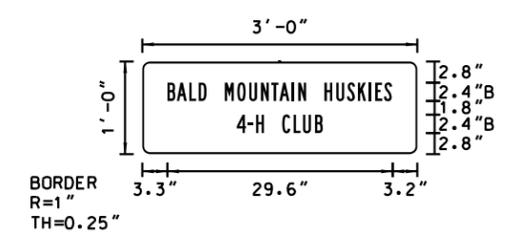
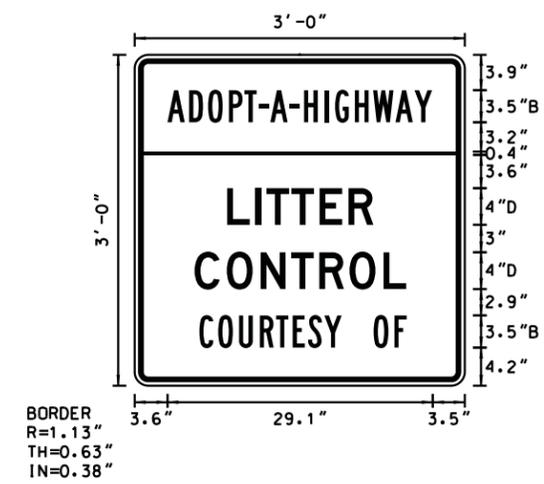
3. Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, shall not be used as the beginning and ending NO PASSING ZONE lines.

4. Traffic Control shall be incidental to the cost of application. The striper and advance or trailing warning vehicle shall be equipped with flashing amber lights or advance warning arrow panel.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212(160)306	C16	C25
Plotting Date: 07/17/2015			

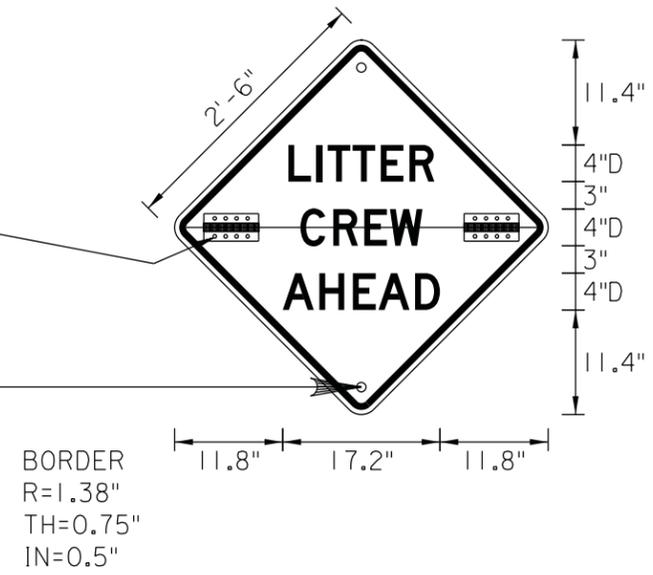
SPECIAL SIGN DESIGN

Border - Red
Background - White
Legend - Blue



Stainless Steel
Piano Hinge
3" H x 6" L

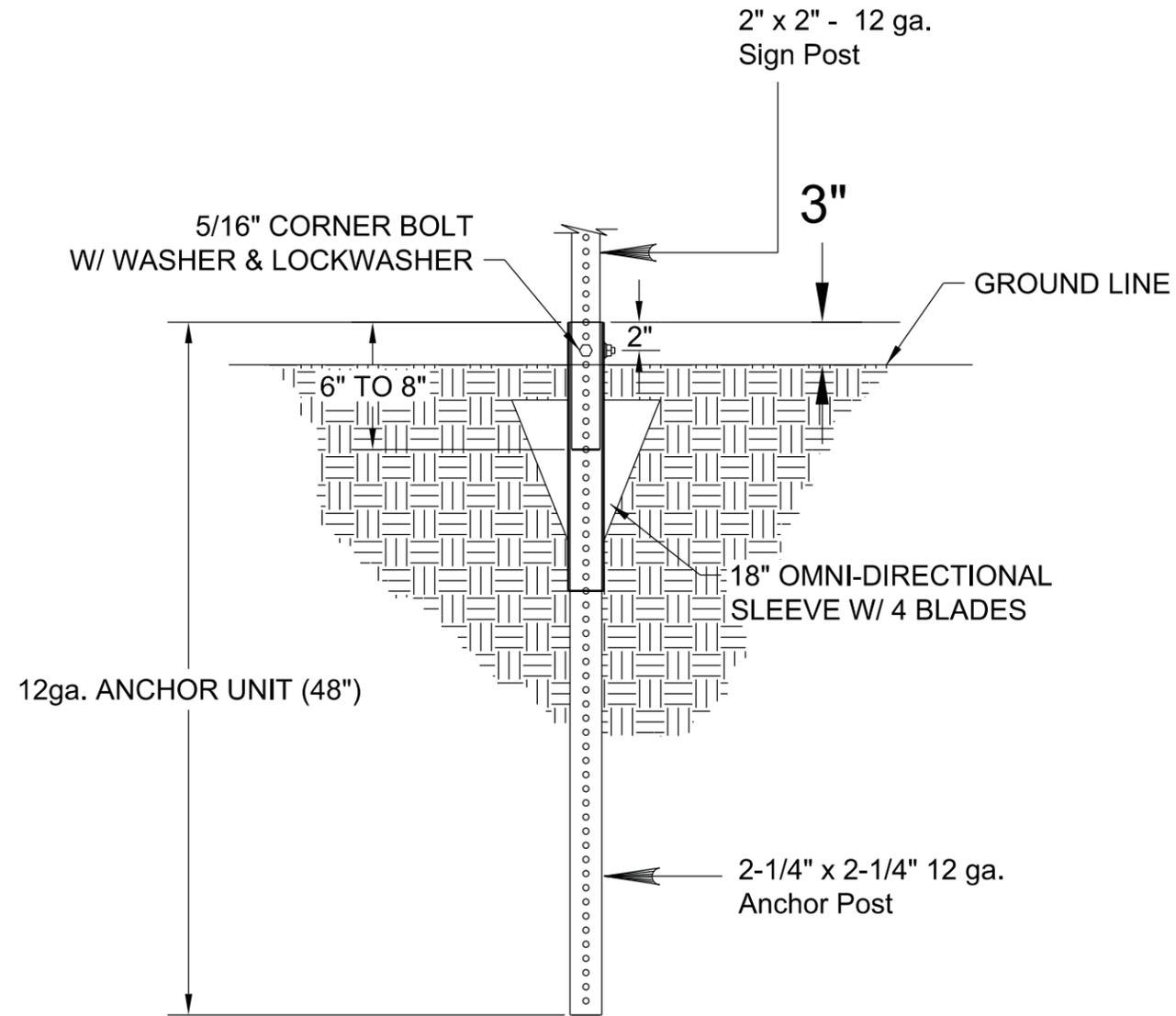
3/8" x 3"
Stainless Steel
Bolt with Wing
Nut. (secure folded
sign in place)



Border - Black
Background - Orange
Legend - Black

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212 (160)306	C17	C25
Plotting Date: 07/17/2015			

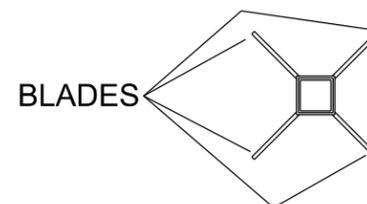
SQUARE TUBE 4 BLADE ANCHOR DETAIL



2-1/2" x 18" OMNI-ANCHOR SLEEVE
FOR SOIL STABILIZATION.

