

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	1	26

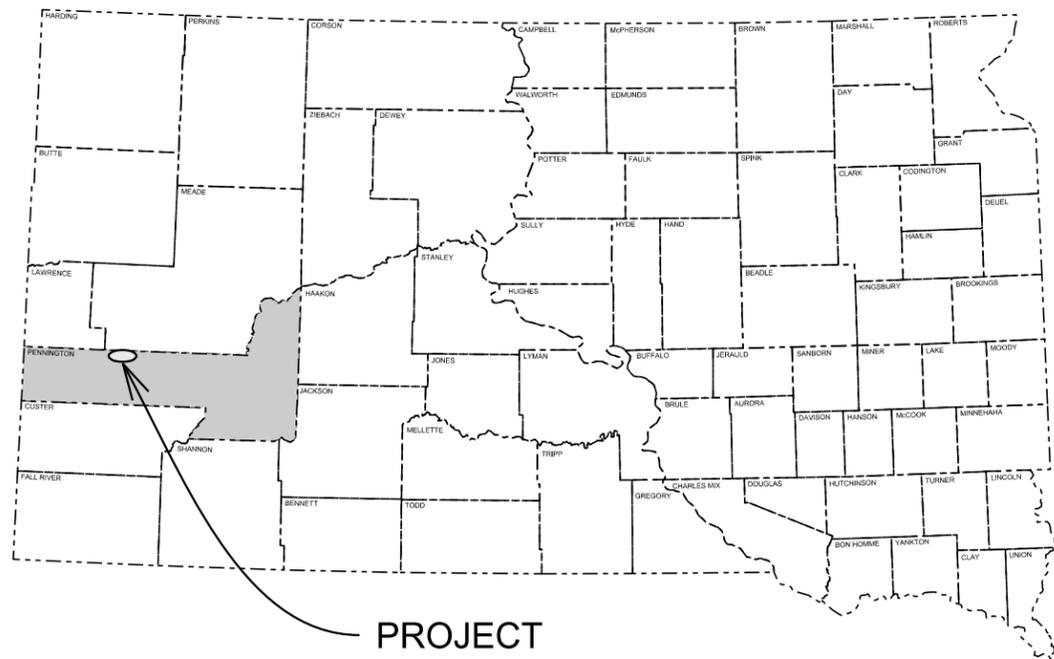
Plotting Date: 03/16/2015

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PROJECT P 0231(15)79 & NH 0044(196)44
SD HIGHWAYS 231 & 44
PENNINGTON COUNTY

