

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED

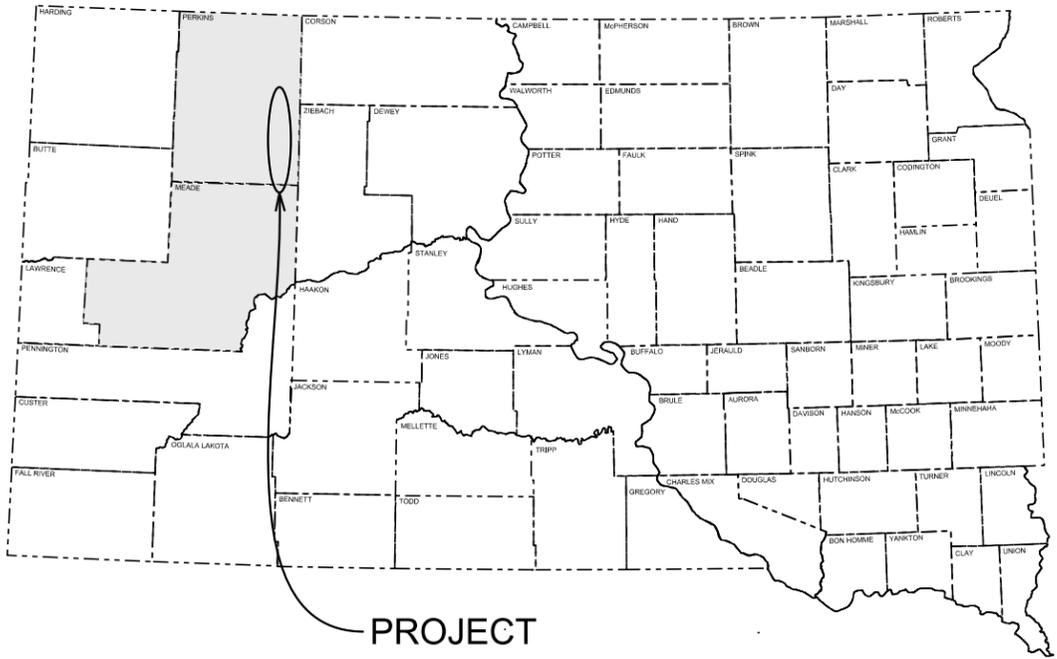
**PROJECT NH-P 0042(60)**  
**SD HIGHWAY 73 & 20**  
**MEADE & PERKINS COUNTIES**  
ASPHALT SURFACE TREATMENT  
PCN 053D

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0042(60)	1	13

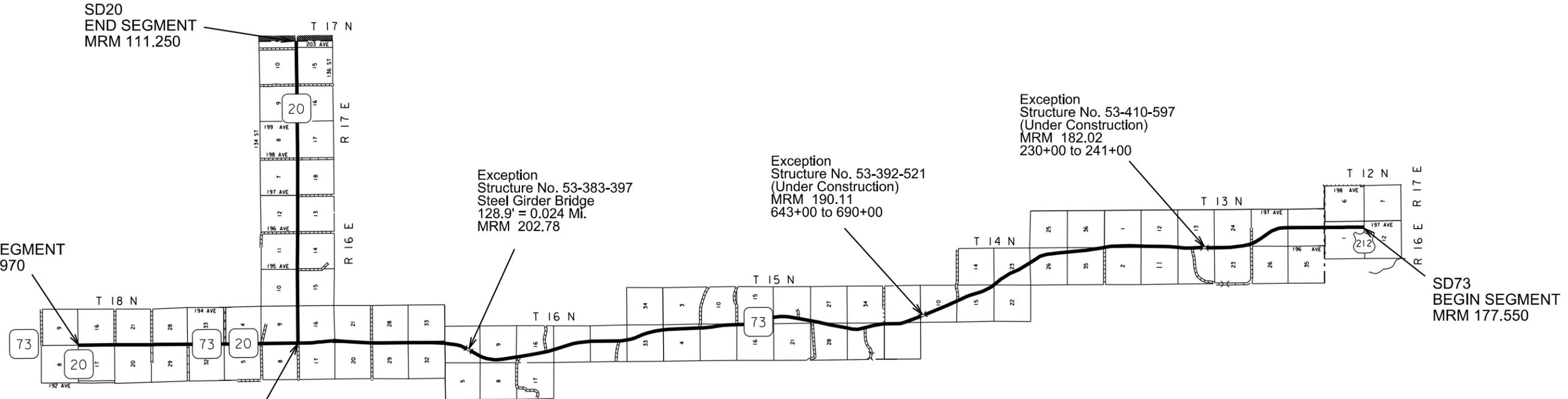
Plotting Date: 12/31/2015

INDEX OF SHEETS

- 1 General Layout W/Index
- 2 - 6 Estimate With General Notes & Tables
- 7 - 8 Pavement Marking Details
- 9 Special Traffic Control Signs
- 10 Mobile Operation for Traffic Control
- 11 - 13 Standard Plates



PROJECT



SD73  
END SEGMENT  
MRM 207.480  
MRM 103.03 (SD20)

SD 20  
MRM 96.970 to 111.250  
DESIGN DESIGNATION

ADT (2014)	258
ADT (2034)	326
DHV	47.6
D	50%
T DHV	8.6%
T ADT	18.8%
V	65 MPH

SD 73  
MRM 177.550 to 207.480  
DESIGN DESIGNATION

ADT (2014)	420
ADT (2034)	531
DHV	81.8
D	51%
T DHV	14.1%
T ADT	31.0%
V	65 MPH

GROSS LENGTH	74,970.7 FEET	14.199 MILES	GROSS LENGTH	158,077.9 FEET	29.939 MILES
LENGTH OF EXCEPTIONS	0.0 FEET	0.000 MILES	LENGTH OF EXCEPTIONS	628.3 FEET	0.119 MILES
NET LENGTH	74,970.7 FEET	14.199 MILES	NET LENGTH	157,449.6 FEET	29.820 MILES