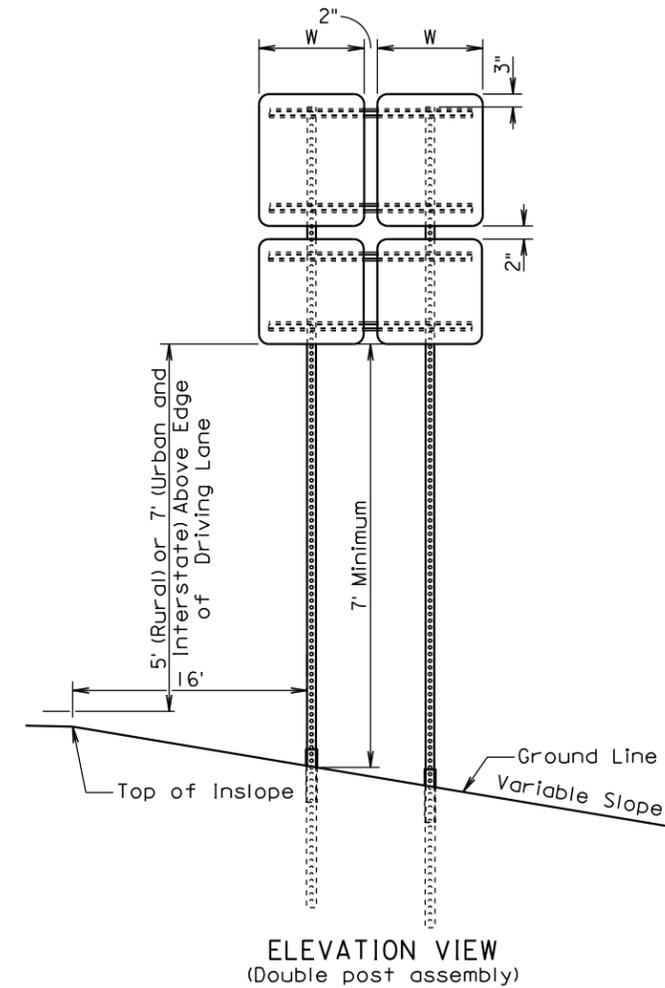
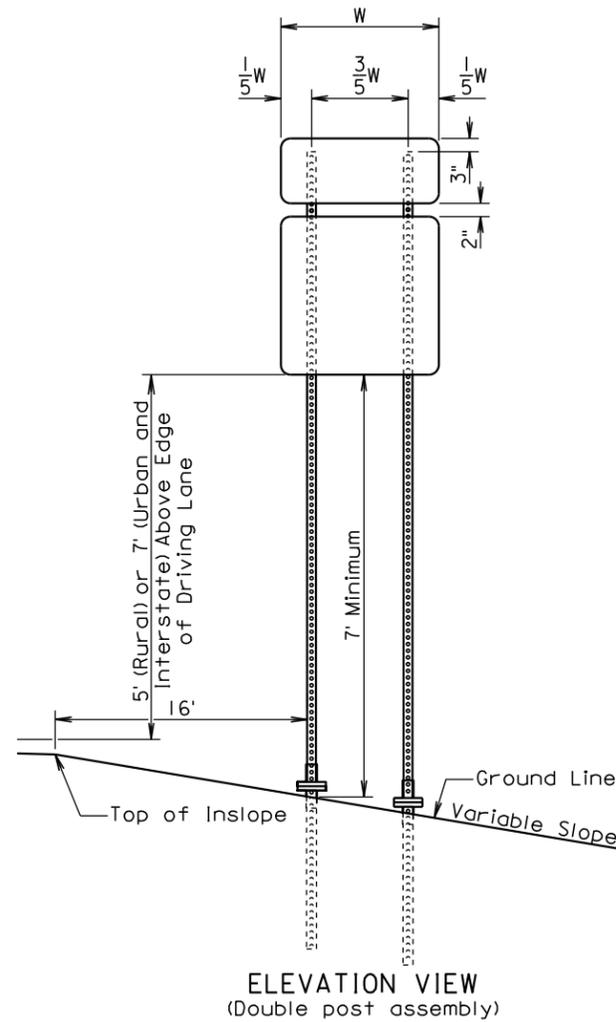
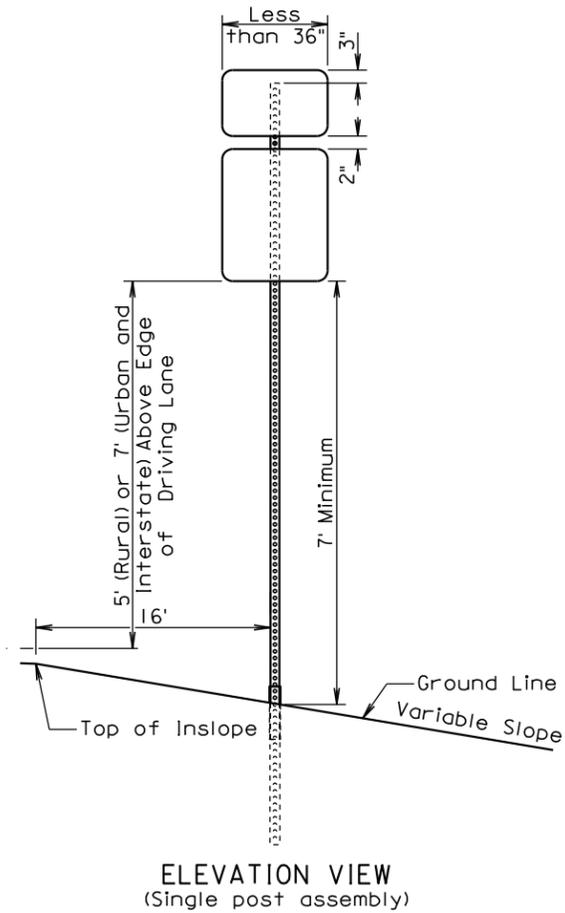
ANCHOR SLEEVE
TOP VIEW

2-1/2" x 18" 12 ga. Omni-Sleeve



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212 (160)306	C18	C25
Plotting Date: 07/17/2015			

INSTALLATION DETAILS FOR MULTIPLE SIGN ASSEMBLIES

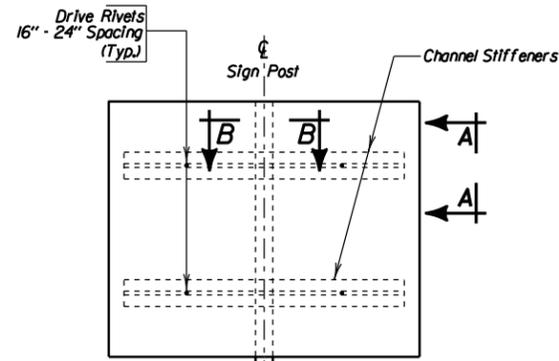


GENERAL NOTES:

The sign posts and bases shown are for illustrative purpose. The post type required shall be the type specified in the plans.

All breakaway sign supports shall comply with NCHRP 350 or MASH crash testing requirements and FHWA requirements. The Contractor shall provide post installation details at the preconstruction meeting for all breakaway sign support assemblies.

