

**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	212-192	1	10
Plotting Date: 05/05/2016			

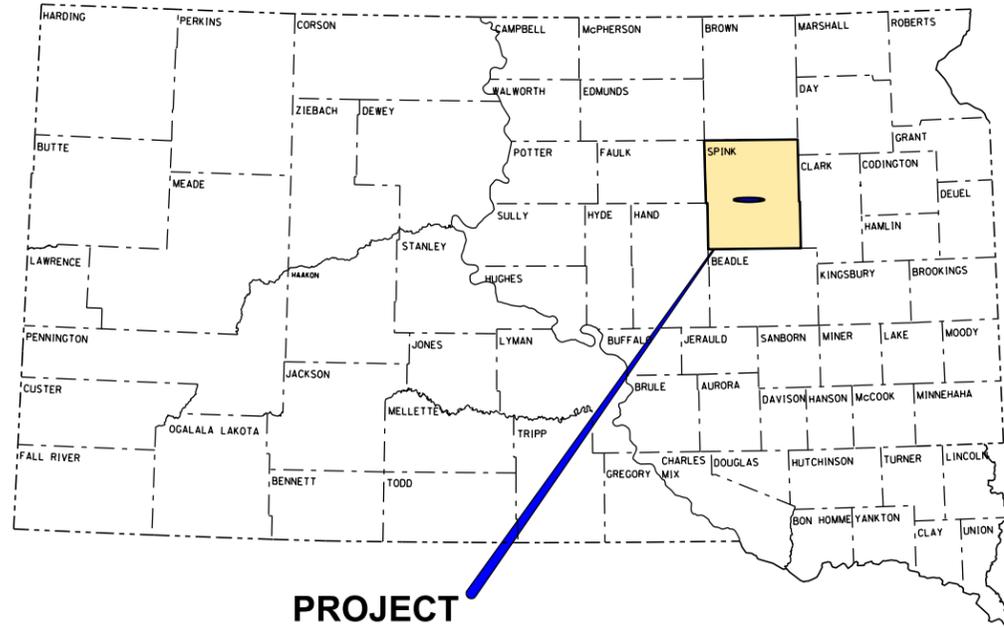
**PLANS FOR PROPOSED  
Project 212-192**

**US HWY 212  
SPINK COUNTY**

**MAINTENANCE PATCHING  
PCN i4a1**

**INDEX OF SHEETS**

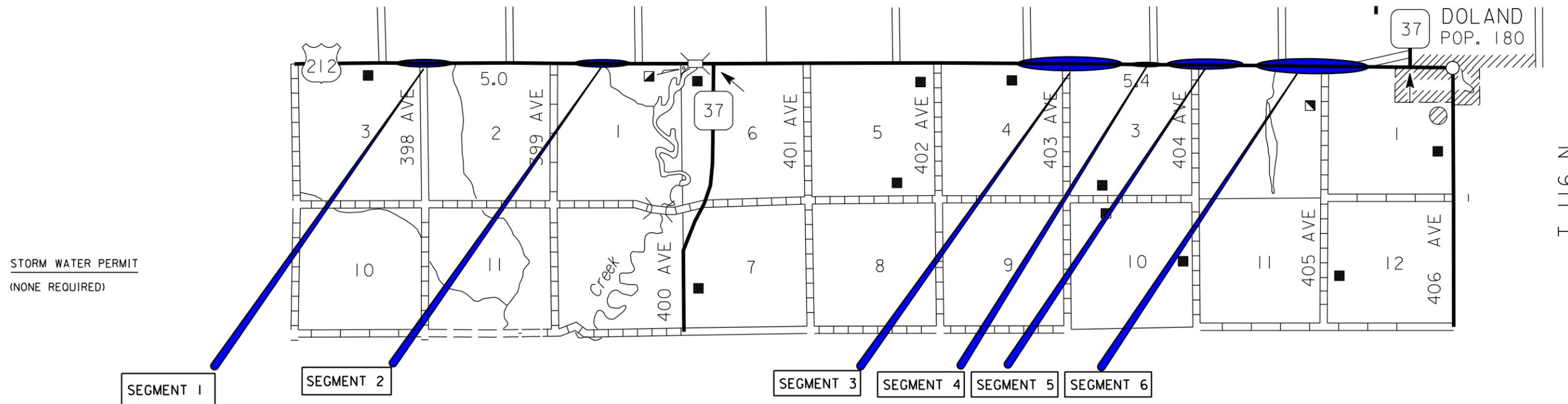
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Sheet 3	ENVIRONMENTAL COMMITMENTS
Sheet 4-5	TYPICAL SECTION & RATES OF QUANTITIES
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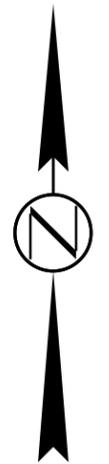
**PROJECT**