STORM WATER PERMIT  
No Permit Required

9

Plot Scale - 1:200

Plotted From - trcs11951

File -

**ESTIMATE OF QUANTITIES**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0042(60)	2	13

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	179.0	Ton
360E0020	AE150S Asphalt for Surface Treatment	1,073.9	Ton
360E1030	Type 2A Cover Aggregate	6,620.0	Ton
360E1030	Type 2A Cover Aggregate	3,066.3	Ton
633E1200	Waterborne Pavement Marking Paint with High Grade Polymer, White	2,458	Gal
633E1205	Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	871	Gal
633E1435	Pavement Marking Paint, 24" Yellow	300	Ft
633E1445	Pavement Marking Paint, Arrow	3	Each
634E0010	Flagging	720.0	Hour
634E0020	Pilot Car	180.0	Hour
634E0110	Traffic Control Signs	2,106	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	88.5	Mile

**TABLE OF QUANTITIES BY HIGHWAY SEGMENT**

	SD73	SD20		
MRM to	177.550	96.970		
MRM	207.480	111.250	Total	
Item			Quantity	Units
Mobilization	LS	LS	LS	LS
SS-1h or CSS-1h Asphalt for Fog Seal	122.3	56.7	179.0	Ton
AE150S Asphalt for Surface Treatment	734.0	340.0	1073.9	Ton
Type 2A Cover Aggregate	6620.0	3066.3	9686.2	Ton
Waterborne Pavement Marking Paint with High Grade Polymer, White	1664	794	2458	Gal
Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	633	238	871	Gal
Pavement Marking Paint, 24" Yellow	300	0	300	Ft
Pavement Marking Paint, Arrow	3	0	3	Each
Flagging	480.0	240.0	720	Hour
Pilot Car	120	60	180	Hour
Traffic Control Signs	1357	749	2106	SqFt
Traffic Control, Miscellaneous	LS	LS	LS	LS
Temporary Pavement Marking	59.9	28.6	88.5	Mile

**SPECIFICATIONS**

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

**COORDINATION WITH ASPHALT CONCRETE CRACK SEALING PROJECT NH-P 0042(56), PCN 048F**

An Asphalt Concrete Crack Sealing project NH-P 0042(56), PCN 048F is scheduled for the construction season of 2016. The Contractor on this project shall coordinate with the Contractor on the crack sealing project, so that the crack sealing can be completed prior to the asphalt surface treatment. The Contractor for the crack sealing project is Highway Improvement, Inc., 605-335-0786. All costs associated with this coordination shall be incidental to the various bid items on the project.

Location of crack sealing coordination:

- SD 73, MRM 177.6 to MRM 207.5
- SD 20, MRM 97.0 to MRM 111.3

The Contractor shall also coordinate with the Contractors on the projects NH0073(63)182 (SD73 Structure Replacement) and NH-P 0040(312) (Micro-Surfacing on US 212). The Structure Replacement project is currently under construction and noted on the title sheet. The Micro-Surfacing project on US212 is scheduled for the 2016 construction season and will be placed through the intersection of SD73.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0042(60)	3	13

## 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 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.

Construction activities constitute 1 acre or more of earth disturbance.

### 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 State 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas 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.

### ASPHALT SURFACE TREATMENT RATES OF MATERIALS **SD Highway 73, MRM 177.550 to MRM 207.353**

AE150S Asphalt for Surface Treatment applied 34 feet wide, 21.2 tons/mile (Rate = 0.30 gallons per square yard)

Type 2A Cover Aggregate applied 34 feet wide, 229 tons/mile (Rate = 23 pounds per square yard)

SS-1h or CSS-1h Emulsified Asphalt for Fog Seal applied 34 feet wide, 4.2 tons/mile (0.05 gallons per square yard)

#### **SD Highway 73, MRM 207.353 to MRM 207.480**

AE150S Asphalt for Surface Treatment applied 48 feet wide, 29.9 tons/mile (Rate = 0.30 gallons per square yard)

Type 2A Cover Aggregate applied 48 feet wide, 324 tons/mile (Rate = 23 pounds per square yard)

SS-1h or CSS-1h Emulsified Asphalt for Fog Seal applied 48 feet wide, 6.0 tons/mile (0.05 gallons per square yard)

#### **SD Highway 20, MRM 96.970 to MRM 102.898**

AE150S Asphalt for Surface Treatment applied 34 feet wide, 21.2 tons/mile (Rate = 0.30 gallons per square yard)

Type 2A Cover Aggregate applied 34 feet wide, 229 tons/mile (Rate = 23 pounds per square yard)

SS-1h or CSS-1h Emulsified Asphalt for Fog Seal applied 34 feet wide, 4.2 tons/mile (0.05 gallons per square yard)

#### **SD Highway 20, MRM 102.898 to MRM 103.030**

AE150S Asphalt for Surface Treatment applied 34 feet wide, 21.2 tons/mile (Rate = 0.30 gallons per square yard)

Type 2A Cover Aggregate applied 34 feet wide, 229 tons/mile (Rate = 23 pounds per square yard)

SS-1h or CSS-1h Emulsified Asphalt for Fog Seal applied 34 feet wide, 4.2 tons/mile (0.05 gallons per square yard)

#### **SD Highway 20, MRM 103.030 to MRM 111.250**

AE150S Asphalt for Surface Treatment applied 30 feet wide, 18.7 tons/mile (Rate = 0.30 gallons per square yard)

Type 2A Cover Aggregate applied 30 feet wide, 202 tons/mile (Rate = 23 pounds per square yard)

SS-1h or CSS-1h Emulsified Asphalt for Fog Seal applied 30 feet wide, 3.7 tons/mile (0.05 gallons per square yard)

**TABLE OF MATERIAL QUANTITIES**

Highway	Begin	End	Total Length	Length Exceptions	Net Length	Width	Type 2A Cover Aggregate	AE150S Asphalt for Surface Treatment	SS-1h or CSS-1h Asphalt for Fog Seal
	MRM	MRM	(ft)	(ft)	(ft)	(ft)	(ton)	(ton)	(ton)
SD 73	177.550	207.353	157359.8	5928.9	151430.9	34	6578.8	729.4	121.6
SD 73	207.353	207.480	670.6		670.6	48	41.1	4.6	0.8
SD 20	96.970	102.898	31299.8		31299.8	34	1359.8	150.8	25.1
SD 20	102.898	103.030	697.0		697.0	48	42.7	4.7	0.8
SD 20	103.030	111.250	43401.6		43401.6	30	1663.7	184.5	30.7
		<b>Totals</b>	<b>233428.8</b>	<b>5928.9</b>	<b>227499.9</b>		<b>9686.2</b>	<b>1073.9</b>	<b>179.0</b>

**TABLE OF EXCEPTIONS**

Highway	MRM	Description	Length (ft)
SD 73	182.020	Str. # 53-410-597	1100.0
SD 73	190.110	Str. # 53-392-521	4700.0
SD 73	202.780	Str. # 53-383-397	128.9
		<b>Total</b>	<b>5928.9</b>

**TYPE 2A COVER AGGREGATE**

Cover Aggregate shall conform to the requirements for Type 2A.

