

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0019(36)73	C1	C10

Plotting Date: 07/29/2014

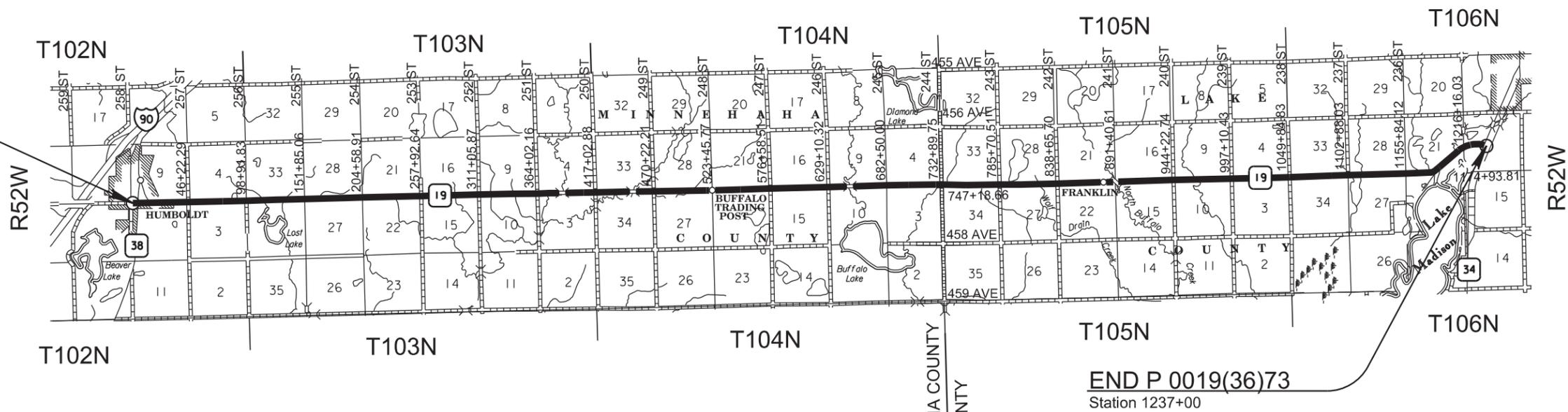
Section C: Traffic Control

INDEX OF SHEETS

- C1 General Layout W/Index
- C2 to C3 Plan Notes
- C4 Fixed Location Sign Detail
- C5 Itemized List of Traffic Control
- C6 to C10 Standard Plates



BEGIN P 0019(36)73
Station 1+70



END P 0019(36)73
Station 1237+00

PLOT SCALE - 1:210

PLOTTED FROM - TRSF12114

PLOT NAME - 1

FILE - ... \TC_DESIGN\026D\026D_T11LEC.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0019(36)73	C2	C10

Revised: 08/14/14 JAP

SECTION C: ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
110E7152	Remove Delineator for Reset	557	Each
632E2100	Reset Delineator	557	Each
634E0010	Flagging	800	Hour
634E0020	Pilot Car	400	Hour
634E0100	Traffic Control	3,736	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	66.3	Mile

SCOPE OF WORK

Work on this project includes, but is not limited to Cold Milling Asphalt Concrete, Surface Preparation, Asphalt Concrete Surfacing/Resurfacing, Rumble Strips, Flush Seal, and Application of MC-70 for Prime.

SEQUENCE OF OPERATIONS

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. Install Fixed Location Signing Prior To Start Of Work
2. Complete Cold Milling Operations in Shoulder Widened Portion of Minnehaha County
3. Excavate Digouts and Complete Backfill Operations
4. Perform Surface Prep in Regraded Portion of Lake County
5. Complete All Asphalt Concrete Strengthening and Leveling
6. Complete Asphalt Concrete Blade Laid Operations
7. Complete Asphalt Concrete Mainline and Auxiliary Asphalt Paving
8. Place Base Course, Salvage Asphalt Mix on Shoulders
9. Apply MC-70 for Prime to Shoulder Areas
10. Complete Gravel Placement Operations to Entrances & Intersecting Roads
11. Remove and Reset Delineators Located Throughout the Project
12. Grind Rumble Strips
13. Place Flush Seal If Required
14. Install Permanent Pavement Marking

The completion of Cold Milling Asphalt Concrete shall precede asphalt concrete paving by no more than 5 working days.

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.

Work limits for flagger and pilot car operations shall not exceed 3 miles in length.

TRAFFIC CONTROL (CONTINUED)

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

Storage of vehicles and equipment shall be as near the right-of-way line as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. 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. 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.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Traffic Control units, 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.

Flaggers and FLAGGER symbol signs shall be in place when hauling material from one side of the roadway to the other. These shall also be provided when work activities or equipment present a hazard to workers, through traffic, or encroaches into driving lanes open to traffic.

The Contractor shall conduct shouldering operations in a manner which will minimize the time of any shoulder drop-offs. Gravel Surfacing shall follow the completion of the final lift of asphalt concrete as is feasible and as determined by the Engineer.

The outside edge of the asphalt concrete surfacing shall be marked with traffic control 42" cones or tubular markers at 500 foot spacings when shoulder drop-offs are present due to placement of asphalt concrete. Cost of these traffic control cones or tubular markers shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

SHOULDER DROP-OFF (W8-9a), TRUCK CROSSING (W8-6), FRESH OIL (W21-2), and BUMP (W8-1) signs have been included to the itemized list for traffic control to be used as directed by the Engineer.

BUMP SIGNS

An advisory speed plaque displaying 25 M.P.H. shall be attached to all "Bump" signs used on the project. These speed plaques are included in the Traffic Control Devices Inventory sheet in these plans.

TEMPORARY PAVEMENT MARKINGS

The total length of no passing zone (including both directions) on this project is estimated to be:

- 4.50 Miles for Shoulder Widened Sections of Minnehaha County
- 1.03 Miles for the Regraded Section of Minnehaha County
- 3.93 Miles for the Regraded Section of Lake County

Quantities of Temporary Pavement Markings consist of:

- One Pass on Top of the Cold Milled Surface (Shoulder Widened Sections – Minnehaha County)
- One Pass on Top Lift of Asphalt Concrete (Regraded Sections – Minnehaha County)
- One Pass on Top of the MC-70 Primed Surface (Regraded Section – Lake County)
- One Pass on Top of the 1st Lift of Asphalt Concrete Surface (Regraded Section – Lake County)
- One Pass on Top of the 2nd Lift of Asphalt Concrete Surface (Regraded Section – Lake County)
- One Pass on Top of the Flush Seal (Entire Project)

It is estimated that 56 DO NOT PASS and 56 PASS WITH CARE signs will be required to mark the no passing zones, should the contractor elect to use these signs. Cost for furnishing, installing, and removing the DO NOT PASS and PASS WITH CARE signs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

If a Flush Seal is eliminated, the application of the Temporary Pavement Marking on top of the Flush Seal will be eliminated. No adjustment in the contract unit price for Temporary Pavement Marking will be made because of a variation in quantities.