R 62 W

R 61 W



STORM WATER PERMIT  
(NONE REQUIRED)



US 212			
Segment	BEGINNING MRM	ENDING MRM	LENGTH (ft)
1	319.765	320.345	3062
2	321.000	321.700	3696
3	324.377	325.140	4028.64
4	325.289	325.308	100
5	325.462	326.000	2840.64
6	326.480	327.100	3273.6

**DESIGN DESIGNATION**

ADT (2015)	1411
ADT (2035)	1668
DHV	168
D	50%
T DHV	4.8%
T•ADT	28.0%
V	65 M.P.H.

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 009E0010	Mobilization	Lump Sum	LS
* 320E1200	Asphalt Concrete Composite	4,565.1	Ton
* 320E1810	Asphalt Concrete Leveling Lift	1,469.2	Ton
* 332E0010	Cold Milling Asphalt Concrete	1,547	SqYd
* 634E0010	Flagging	120.0	Hour
* 634E0020	Pilot Car	60.0	Hour
* 634E0110	Traffic Control Signs	642.0	SqFt
* 634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
* 634E0630	Temporary Pavement Marking	3.2	Mile

\* - Denotes Non-Participating

**SPECIFICATIONS**

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

**ENVIRONMENTAL COMMITMENTS**

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

**COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES**

**COMMITMENT B2: WHOOPING CRANE**

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

**Action Taken/Required:**

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

**COMMITMENT C: WATER SOURCE**

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

**Action Taken/Required:**

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

**COMMITMENT E: STORM WATER**

Construction activities constitute less than 1 acre of disturbance.

**Action Taken/Required:**

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

**COMMITMENT H: WASTE DISPOSAL SITE**

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

**Action Taken/Required:**

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

**COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES**

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

**Action Taken/Required:**

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

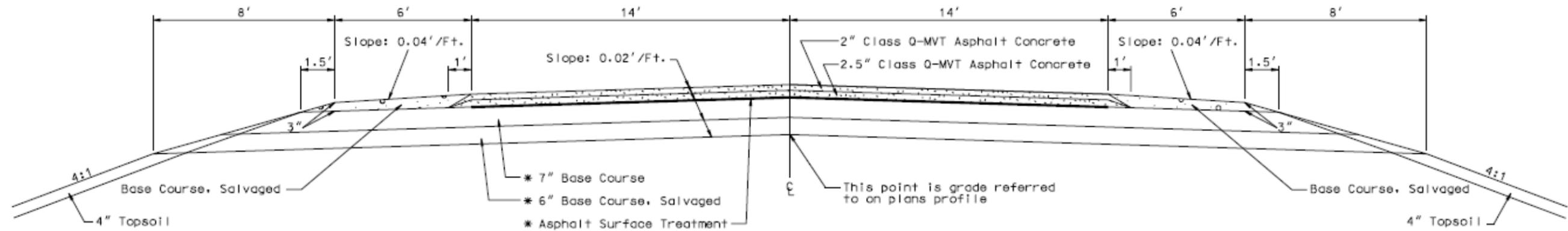
The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

## TYPICAL IN PLACE SECTION & APPROXIMATE LOCATIONS



US 212				
Segment	BEGINNING MRM	ENDING MRM	LENGTH (ft)	WIDTH (ft)
1	319.765	320.345	3062	29.0
2	321.000	321.700	3696	29.0
3	324.377	325.140	4028.64	29.0
4	325.289	325.308	100	29.0
5	325.462	326.000	2840.64	29.0
6	326.480	327.100	3273.6	29.0

**RATES OF MATERIALS**

**BOTTOM LIFT (0.5" LEVELING LIFT)**

The Estimate of Quantities is based on the following quantities of material per mile.