**SHOULDER WORK**

The Contractor shall notify the state at least 4 weeks prior to beginning work to allow the state time to inspect and spray for vegetation. Vegetation and accumulated debris shall be removed from the shoulder surface by the Contractor prior to the asphalt surface treatment.

**FOG SEAL APPLICATION**

The Fog Seal shall be applied within 1 to 4 days following the placement of the cover aggregate.

**BROOMING**

Brooming shall be done with care, so that aggregate is not dislodged before setting. Additional brooming may be required as directed by the Engineer. The loose material resulting from the brooming shall be swept onto the roadway inslopes.

Upon completion of brooming operations a windrow of cover aggregate shall not exist along the edge of the roadway. This material shall be leveled to match the existing inslopes. Any remaining windrows of cover aggregate along the edge of the roadway shall be removed by the Contractor at the Contractor's expense.

**BRIDGES AND APPROACH SLABS**

Asphalt surface treatment shall not be placed on any bridges or approach slabs along the project. Bridge joints shall be covered with an approved masking material to prevent the asphalt surface treatment from coming in contact with the bridge and/or bridge joint. All loose aggregate shall be cleaned from the bridge and around the guardrail posts. All costs associated with this work shall be incidental to the asphalt surface treatment bid items.

**EXISTING PAVEMENT CONDITIONS**

The existing pavement conditions for each project are listed in the table below. The descriptions are from the McLeod procedure for seal coat design.

LOCATION	EXISTING PAVEMENT CONDITION
SD 73 MRM 177.550 to MRM 207.480	Smooth non-porous
SD 20 MRM 96.970 to MRM 111.250	Smooth non-porous

**PERMANENT PAVEMENT MARKING – GENERAL NOTES**

The Contractor shall survey and mark the location of no passing zones prior to covering pavement marking.

The Contractor shall repaint all the existing pavement marking paint including centerline, edge line, lane lines, arrows, gore areas, etc. The Contractor will be required to inventory and mark, with appropriately colored tabs, the extent and location of the existing word messages, turn arrows, stop bars, railroad crossings, pedestrian crossings, gore areas, etc. before the markings are obliterated. Locations of pavement marking tape shall be masked. The Contractor shall provide a copy of the pavement marking inventory to the Engineer. The cost of tabs shall be incidental to the temporary pavement making bid item. All costs associated with this work shall be incidental to the pavement marking bid items.

Application of permanent pavement marking may begin 7 calendar days following completion of the fog seal and shall be completed within 14 calendar days following completion of the fog seal.

Striper and advance and trailing warning vehicles shall be equipped with flashing amber or arrow panel warning lights.

**WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER**

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

This material shall consist of a durable high build, low VOC, fast drying, waterborne traffic paint with 100% acrylic polymer (DOW DT-400 or DOW HD-21A or equivalent) and with reflective media adhered to the paint. The reflective media shall consist of glass beads as well as bonded core reflective elements.

The bonded core reflective elements shall contain either clear or yellow tinted microcrystalline ceramic beads bonded to the outer surface. All microcrystalline ceramic beads bonded to reflective elements shall have a minimum index of refraction of 1.8 when tested using the liquid oil immersion method.

The Department will take retroreflectivity readings on the pavement marking lines no sooner than 3 days and no later than 30 days after the completion of all line applications required for an individual highway route using a portable retroreflectometer conforming to 30-meter geometry. Retroreflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

**WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER (CONTINUED)**

Pavement markings not conforming to the Retroreflectivity requirements shall be removed and replaced. If replacement of markings cannot be applied within the same year, the contractor shall schedule subject work to be completed no later than June 15<sup>th</sup> in the following year. Upon replacement, the retroreflectivity testing process will be done again requiring new readings.

The Department will randomly select one test location per mile of each edge line including ramps and one test location per mile of centerline (solid and/or skip line will be considered as one centerline). Three retroreflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

Initial Readings (within 3 - 30 days of the line application):

<u>Pavement Marking Color</u>	<u>Minimum Value</u>
White	350 mcd/m <sup>2</sup> /lux
Yellow	275 mcd/m <sup>2</sup> /lux

All pavement markings not conforming to the requirements provided in these plans will be considered deficient and may be required to be removed. Additional retroreflectivity readings will be taken by the Department to determine the limits of removal. The removal shall be accomplished using suitable sand blasting or grinding equipment unless the Engineer authorizes other means. The removal process shall remove at least 90% of the deficient line, with no excessive scarring of the existing pavement. The removal width shall be one inch wider all around the nominal width of the pavement marking to be removed. Removal and replacement of the pavement markings shall be at Contractor's expense, with no cost incurred by the State.

**RATES OF MATERIALS WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER**

Solid 4" Line = 27.8 Gals/Mile  
Glass Beads – 5.3 Lbs/Gal  
Composite Reflective Elements – 2.1 Lbs/Gal

All cost for materials, labor, and equipment necessary to furnish and install the pavement markings shall be incidental to the contract unit price per gallon for Waterborne Pavement Marking Paint with High Grade Polymer, White or Yellow.

**TABLE OF PAVEMENT MARKING QUANTITIES**

Hwy.	Begin	End	Length	Waterborne Pavement Marking Paint with High Grade Polymer, White	Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	Temporary Pavement Marking
	MRM	MRM	(Mile)	(Gal)	(Gal)	(Mile)
SD 73	177.550	207.480	29.9	1664	633	59.9
SD 20	96.970	111.250	14.3	794	238	28.6
		<b>Totals</b>		<b>2458</b>	<b>871</b>	<b>88.5</b>

**TRANSVERSE RUMBLE STRIPS**

The transverse rumble strips located at the intersection of SD 20 and SD 73, in advance of the stop signs shall not be disturbed. The Contractor shall only apply a fog seal to these rumble strips.