Temporary Road Markers (tabs) may be used as detailed in the Specifications. Covers on the tabs shall be sufficiently secured to prevent traffic from dislodging the cover and when removed the covers shall be properly disposed. If used, the contractor shall remove and properly dispose of the tabs after Permanent Pavement Marking is applied. Method of removal shall be nondestructive to the road surface and shall be accomplished within one week of completion of the Permanent Pavement Marking.

Temporary pavement marking paint will not be allowed for temporary pavement markings on the asphalt concrete wearing surface or after application of the flush seal.

On mainline SD Hwy 19 the outside white edge line shall be marked with tabs every 200'. Centerline shall be marked as per the Specifications. Costs to tab all three lines shall be included in the contract unit price per mile for Temporary Pavement Markings (each line not paid individually).

Any tabs with covers removed before the flush seal shall be replaced prior to Flush Seal application.

Cost for furnishing, applying, removing and disposing of the Temporary Road Markers shall be included in the contract unit price per mile for Temporary Pavement Marking.

PLOT SCALE - 1:200

PLOTTED FROM - TRSE12114

PLOT NAME - 2

FILE - ... \0260-FIXEDLOCATIONS.IGN, DON

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	P 0019(36)73	C3	C10

Revised: 08/14/14 JAP

TEMPORARY PAVEMENT MARKINGS (CONTINUED)

Flagger symbol signs (W20-7a) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the roadway shoulder in advance of workers for both directions of traffic during the installation of temporary road markers. The traffic control device used shall be moved to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), a Workers symbol sign (W21-1a) 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.

PEDESTRIAN TRAFFIC CONTROL (RECREATIONAL PATH)

The Contractor shall adhere to the requirements of the Americans with Disabilities Act (ADA) during construction. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)", and should not be used as a control for pedestrian movements.

Orange plastic safety fence shall be provided to enclose any areas that are unsafe for pedestrian traffic including excavation areas that will be open overnight or when the Contractor is not in the area. This includes any disturbances to the sidewalk, existing ground or other paved surface; for the purpose of installing poles or conduit. Detectable edging for individuals with visual disabilities shall be utilized as indicated in section 6F.68 of the MUTCD. All related costs to furnish, place and maintain the plastic safety fence and detectable edging shall be incidental to the contract lump sum price for Traffic Control Miscellaneous.

Quantities for SIDEWALK CLOSED (R9-9) signs have been included in the itemized list of traffic control to help direct pedestrian traffic as directed by the Engineer. SIDEWALK CLOSED (R9-9) signs shall be mounted on Type I barricades and cost for the Type I barricades shall be incidental to the contract lump sum price for Traffic Control Miscellaneous.

REMOVE DELINEATOR FOR RESET & RESET DELINEATOR

Upon completion of the application of MC-70 for prime to the shoulder areas the 4" x 4" white delineators and 4" tubular white delineators located throughout the project shall be remove and reset at a distance of 2 feet from the edge of the shoulder. The delineators are currently set at a distance of 6 feet from the edge of the shoulder to allow for surface preparation and the placement of shouldering material. Any delineators or posts damaged during the removal and resetting shall be replaced by the Contractor at no cost to the State.

PLOT SCALE - 1:200

PLOTTED FROM - TRSE12114

PLOT NAME - 3

FILE - ... \0260-FIXEDLOCATIONS\SIGNS.DGN

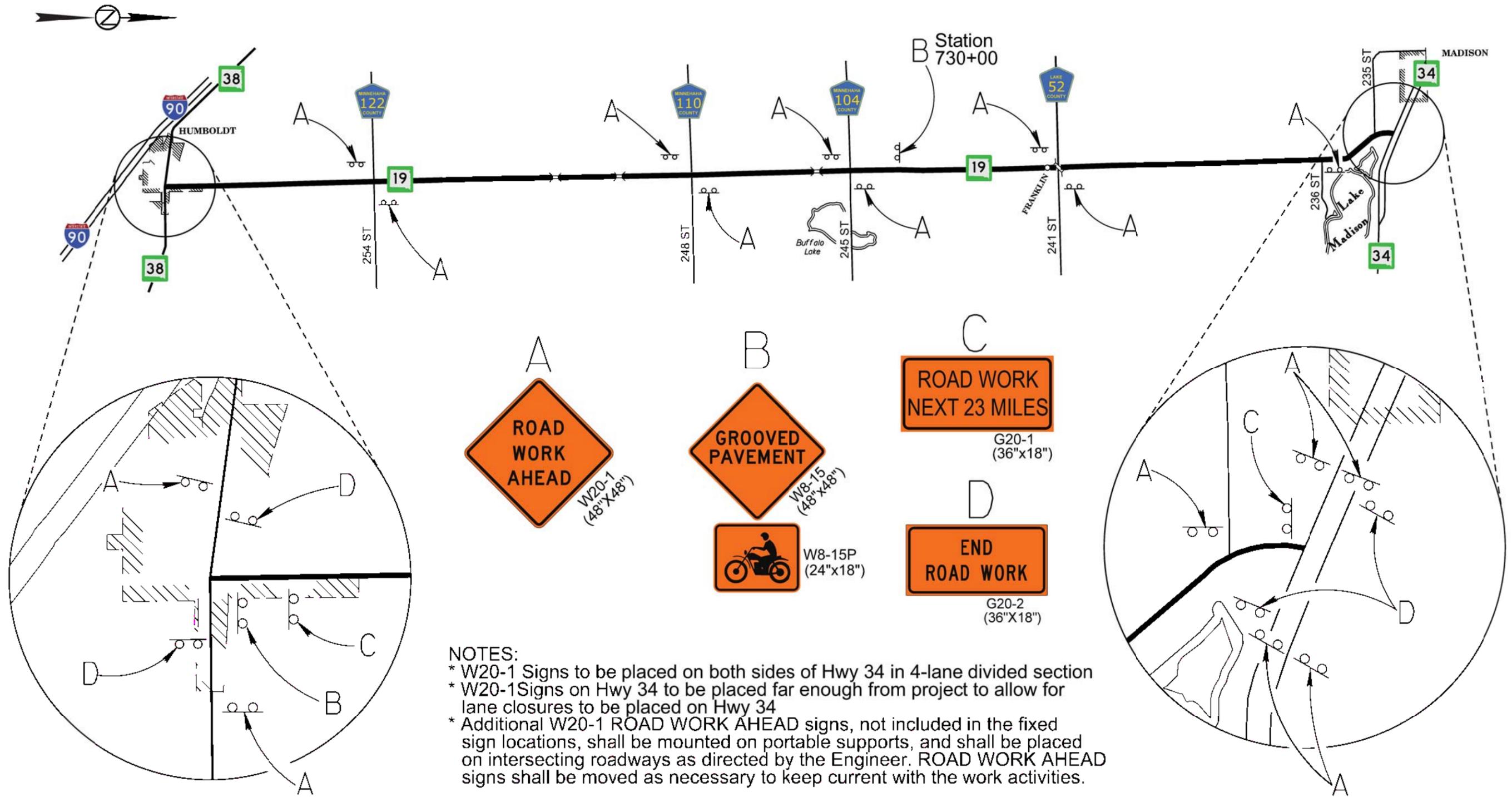
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0019(36)73	C4	C10

Plotting Date: 07/29/2014

FIXED LOCATION SIGNS GROUND MOUNTED, BREAKAWAY SUPPORTS

PLOT SCALE - 1:210

PLOT NAME - 4



- NOTES:**
- * W20-1 Signs to be placed on both sides of Hwy 34 in 4-lane divided section
 - * W20-1 Signs on Hwy 34 to be placed far enough from project to allow for lane closures to be placed on Hwy 34
 - * Additional W20-1 ROAD WORK AHEAD signs, not included in the fixed sign locations, shall be mounted on portable supports, and shall be placed on intersecting roadways as directed by the Engineer. ROAD WORK AHEAD signs shall be moved as necessary to keep current with the work activities.

