

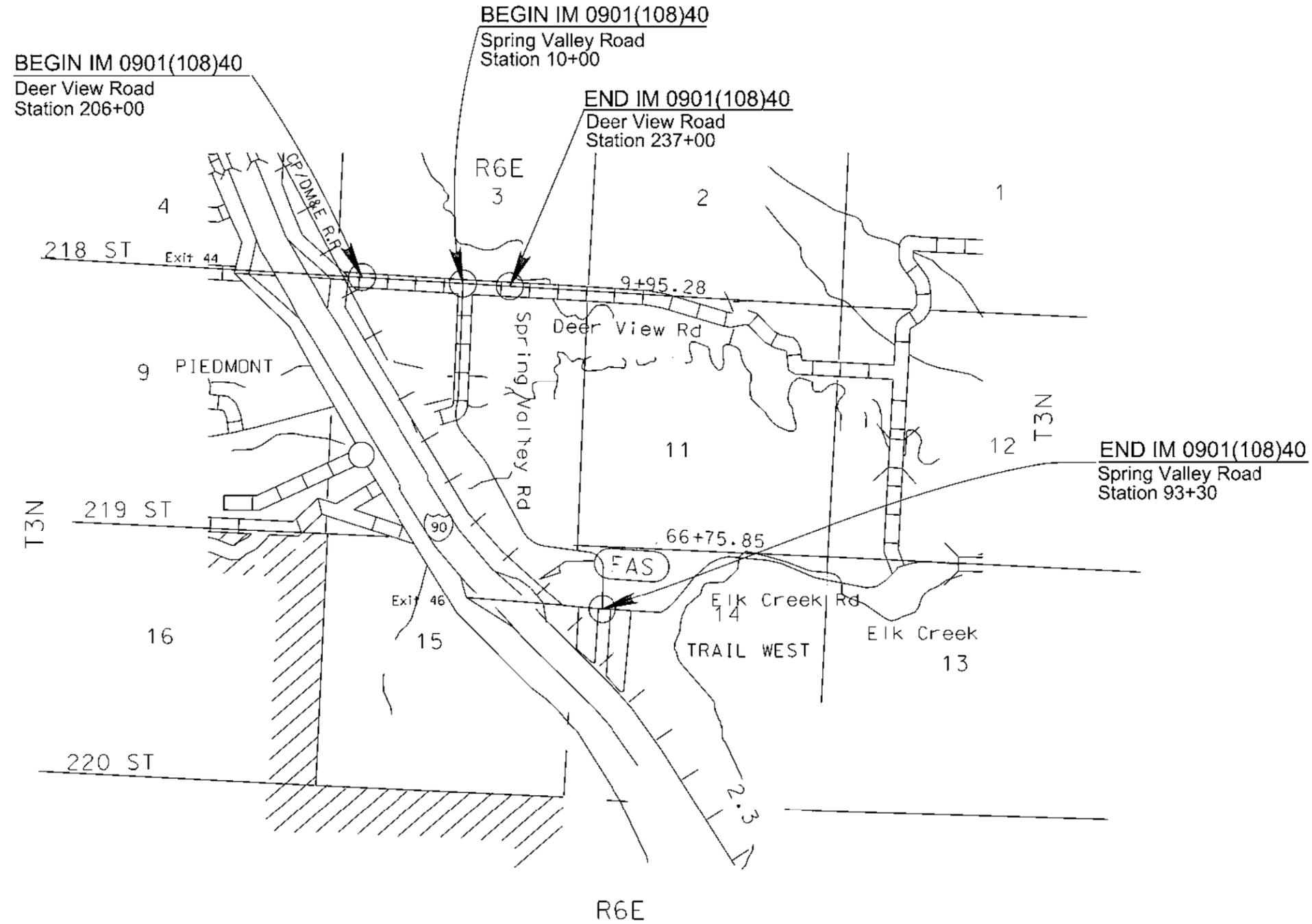
SECTION C: TRAFFIC CONTROL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	C1	C8

Plotting Date: 04/07/2014

INDEX OF SHEETS

- C1 GENERAL LAYOUT W/INDEX
- C2-C3 ESTIMATE WITH GENERAL NOTES & TABLES
- C4 FIXED LOCATION SIGNING LAYOUT
- C5-C8 STANDARD PLATES



SECTION C – ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
004E0010	Blading	100	Hour
634E0010	Flagging	500	Hour
634E0020	Pilot Car	250	Hour
634E0100	Traffic Control	2,102	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E1215	Contractor Furnished Portable Changeable Message Sign	2	Each

TRAFFIC CONTROL – GENERAL NOTES

- Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.
- Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined, as ½ hour after sunset until ½ hour before sunrise.
- Storage of vehicles and equipment shall be as near the right-of-way 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 of 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.
- Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
- Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
- The quantity of Signs paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.
- Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