**0.5" Asphalt Concrete Composite Leveling Lift @ 28.0 feet wide.**

**TOP LIFT (1.5" TOP LIFT)**

**1.5" Asphalt Concrete Composite Leveling Lift @ 28.0 feet wide top with 1' sluff on each lane.**

SEGMENT	Asphalt Concrete Leveling Lift (0.5" Lift) TONS	Asphalt Concrete Composite (1.5" Lift) TONS
1	264.6	822.2
2	319.4	992.4
3	348.2	1081.8
4	8.6	26.9
5	245.5	762.8
6	282.9	879.0
TOTAL	1469.2	4565.1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-192	6	10

### SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

### SEQUENCE OF OPERATIONS

1. Install Traffic Control.
2. Complete 0.5" asphalt concrete composite leveling lift.
3. Complete 1.5" asphalt concrete composite wearing course lift
4. Install Temporary Pavement Markings.
5. Complete cleanup work.

### GENERAL NOTES

Once work inconveniences traffic, it shall be pursued in a near continuous, expeditious manner to its completion. Any work that restricts the motorist from driving the posted speed limit, reduces existing roadway width, or causes a potentially unsafe condition due to Contractor operations such as frequent movement of equipment or materials on or through the project, is considered to be an inconvenience to traffic.

### PROJECT WORK HOURS

The Contractor may perform work on the roadway during daylight hours only, unless additional hours are approved by the Engineer. Daylight hours are considered to be sunrise until sunset. Traffic shall be returned to normal driving lanes during non-working hours.

### TRAFFIC CONTROL

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Certified flaggers properly attired and preceded by FLAGGER symbol signs, will be required where work activity and/or equipment present a hazard to the workers, a hazard to through traffic, or encroaches into a driving lane.

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.

Work zones for the various construction operations that utilize a pilot car shall not exceed 3 miles in length.

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.

Erect only those signs that are applicable to the work in progress. When the Contractor is working at specific work spaces within the project, only those traffic control devices applicable to that operation should be displayed. Non-applicable signs and/or device shall be removed from the view by the Contractor and stored a minimum of 30 feet from the driving lanes during periods of in-activity. All costs to do this work shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

A shadow vehicle, equipped with flashing amber light and a ROAD MACHINERY AHEAD sign prominently displayed, shall be used in advance of landscaping, clean up, and other mobile work activities. Highway equipment working within traffic or adjacent to traffic shall, at all times, display a flashing or revolving amber light to warn the traveling public. The Contractor shall maintain the driving surface on the project to eliminate hazards to the traveling public. The driving surface is defined as both driving lanes along with both shoulders on the project.

The cost for additional signs shall be paid for at the contract unit price per square foot for Traffic Control. Additional Flagger hours shall be paid for at the contract unit price per hour for Flagging. The cost of additional channeling devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Traffic Control, 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.

Paving operation shall be such that any lane paved shall be matched up by the end of the work day. UNEVEN LANE SIGNS shall be used in case of emergency situation, where the Contractor is unable to match up the paved lanes. BUMP SIGNS have been included in case of unfinished asphalt concrete placement, per segment. BUMP SIGNS shall be used on each end of any segment in which the asphalt concrete placement is unfinished and a vertical edge with temporary ramp remain.

Delete the first paragraph of Section 984.1 and replace with the following:

Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels, and direction indicator barricades shall be reflectorized with sheeting applied to a satisfactory backing. For all temporary traffic control warning signs, the reflective sheeting shall meet the standards of Type VII, Type VIII, Type IX, or Type XI as defined by ASTM D4956. For all other temporary traffic control signs, the reflective sheeting shall meet the standards of Type IV, Type V, Type VII, Type VIII, Type IX, or Type XI as defined by ASTM D4956. For barricades vertical panels, and direction indicator barricades; the reflective sheeting shall meet or exceed the standards of Type III as defined by ASTM D4956. Round surfaced temporary traffic control devices including, but not limited to; drums, cones, and tubular markers shall be reflectorized sheeting meeting or exceeding the standards of Type IV as defined by ASTM D4956. All orange colored material shall be fluorescent.

### UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

### ASPHALT CONCRETE LEVELING LIFT

Mineral aggregate shall be furnished by the Contractor.

Mineral Aggregate for Asphalt Concrete Leveling Lift shall conform to the requirement of Class E, Type 2 except the gradation shall be as follows:

The mineral aggregate retained on the No. 4 sieve shall contain at least seventy percent by dry weight of crushed pieces having two or more surfaces produced by crushing.

The portion of mineral aggregate passing the No. 4 sieve shall be manufactured solely from material retained on a ¾ inch sieve except that up to thirty percent of the total mineral aggregate may be natural sand or filler necessary to meet gradation. Sand or filler shall be added to the cold feed by separate adjustable methods, which provides a constant and uniform flow.