Exact location of signs to be determined in the Field by the Engineer.

PLOTTED FROM - IRSE12114

FILE - ... \026D-FIXEDLOCATIONSIGNS.DGN

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	36" x 18"	ROAD WORK NEXT 23 MILES	2	17	34
G20-2	36" x 18"	END ROAD WORK	6	17	102
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	2	18	36
R9-9	24" x 12"	SIDEWALK CLOSED	6	4	24
W3-4	48" x 48"	BE PREPARED TO STOP	2	34	68
W8-1	48" x 48"	BUMP	8	34	272
W8-6	48" x 48"	TRUCK CROSSING	4	34	136
W8-7	48" x 48"	LOOSE GRAVEL	2	34	68
W8-7a	48" x 48"	WINDROW	2	34	68
W8-9a	48" x 48"	SHOULDER DROP-OFF	16	34	544
W8-11	48" x 48"	UNEVEN LANES	4	34	136
W8-15	48" x 48"	GROOVED PAVEMENT	2	34	68
W8-15P	24" x 18"	MOTORCYCLE (PLAQUE)	2	7	14
W13-1P	30" x 30"	ADVISORY SPEED PLATE	8	21	168
W20-1	48" x 48"	ROAD WORK AHEAD	23	34	782
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	3	34	102
W20-7	48" x 48"	FLAGGER (SYMBOL)	3	34	102
W21-2	48" x 48"	FRESH OIL	6	34	204
W21-3	48" x 48"	ROAD MACHINERY AHEAD	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
*****		TYPE III BARRICADE - 8 FT. DOUBLE SIDED	12	56	672
TOTAL UNITS					3736

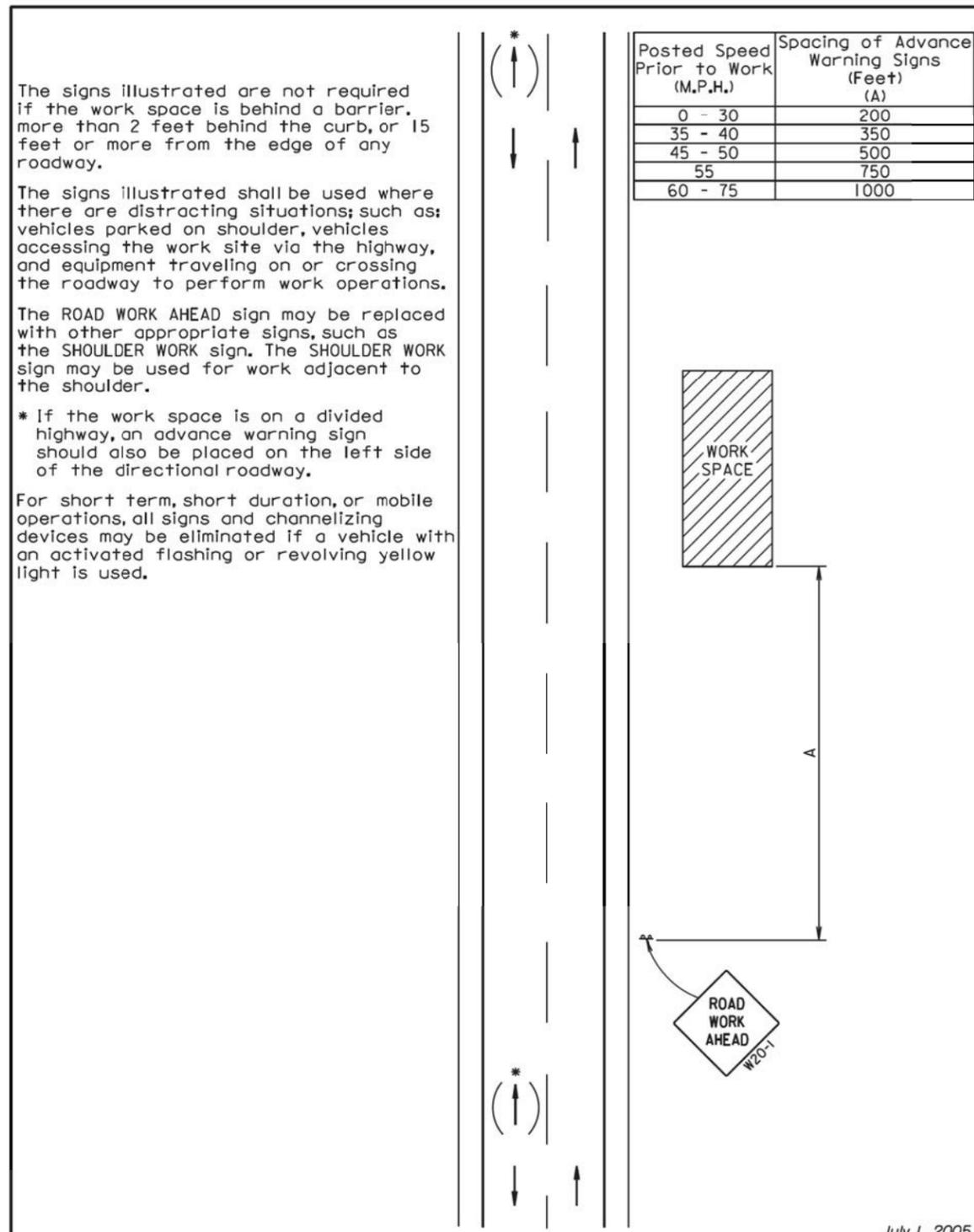
If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