**TRAFFIC CONTROL – GENERAL NOTES**

1. Unless otherwise stated in these plans, no work will be allowed during hours of darkness.
2. 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.
3. Existing guide, route, informational logo, regulatory, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.
4. Non-applicable traffic control devices shall be completely 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.
5. 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.
6. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
7. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
8. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
9. 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.
10. All construction operations shall be conducted in the general direction of traffic movement.
11. 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.
12. Temporary Flexible Vertical Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

13. The Contractor shall place a Loose Gravel sign at each end of the project and at 2 mile intervals or at side roads as directed by the Engineer. An advisory speed plaque of 40 MPH or less shall be attached to this sign. A Motorcycles Use Extreme Caution sign shall follow the Loose Gravel sign. These signs shall be left in place until the driving surface conditions are acceptable to return traffic to normal highway speeds.
14. Road Work Next ## Miles and End Road Work signs shall be installed on fixed location, breakaway supports at the beginning and end of the project as directed by the Engineer.
15. Traffic shall be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment shall be repaired at no expense to the State.
16. 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.
17. When a pilot car is used, the delay to the traveling public shall not exceed 15 minutes.
18. A second set of flaggers shall be on duty during all daylight hours until the surface has been lightly broomed as described in these plans.
19. This second set of flaggers shall provide each motorist entering completed portions of the project with a printed notice on the Contractor's letterhead similar to the one shown below. Cost of the notice shall be incidental to the other traffic control items.

*"CONTRACTOR'S LETTERHEAD WITH MAILING ADDRESS AND PHONE NUMBER"*

*THIS HIGHWAY IS BEING RESURFACED WITH AN ASPHALT SURFACE TREATMENT. THIS TYPE OF CONSTRUCTION HAS THE POTENTIAL OF CAUSING VEHICLE DAMAGE SUCH AS CHIPPED WINDSHIELDS AND BROKEN HEADLIGHTS DUE TO ROCKS BEING THROWN BY HIGH SPEED ONCOMING OR PASSING TRAFFIC.*

*YOU MAY WISH TO CONSIDER TAKING AN ALTERNATE ROUTE. IF YOU PROCEED, KEEP TO THE RIGHT AND DRIVE 40 MPH OR LESS. ANOTHER FLAGGER AND A PILOT CAR WILL BE ESCORTING YOU AROUND THE ASPHALT SURFACE TREATMENT APPLICATION AREA.*

THANK YOU

**TEMPORARY PAVEMENT MARKING**

Temporary pavement markings for the centerline of the roadway throughout the full length of the project shall meet the requirements of Section 634 of the Specifications.

The Contractor shall use temporary flexible vertical markers (tabs) with double protective covers, so that one protective marker cover is removed after application of the asphalt surface treatment and one protective marker cover is removed after the application of the fog seal. Covers on tabs shall be removed prior to opening the roadway to normal traffic.

The Contractor shall be responsible for maintaining a visible and reflective centerline throughout the project. Any marking covered or damaged shall be replaced prior to the end of the day. All costs associated with this work shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

In addition, No Passing Zone areas shall be marked by signs as noted below.

The Contractor shall use DO NOT PASS and PASS WITH CARE signs to mark no passing zones on roads following application of asphalt surface treatment.

Highway	ESTIMATED DO NOT PASS SIGNS	ESTIMATED PASS WITH CARE SIGNS
SD 73 MRM 177.550 to MRM 207.480	82	82
SD 20 MRM 96.970 to MRM 111.250	20	20

The measurement for payment of temporary pavement marking will include the tabs with double covers, with one pass to remove the first cover after the chip seal surface treatment, and one pass to remove the second cover after the fog seal surface treatment for a total of 2x the segment length.

All costs for temporary pavement marking including furnishing, applying, removing protective covers, maintenance, Do Not Pass/ Pass With Care signs, and removal of tabs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

**INVENTORY OF TRAFFIC CONTROL DEVICES (SD73)**

SIGN CODE	SIGN DESCRIPTION	#	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W8-6	TRUCK CROSSING	2	48" x 48"	16	32
W8-7	LOOSE GRAVEL	30	48" x 48"	16	480
W13-1P	ADVISORY SPEED (plaque)	30	30" x 30"	6	180
W20-1	ROAD WORK AHEAD	2	48" x 48"	16	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	2	48" x 48"	16	32
G20-1	ROAD WORK NEXT ___ MILES	2	36" x 18"	5	10
G20-2	END ROAD WORK	2	36" x 18"	5	10
G20-4	PILOT CAR FOLLOW ME	1	36" x 18"	5	5
SPECIAL	MOTORCYCLES USE EXTREME CAUTION	30	48" x 48"	16	480
<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS</b>					<b>1357</b>
<b>SQFT</b>					

**INVENTORY OF TRAFFIC CONTROL DEVICES (SD20)**

SIGN CODE	SIGN DESCRIPTION	#	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W8-6	TRUCK CROSSING	2	48" x 48"	16	32
W8-7	LOOSE GRAVEL	14	48" x 48"	16	224
W13-1P	ADVISORY SPEED (plaque)	14	30" x 30"	6	84
W20-1	ROAD WORK AHEAD	2	48" x 48"	16	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	2	48" x 48"	16	32
G20-1	ROAD WORK NEXT ___ MILES	2	36" x 18"	5	10
G20-2	END ROAD WORK	2	36" x 18"	5	10
G20-4	PILOT CAR FOLLOW ME	1	36" x 18"	5	5
SPECIAL	MOTORCYCLES USE EXTREME CAUTION	14	48" x 48"	16	224
<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS</b>					<b>749</b>
<b>SQFT</b>					