The Asphalt Concrete Leveling Lift shall be compacted by the Specified Roller Coverage Method.

The 0.5" Asphalt Concrete Leveling Lift shall be paver laid, with a paver feeder in accordance with Section 320.2 G. of the Specifications.

No mix design submittal shall be required for Asphalt Concrete Leveling Lift. All other requirements for Asphalt Concrete Composite shall apply.

The Asphalt Concrete Leveling Lift shall be completed in its entirety before beginning placement of the Asphalt Concrete Composite wearing course lift..

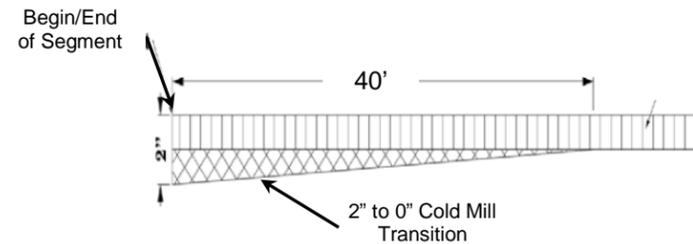
### ASPHALT CONCRETE COMPOSITE

The 1.5" Asphalt Concrete Composite Wearing Course Lift shall be paver laid, with a paver feeder in accordance with Section 320.2 G. of the Specifications.

All other requirements in the specifications for Asphalt Concrete Composite shall apply.

### COLD MILLING ASPHALT CONCRETE

The cold milled material obtained from the project shall become the property of the Contractor. The cold milled material shall not be placed on field approaches.



The placement of asphalt concrete shall begin within 1 day of cold milling mainline asphalt concrete, per segment. The Contractor shall be responsible maintaining temporary ramps at the segment limits, if asphalt concrete placement is not completed the same day as the cold milling operation, per segment.

Cold milling shall be completed on each end of the designated paving segments, at full width of the roadway section. Plans quantity shall be the basis of payment. No additional measurements shall be made for payment purposes. Please reference the 'US 212' table on Sheet 4, regarding approximate segment locations, lengths, and widths.

Gradation testing of the cold milled material shall not be required unless deemed necessary by the Engineer.

### TEMPORARY PAVEMENT MARKINGS

Maintaining size, shape, and dimension of existing pavement markings shall be the responsibility of the Contractor for temporary pavement marking application.