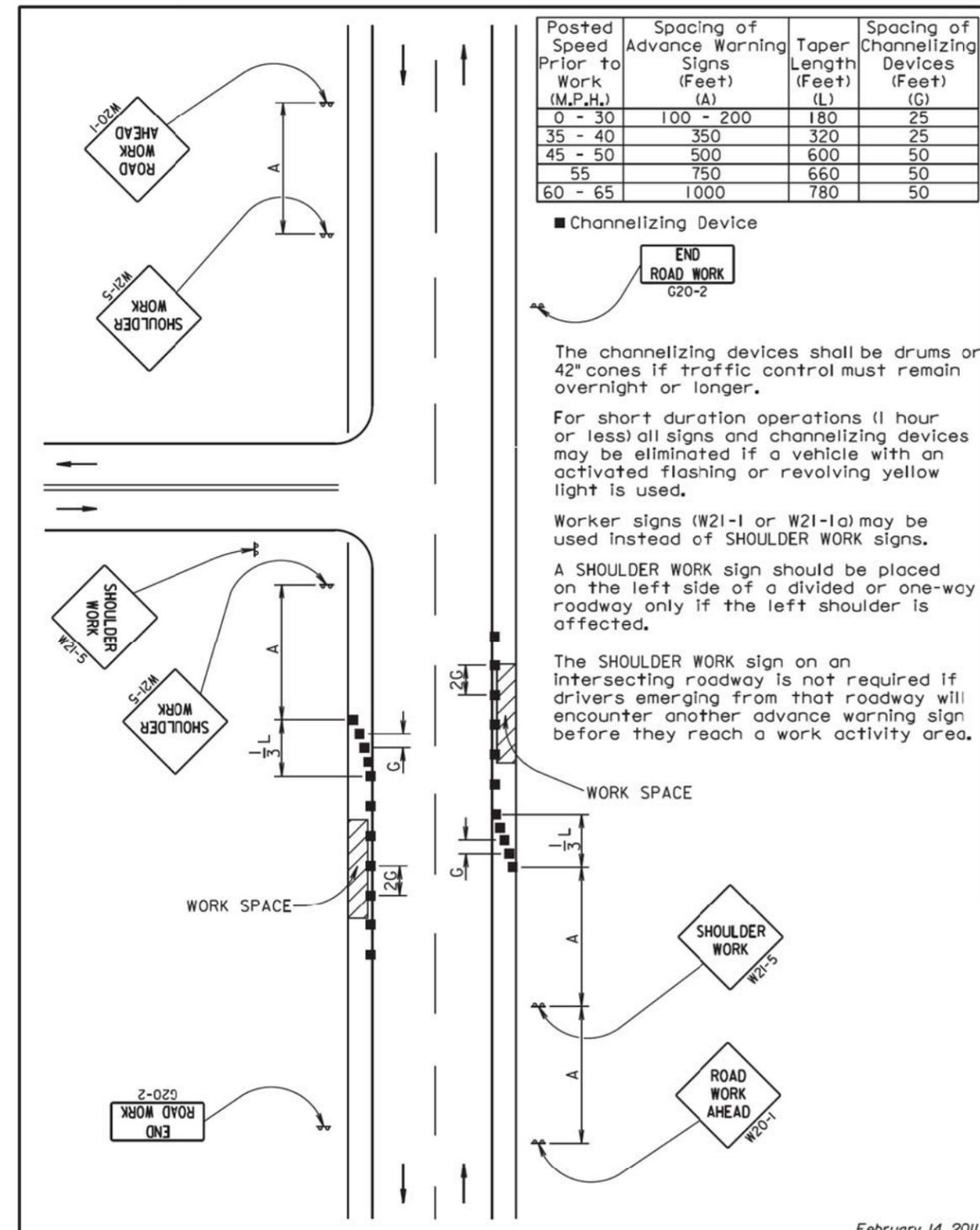
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

PLOT SCALE - 1:10.0856704



July 1, 2005

PLOTTED FROM - IRSE12114

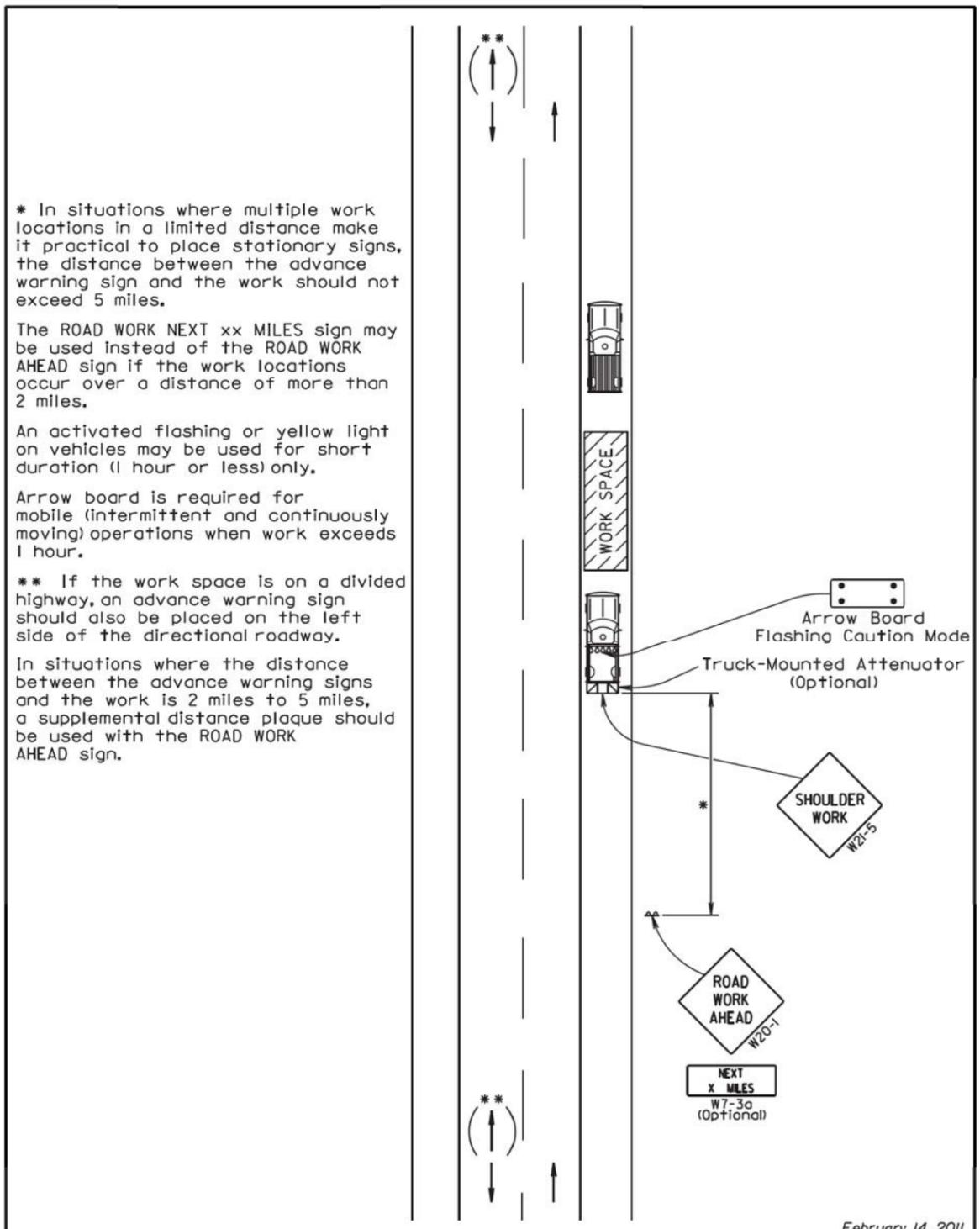


February 14, 2011

PLOT NAME - 5

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PLOT SCALE - 1:10.0856704



* In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

An activated flashing or yellow light on vehicles may be used for short duration (1 hour or less) only.

