

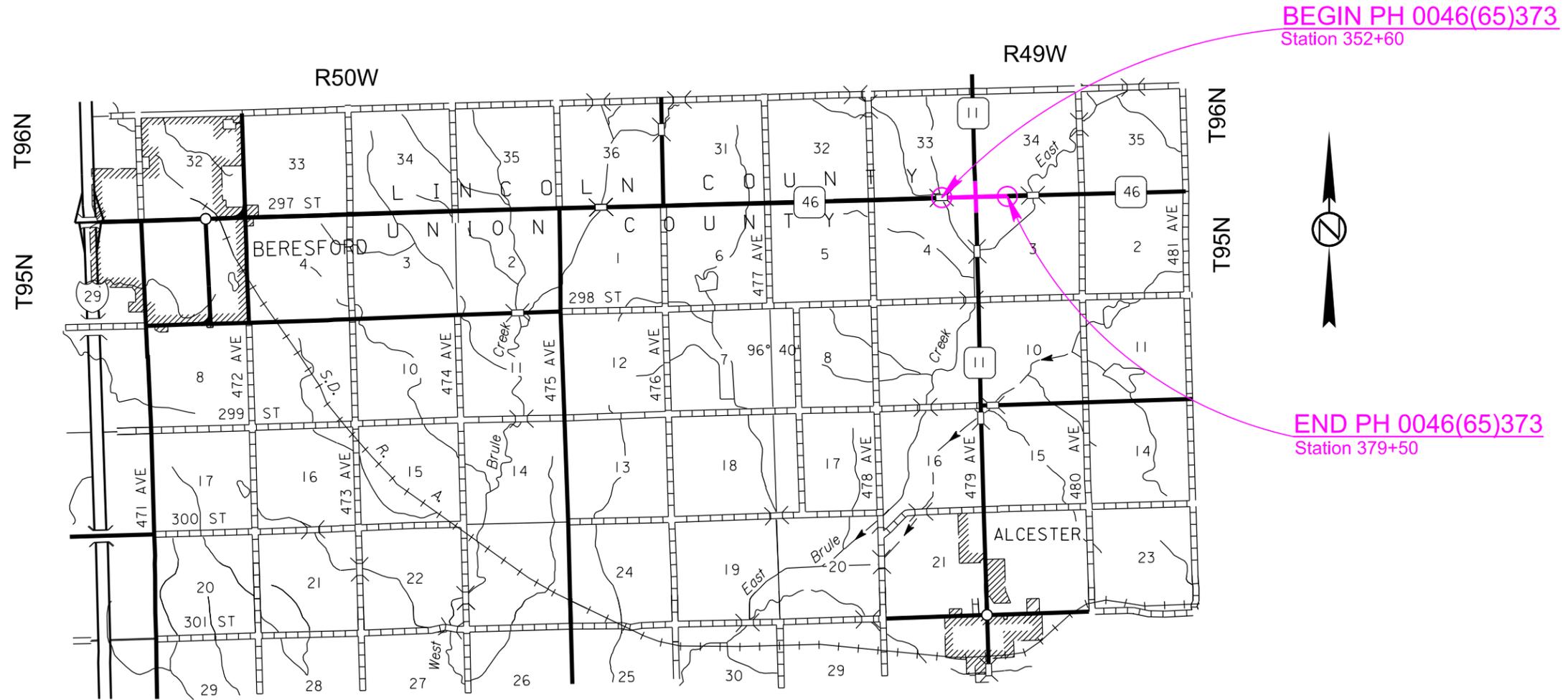
SECTION C: TRAFFIC CONTROL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0046(65)373	C1	C10

Prepared by: Joseph Sestak

INDEX OF SECTIONS

- C1 General Layout W/Index
- C2 Estimate With Traffic Control Notes
- C3 Itemized List For Traffic Control Signs
- C4-C5 Detour Route Permanent Sign Upgrade
- C6 Detour Route Traffic Control
- C7 Fixed Location Signs
- C8-C10 Standard Plates



Plot Scale - 1:200

Plotted From - trva1m145

File - ...12016 46 & 11 in\TitleC.dgn

SECTION C – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0010	Flagging	400.0	Hour
634E0020	Pilot Car	40.0	Hour
634E0110	Traffic Control Signs	872.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	24	Each
634E0285	Type 3 Barricade, 8' Double Sided	6	Each
634E0630	Temporary Pavement Marking	4.0	Mile
634E1002	Detour Signing	611.2	SqFt

SEQUENCE OF OPERATIONS

The Contractor shall follow the following Sequence of Operations unless an alternate Sequence of Operations is submitted in writing two weeks prior to the pre-construction meeting and approved by the Engineer prior to the start of work.

1. Install fixed location signing and traffic control measures (Including Detour Signing and Detour Upgrade Signing).
2. Remove the surfacing, place sediment controls, and complete the grading while maintaining through traffic on SD Highway 11.
3. Place base course and reopen SD Highway 46 with temporary traffic control.
4. Place asphalt concrete and erosion controls with the use of flaggers.
5. Install permanent pavement markings.
6. Install all applicable permanent signing.
7. Remove all temporary traffic control devices.

EXISTING MAILBOXES AND NEWSPAPER CONTAINERS

The Contractor will be required to relocate on temporary supports existing mailboxes and newspaper containers affected by the project as necessary in order to provide continuous mail service to the local residents throughout the project. All mailboxes shall be located at a location acceptable to the Postmaster. The Engineer will approve the material used for temporary supports. Cost of this work shall be incidental to various contract items.

DETOUR UPGRADE SIGNING

Signs, object markers, and delineators listed on sheets C4 and C5, Permanent Traffic Control, Detour Route, Sign Upgrade shall become property of Lincoln County upon completion of the project.

Quantities for these signs are included in Section S.

MAINTENANCE OF TRAFFIC

Existing STOP signs, beacons, and the associated electrical system shall not be damaged during the project. If the stop sign is removed a temporary STOP sign shall be placed. Cost for this work shall be incidental to the contract unit price per square foot for Traffic Control Signs.

Throughout the project, the Contractor must maintain local traffic, access to fields and residences at all times. Adequate passage and ramping shall be provided.