- All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
- The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
- The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
- The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
- Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.
- All construction operations shall be conducted in the general direction of traffic movement.
- If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.
- Drums are required in all lane closure tapers.
- Bump Signs (black on orange – 36"x36") with appropriate Speed Advisory Plate (black on orange – 24"x24") shall be placed 500' in advance of the bump or as approved by the Engineer for adequate sight distance. Type I Object Markers (orange - 18"x18") shall be placed at the bump location.
- Flags shall be placed on traffic control signs as directed by the Engineer. Flags shall be 16 inch square or larger and shall be orange or fluorescent red-orange in color. Payment for the flags shall be 10 traffic control units each and are included in the Table of Traffic Control Devices. Payment shall be full compensation for furnishing, installing, maintaining, replacing and removal of the flags as required by the Engineer.
- The pilot car shall be a four-wheeled vehicle with the Contractor's name prominently displayed on both sides of the vehicle. The pilot car will be equipped with flashing amber lights. Traffic shall not be delayed for a period longer than 15 minutes accumulated throughout the length of the project.

SEQUENCE OF OPERATIONS FOR GRADING & SURFACING

Work shall proceed according to the following sequence or as approved by the Engineer:

- Set up the project Traffic Control signing.
- Coordination of the installation of orange plastic safety fence around the perimeter of the archaeologically sensitive sites identified in Environmental Commitment P: shall be completed prior to any construction activities beginning.
- Begin by removing existing fence and setting up temporary fence as needed in advance of grading operations.
- Begin Initial Phase of sediment controls as shown in Section D.
- Begin earth moving activities.
- Implement the Interim Phase of Erosion and Sediment Controls as shown in Section D.
- Begin removal of existing surfacing.
- Complete grading and placement of surfacing.
- Finish gravel surfacing installation on approaches and perform general cleanup activities.
- Complete Final Phase of erosion control as shown in Section D, fencing, and miscellaneous items to finish project.

SEQUENCE OF OPERATIONS: BOX CULVERT, STATION 33+10.00

Work shall proceed according to the following sequence or as approved by the Engineer:

- Engineer will provide notice to adjacent landowners 3 weeks prior to closing Spring Valley Road for the box culvert installation.
- Begin by setting up road closure traffic control.
- Begin Initial Phase of sediment controls as shown in Section D.
- Remove existing 60" CMP, begin installation of 2 – 9' x 4' RCBC
- Complete installation and begin backfill of RCBC.
- Finish gravel surfacing installation.
- Remove road closure traffic control.
- Complete Final Phase of erosion control as shown in Section D, fencing, and miscellaneous items to complete RCBC installation.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a Press Release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor shall provide the Engineer with pertinent information 7 days prior to any phase change or any other major changes that affect traffic flow.

BLADING

Traffic may be maintained on earthen grade during dry conditions. Two-way traffic shall be maintained at all locations when work is not in progress. A 24 ft. minimum width driving surface will be required for two-way traffic. If two-way traffic is not being properly maintained on a 24 ft. minimum width roadway, the Contractor will be required to provide traffic control with pilot car and flaggers or radio-equipped flaggers to adequately maintain one-lane traffic.

The Contractor shall provide a blade and operator for the purpose of maintaining a smooth and passable roadway for traffic as determined by the Engineer. Maintenance of traffic shall be the blade and operator's main priority. The cost for blading the road for maintenance of traffic shall be paid at the contract unit price per hour for "Blading".

Included in Section F – Surfacing Plans are 18 M gallons of Water for Granular Material and 1,500 tons of Base Course for maintaining traffic during inclement weather as directed by the Engineer.

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

The Contractor shall furnish 2 portable changeable message signs to be used for the duration of the project. Message signs shall be installed to inform the travelling public of when construction will begin for each type of work, changes that impact traffic, and as directed by the Engineer. The changeable message sign shall be furnished, programmed and maintained for the entire project duration.

Locations for the changeable message signs shall be staked in the field and approved by the Engineer. The Contractor will submit messages for approval to the Engineer prior to the messages being programmed into the message signs. The message signs shall be clearly visible from a minimum of 900 feet and shall be solar powered or wired directly to a power source. Diesel and gas powered messages signs will not be allowed.

The portable message signs will be paid for at the contract unit price per each for Contractor Furnished Portable Changeable Message Sign. Payment will be full compensation for furnishing, maintaining, and relocating as many times as required by the Engineer and the Contractor's operations.