ONE POST BREAKAWAY SIGN SUPPORTS

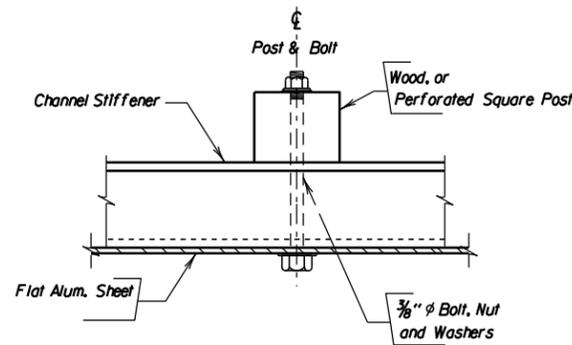
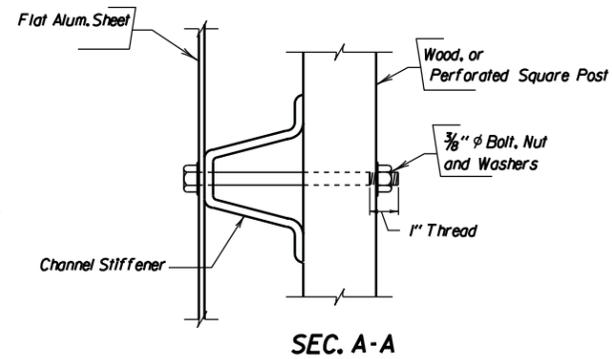
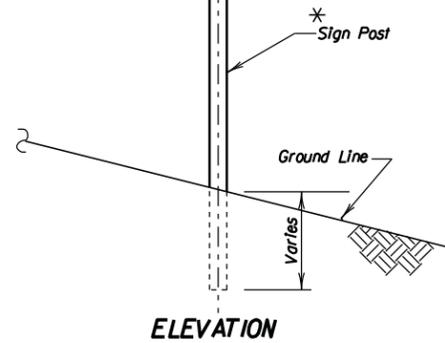


∅ A plastic washer, as recommended by the sheeting manufacturer, shall be installed between the sign face and the metal washer shown.

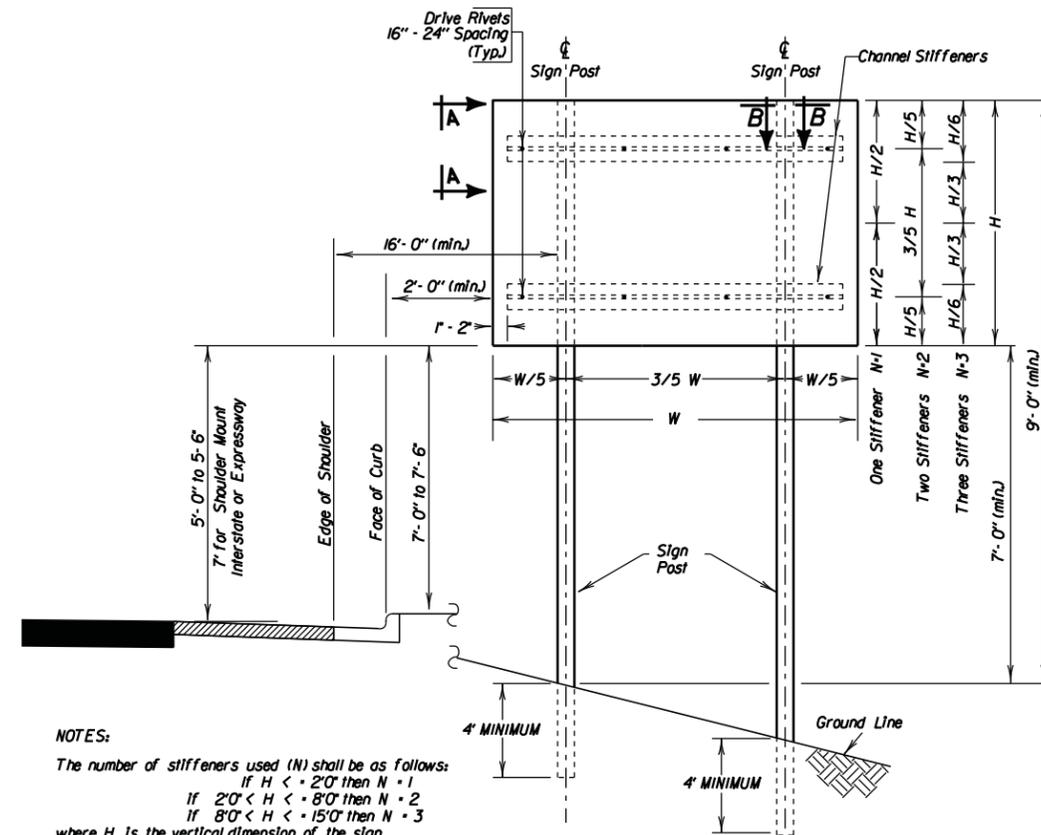
Height and lateral distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

* Single post installation shown. (See applicable Details or Standard Plates shown in these plans for multiple post spacing requirements.)

(Typical Sign and Stiffener Details)



TWO POST BREAKAWAY SIGN SUPPORTS



NOTES:

The number of stiffeners used (N) shall be as follows:

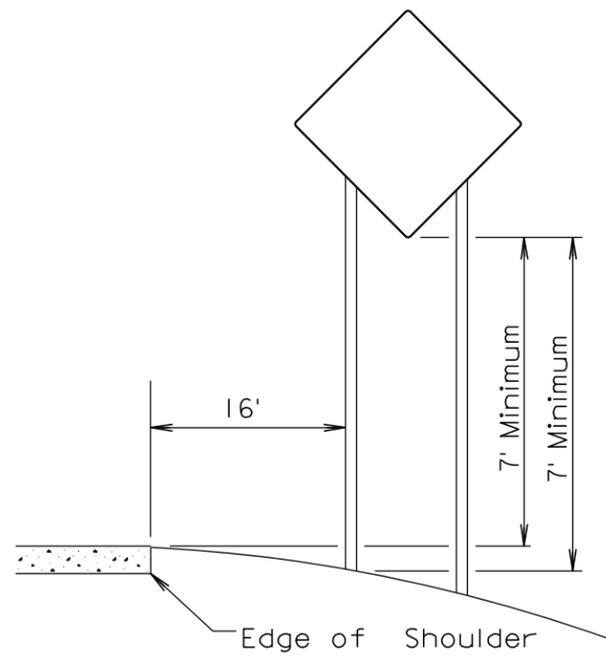
- If $H < 2'0"$ then $N = 1$
- If $2'0" < H < 8'0"$ then $N = 2$
- If $8'0" < H < 15'0"$ then $N = 3$

where H is the vertical dimension of the sign.