The Contractor shall be responsible for the maintenance of SD Highway 11 traffic during construction ½ roadway width at a time. While work is in progress the Contractor shall maintain the grade in passable condition for all vehicles.

During periods of no work, such as at night or on weekends, the Contractor will be required to maintain two-way traffic on a minimum of 3 inches of Base Course. Channelizing devices consisting of 42 inch cones or barrels spaced 40 feet apart shall be used to separate the two lanes of traffic when flaggers are not in use. If the lanes are not maintained in the current alignment additional devices shall be placed to provide a taper with 65 feet of length for each foot of offset from the current alignment. The taper shall be reflectorized drums spaced at 25 feet, and shall be placed both on centerline and the outside edge of the lane. If the lanes are not maintained at the same elevation, the slope between the two elevations shall be maintained with a maximum slope of 4:1 for elevation differences greater than 3 inches.

Channelizing devices consisting of 42 inch cones or barrels spaced 40 feet apart shall be used to separate the one lane of traffic from the work area when flaggers are used without a pilot car and in all areas where the elevation difference is greater than 1 foot with slopes steeper than 4:1.

Any windrow of material within 30 feet of the traveled way shall be marked per standard plate 634.27. The color, text height, and width on the WINDROW sign shall be the same as a W8-7 LOOSE GRAVEL sign.

Temporary ramps consisting of Base Course shall be constructed with a slope of 20:1 when there is no work in progress. The Base Course for maintenance of traffic shall be incorporated into the project when removed from the ramp.

500 tons of Base Course have been provided for traffic control purposes to maintain traffic during construction. This quantity provides enough Base Course for one complete coverage for temporary traffic control surfacing on SD Highway 11 and two ramps. If due to the Contractors phasing additional base course is required it shall be incidental to the various bid items. The Base Course shall be salvaged and reused during various phases of construction. Cost for removal, disposal and/or reuse of this material shall be incidental to the contract unit price per ton for Base Course.

Quantities for Base Course are included in Section F.

INCIDENTS

An incident is an emergency road user occurrence or unplanned event that impedes the flow of traffic such as an accident, hazardous materials spill or similar event.

The Contractor shall set up a meeting prior to start of work to plan and coordinate the response to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol and local emergency response entities to the meeting.

The Contractor will be required to flag traffic, relocate signs, and adjust traffic control devices as required to warn approaching motorists of the incident and resulting queued traffic.

The Contractor shall provide adequate personnel to accomplish the necessary traffic control work in the event of an incident.

Flagging for incidents shall be paid for at contract unit price per hour. No additional payment will be made for the other work. Costs for necessary signing shall be incidental to the contract unit price per square foot for Traffic Control Signs.

TEMPORARY PAVEMENT MARKING

If the permanent pavement markings cannot be applied prior to opening a section to traffic, temporary pavement marking will be required.

The total length of no passing zone on this project is estimated to be 1.2 miles. It is estimated that 4 DO NOT PASS and 4 PASS WITH CARE signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary Flexible Vertical Markers (tabs) shall be required on the top lift of asphalt surfacing.

Three applications in the rural sections of temporary pavement marking are included in the estimate of quantities for completion of the asphalt lifts and uncovering the temporary flexible vertical markers (tabs) after application of the seal.

The Contractor shall remove and dispose of temporary flexible vertical markers (tabs) after Permanent Pavement Marking is applied. Removal shall be accomplished within one week of completion of the Permanent Pavement Marking.

In the absence of a signed lane closure or pilot car operation, Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the shoulder in advance of workers for both

directions of traffic during the installation and removal of temporary flexible vertical markers (tabs). The traffic control device used shall be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), Workers symbols sign (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign shall be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work shall be approved by the Engineer.

Cost for the traffic control to install and remove the temporary flexible vertical markers (tabs) shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
R11-2	ROAD CLOSED	4	48" x 30"	10.0	40.0
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	2	60" x 30"	12.5	25.0
R11-4	ROAD CLOSED TO THRU TRAFFIC	4	60" x 30"	12.5	50.0
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W8-1	BUMP	8	48" x 48"	16.0	128.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
SPECIAL	WINDROW	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W8-12	NO CENTER LINE	4	48" x 48"	16.0	64.0
W13-1P	ADVISORY SPEED (plaque) 30	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-3	ROAD CLOSED AHEAD	6	48" x 48"	16.0	96.0
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
W21-3	ROAD MACHINERY AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					872.6

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	24 Each
Type 3 Barricade, 8' Double Sided	6 Each

ITEMIZED LIST FOR DETOUR SIGNING

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-2	DETOUR AHEAD	6	48" x 48"	16.0	96.0
M1-5	SD ROUTE MARKER (1 or 2 digits)	52	24" x 24"	4.0	208.0
M3-2	DIRECTION MARKER - EAST	28	24" x 12"	2.0	56.0
M3-3	DIRECTION MARKER - SOUTH	20	24" x 12"	2.0	40.0
M4-8	DETOUR	46	24" x 12"	2.0	92.0
M4-8a	END DETOUR	2	24" x 18"	3.0	6.0
M4-10	DETOUR ARROW (L or R)	2	48" x 18"	6.0	12.0
M5-1	ADVANCE TURN ARROW 90° (L or R)	13	21" x 15"	2.2	28.6
M5-2	ADVANCE TURN ARROW 45° (L or R)	3	21" x 15"	2.2	6.6
M6-1	DIRECTION ARROW - Horizontal Single Head (L or R)	13	21" x 15"	2.2	28.6
M6-2	DIRECTION ARROW - 45° Single Head (L or R)	3	21" x 15"	2.2	6.6
M6-3	DIRECTION ARROW - Vertical Single Head	14	21" x 15"	2.2	30.8
CONVENTIONAL ROAD DETOUR SIGNING SQFT					611.2