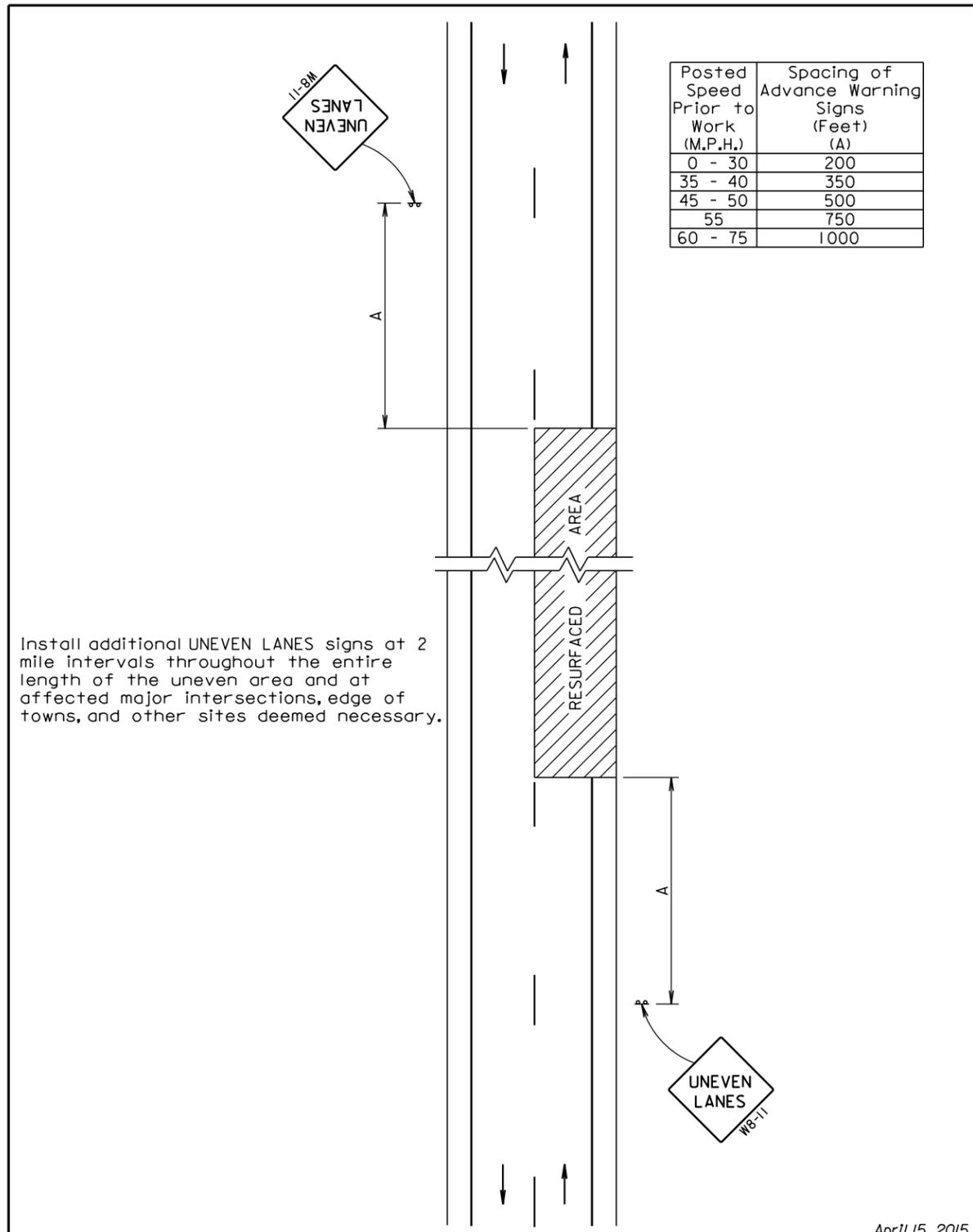
Temporary Flexible Vertical Markers (tabs) shall be used to mark dashed centerline, No Passing Zones and applicable lane lines. Paint will not be allowed for Temporary Pavement Marking on the Asphalt Concrete Composite Hot Mixed Asphalt Concrete wear course. No passing zones shall be marked with Temporary Flexible Vertical Markers (tabs).

Quantities of Temporary Pavement Markings consist of:  
One pass on top of the Asphalt Concrete Composite.

Temporary Flexible Vertical 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.

Cost for furnishing and applying the Temporary Flexible Vertical Markers (tabs) shall be included in the contract unit price per mile for Temporary Pavement Marking.

Flagger symbol signs (W20-7) 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 flexible vertical markers. The traffic control device used shall be moved to provide proper warning of the work operation. A Workers symbol sign (W21-1) 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.



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.

### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16	64
W8-1	BUMP	12	48" x 48"	16	192
W8-11	UNEVEN LANES	4	48" x 48"	16	64
W13-1P	ADVISORY SPEED (plaque)	12	30" x 30"	6	72
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16	64
W20-7	FLAGGER (symbol)	4	48" x 48"	16	64
W21-2	FRESH OIL	1	48" x 48"	16	16
W21-3	ROAD MACHINERY AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	2	36" x 18"	5	10
<b>CONVENTIONAL ROAD</b>					<b>642</b>
<b>TRAFFIC CONTROL SIGNS SQFT</b>					

April 15, 2015

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.