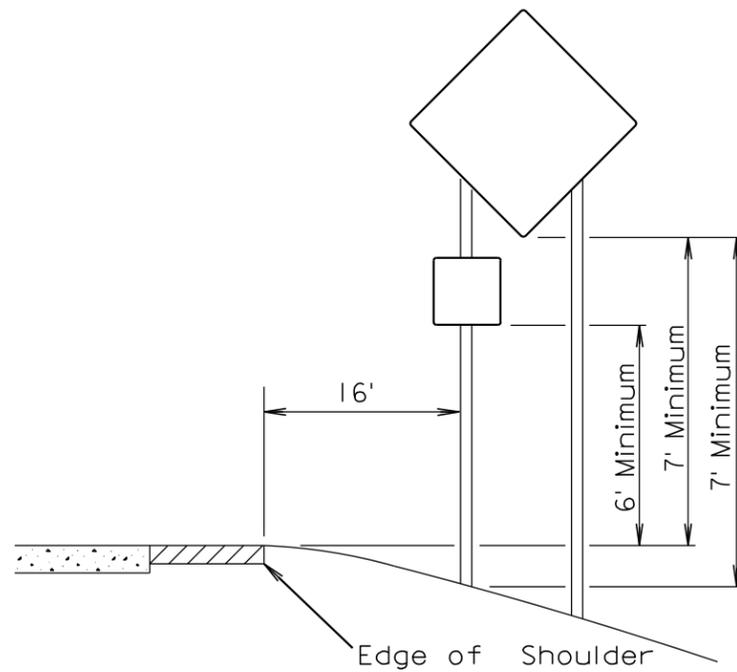
A minimum of two bolts shall be required to fasten the sign to each post.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0212(160)306	C20	C25
Plotting Date: 07/17/2015			

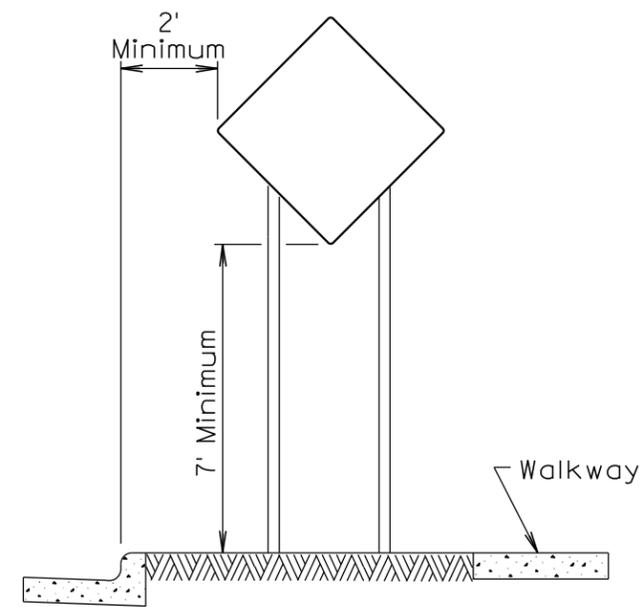
SIGN SUPPORTS (Lateral Off-Sets)



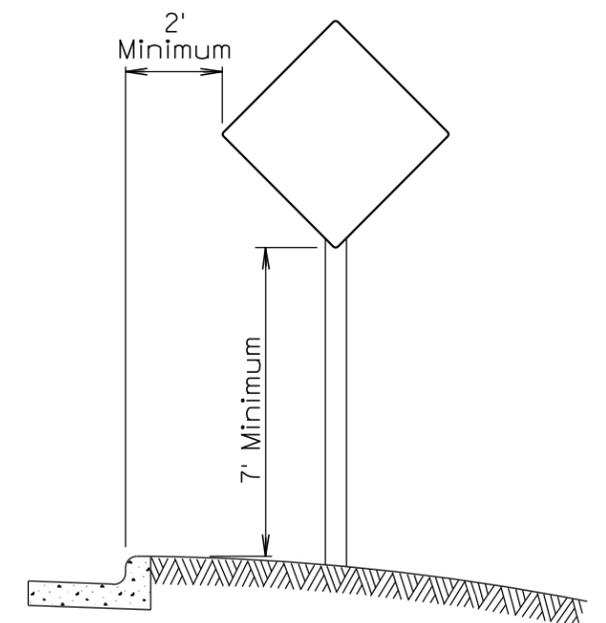
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE