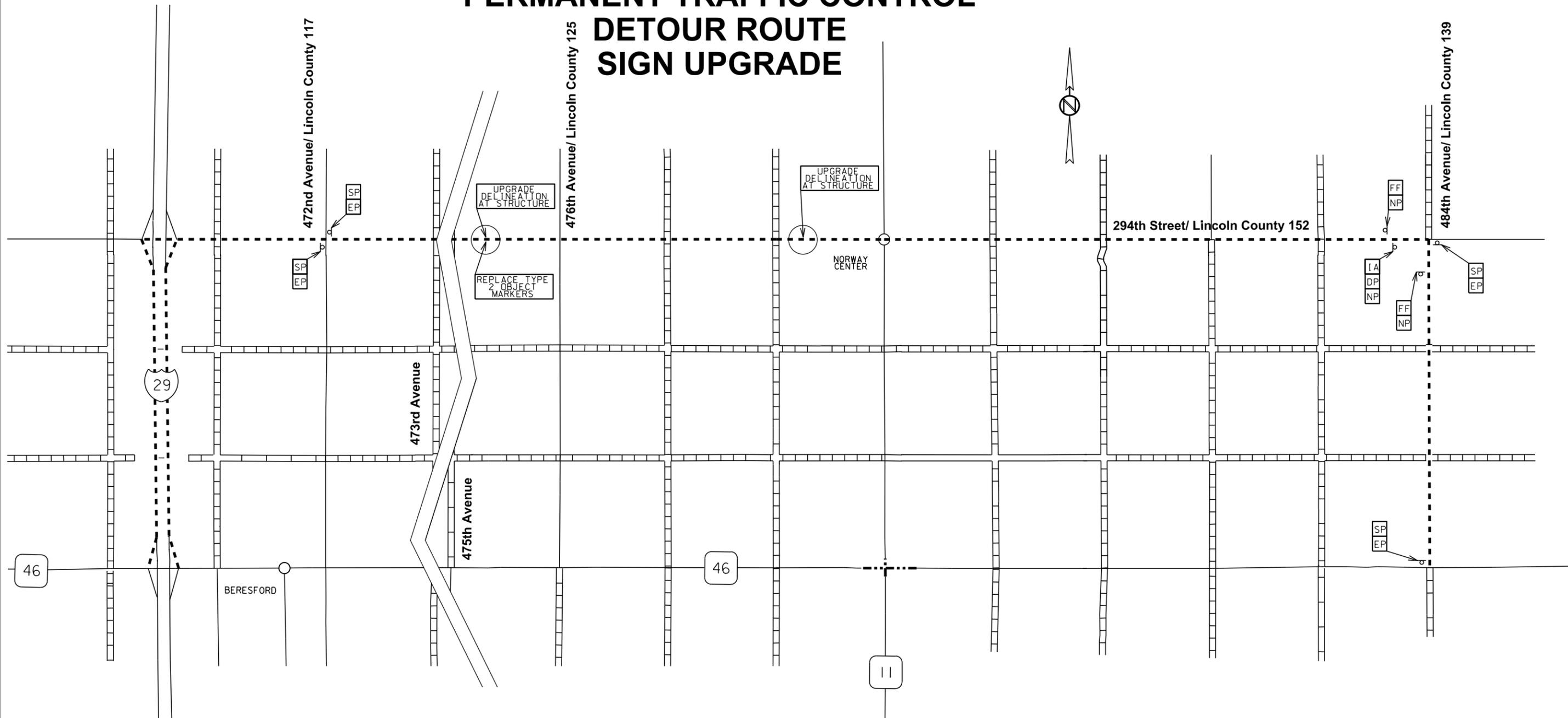
Revised 8-12-16 JRS

DETOUR UPGRADE PERMANENT SIGN INSTALLATION TABLE

SIGN DATA														
LOCATION	DESCRIPTION	SIGN CODE	SIGN SIZE (FT)	SIGN AREA (SqFt)		(R)IGHT/ (L)EFT	DIR SIGN FACES	QUANTITY & SIZE			BREAK-AWAY #	4 x 4		COMMENTS
				HI ♦	SVH †			2.0"X2.0" TUBE	2.25"X2.25" TUBE	2.5"X2.5" TUBE		White Delineator BK to BK	Type 2 Object Marker	
CO 152				632E3203	632E3205			632E1320	632E1330	632E1340		632E2022	632E2520	
472nd	STOP	R1-1	4 X 4		13.3	R	West							Install sign on existing post
472nd	STOP	R1-1	4 X 4		13.3	L	East							Install sign on existing post
Structure Between 475th and 476th	Type 2 Object Marker Type 2 Object Marker Type 2 Object Marker Type 2 Object Marker 16 White delineators bk to bk					R L R L	West West East East						1.0 1.0 1.0 1.0	
Between 478th and 479th	16 White delineators bk to bk												16.0	
Between 483rd and 484th	Speed Limit 55	R2-1	2.5 X 3	7.5		L	East		10.75		A			
	Crossroads Warning Distance Plaque 600 FEET	W2-1 W16-2P	4 X 4 2.5 X 2.0		16.0 5.0	R	West			11.00	A			
CO 139														
294th	STOP	R1-1	4 X 4		13.3	L	South							Install sign on existing post
294th	Speed Limit 55	R2-1	2.5 X 3	7.5		R	North		10.75		A			
SD 46	STOP	R1-1	4 X 4		13.3	L	South							Install sign on existing post
TOTALS THIS SHEET				20.00	69.20			0.00	21.50	11.0		32	4	

* - Distance from White or Yellow Edgeline, or Edge of Shoulder if no Edgeline, to Edge of Sign. ♦ - High Intensity Sheeting †-Super/Very High Intensity
- (S)lip Base, (A)nchor Stub Post, or (D)irect Drive ✕ -Plan post lengths are estimates. The post lengths shall be field verified by the Contractor.