CONCRETE PAVEMENT REPAIR
PCN 05A5 & 05A6



PROJECT

BEGIN PROJECT
P 0231(15)79
Sta. 5+29
MRM 81.24 +0.06

P 0231(15)79 (North)
DESIGN DESIGNATION

ADT (2013)	6326
ADT (2033)	11019
DHV	1873.2
D	51 %
T DHV	3.1 %
T ADT	6.8 %
V	35, 50 & 40 MPH

P 0231(15)79 (South)
DESIGN DESIGNATION

ADT (2013)	6326
ADT (2033)	11019
DHV	1873.2
D	51 %
T DHV	3.1 %
T ADT	6.8 %
V	35, 50 & 40 MPH

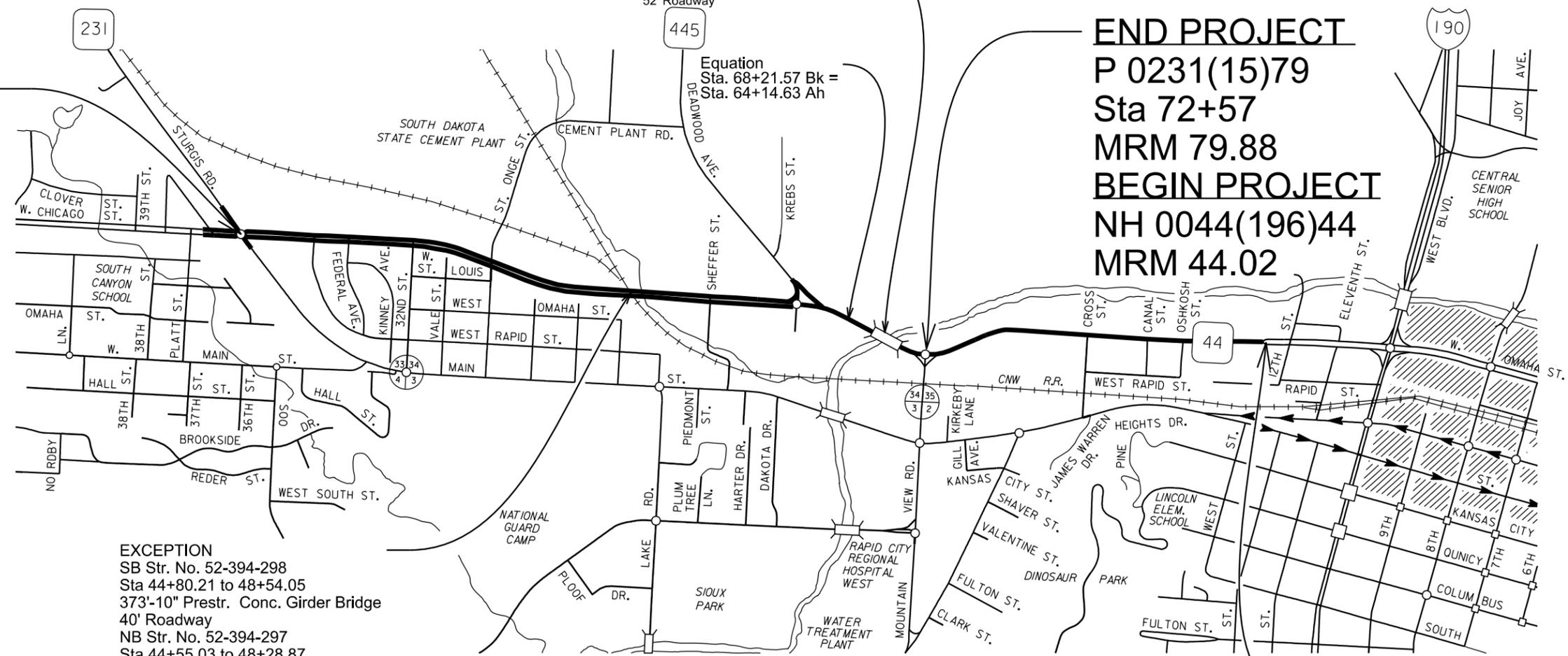
NH 0044(196)44
DESIGN DESIGNATION

ADT (2013)	25834
ADT (2033)	45003
DHV	5580.4
D	50 %
T DHV	1.4 %
T ADT	3.1 %
V	40 MPH

EXCEPTION
SB Str. No. 52-394-298
Sta 44+80.21 to 48+54.05
373'-10" Prestr. Conc. Girder Bridge
40' Roadway
NB Str. No. 52-394-297
Sta 44+55.03 to 48+28.87
373'-10" Prestr. Conc. Girder Bridge
40' Roadway

EXCEPTION
Sta. 67+55.84 to Sta. 69+38.16
Str. No. 52-399-299
182'-3 3/4" Cont. Concrete Bridge
52' Roadway

Equation
Sta. 68+21.57 Bk =
Sta. 64+14.63 Ah



END PROJECT
P 0231(15)79
Sta 72+57
MRM 79.88
BEGIN PROJECT
NH 0044(196)44
MRM 44.02

END PROJECT
NH 0044(196)44
Sta. 105+62
MRM 44.64 + 0.032

	SD 231		SD 44		
GROSS LENGTH	7,578.94 FEET	1.4354 MILES	GROSS LENGTH	3,305 FEET	0.6259 MILES
LENGTH OF EXCEPTIONS	556.15 FEET	0.1053 MILES	LENGTH OF EXCEPTIONS	0 FEET	0 MILES
NET LENGTH	7,022.79 FEET	1.3301 MILES	NET LENGTH	3,305 FEET	0.6259 MILES