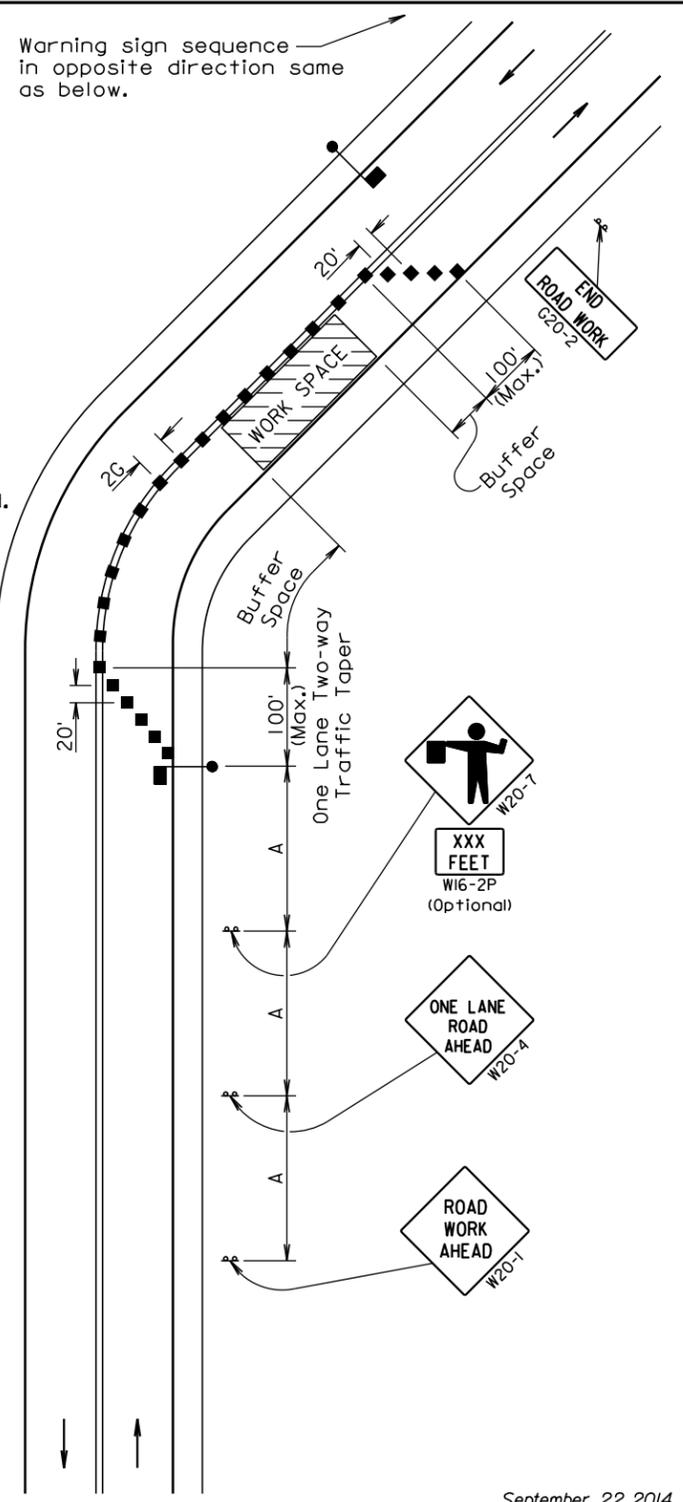
The channelizing devices shall be drums or 42" cones.

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

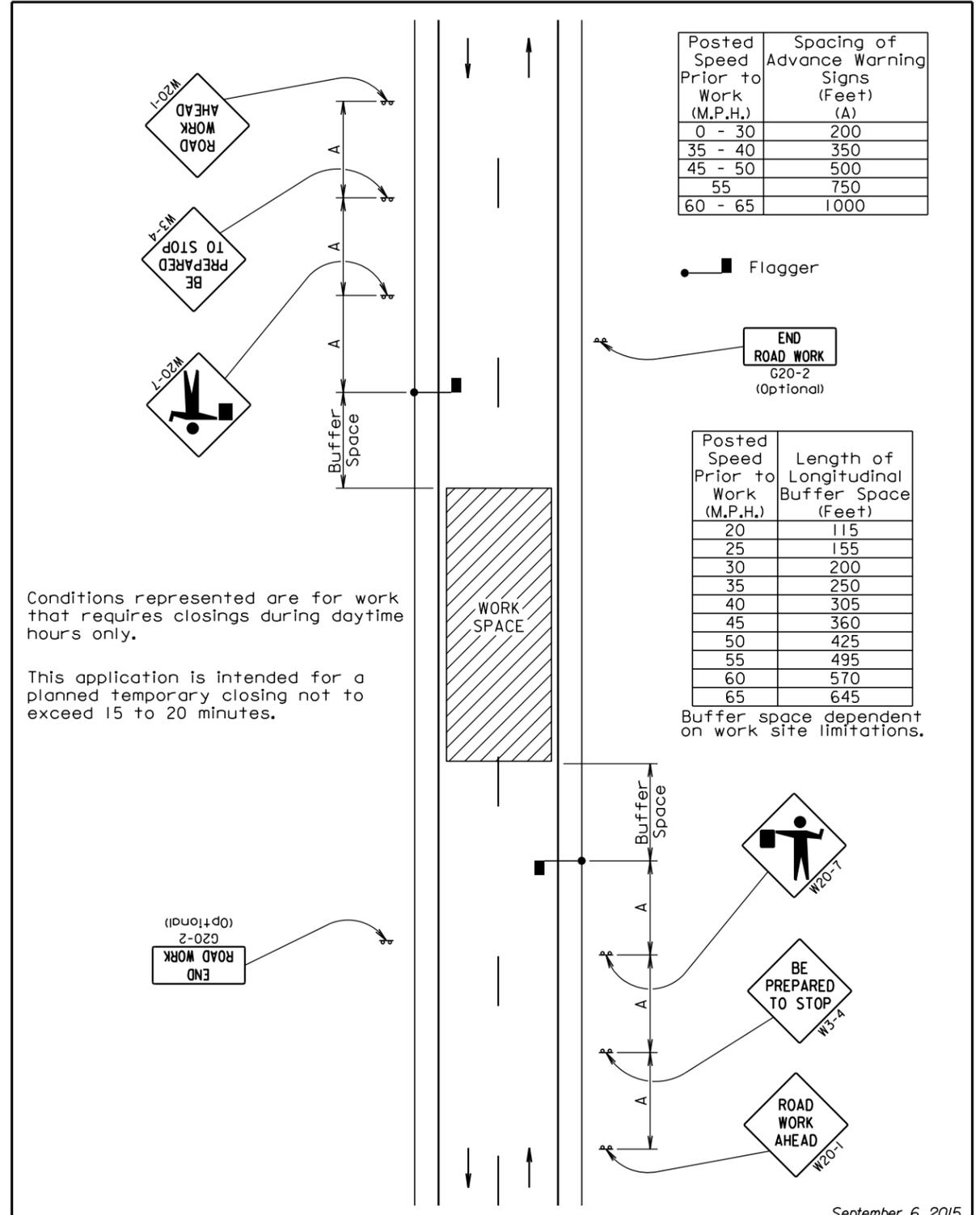
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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