PERMANENT TRAFFIC CONTROL DETOUR ROUTE SIGN UPGRADE



UPGRADE
DELINEATION
AT STRUCTURE

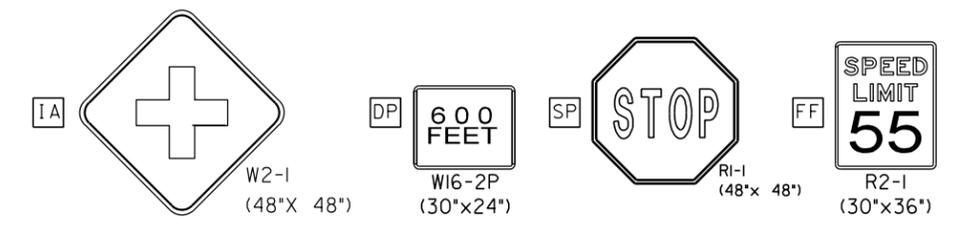
UPGRADE DELINEATION AT STRUCTURE : REMOVE THE EXISTING DELINEATORS AND REPLACE WITH 4 NEW WHITE BACK TO BACK DELINEATORS SPACED AT 50 FEET AT EACH CORNER OF THE STRUCTURE

REPLACE TYPE
2 OBJECT
MARKERS

REMOVE AND REPLACE 4 TYPE 2 OBJECT MARKERS

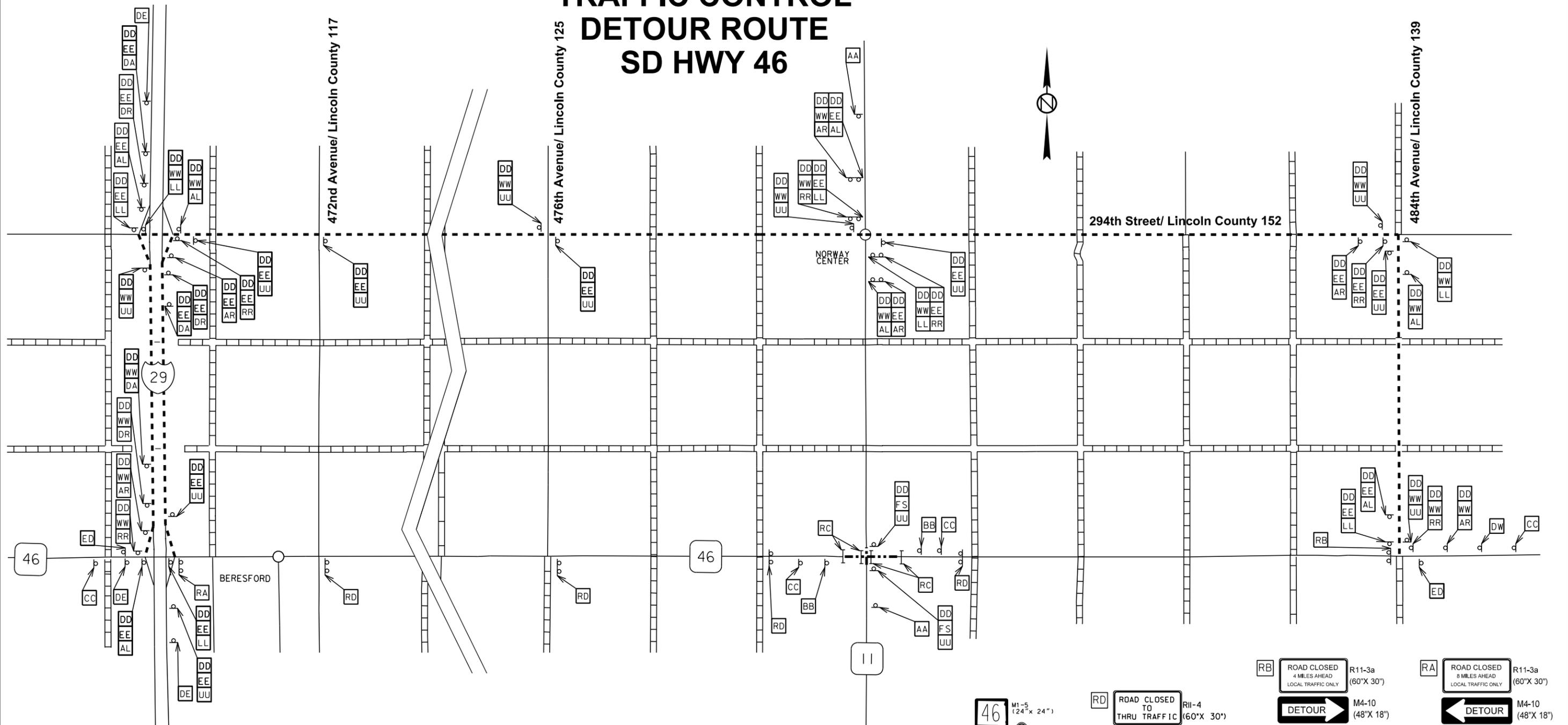
PROJECT -
DETOUR ROUTE -

ALL NEW SIGNS SHOWN ON THIS PAGE SHALL REMAIN IN PLACE AND BECOME PROPERTY OF THE COUNTY. EXISTING SIGNS TO BE REMOVED SHALL BE DELIVERED TO THE BERESFORD MAINTENANCE SHOP. THE SIGN COLORS SHALL BE PER THE MUTCD FOR PERMANENT SIGNS.