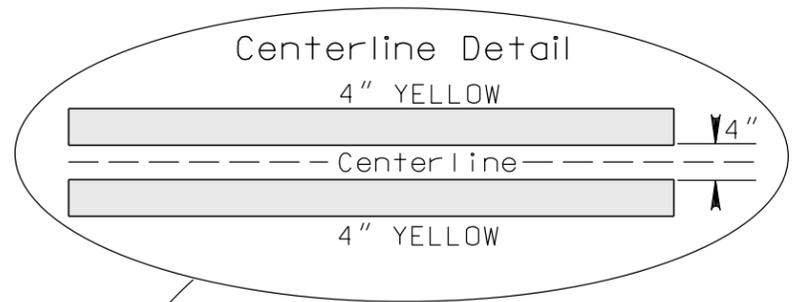
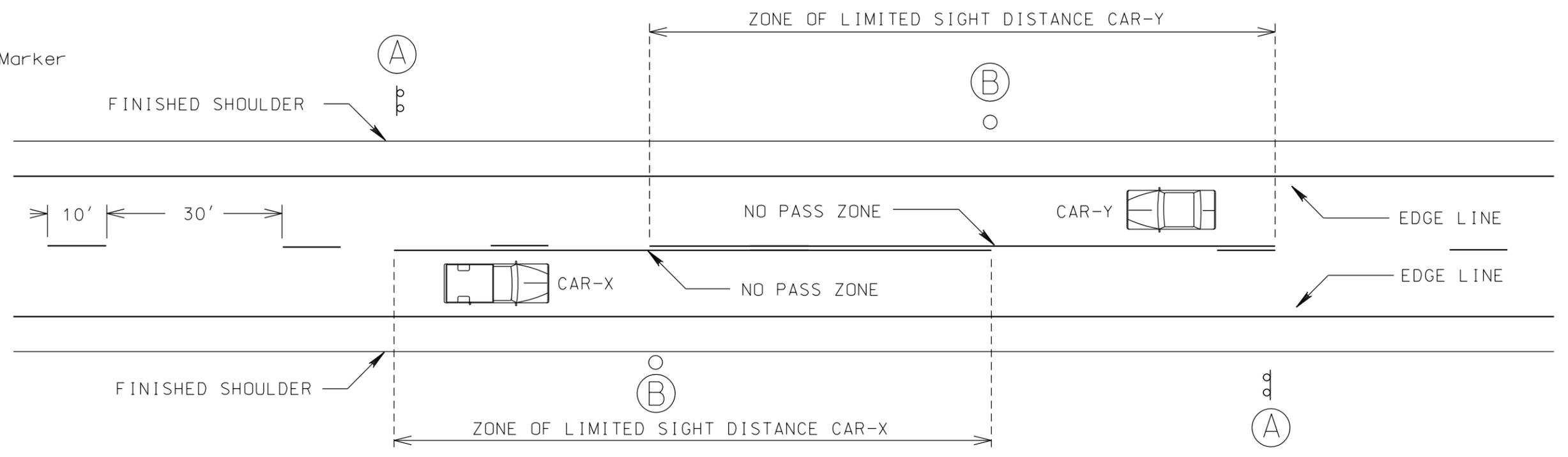
# TYPICAL PAVEMENT MARKING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0042(60)	7	13
Plotting Date: 12/03/2013			

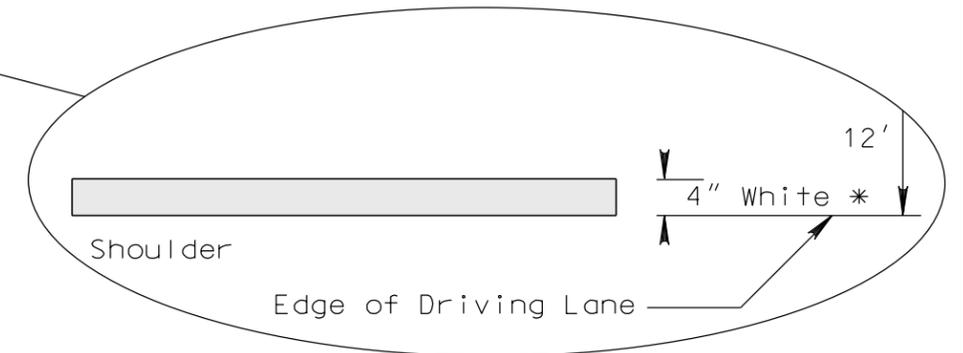
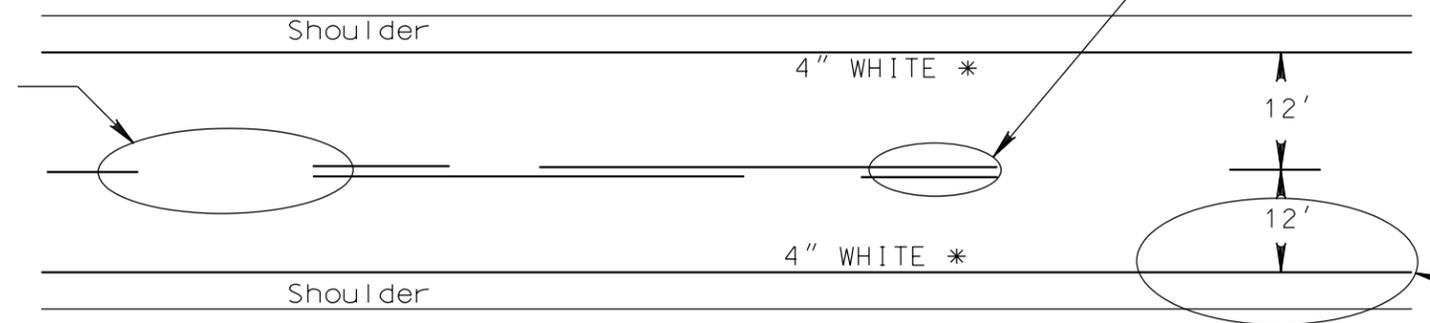
Plotted From: trc11610 Plot Scale: 1:20



(A) NO PASSING ZONE  
(B) End of Zone Marker



NOTE: A THREE "GUN" SYSTEM SHALL BE USED TO OBTAIN THIS PATTERN.



\* 8" WHITE - As per locations in plans with shoulders less than 2' width.