September 6, 2015

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

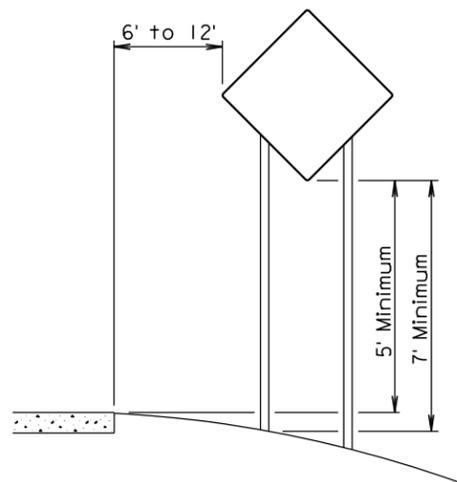
END ROAD WORK  
G20-2  
(Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

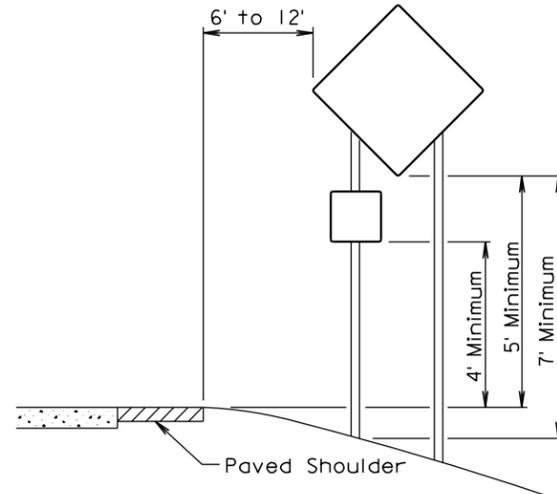
Buffer space dependent on work site limitations.

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

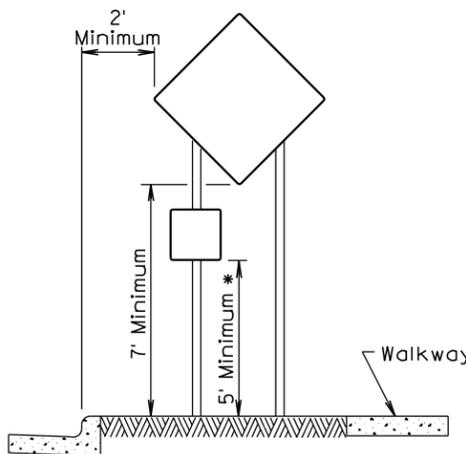
This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.