NP INSTALLATION INCLUDES NEW POST
EP INSTALLATION USES EXISTING POST

TRAFFIC CONTROL DETOUR ROUTE SD HWY 46

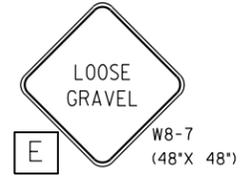
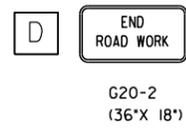
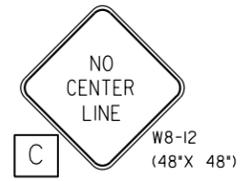
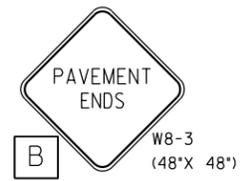
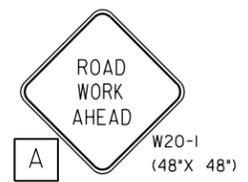
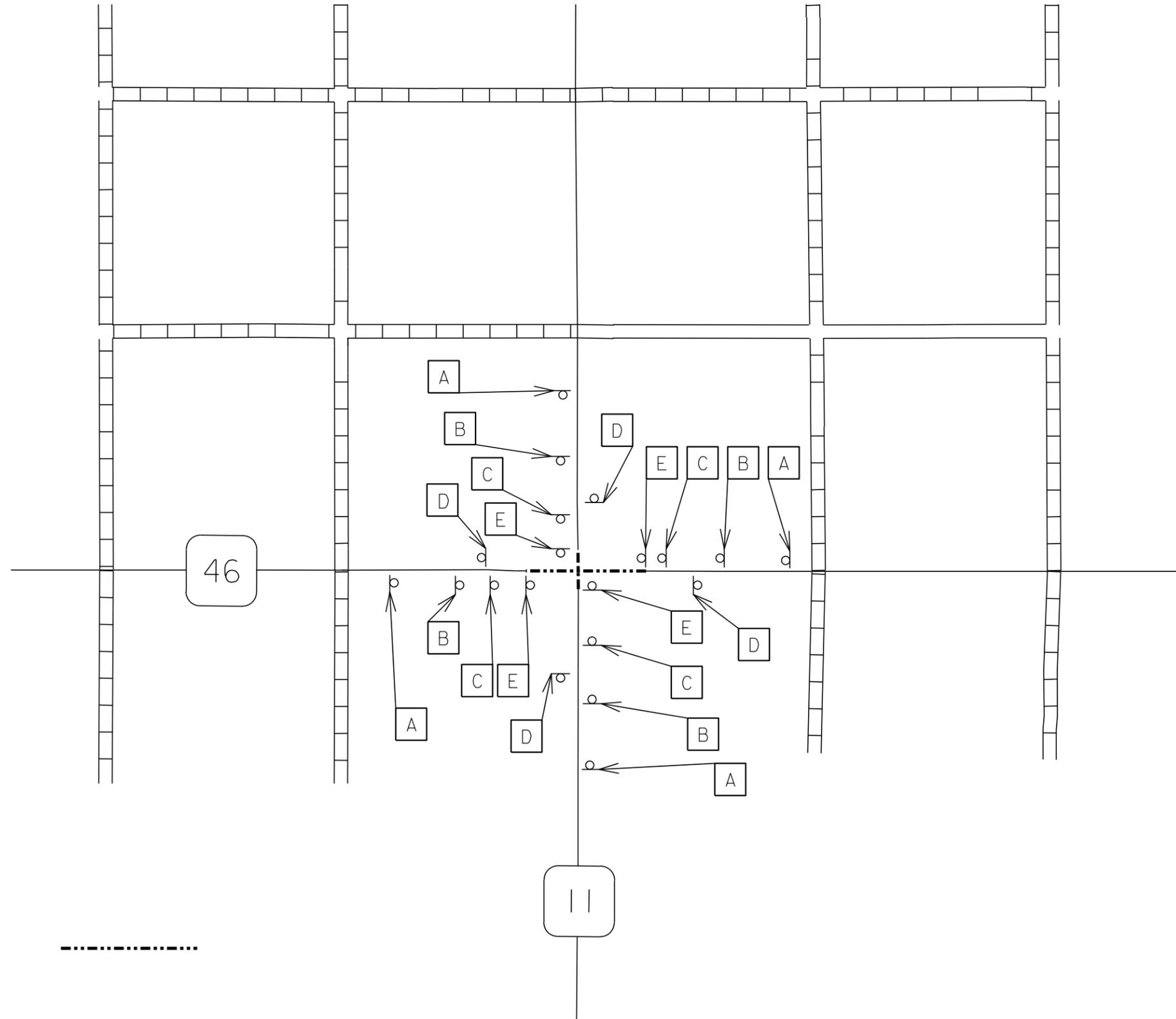


EE EAST M3-2 (24"X 12") 46 M1-5 (24"X 24") WW WEST M3-4 (24"X 12") 46 M1-5 (24"X 24")	ED END DETOUR M4-8a (24"X 18") FS 46 M1-5 (24"X 24")	UU ↑ M6-3 (21"X 15") AR ↗ M5-1 (21"X 15") AL ↖ M5-1 (21"X 15") DD DETOUR M4-8 (24"X 12")	RR → M6-1 (21"X 15") LL ← M6-1 (21"X 15") DA ↗ M5-2 (21"X 15") DR ↗ M6-2 (21"X 15")	AA W20-2 (48"X 48") CC ROAD CLOSED AHEAD W20-3 (48"X 48") BB ROAD CLOSED 500 FT W20-3 (48"X 48") DW DETOUR AHEAD W20-2 (48"X 48") DE DETOUR AHEAD W20-2 (48"X 48")	RD ROAD CLOSED TO THRU TRAFFIC R11-4 (60"X 30") TYPE 3 BARRICADE	RB ROAD CLOSED 4 MILES AHEAD LOCAL TRAFFIC ONLY R11-3a (60"X 30") DETOUR M4-10 (48"X 18") TYPE 3 BARRICADE	RA ROAD CLOSED 8 MILES AHEAD LOCAL TRAFFIC ONLY R11-3a (60"X 30") DETOUR M4-10 (48"X 18") TYPE 3 BARRICADE	RC ROAD CLOSED R11-2 (48"X 30") TYPE 3 BARRICADE
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PROJECT - -----
 DETOUR ROUTE - -----

DETOUR SIGNS SHALL BE SPACED 100 - 150' FROM OTHER SIGNS.
 DETOUR SIGNS SHALL NOT OBSCURE EXISTING SIGNS.

TRAFFIC CONTROL FIXED LOCATION SIGNS



PROJECT -

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

● 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.