STORM WATER PERMIT
None Required

Plot Scale - 1:200

trcc11610

Plotted From -

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ESTIMATE OF QUANTITIES – P 0231(15)79, PCN 05a5

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1100	Remove Concrete Pavement	145.7	SqYd
320E1200	Asphalt Concrete Composite	549.2	Ton
320E2000	Maintenance Patching	65.8	Ton
380E6302	Reseal PCC Pavement Joint - Hot Pour	900	Ft
390E0200	Repair Type A Spall	430.3	SqFt
* 390E0200	Repair Type A Spall	1,631.5	SqFt
390E0210	Repair Type B Spall	815.6	SqFt
633E0010	Cold Applied Plastic Pavement Marking, 4"	4,895	Ft
633E0020	Cold Applied Plastic Pavement Marking, 8"	1,135	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	955	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	19	Each
633E0045	Cold Applied Plastic Pavement Marking, Combination Arrow	2	Each
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	4,895	Ft
633E5005	Grooving for Cold Applied Plastic Pavement Marking, 8"	1,135	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	955	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	19	Each
633E5030	Grooving for Cold Applied Plastic Pavement Marking, Combination Arrow	2	Each
634E0010	Flagging	200	Hour
634E0100	Traffic Control	1,168	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
634E0640	Temporary Pavement Marking	3,700	Ft
634E1215	Contractor Furnished Portable Changeable Message Sign	2	Each
634E1255	Contractor Furnished Speed Monitoring Radar Trailer	2	Each
635E5535	Sawed-In, Preformed Detector Loop	4	Each

* - Denotes Repair Type A Spall (Asphalt Concrete Patching Material)

ESTIMATE OF QUANTITIES – NH 0044(196)44, PCN 05a6

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E6302	Reseal PCC Pavement Joint - Hot Pour	10,536	Ft
390E0200	Repair Type A Spall	212.7	SqFt
390E0210	Repair Type B Spall	90.8	SqFt
634E0010	Flagging	200	Hour
634E0100	Traffic Control	1,129	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	2	Each
634E1255	Contractor Furnished Speed Monitoring Radar Trailer	2	Each

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 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 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.

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.

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	P 0231(15)79 & NH 0044(196)44	2	26

Revised 3-23-15 klh

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.

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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 designated option borrow 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.

COMMITMENT K: RAPID CITY AREA AIR QUALITY CONTROL ZONE

Administrative Rule of South Dakota (ARSD) 74:36:18:03 states that "no state facility or state contractor may engage in any construction activity or continuous operation activity within the Rapid City air quality control zone which may cause fugitive emissions of particulate to be released into the ambient air without first obtaining a permit issued by the board or the secretary."

Construction activity is defined as any temporary activity at a state facility, which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. One acre of surface area is based on a cumulative area of disturbance to be completed for the entire project. Construction activity shall include, but not be limited to, stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. Construction activity is generally completed within one year. It also includes stockpiles, access roads, and disposal areas. An off-site disposal area of excess material will require an additional permit.

Action Taken/Required:

In order to be considered eligible for authorization to conduct a construction activity under the terms and conditions of this permit, the owner operator must submit a Notice of Intent (NOI) form. The form must be submitted to the address below at least seven business days prior to the anticipated date of beginning the construction activity.

South Dakota Department of Environment and Natural Resources Air Quality Program
523 East Capitol, Joe Foss Building
Pierre, SD 57501-3181
Phone: 605-773-3151

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for track out, paved areas, unpaved roads, unpaved parking lots, disturbed areas, and for material handling and storage. The control measures that the Contractor is required to use are listed in the permit.