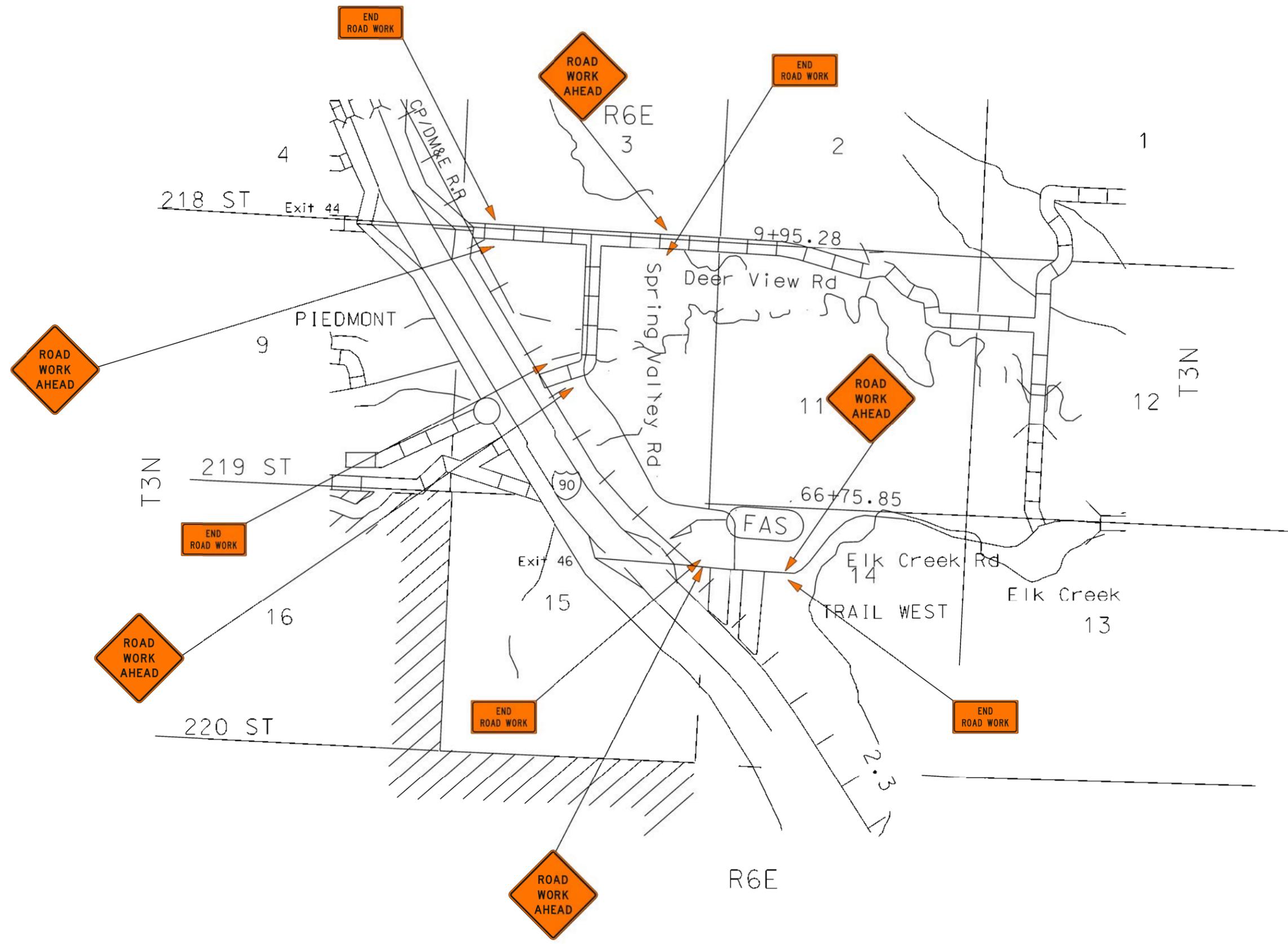
INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	5	17	85
R1-1	30" x 30"	STOP	1	21	21
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	2	18	36
R11-2	48" x 30"	ROAD CLOSED	2	27	54
R11-3	60" x 30"	ROAD CLOSED ## MILES AHEAD LOCAL TRAFFIC ONLY	2	30	60
W3-4	48" x 48"	BE PREPARED TO STOP	4	34	136
W8-1	36" x 36"	BUMP	4	27	108
W8-7	48" x 48"	LOOSE GRAVEL	2	34	68
W8-7a	48" x 48"	WINDROW	2	34	68
W13-1P	24" x 24"	ADVISORY SPEED (plaque)	4	16	64
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	9	34	306
W20-3	48" x 48"	ROAD CLOSED #### FT. OR AHEAD	4	34	136
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	4	34	136
W21-3	48" x 48"	ROAD MACHINERY AHEAD	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
OM1-3	18" x 18"	TYPE I OBJECT MARKER	4	5	20
SPECIAL	16" x 16"	FLAG	4	10	40
*****		TYPE III BARRICADE - 8 FT. DOUBLE SIDED	10	56	560
TOTAL UNITS					2102