Arrow board is required for mobile (intermittent and continuously moving) operations when work exceeds 1 hour.

** 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.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a supplemental distance plaque should be used with the ROAD WORK AHEAD sign.

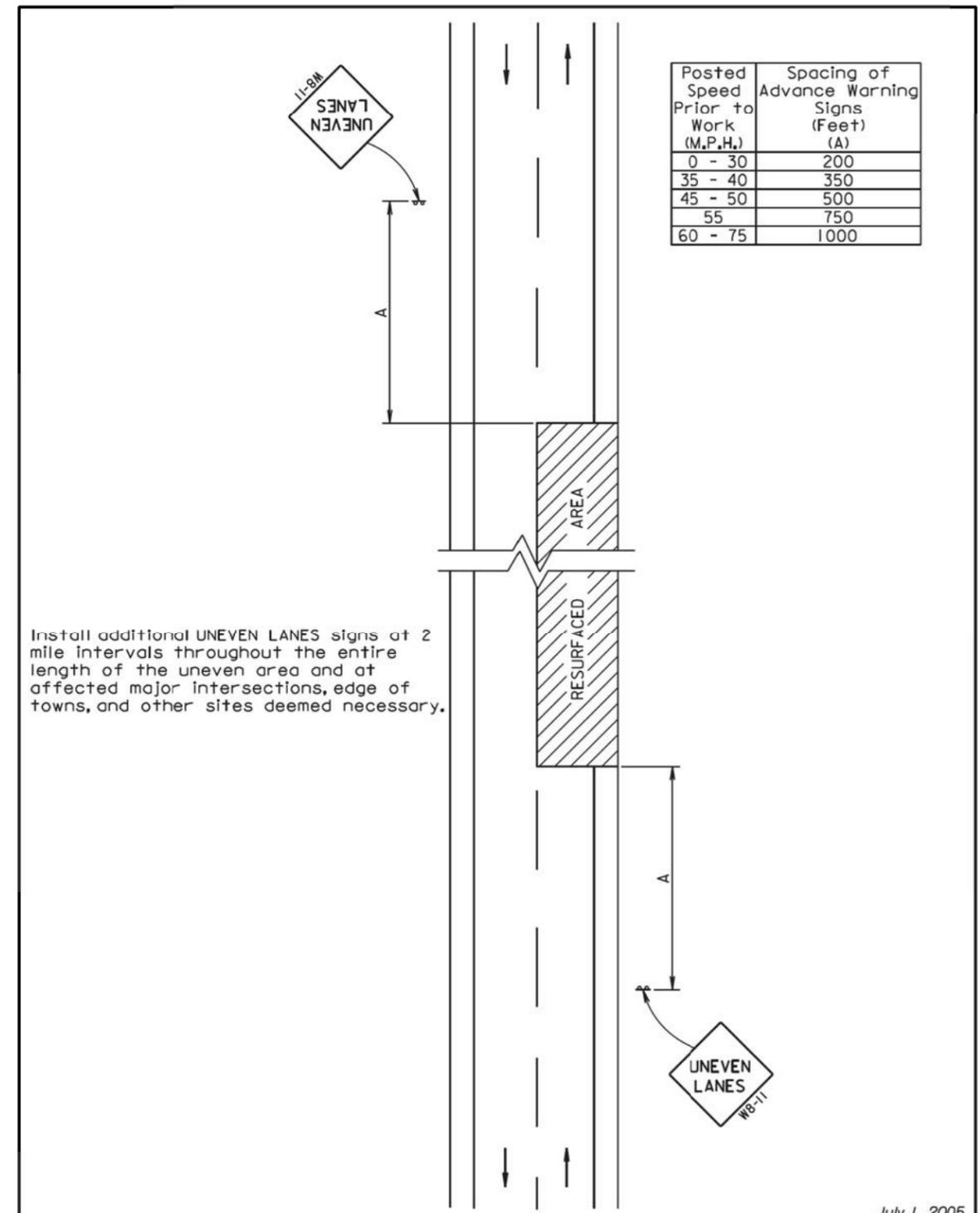
February 14, 2011

Published Date: 2nd Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES MOBILE OPERATIONS ON SHOULDER	PLATE NUMBER 634.04
			Sheet 1 of 1

PLOT NAME - 6

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PLOTTED FROM - IRSE12114



Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

July 1, 2005

Published Date: 2nd Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
			Sheet 1 of 1

PLOT SCALE - 1:10,000

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

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.

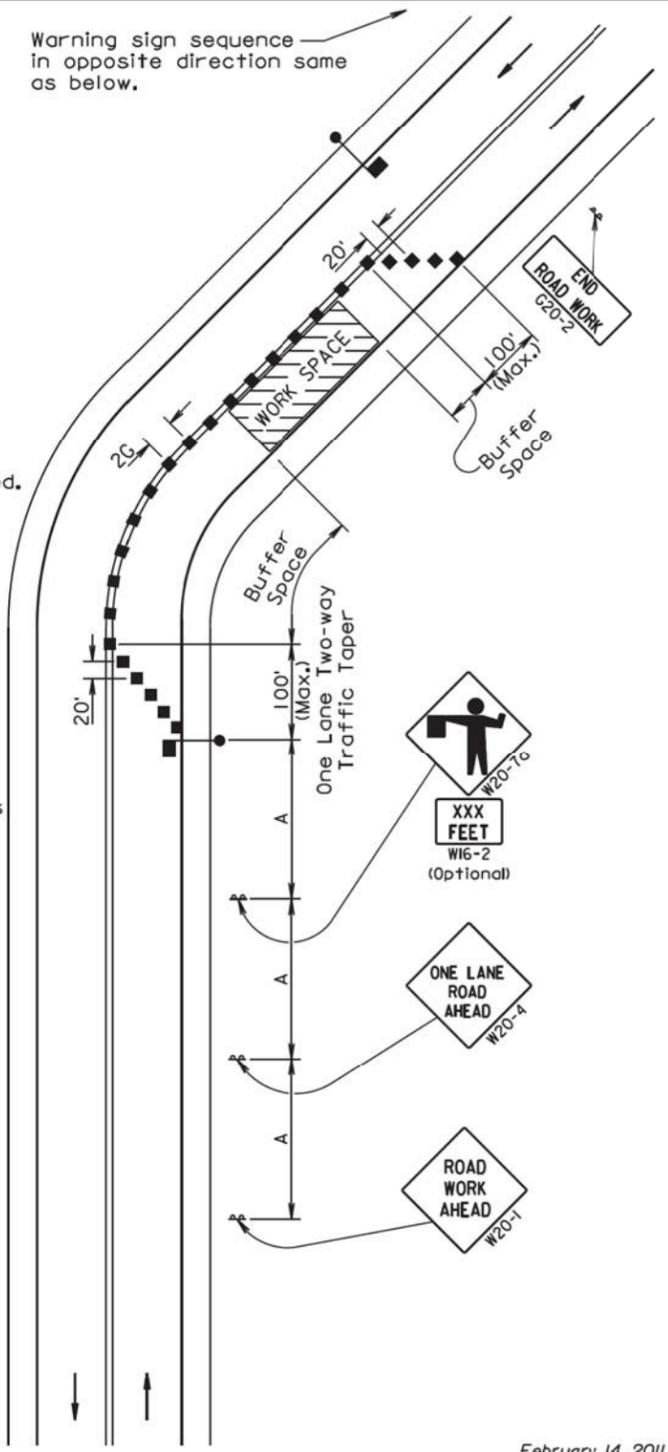
Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

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.