UTILITIES

The Contractor shall be responsible for locating and protecting any utility that would conflict with any work. 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.

Any damage done to a utility will be the Contractor's responsibility to repair.

Utilities within the limits of the proposed construction shall be adjusted by the owner unless otherwise indicated in these plans.

EXISTING PCC PAVEMENT

The existing pavement for SD 231 is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 4x20" deformed tie bars spaced 30" center to center. The transverse joints are spaced at 20' apart.

The existing pavement for SD 44 is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 4x30" deformed tie bars spaced 30" center to center. The transverse joints are spaced at 20' apart.

RESTORATION OF GRAVEL CUSHION

An inspection of the gravel cushion subgrade shall be made after removing concrete from each pavement replacement area. Areas of excess moisture shall be dried to the satisfaction of the Engineer. Loose and excess material shall be removed. Each replacement area shall be leveled and compacted to the satisfaction of the Engineer.

If additional gravel cushion material is required, the Contractor shall furnish, place and compact gravel cushion to the satisfaction of the Engineer.

All costs associated with this work shall be incidental to the contract unit price per ton for "Maintenance Patching".

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REPAIR TYPE A SPALL

Locations and size (length or width) of concrete spall repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. The minimum dimension of the repair area shall be 6". Payment will be based on actual area replaced.

Type A Spalls shall conform to Section 390 with the following exceptions:

The concrete patching material used for spall repair shall be a bagged MNDOT 3U18 patching material that includes Air Entraining Agent. The product shall be submitted and be approved by the Concrete Engineer. A product known to meet this requirement is Spec Mix/TCC Materials "Air Entrained Concrete Patching Mix".

Grout for bonding the concrete patching material to the existing concrete shall consist of two parts by weight of Portland Cement and one part sand, mixed with sufficient water to form a creamy slurry. Grout shall be applied on all of the existing concrete surfaces within the removal area immediately prior to placement of the concrete patching material. The grout shall be scrubbed into the surface with a stiff bristle brush in a thin and uniform coat. Care shall be taken to ensure that excess grout does not collect in low areas, that the grout is confined only to the immediate area in which concrete patching material is to be placed, and that the rate of application is limited to an amount such that the grout will be covered with concrete patching material before the grout dries.

The concrete patching material shall be mixed and placed in accordance with the manufacturer's technical data sheet. The Contractor shall provide a manufacturer's technical data sheet to the Engineer prior to performing the work. The concrete patching material shall be maintained at or above 45°F (7°C) for at least 72 hours after placement.

Patched areas shall be sprayed with curing compound as per Section 390. An additional coat of curing compound shall be applied not less than 20 minutes and not more than 1 hour after the first application.

Repair areas can be opened to traffic once the repair material meets 3,000 psi as long as the above requirement for temperature can be met.

An initial cylinder shall be made and the Engineer shall calibrate a Swiss Hammer to it. All subsequent strength tests shall be by Swiss Hammer.

The Engineer will test the repair areas after an initial cure period by Swiss Hammer. No section is to be opened to traffic without the permission of the Engineer.

No additional work zones will be set up until strength requirement is met. If strength requirement has not been met by 36 hours after placement, the patches shall be removed and replaced at no cost to the State.

Material used to form the joint shall be a foam core board, waxed cardboard, or other stiff material capable of standing without deflection. The Contractor shall fill the area (with the foam core board or other approved material in place) with an approved patching material. The patching material shall be vibrated with a small hand held vibrator capable of thoroughly consolidating the patching compound into the area. The top surface of the filled area shall be trowel finished and cured.

After screeding and finishing, the same bonding grout shall be used to paint the edges of the repair. Any saw cuts that extend beyond the patch perimeter shall be filled with patching material and must also have the surface painted with bonding grout.

After removal of the form material, the repaired length of the joint(s) shall be sealed. Cost for removing the form material and sealing the joint(s) shall be incidental to the contract unit price per square foot for Repair Type A Spall.