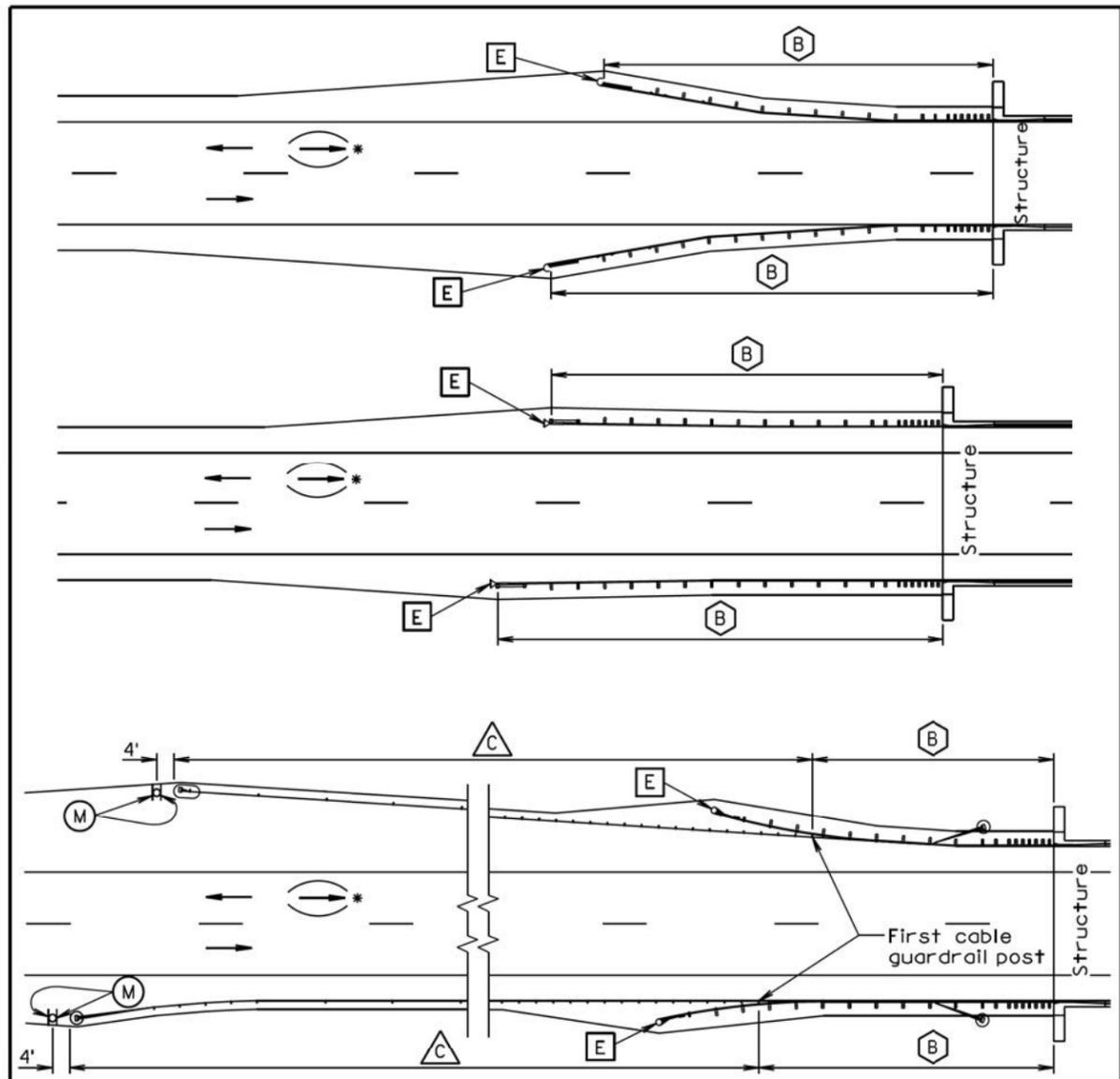


URBAN DISTRICT



URBAN DISTRICT

Plotting Date: 11/03/2016



TYPICAL GUARDRAIL LAYOUTS

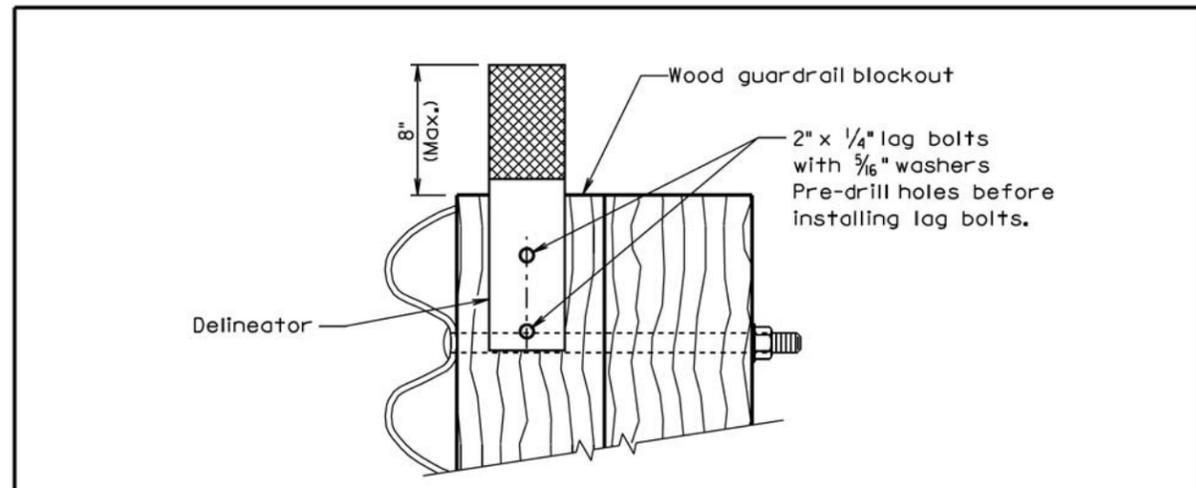
- Steel Beam Guardrail Delineation
- Guardrail Terminal End Object Marker
- 3 Cable Guardrail Delineation
- Type 2 Object Marker

*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

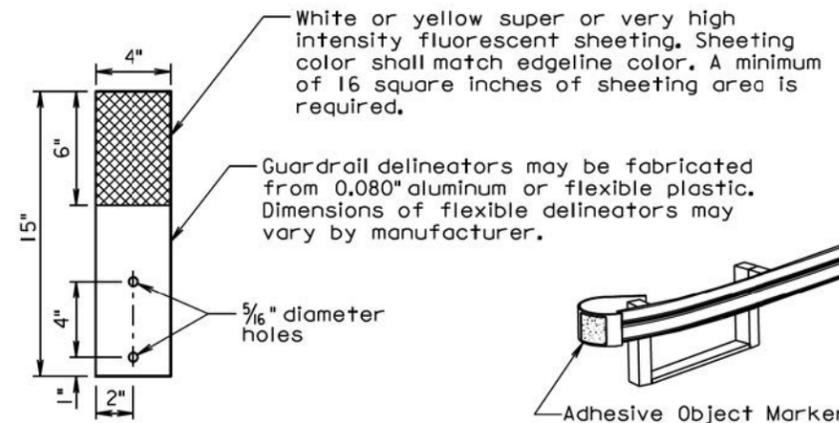
June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 1 of 4

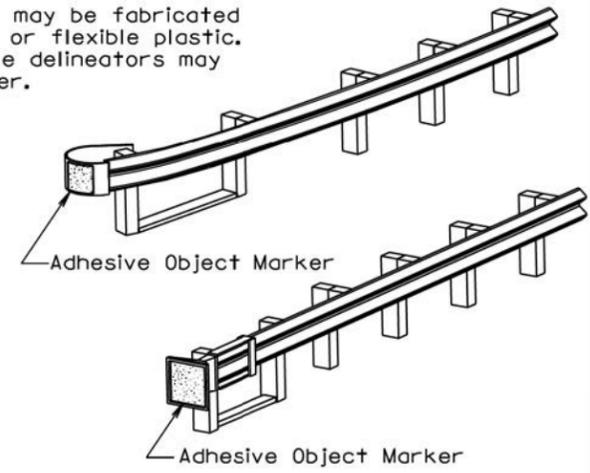
Published Date: 4th Qtr. 2016



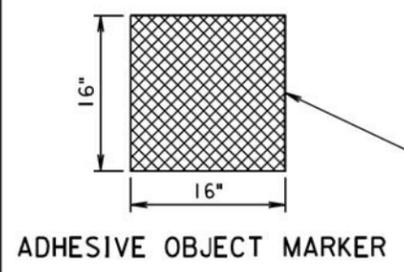
STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



GUARDRAIL TERMINAL END OBJECT MARKER



ADHESIVE OBJECT MARKER

Adhesive object marker dimensions may vary due to shape of terminal end. A minimum of 256 square inches of object marker sheeting area is required. The sheeting shall be fluorescent yellow super or very high intensity.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 2 of 4