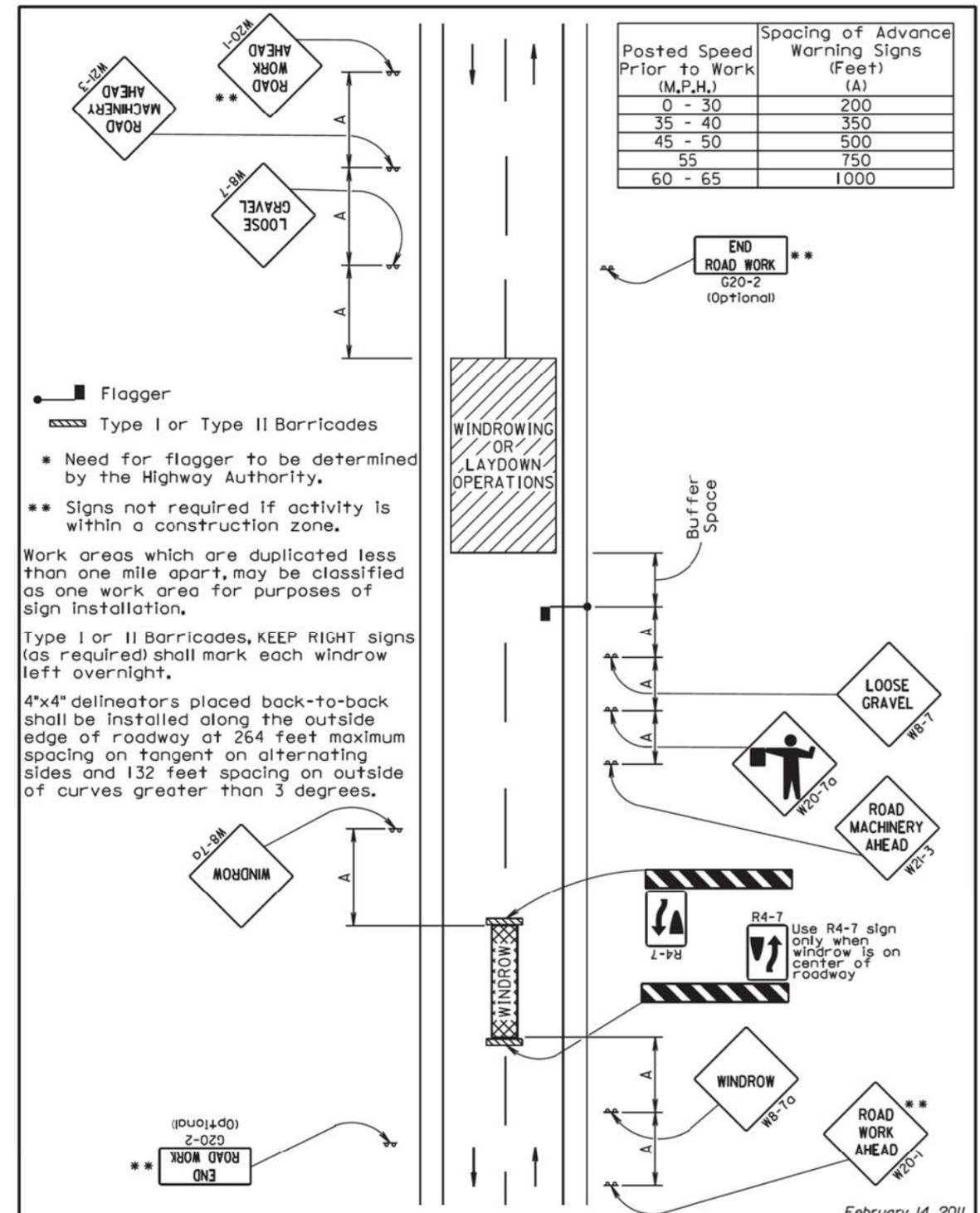
February 14, 2011

Published Date: 2nd Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES	PLATE NUMBER
		LANE CLOSURE WITH FLAGGER PROVIDED	634.23
		Sheet 1 of 1	

PLOTTED FROM - IRSE12114

FILE - ... \TC_DESIGN\STD\PLATES.DGN

PLOT NAME - 7



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 I or Type II 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 I or II 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.