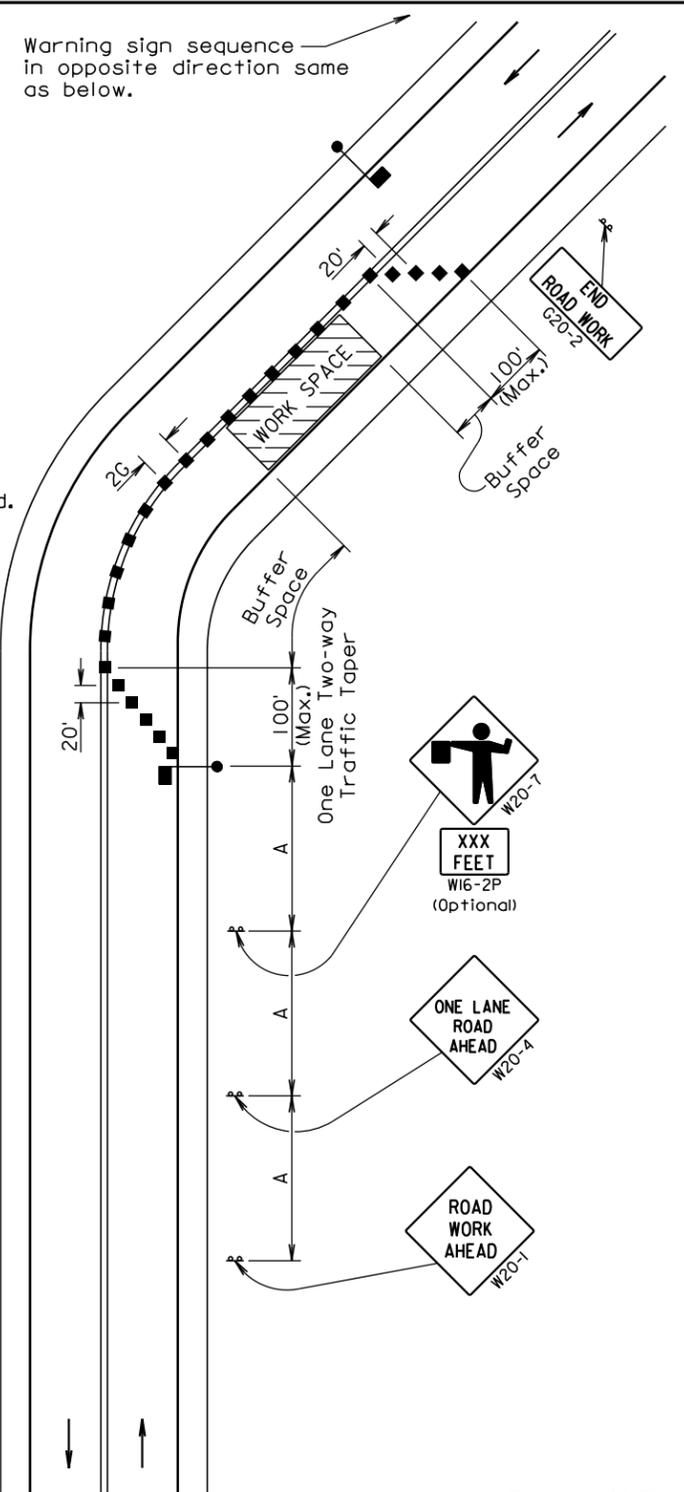
The channelizing devices shall be drums or 42" cones.

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

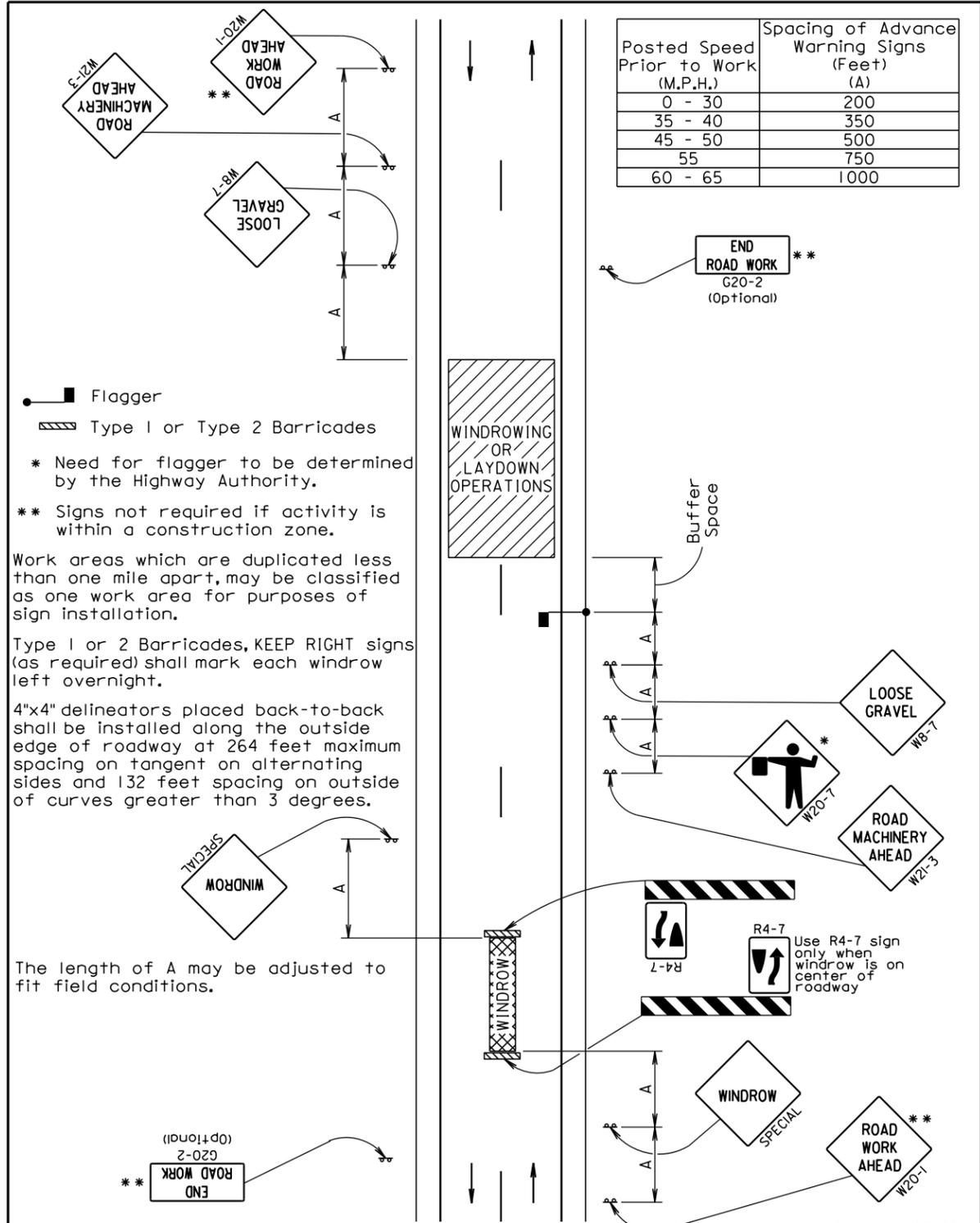
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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.