RURAL DISTRICT

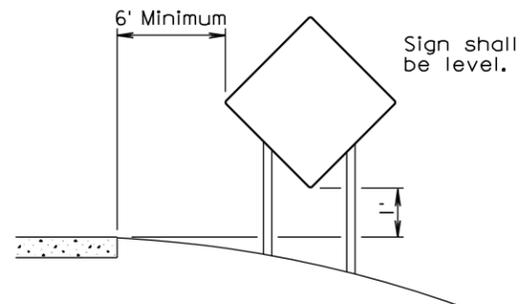


RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



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

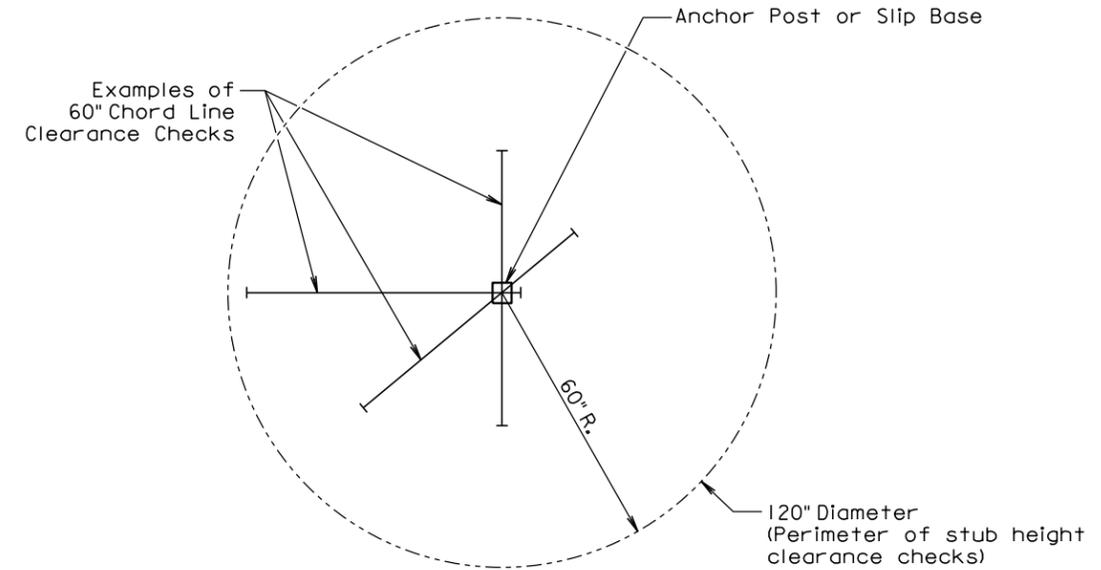
Published Date: 2nd Qtr. 2016

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CRASHWORTHY SIGN SUPPORTS  
(Typical Construction Signing)

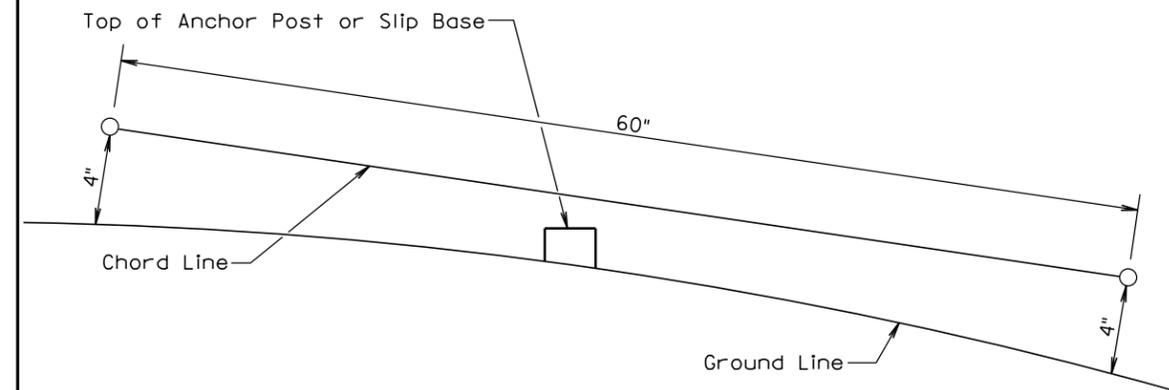
PLATE NUMBER  
634.85

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. 2016

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER  
634.99

Sheet 1 of 1