File: ... \PavementMarkingDetails.dgn

# PAVEMENT MARKING LAYOUT

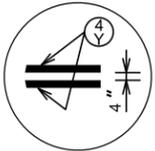
SD 73 & SD 20

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0042(60)	8	13

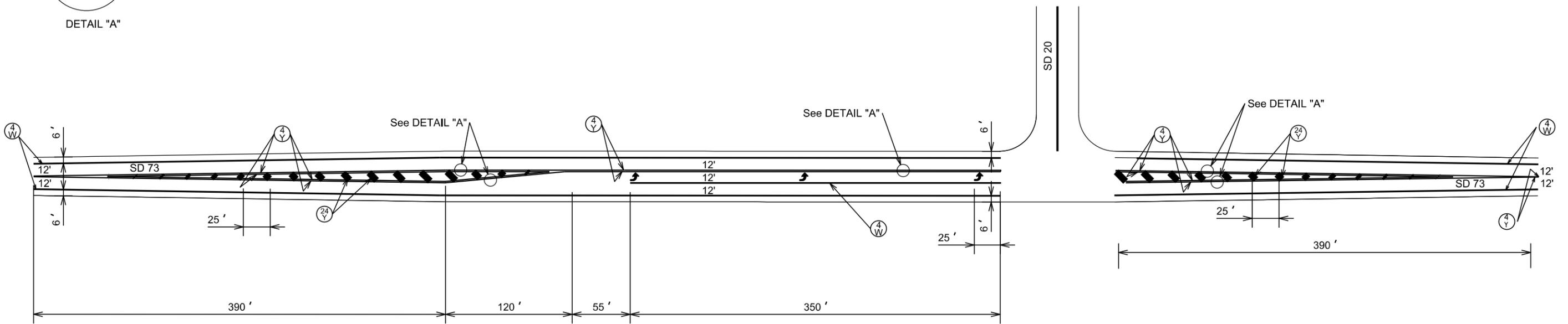
Plotting Date: 12/30/2015



ESTIMATE OF QUANTITIES			
KEY	ITEM	EST QUANT	UNIT
(4) (Y)	PAVEMENT MARKING PAINT, 24" YELLOW	300	FT
(A)	PAVEMENT MARKING PAINT, ARROW	3	EACH



DETAIL "A"



Plot Scale - 1:96

Plotted From - trcs11951

File - ...12016SD73&SD20pm.dgn



Pavement Marking Operations

Shadow and Lead Vehicles shall be positioned at the crest of vertical curves or at locations of adequate sight distance for approaching vehicles.

Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.

Shadow and Work vehicles shall display high-intensity rotating lights or strobe lights

Vehicle hazard warning signals shall not be used in place of high-intensity rotating, flashing, oscillating, or strobe lights

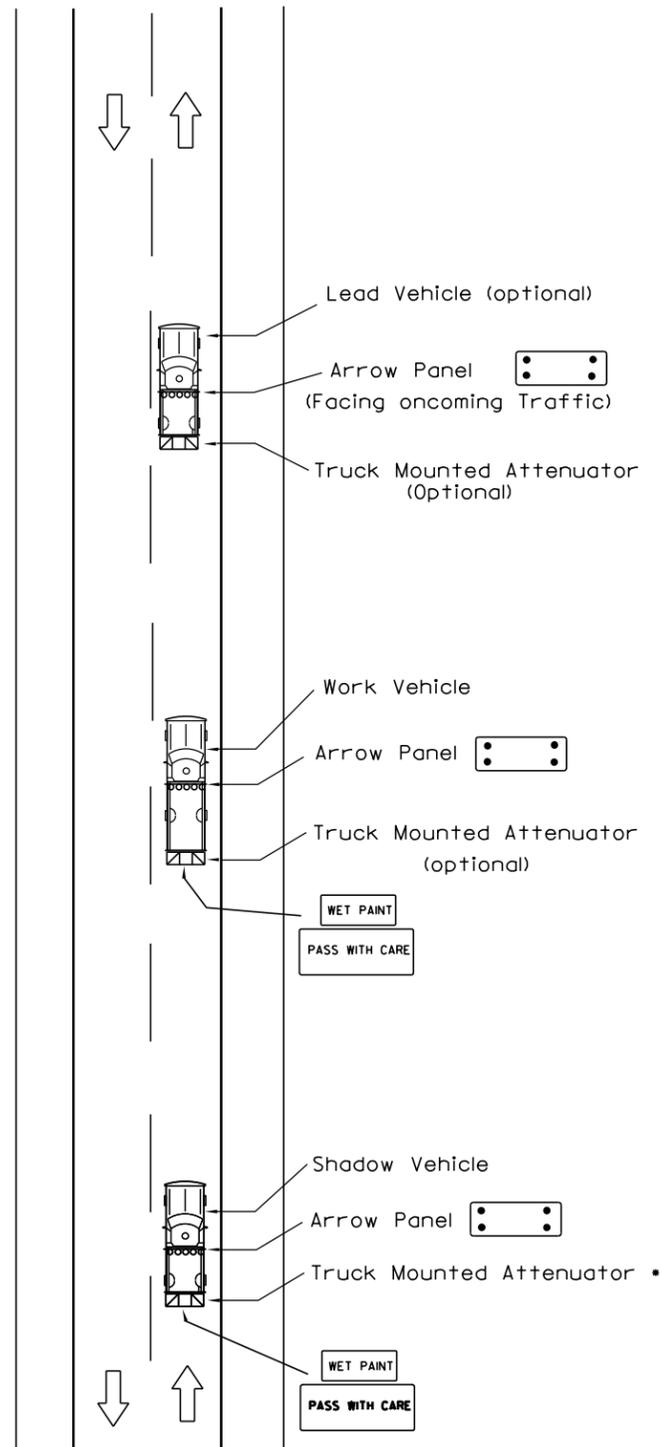
When an arrow panel is used, it shall be used in the caution mode. Marching Diamonds are acceptable.

Arrow panels shall, as a minimum, be Type B, with a size of 60" x 30".