September 22, 2014



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

● Flagger
▨ Type 1 or Type 2 Barricades

* Need for flagger to be determined by the Highway Authority.

** Signs not required if activity is within a construction zone.

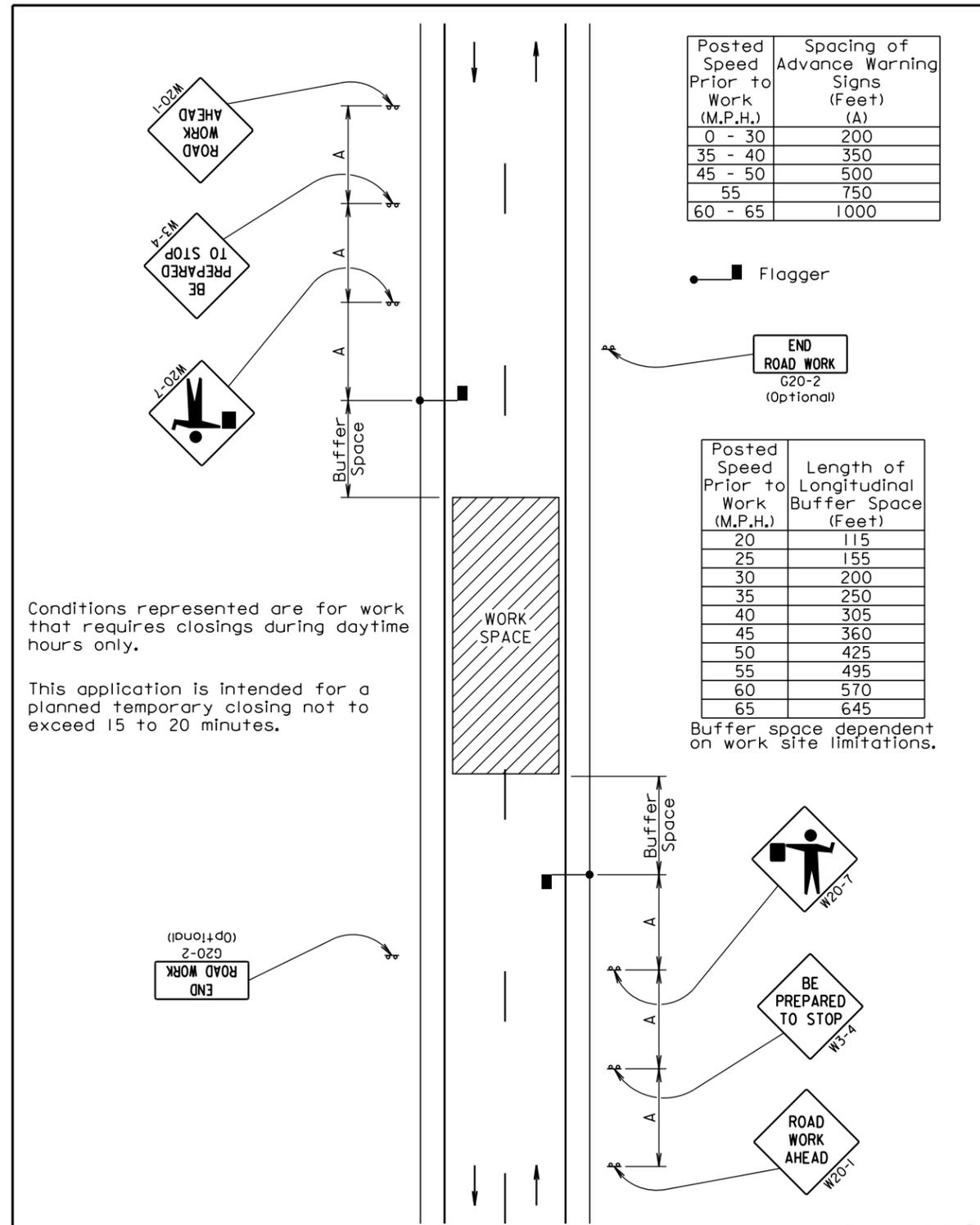
Work areas which are duplicated less than one mile apart, may be classified as one work area for purposes of sign installation.

Type 1 or 2 Barricades, KEEP RIGHT signs (as required) shall mark each windrow left overnight.