Spalls which are repaired according to plans and specifications and exhibit partial respalling or cracking, shall be repaired to the satisfaction of the Engineer at no additional cost to the Department of Transportation.

The asphalt patching material used for spall repair shall be in accordance with the requirements of Section 324 of the Specifications.

TYPE B SPALL REPAIR

Locations and size (length or width) of concrete spall repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. The maximum width dimension of the repair area shall be 5". For estimating purposes an average width of 4" was used.

The Type B Spall Repair material shall be Crafcro TechCrete R or an approved equal.

The spalled concrete or asphalt patch material shall be removed and the areas chipped down to sound concrete. The resulting areas shall be left rough to obtain a good bond between patching material and concrete. Surface preparation and placement of TechCrete R shall be in accordance with the manufactures recommendations. Traffic over the patch area will not be permitted until the patch material has properly cured.

ROADWAY CLEANING

The Contractor shall be responsible for removing the router tailings from the roadway surface, including shoulders, intersecting streets and as directed by the Engineer. Roadway cleaning shall be done daily when router tailings are produced

RESEAL PCC PAVEMENT JOINTS

The existing transverse joints shall be cleaned of incompressibles and joint sealant to the satisfaction of the Engineer. It is not essential that all of the sealant be removed. Remaining sealant adhering to the sides may remain in place if the Engineer determines that it is not detrimental to the joint.

Just prior to sealing, the joints shall be sandblasted and cleaned with compressed air.

In certain areas the joint may be wider than the original construction. Any additional cost to perform this work shall be at no additional cost to the State. The Contractor shall be responsible to verify joint widths prior to establishing the contract unit price.

Transverse joints shall be sealed with Hot Poured Elastic Joint Sealer.

Cost for removing, cleaning, and resealing the transverse joints shall be incidental to the contract unit price per foot for Reseal PCC Pavement Joint-Hot Pour.

MAINTENANCE PATCHING

Maintenance Patching shall be in accordance with the requirements of Section 324 and the following requirements for the asphalt concrete composite used as Maintenance Patching.

Locations and quantities of asphalt repair are subject to change. The exact locations will be determined in the field by the Engineer. The Engineer reserves the right to adjust quantities and/or add locations at no additional cost to the state.

Maintenance Patching areas asphalt concrete composite shall be placed 8" thick, in two lifts of 3" and one lift of 2".

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Specifications for Class E, Type 1.

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

The asphalt binder used in the mixture shall be PG 64-22, PG 64-28, or PG 58-34 Asphalt Binder.

Asphalt Concrete Composite thickness at the intersection of Deadwood Ave. and West Chicago shall be 1.5" and the skin patch on Sturgis Rd shall be 2"

REPAIR QUANTITIES – P 0231(15)79

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
			VARIOUS				60			
0+85	1.0	1.0	WBPL						1.0	
0+85	1.0	1.0	WBDL						1.0	
1+03	1.0	2.0	WBPL						2.0	
1+20	2.0	10.0	WBPL						20.0	
1+97	2.0	12.0	WBPL						24.0	
2+12	1.0	10.0	WBDL						10.0	
2+27	1.0	1.0	WBDL						1.0	
2+46	1.0	2.0	WBDL						2.0	
2+64	1.0	2.0	WBDL						2.0	
3+06	2.0	2.0	Right Turn						4.0	
3+20	1.0	3.0	WBPL						3.0	
4+23	2.0	8.0	EBDL						16.0	
4+55	1.0	10.0	WBDL						10.0	
4+55	1.0	10.0	WBPL						10.0	
4+64	6.0	6.0	EBDL						36.0	
4+73	1.0	1.0	WBPL						1.0	
4+73	3.0	4.0	WBPL						12.0	
4+81	1.0	1.0	EBPL						1.0	
4+81	1.0	1.0	EBPL						1.0	
4+81	1.0	1.0	EBPL						1.0	
4+81	1.0	1.0	EBPL						1.0	
4+81	26.0	1.0	EBPL						26.0	
4+91	1.0	1.0	EBDL						1.0	
4+99	150.0	1.0	WBDL						150.0	
4+99	150.0	1.0	WBPL						150.0	
4+99	130.0	1.0	Turn Lane						130.0	
4+99	20.0	1.0	Right Turn						20.0	
5+00	1.0	1.0	EBDL						1.0	
5+18	1.0	2.0	WBPL						2.0	
5+18	2.0	2.0	EBPL						4.0	
5+18	1.0	6.0	EBDL						6.0	
5+18	1.0	8.0	EBDL						8.0	
5+37	1.0	1.0	Turn Lane						1.0	
5+37	1.0	1.0	EBDL						1.0	
5+56	1.0	10.0	WBDL						10.0	
5+56	0.5	1.0	WBPL						0.5	
5+57	0.5	1.0	EBDL						0.5	
5+57	0.5	0.5	EBPL						0.3	
5+57	187.0	1.0	EBDL						187.0	
5+77	1.0	8.0	Accel						8.0	
5+77	0.5	12.0	EBDL						6.0	
VARIABLE			VARIOUS				60			
5+95	1.0	1.0	Turn Lane						1.0	