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	C4	C8

Plotting Date: 04/07/2014

TRAFFIC CONTROL FIXED LOCATION SIGNING LAYOUT



Plot Scale - 1:40

Plotted From - lrs11640

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Plot Scale - 1:200

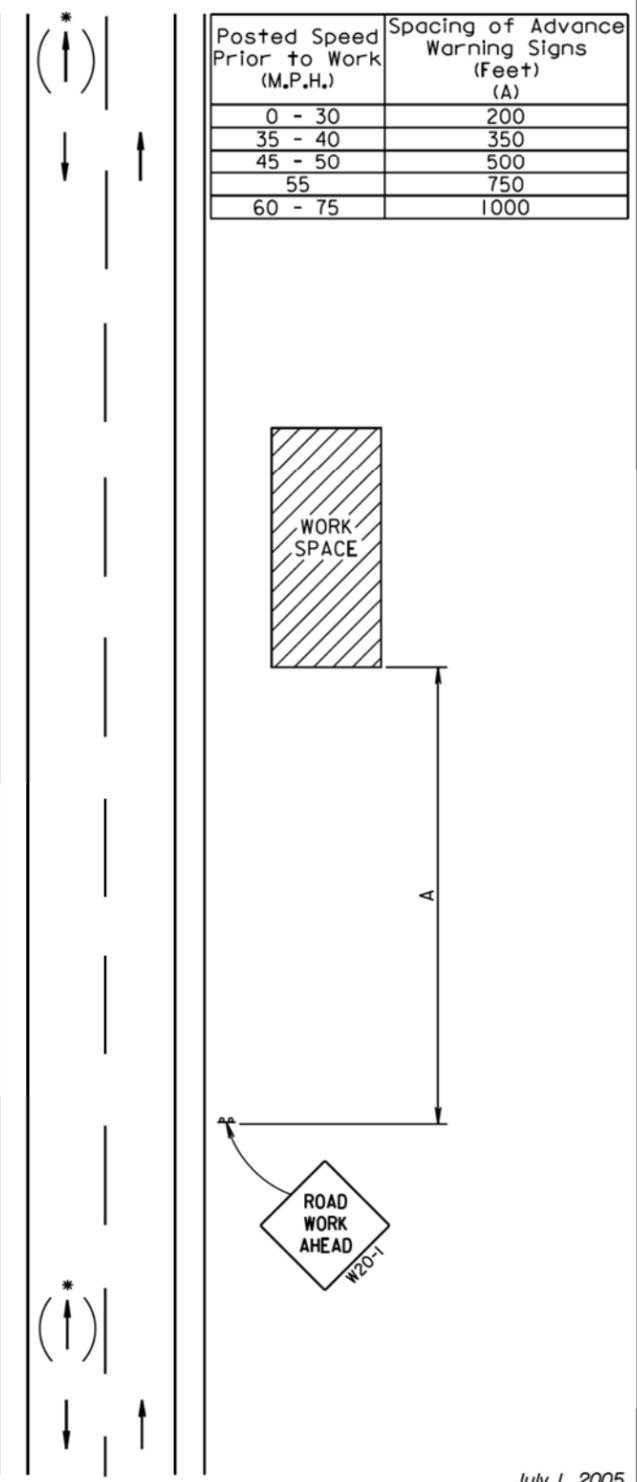
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

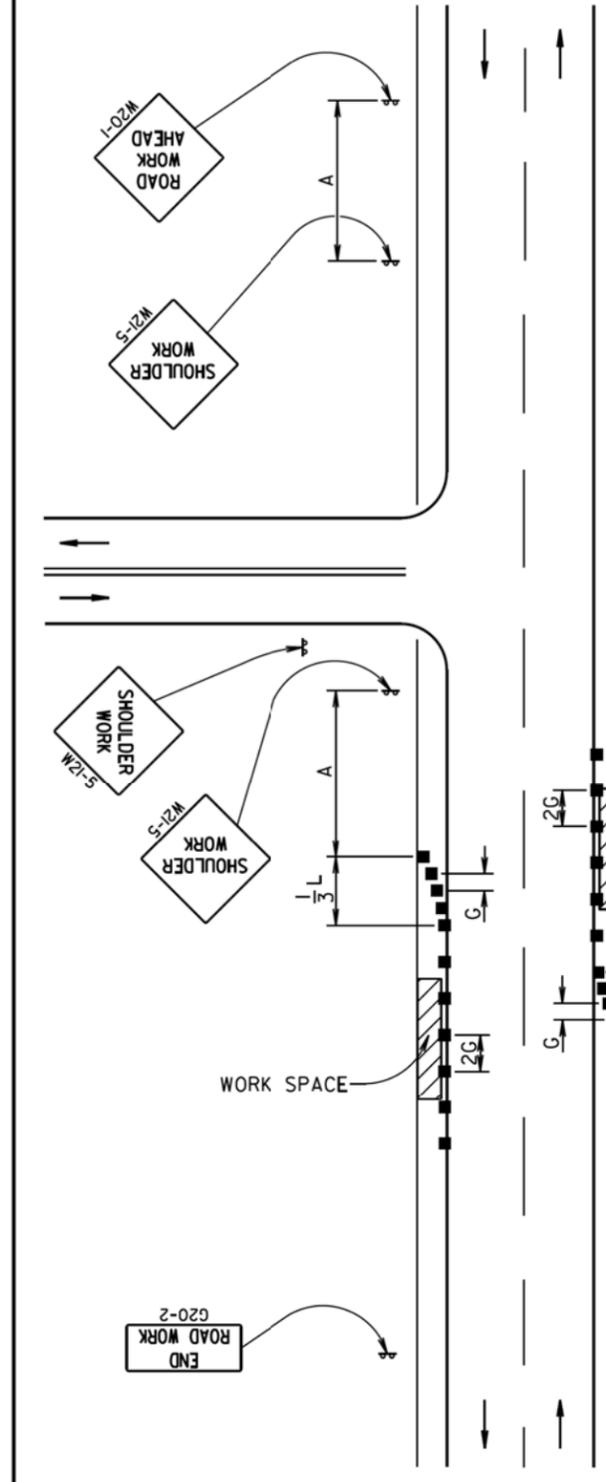
* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

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.