Published Date: 4th Qtr. 2016

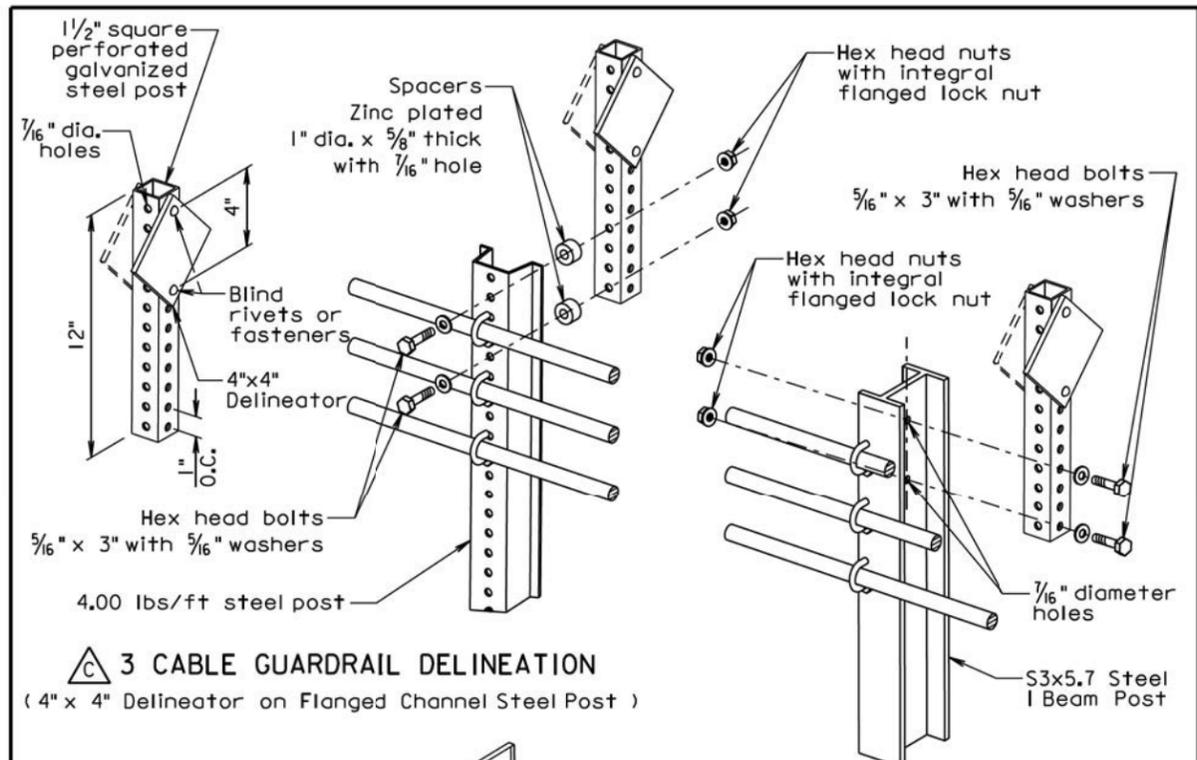
PLOT SCALE - 1:200

PLOTTED FROM - TRAB17882

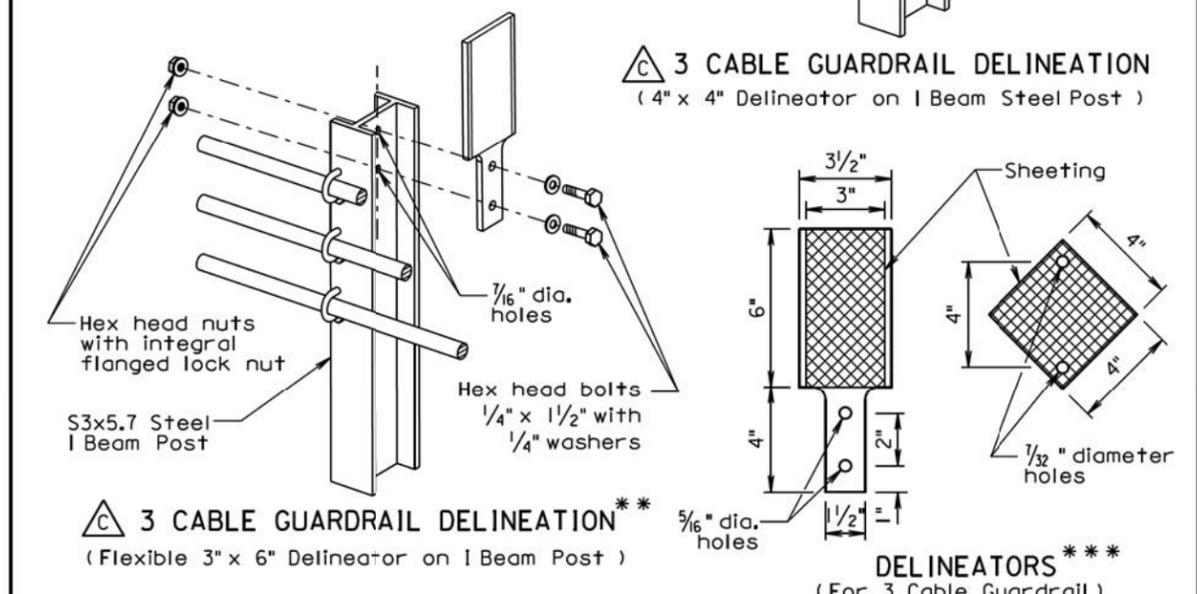
PLOT NAME - 1

FILE - ... \SECTION\63240-1-&_63240-2.DGN

Plotting Date: 11/03/2016



△ 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on Flanged Channel Steel Post)



△ 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on I Beam Steel Post)

△ 3 CABLE GUARDRAIL DELINEATION**
(Flexible 3" x 6" Delineator on I Beam Post)

DELINEATORS***
(For 3 Cable Guardrail)

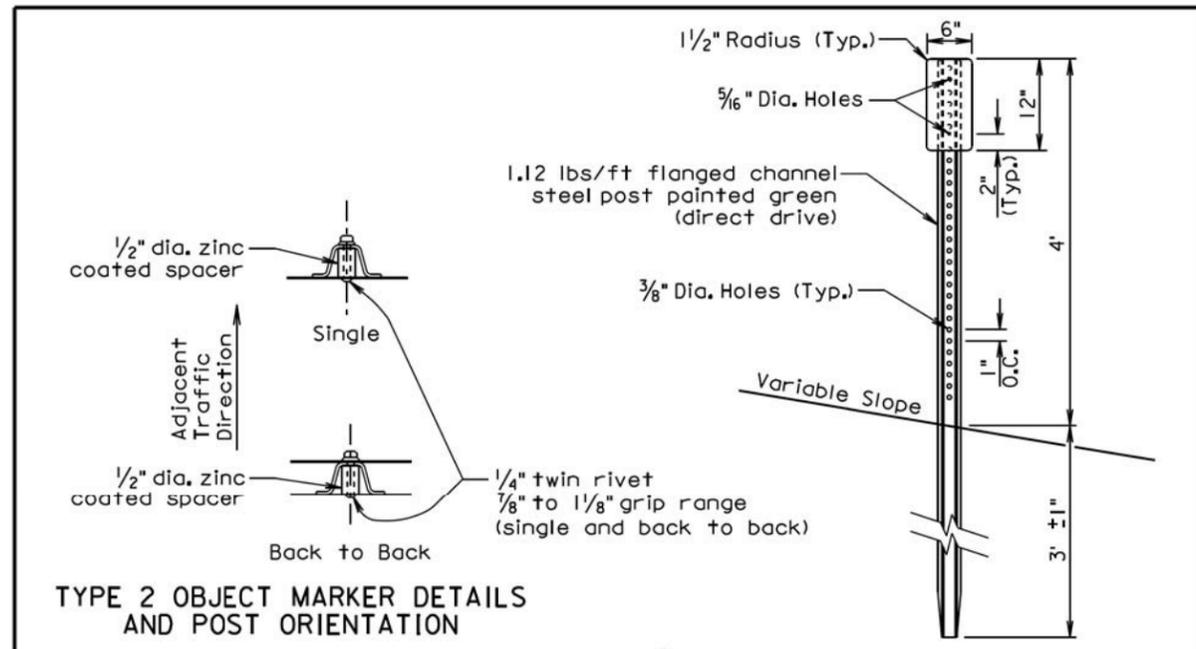
** Flexible delineators may be attached to post with manufacturer approved adhesive instead of bolts.

*** Dimensions of flexible delineators may vary by manufacturer. A minimum of 16 square inches of sheeting area is required. The sheeting shall be white or yellow super or very high intensity fluorescent sheeting. The sheeting color shall match the edgeline color.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 3 of 4

Published Date: 4th Qtr. 2016



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

Ⓜ TYPE 2 OBJECT MARKER
(For Marking 3 Cable Guardrail Anchor)

GENERAL NOTES:

The delineators shall be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting shall be of either very high intensity or super high intensity material. For bridges along two-way roadways the sheeting shall be on both sides of the delineator and shall be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

The first delineator shall be attached to the post nearest the bridge with additional delineators spaced in advance of the bridge at approximately 50 foot intervals. At bridges with short lengths of guardrail, less than 200 feet, a minimum of 4 delineators shall be placed in addition to the yellow object marker. The spacing between the delineators shall be approximately one third of the length of the guardrail. This will provide for a shorter spacing. At bridges with longer lengths of guardrail, greater than 200 feet, including bridges that have cable guardrail transitioning into the steel beam guardrail, the delineators will be placed at a spacing of approximately 50 feet. Delineation shall extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation shall be included in the contract unit price per each for "Guardrail Delineator".