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
5+95	1.0	1.0	WBDL						1.0	
5+96	1.0	3.0	EBDL						3.0	
6+15	1.0	1.0	Turn Lane						1.0	
6+16	0.5	5.0	Accel						2.5	
6+34	1.0	1.0	Turn Lane						1.0	
6+34	0.5	2.0	WBDL						1.0	
6+35	0.5	0.5	EBPL						0.3	
6+41	5.0	1.0	Accel						5.0	
6+53	5.0	12.0	Turn Lane						60.0	
6+64	0.5	3.0	EBPL						1.5	
6+66	0.5	3.0	Accel						1.5	
6+75	40.0		Turn Lane							10.0
6+75	1.0	1.0	Accel						1.0	
6+85	0.5	1.0	Accel						0.5	
6+92	1.0	2.0	Turn Lane						2.0	
6+92	1.0	2.0	WBDL						2.0	
7+11	20.0	2.0	Turn Lane	4.4	2.0					
7+13	0.5	3.0	Accel						1.5	
7+21	0.5	0.5	Accel						0.3	
7+55	1.0	1.0	WBPL					1.0		
7+55	1.0	1.0	WBPL					1.0		
7+78	0.5	0.5	EBPL					0.3		
8+05	60.0		WBDL							15.0
10+41	0.5	1.0	WBDL					0.5		
VARIABLE			VARIOUS				60			
11+00	1.0	1.0	WBPL					1.0		
11+00	1.0	2.0	WBDL					2.0		
11+37	2.0	2.0	WBDL					4.0		
11+37	30.0		WBDL							7.5
11+65	1.0	1.0	WBPL					1.0		
11+65	1.0	1.0	WBPL					1.0		
11+65	1.0	1.0	WBPL					1.0		
12+02	1.0	5.0	WBDL					5.0		
12+02	0.5	10.0	WBDL					5.0		
12+09	2.0	2.0	WBDL					4.0		
12+17	1.0	3.0	WBDL					3.0		
13+35	200.0		Turn Lane							50.0
14+04	40.0		WBPL							10.0
14+28	0.5	0.5	EBDL					0.3		
14+28	0.5	0.5	EBDL					0.3		
14+28	0.5	0.5	EBPL					0.3		
14+28	0.5	0.5	EBPL					0.3		
14+49	0.5	6.0	EBDL					3.0		
14+59	1.0	1.0	WBDL					1.0		

REPAIR QUANTITIES – P 0231(15)79 (CONT.)