Where practical and when needed, the work and shadow vehicles should pull over periodically to allow motor vehicles traffic to pass

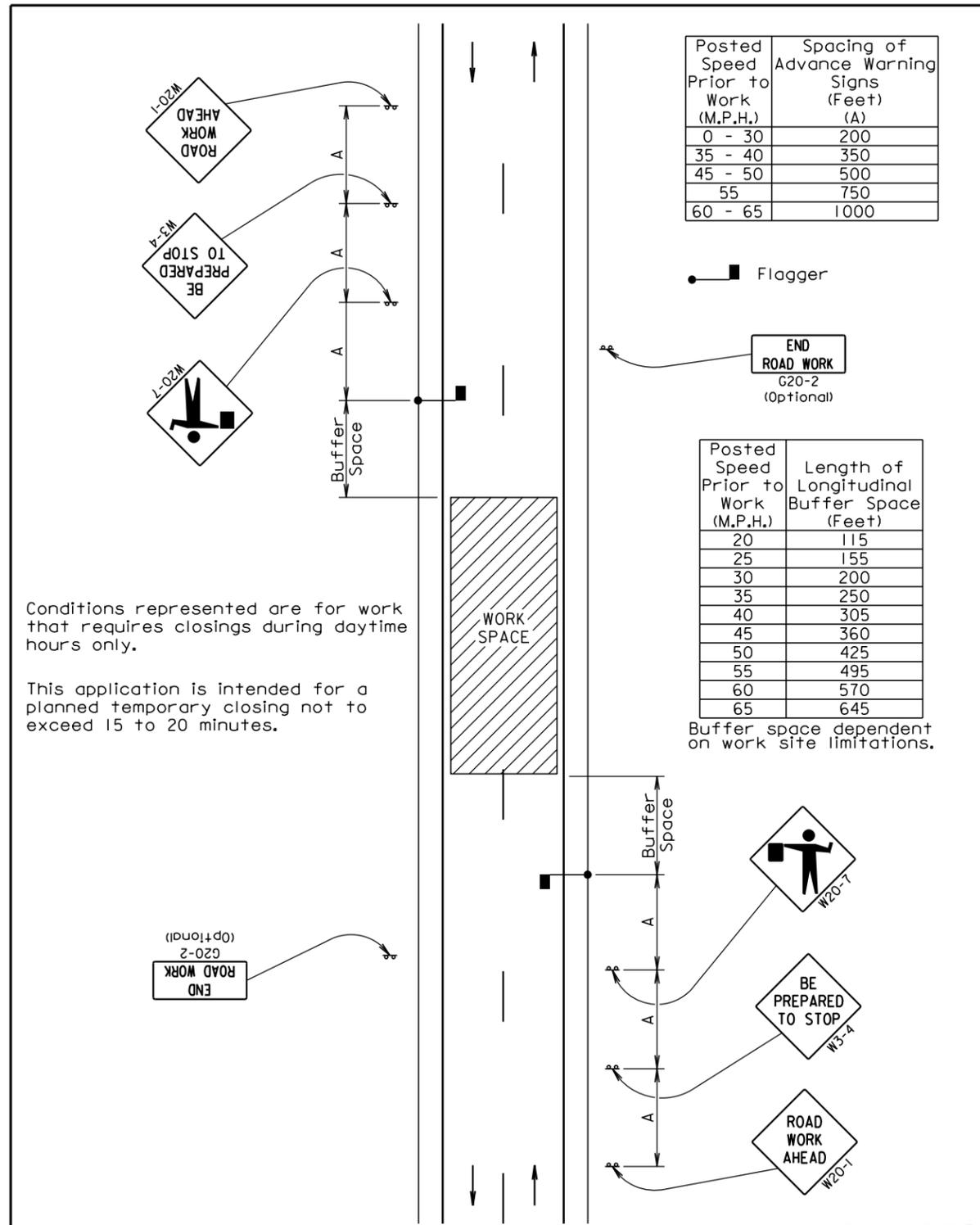
- If ANY part of the vehicle is within the driving lane, an attenuator is REQUIRED

MOBILE: Intermittent and continuous moving.