July 1, 2005

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
	<i>Published Date: 1st Qtr. 2014</i>	Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	100 - 200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

END ROAD WORK G20-2

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight or longer.

For short duration operations (1 hour or less) all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
	<i>Published Date: 1st Qtr. 2014</i>	Sheet 1 of 1

- Plotted From - jrcr11640

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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.

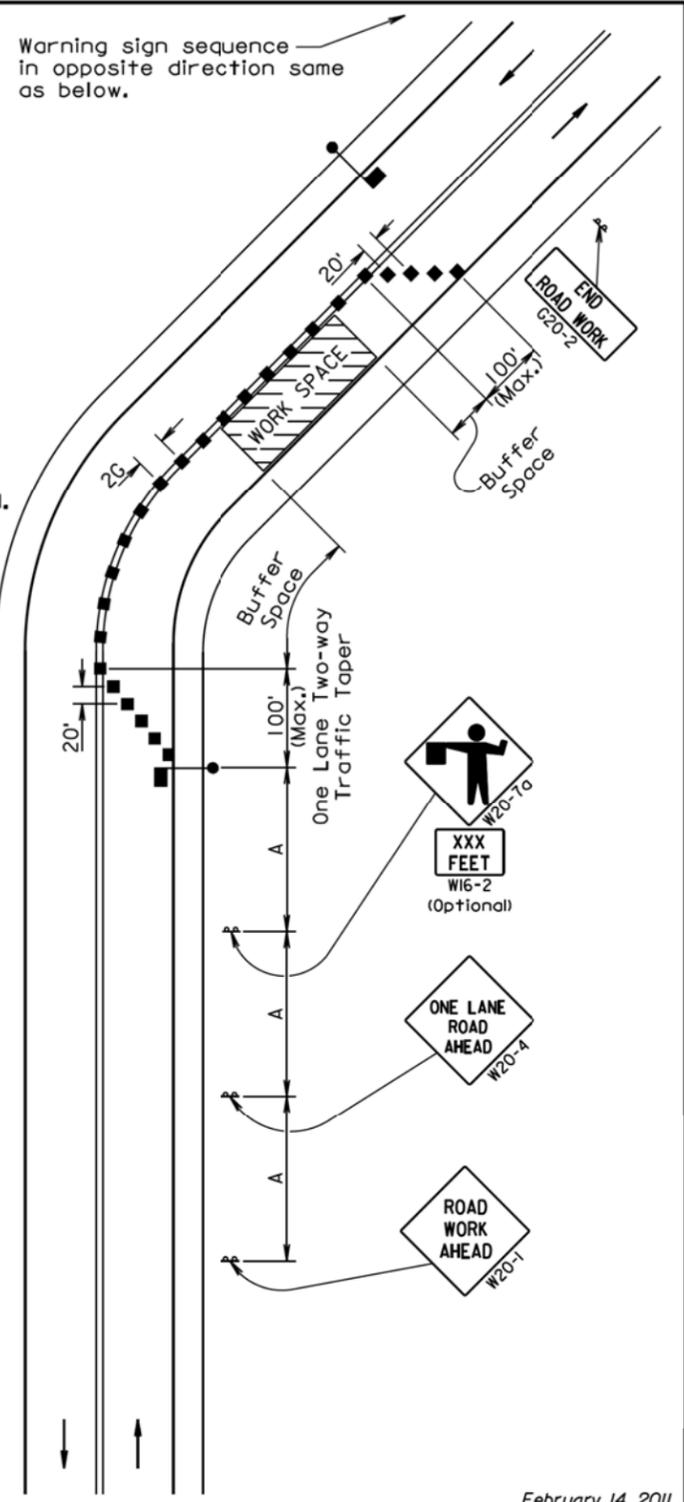
Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

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.