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
15+25	40.0		EBDL							10.0
VARIABLE			VARIOUS				60			
16+43	0.5	4.0	EBDL					2.0		
16+72	150.0		Turn Lane							37.5
17+04	0.5	3.0	EBDL					1.5		
19+21	1.0	1.0	WBDL					1.0		
19+32	1.0	1.0	WBDL					1.0		
19+32	1.0	1.0	WBDL					1.0		
VARIABLE			VARIOUS				60			
21+34	2.0	3.0	WBPL					6.0		
21+34	0.5	0.5	WBDL					0.3		
21+34	0.5	0.5	WBDL					0.3		
21+49	1.0	1.0	WBPL					1.0		
21+65	1.0	1.0	WBPL					1.0		
22+46	0.5	2.0	EBDL					1.0		
22+50	1.0	3.0	Turn Lane					3.0		
22+57	0.5	2.0	EBPL					1.0		
23+40	15.0		Turn Lane					0.0		3.8
25+09	0.5	6.0	EBDL					3.0		
25+09	0.5	1.0	EBPL					0.5		
25+16	1.0	2.0	WBPL					2.0		
25+67	0.5	1.0	EBDL					0.5		
25+67	0.5	1.0	EBPL					0.5		
25+77	40.0		WBPL							10.0
25+77	50.0		WBDL							12.5
25+86	1.0	1.0	EBPL					1.0		
VARIABLE			VARIOUS				60			
26+72	60.0		Turn Lane					0.0		15.0
27+69	1.0	2.0	EBDL					2.0		
27+99	20.0		Turn Lane							5.0
28+28	1.0	1.0	EBDL					1.0		
28+68	1.0	6.0	EBPL					6.0		
29+15	1.0	1.0	WBPL					1.0		
29+50	1.0	1.0	EBPL					1.0		
30+18	2.0	4.0	WBDL					8.0		
30+18	0.5	6.0	EBPL					3.0		
30+18	0.5	2.0	EBDL					1.0		
30+51	12.0		WBPL							3.0
30+51	20.0		WBDL							5.0
30+63	1.0	1.0	WBDL					1.0		
30+85	120.0		CENTER					0.0		30.0
30+85	2.0	10.0	WBDL					20.0		
VARIABLE			VARIOUS				60			
31+05	0.5	1.0	EBPL					0.5		

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
31+05	1.0	1.0	EBDL					1.0		
31+15	1.0	1.0	Turn Lane					1.0		
31+15	1.0	1.0	Turn Lane					1.0		
31+76	1.0	1.0	WBPL					1.0		
32+16	0.5	12.0	EBDL					6.0		
32+16	0.5	2.0	EBPL					1.0		
32+35	0.5	4.0	EBDL					2.0		
32+65	140.0		Turn Lane							35.0
32+72	0.5	0.5	EBDL					0.3		
32+95	0.5	2.0	EBPL					1.0		
32+95	0.5	0.5	EBPL					0.3		
34+28	1.0	1.0	WBDL					1.0		
35+12	0.5	2.0	EBPL					1.0		
35+22	40.0		WBDL							10.0
35+22	20.0		WBPL							5.0
35+52	0.5	2.0	EBPL					1.0		
VARIABLE			VARIOUS				60			
36+75	1.0	1.0	EBDL					1.0		
37+25	1.0	1.0	WBPL					1.0		
37+26	1.0	1.0	WBPL					1.0		
37+44	0.5	1.0	WBPL					0.5		
39+00	0.5	1.0	WBPL					0.5		
39+42	2.0	2.0	WBPL					4.0		
40+69	1.0	2.0	WBPL					2.0		
VARIABLE			VARIOUS				60			
41+05	2.0	2.0	EBPL					4.0		
41+27	1.0	1.0	EBPL					1.0		
41+27	1.0	1.0	EBPL					1.0		
42+28	0.5	0.5	EBDL					0.3		
42+28	0.5	0.5	EBPL					0.3		
42+28	1.0	20.0	Shoulder					20.0		
42+60	1.0	1.0	WBPL					1.0		
42+86	20.0	0.3	WBPL							5.0
42+86	20.0	0.3	WBDL							5.0
VARIABLE			VARIOUS				60			
48+50	12.0		EBPL							3.0
48+50	30.0		EBDL							7.5
48+69	12.0		EBPL							3.0
48+69	12.0		EBDL							3.0
48+95	1.0	1.0	EBPL					1.0		
49+60	100.0		WBDL							25.0
49+60	20.0		WBPL							5.0
50+06	0.5	3.0	EBDL					1.5		
50+06	0.5	1.0	EBPL					0.5		

REPAIR QUANTITIES – P 0231(15)79 (CONT.)