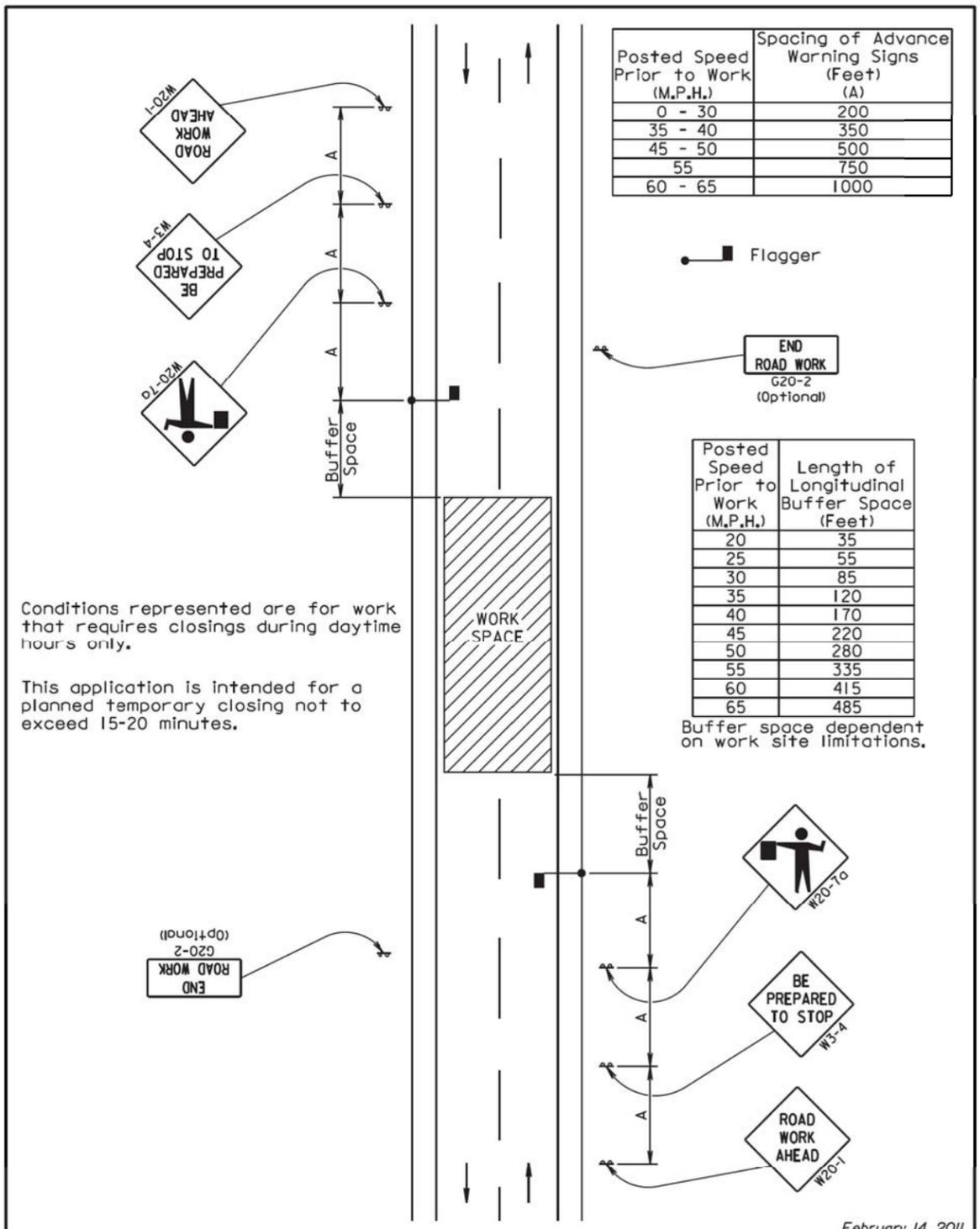
February 14, 2011

Published Date: 2nd Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES	PLATE NUMBER
		WINDROWING OR LAYDOWN OPERATION	634.27
		Sheet 1 of 1	

PLOT SCALE - 1:10.0858704

PLOT NAME - 8

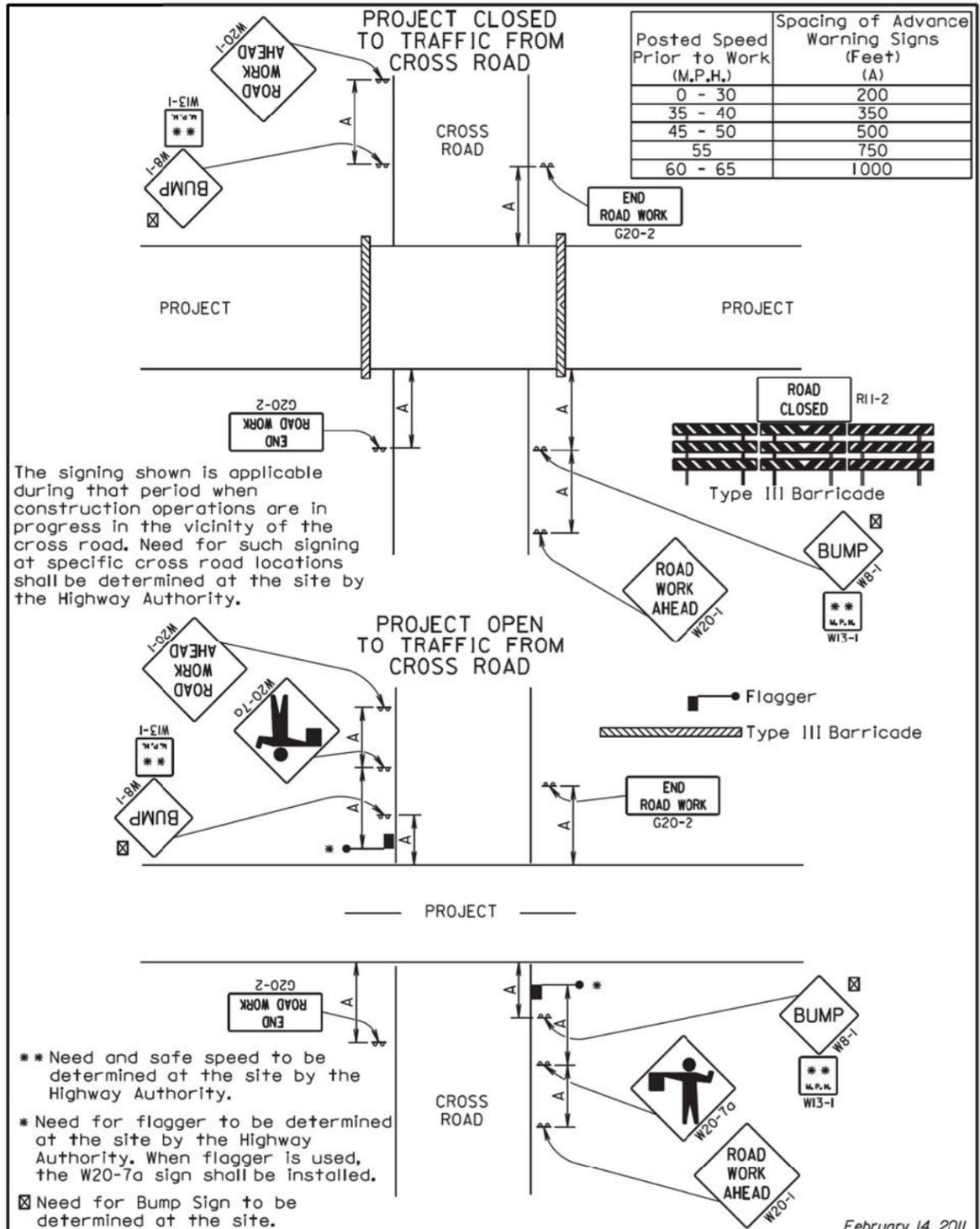
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Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15-20 minutes.

February 14, 2011



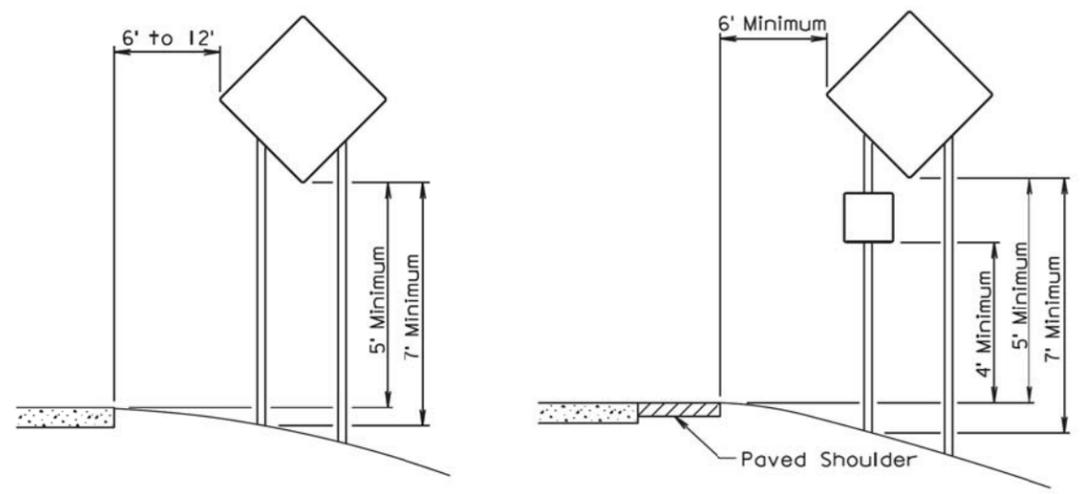
The signing shown is applicable during that period when construction operations are in progress in the vicinity of the cross road. Need for such signing at specific cross road locations shall be determined at the site by the Highway Authority.