An adhesive object marker shall be placed on the end of the W beam guardrail end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

A type 2 object marker shall be placed adjacent to the 3 cable guardrail anchor at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") shall have a fluorescent yellow very high or super high intensity reflective sheeting. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware shall be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 4 of 4

Published Date: 4th Qtr. 2016

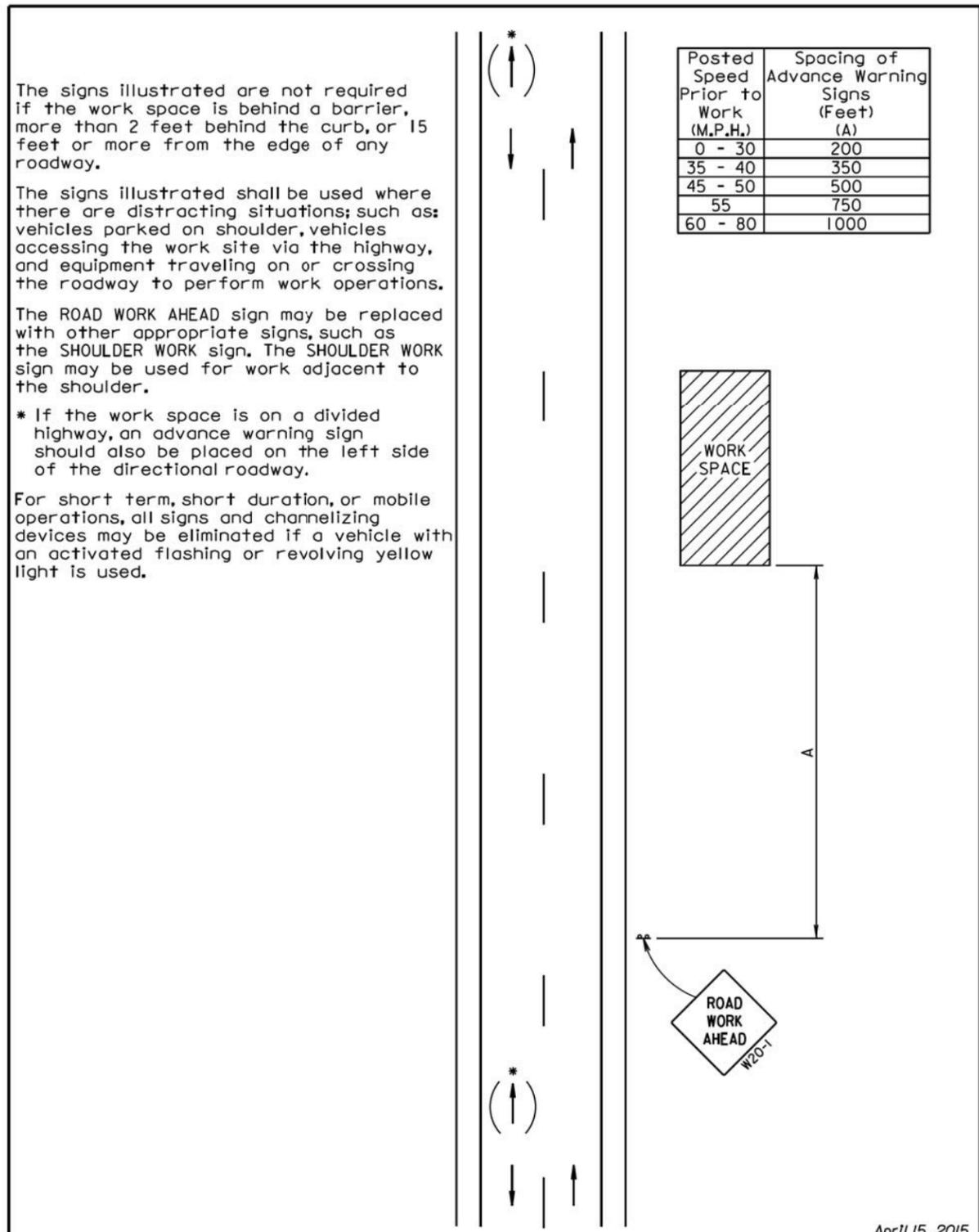
PLOT SCALE - 1:200

PLOTTED FROM - TRAB17882

PLOT NAME - 2

FILE - ... \SECTION\63240-3 & 63240-4.DGN

Plotting Date: 11/03/2016



The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

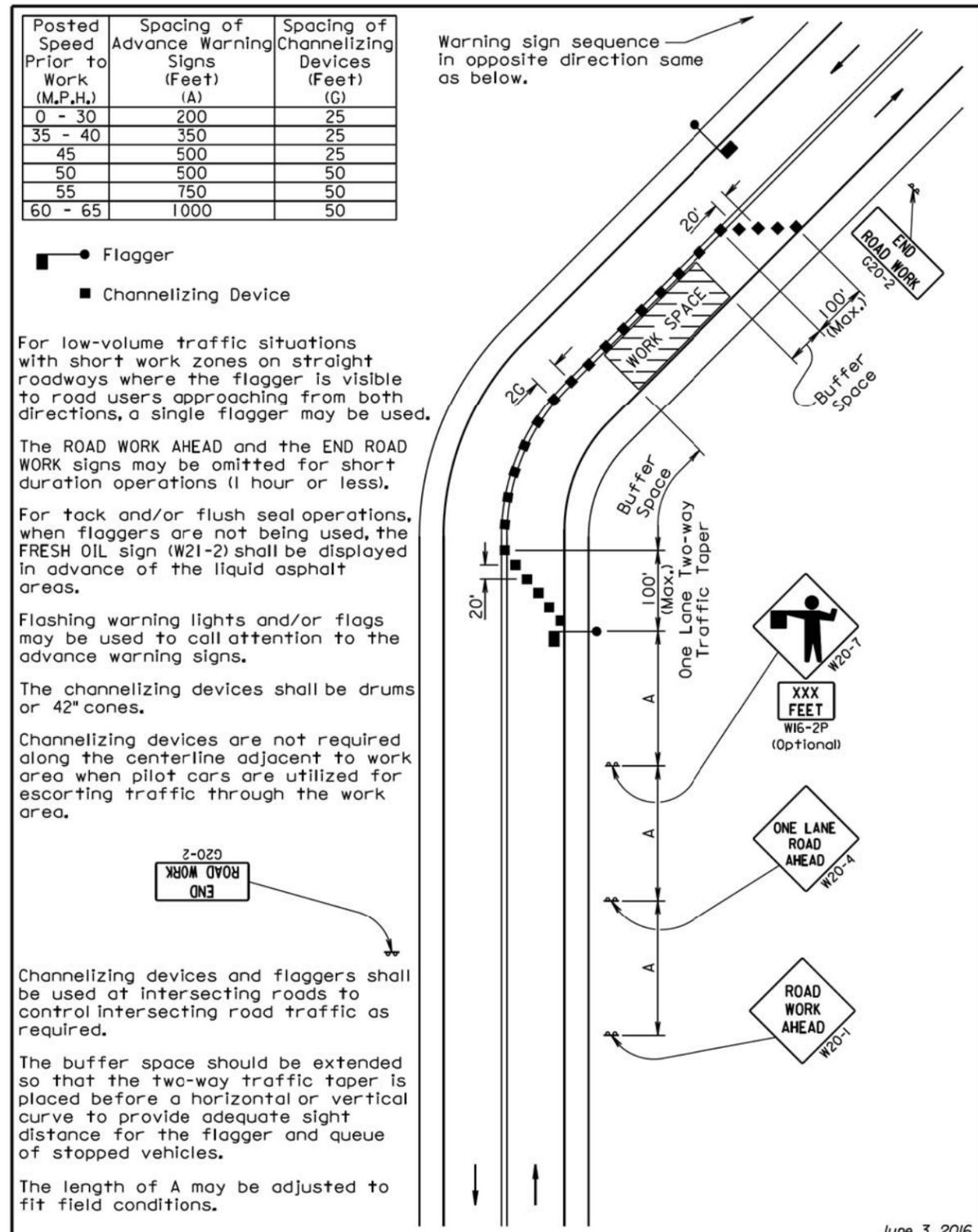
The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
	Published Date: 4th Qtr. 2016	Sheet 1 of 1



Warning sign sequence in opposite direction same as below.