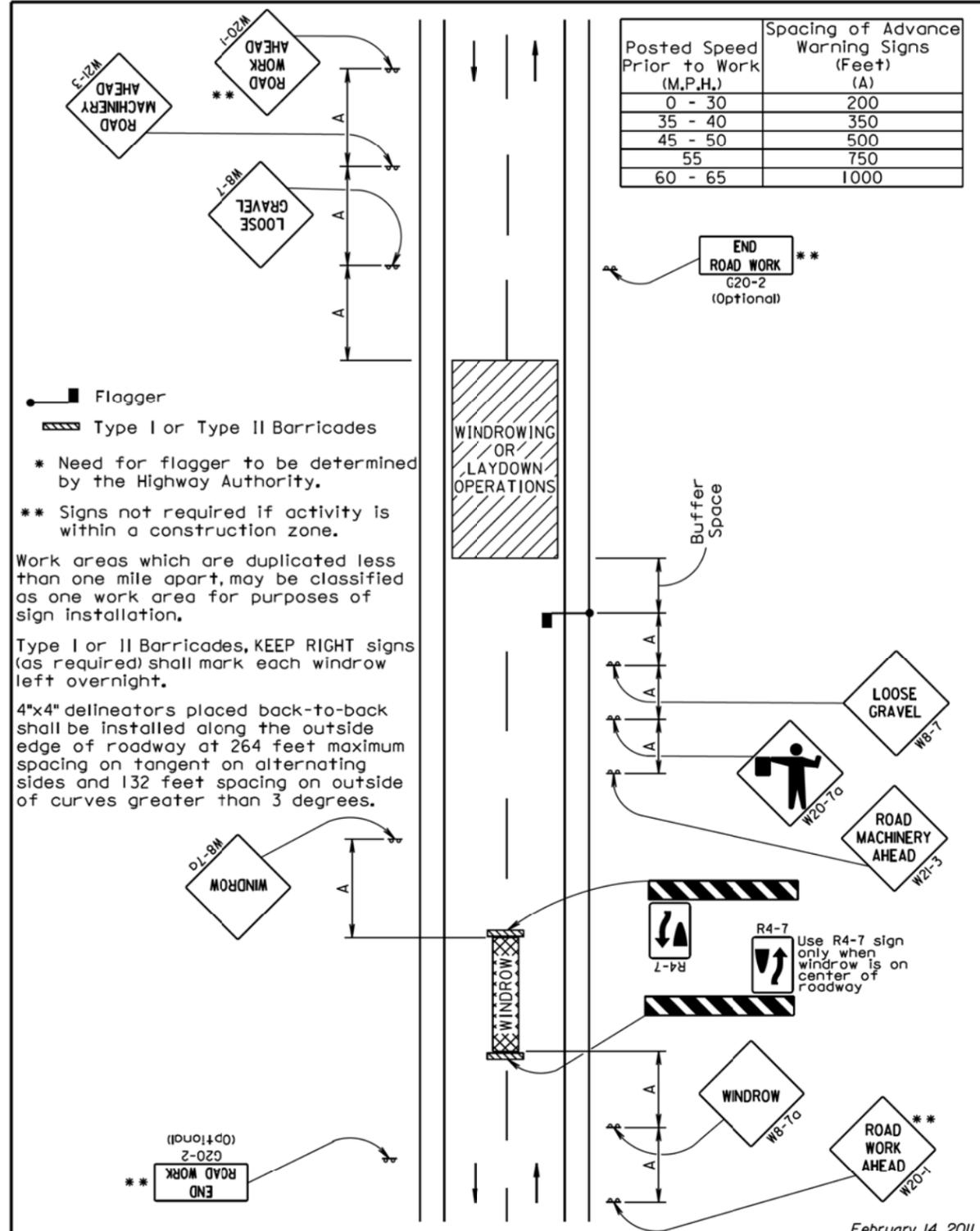
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.



Warning sign sequence in opposite direction same as below.

February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	<i>Published Date: 1st Qtr. 2014</i>	Sheet 1 of 1



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.

Use R4-7 sign only when windrow is on center of roadway

February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WINDROWING OR LAYDOWN OPERATION	PLATE NUMBER 634.27
	<i>Published Date: 1st Qtr. 2014</i>	Sheet 1 of 1

Plotting Date: 03/12/2014

Plot Scale - 1:200
- Plotted From - Irrc11640

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

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485

Signaling shown for one direction only.
 *Use appropriate route marker and number.
 Flashing warning lights and/or flags may be used to call attention to the advanced warning signs.
 Regulatory traffic control devices are to be modified as needed for the duration of the detour.

If the road is opened for some distance beyond the intersection and/or there are significant origin/destination points beyond the intersection, place the ROAD CLOSED and DETOUR signs on double sided Type III barricades located at the edge of the traveled way.
 If the road is closed a short distance beyond the intersection and there are few origin/destination points beyond (a few residences), the ROAD CLOSED and DETOUR sign may be placed on a double sided Type III barricade placed in the center of the roadway.
 A route marker directional assembly may be placed on the far left corner of the intersection to augment or replace the one shown on the near right corner.