- ** Need and safe speed to be determined at the site by the Highway Authority.
- * Need for flagger to be determined at the site by the Highway Authority. When flagger is used, the W20-7a sign shall be installed.
- ☒ Need for Bump Sign to be determined at the site.

February 14, 2011

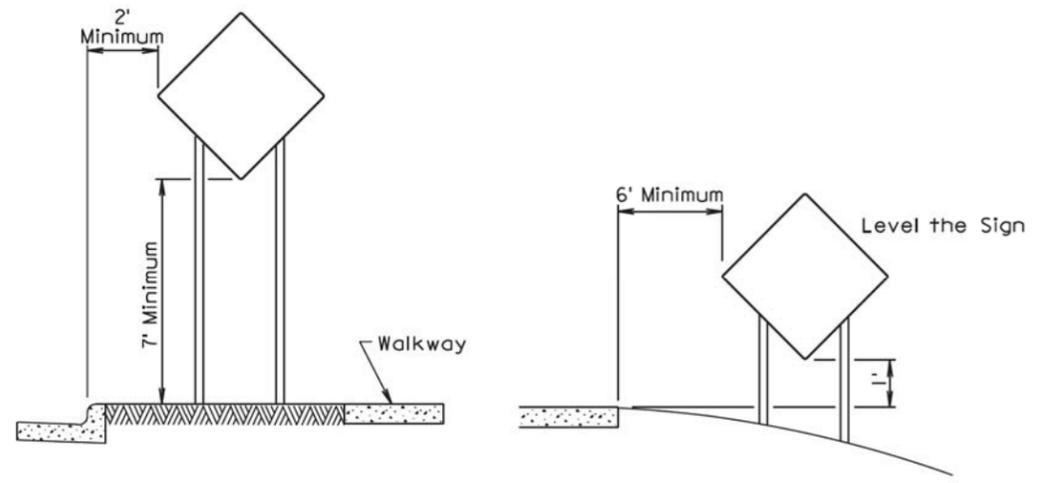
PLOT SCALE - 1:10 - 0856704

PLOT NAME - 9



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE

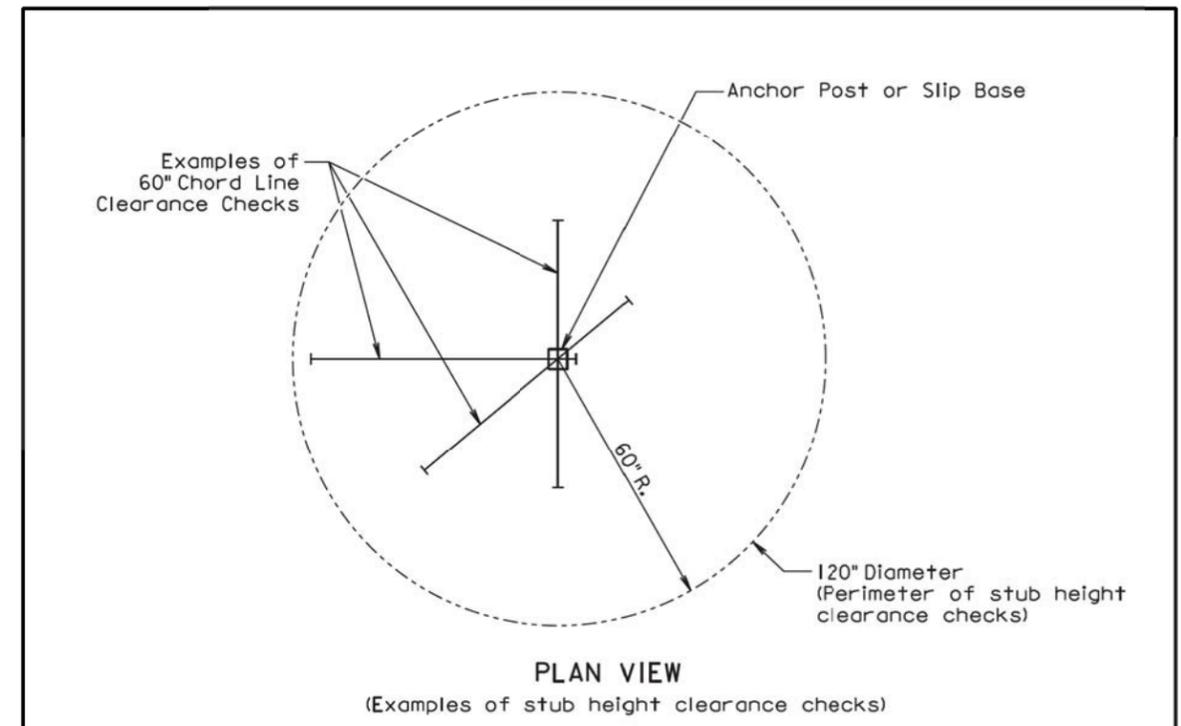


URBAN DISTRICT

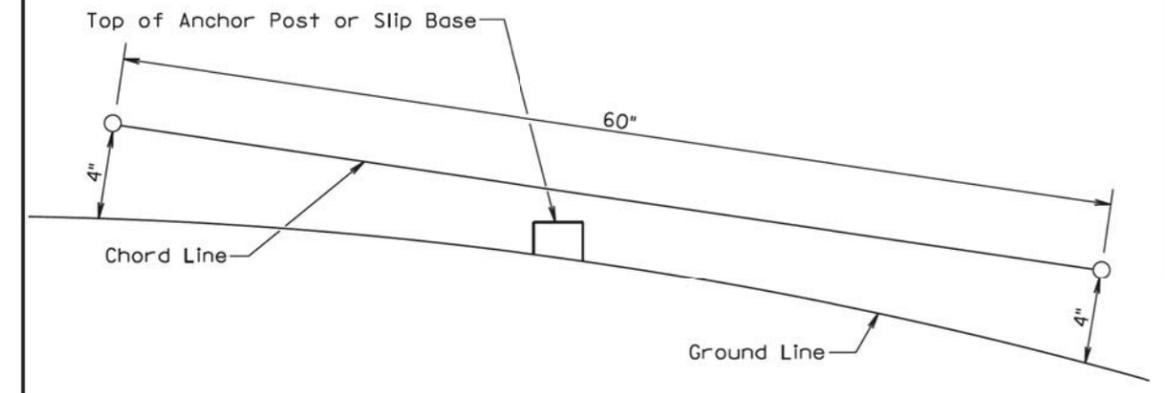
RURAL DISTRICT 3 DAY MAXIMUM

February 14, 2011

Published Date: 2nd Qtr. 2014	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: 2nd Qtr. 2014	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

PLOTTED FROM - IRSE12114

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