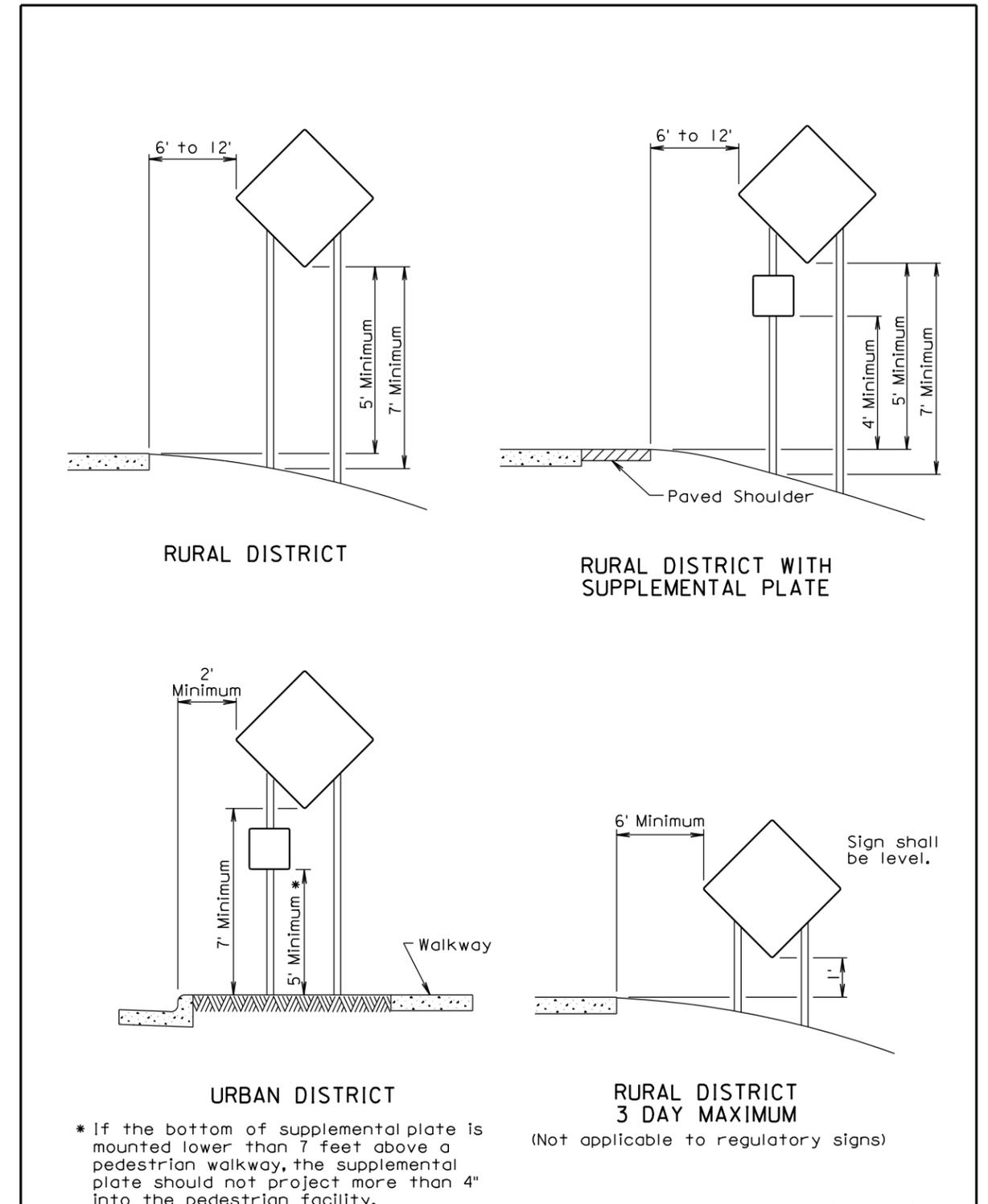
4"x4" delineators placed back-to-back shall be installed along the outside edge of roadway at 264 feet maximum spacing on tangent on alternating sides and 132 feet spacing on outside of curves greater than 3 degrees.

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

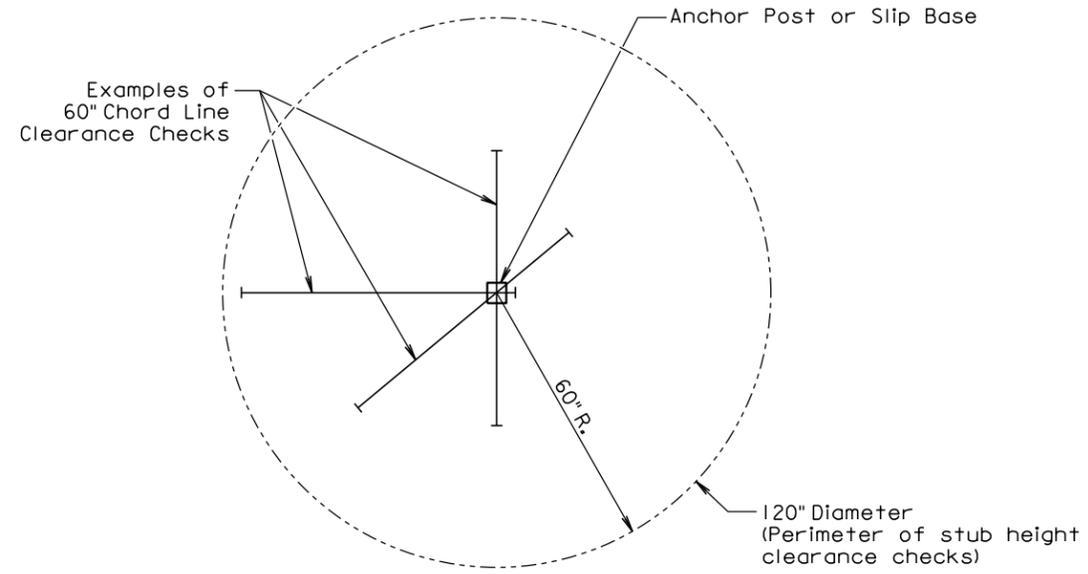
September 22, 2014



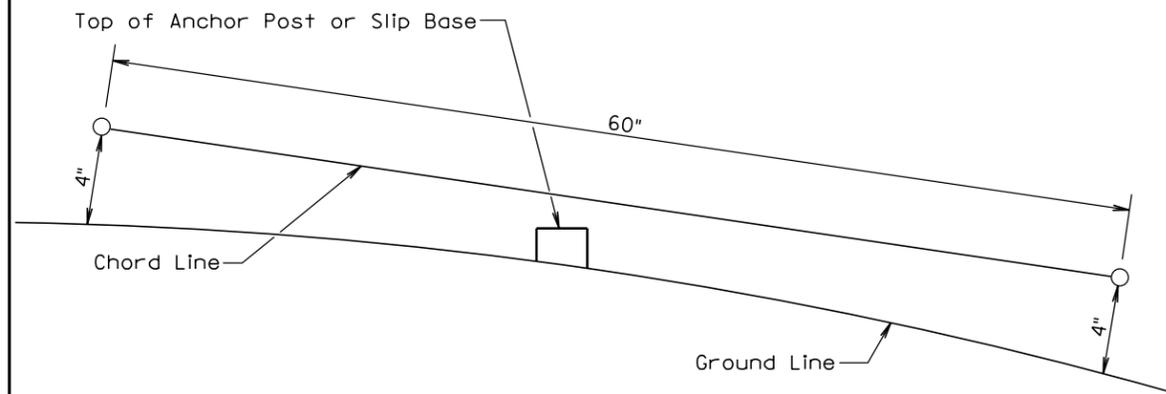
September 6, 2015



September 22, 2014



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

<i>Published Date: 1st Qtr. 2016</i>	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1