● Flagger

■ Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.

June 3, 2016

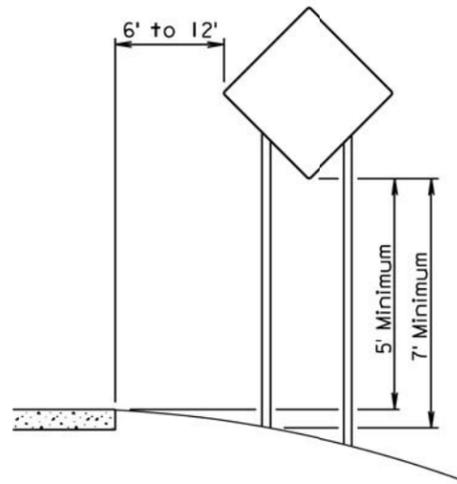
S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 4th Qtr. 2016	Sheet 1 of 1

PLOT SCALE - 1:200

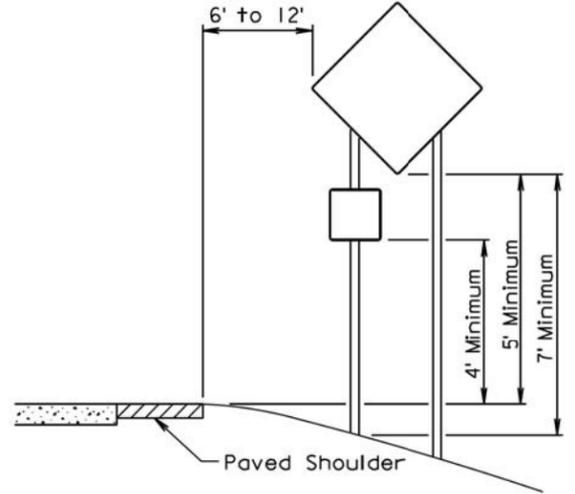
PLOT NAME - 4

FILE - ... \SECTION\63401_8_63423.DGN

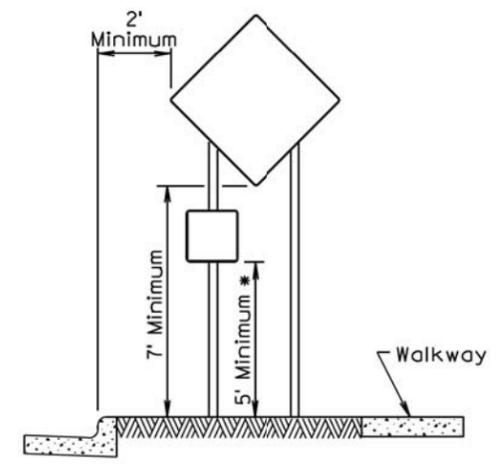
Plotting Date: 11/03/2016



RURAL DISTRICT

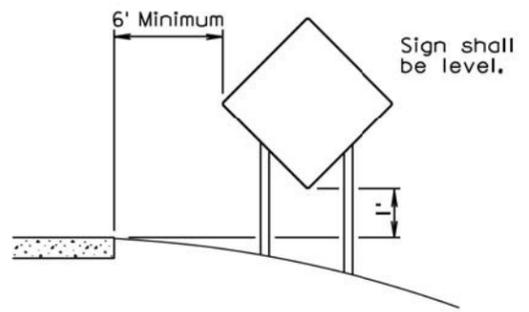


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

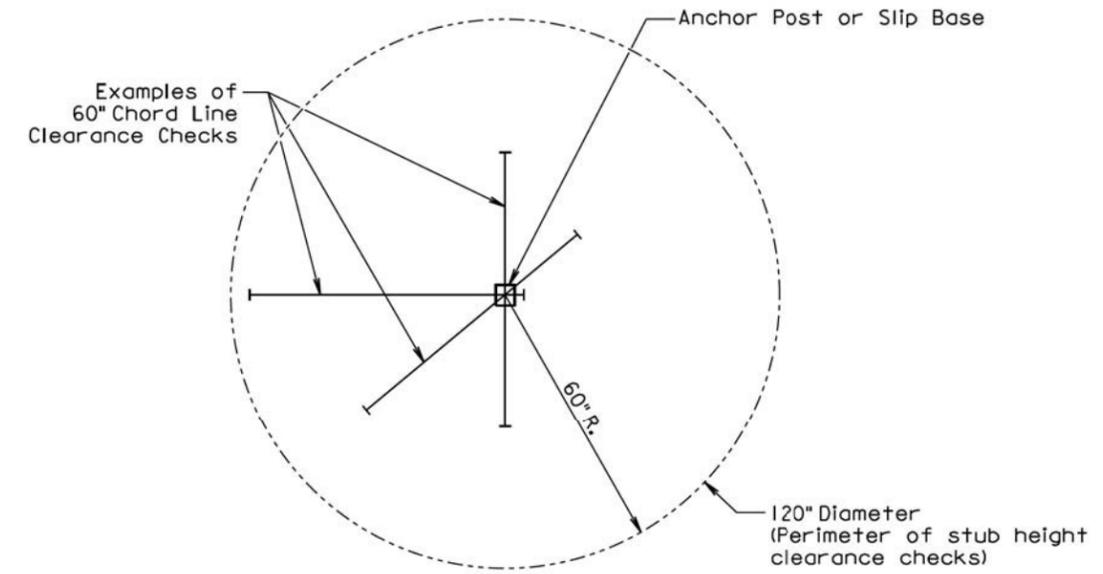


RURAL DISTRICT 3 DAY MAXIMUM

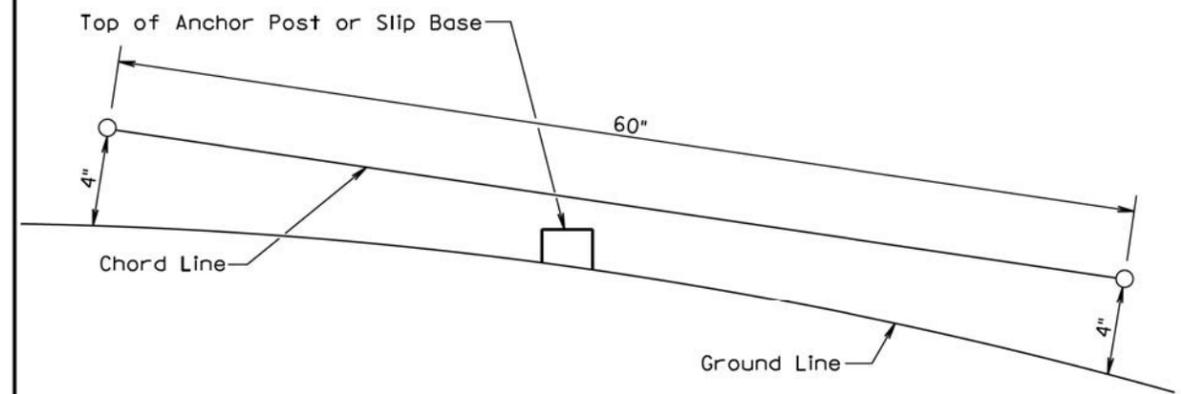
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2016	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL 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 shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.
 The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 4th Qtr. 2016	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRAB17882

PLOT NAME - 5

FILE - ... \SECTION\63485_ & _63499.DGN