February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES ROAD CLOSED WITH OFF-SITE DETOUR	PLATE NUMBER 634.29
	Published Date: 1st Qtr. 2014	Sheet 1 of 1

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

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485

A changeable message sign may be used in addition to the initial warning sign.
 Flagger station to be lighted at night.
 On unfinished grades, until gravel is in place, reflectorized devices (cones, tubular markers, drums or vertical panels back-to-back) defining the outside edge of the road shall be placed at 264 feet maximum spacing on tangent and at 132 feet maximum spacing on curves (greater than 3 degrees) during night time hours and during daytime hours at inactive locations where grading work is being performed. During daytime hours at active locations, a well defined path of adequate width shall be provided by motor grader, normally in conjunction with flagging operations either with or without pilot car. Minimum width for one way operations is 12 feet for two way operations is 24 feet.

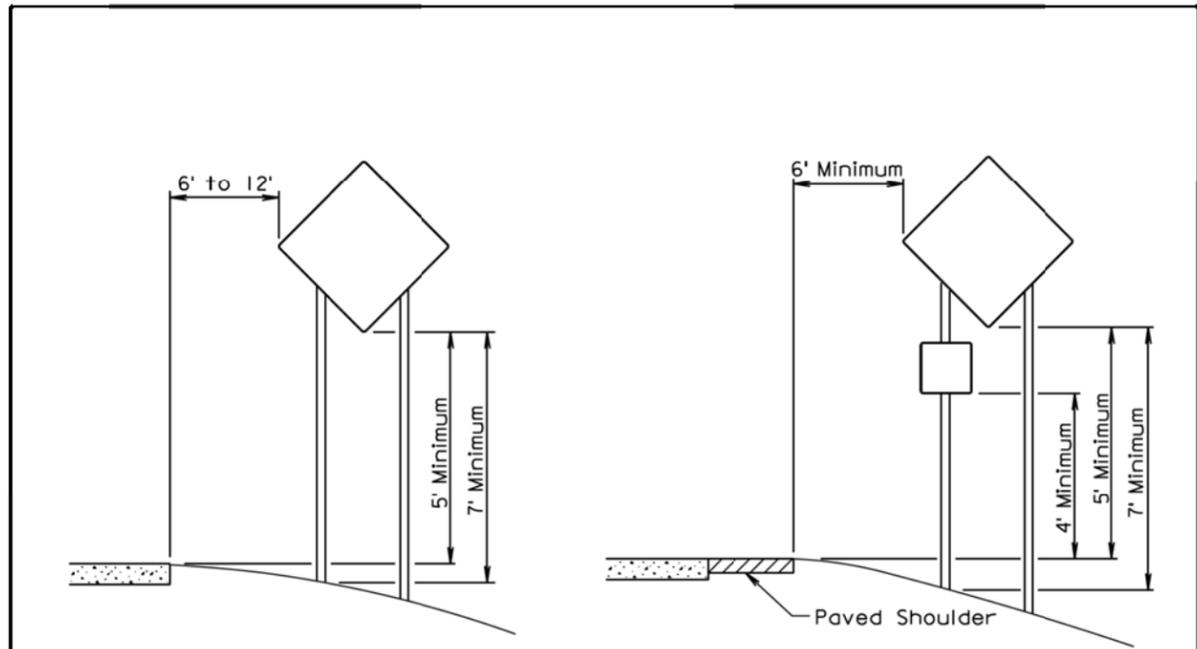
Work areas which are duplicated less than one mile apart, may be classified as one work area for purposes of sign installation unless otherwise directed by the highway authority. PAVEMENT ENDS signs (W8-3) to be used as appropriate to warn of existing surfacing being removed.

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S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LONG TERM ROAD WORK	PLATE NUMBER 634.31
	Published Date: 1st Qtr. 2014	Sheet 1 of 1

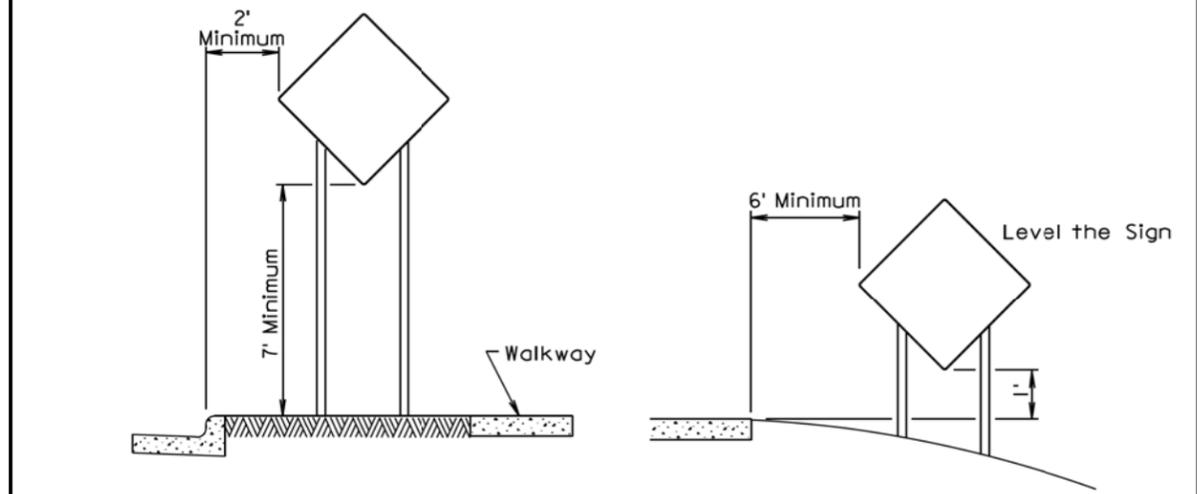
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RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