**GUIDES FOR TRAFFIC CONTROL DEVICES  
MOBILE OPERATIONS ON 2-LANE ROAD**

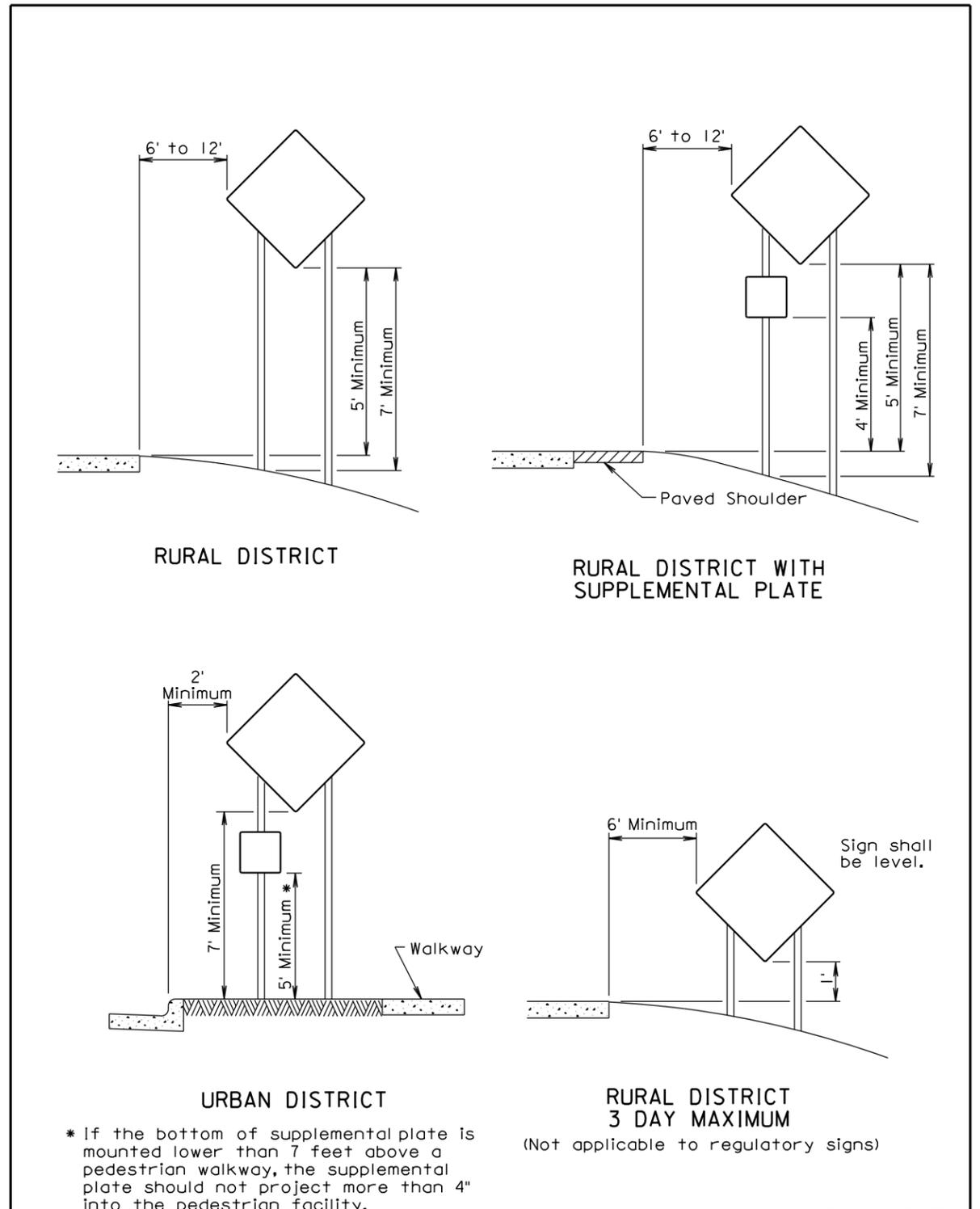




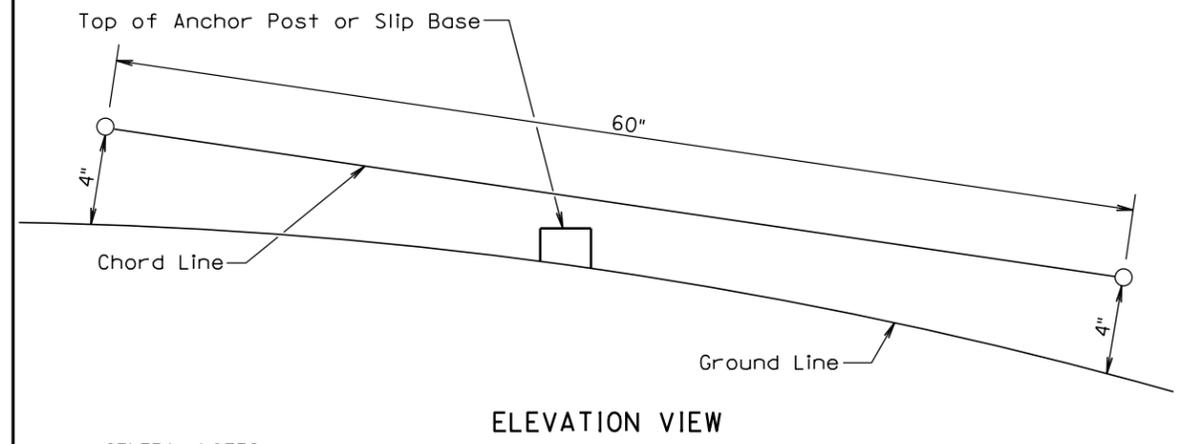
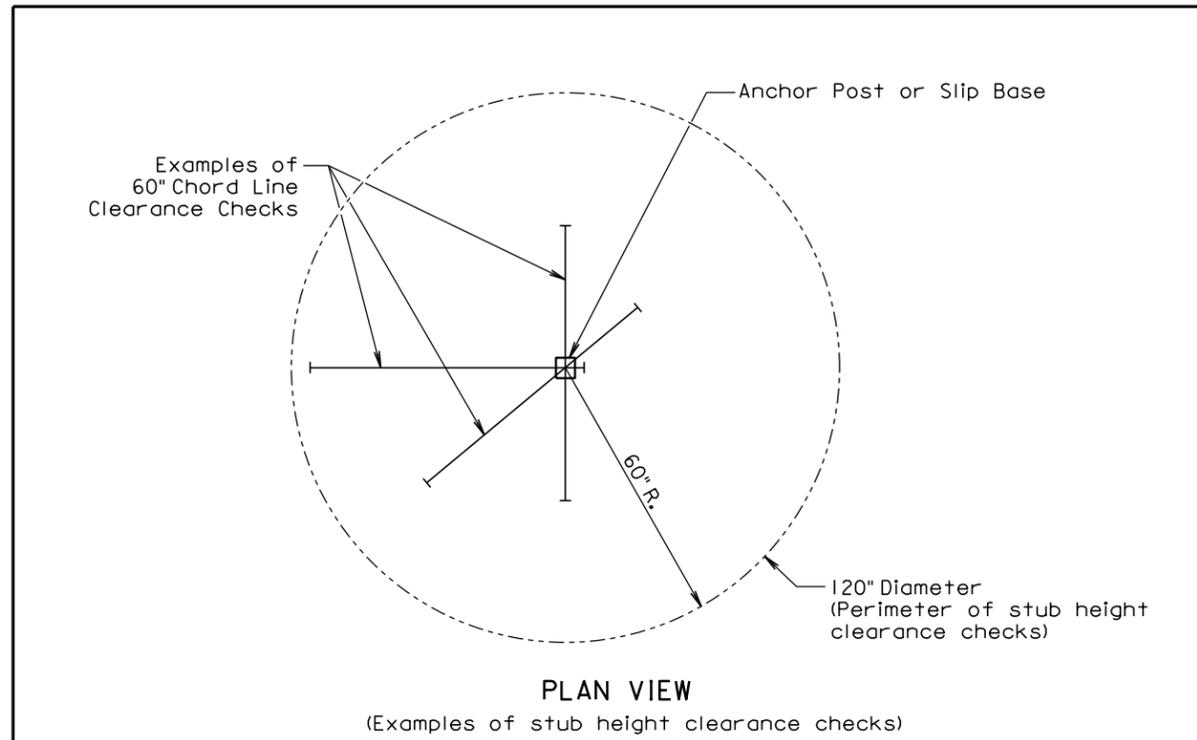
Conditions represented are for work that requires closings during daytime hours only.

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

September 6, 2015



September 22, 2014



**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: 4th Qtr. 2015</i>	<b>S D D O T</b>	<b>BREAKAWAY SUPPORT STUB CLEARANCE</b>	PLATE NUMBER 634.99
			Sheet 1 of 1