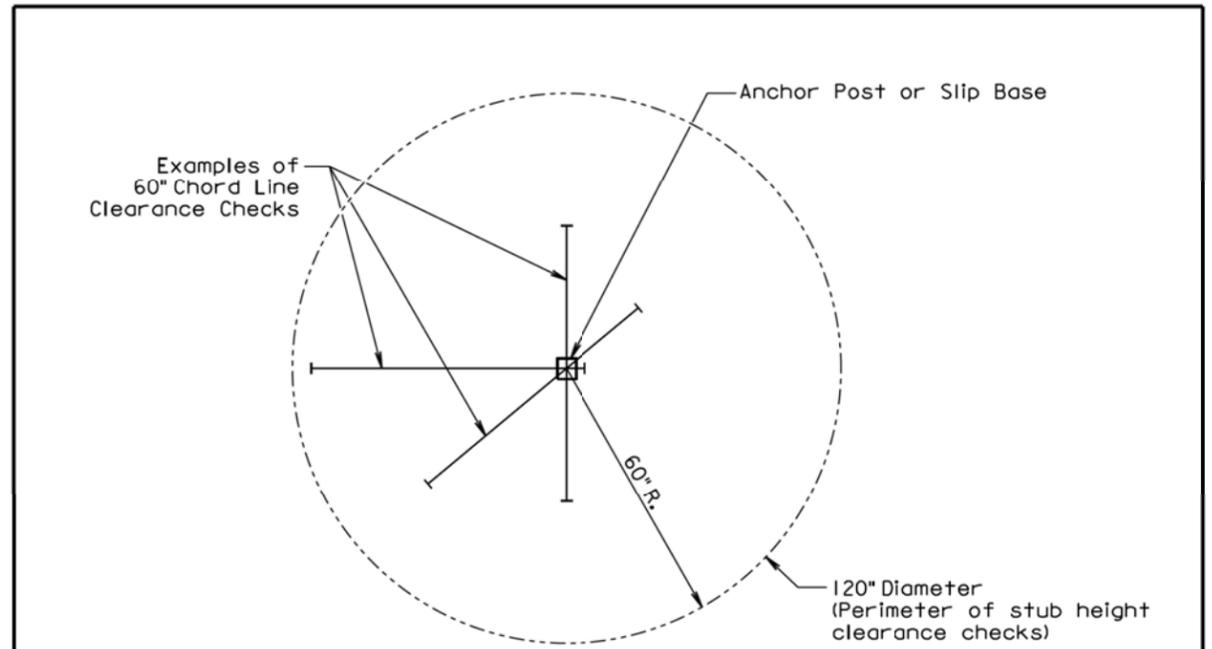
URBAN DISTRICT

RURAL DISTRICT 3 DAY MAXIMUM

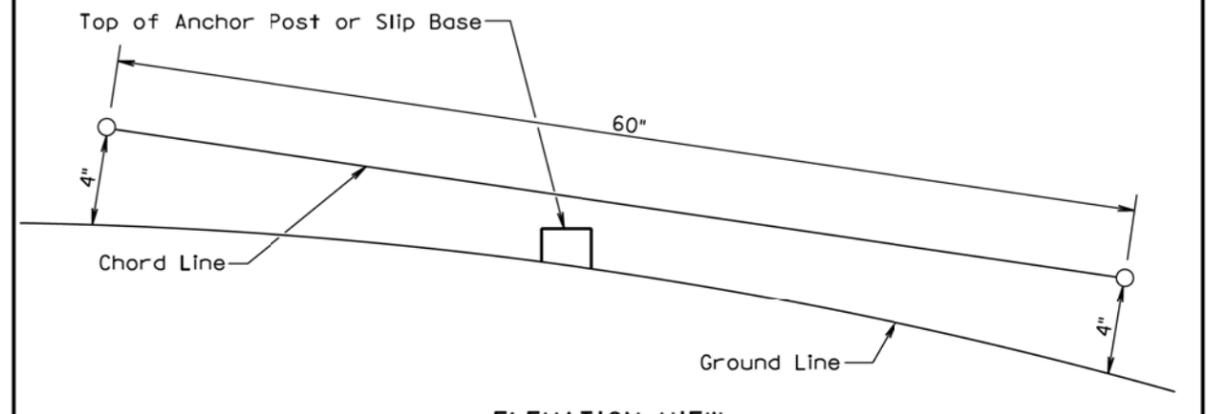
February 14, 2011

S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
		Sheet 1 of 1

Published Date: 1st Qtr. 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

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1

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- Plotted From - Irrc11640

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