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
50+64	0.5	15.0	EBDL					7.5		
50+64	1.0	1.0	EBPL					1.0		
50+84	0.5	12.0	EBDL					6.0		
50+84	0.5	12.0	EBPL					6.0		
VARIABLE			VARIOUS				60			
51+05	0.5	3.0	EBDL					1.5		
51+05	0.5	1.0	EBPL					0.5		
51+19	1.0	3.0	EBPL					3.0		
51+45	0.5	2.0	EBPL					1.0		
51+80	1.0	1.0	WBPL					1.0		
52+05	1.0	1.0	EBDL					1.0		
52+45	0.5	6.0	EBDL					3.0		
52+82	30.0		EBDL							7.5
53+15	40.0		Center							10.0
53+52	1.0	3.0	EBPL					3.0		
53+55	20.0		Turn Lane							5.0
53+66	1.0	1.0	EBPL					1.0		
54+32	0.5	0.5	WBPL					0.3		
54+75	100.0		Turn Lane							25.0
55+47	0.5	0.5	EBPL					0.3		
55+67	0.5	0.5	EBPL					0.3		
55+87	0.5	0.5	EBPL					0.3		
VARIABLE			VARIOUS				60			
56+60	1.0	1.0	WBDL					1.0		
56+60	1.0	1.0	WBDL					1.0		
56+60	1.0	1.0	WBPL					1.0		
56+60	1.0	1.0	WBPL					1.0		
56+93	1.0	1.0	Accel					1.0		
57+36	40.0		Turn Lane					0.0		
57+45	1.0	1.0	WBPL					1.0		
57+50	2.0	3.0	WBDL					6.0		
57+50	1.0	1.0	WBPL					1.0		
57+85	1.0	1.0	WBPL					1.0		
57+95	1.0	1.0	WBPL					1.0		
58+36	0.5	1.0	Turn Lane					0.5		
58+57	0.5	3.0	Turn Lane					1.5		
58+65	60.0	6.0	Accel	40.0	18.1					
59+23	1.0	1.0	WBDL					1.0		
59+23	1.0	1.0	WBDL					1.0		
59+23	1.0	1.0	WBDL					1.0		
59+45	15.0	12.0	WBDL	20.0	9.0					
59+57	0.5	12.0	Turn Lane					6.0		
59+79	0.5	1.0	EBDL					0.5		
59+92	30.0	12.0	Accel	40.0	18.1					

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
59+98	1.0	1.0	WBDL					1.0		
60+14	1.0	1.0	WBPL					1.0		
60+38	1.0	1.0	Turn Lane					1.0		
60+65	1.0	10.0	WBDL					10.0		
60+95	Start Overlay									
61+14	0.5	0.5	EBDL						0.3	
61+35	1.0	1.0	Turn Lane						1.0	
61+55	1.0	1.0	EBPL						1.0	
62+95	300.0		EBDL/PL							75.0
63+22	1.0	1.0	EBPL						1.0	
63+87	0.5	4.0	EBDL						2.0	
64+00	0.5	2.0	EBPL						1.0	
64+05	1.0	15.0	EBDL						15.0	
64+11	1.0	1.0	WBPL						1.0	
64+11	1.0	3.0	WBPL						3.0	
64+20	0.5	0.5	EBPL						0.3	
64+36	1.0	50.0	EBDL						50.0	
64+60	1.0	1.0	WBPL						1.0	
64+65	1.0	1.0	WBPL						1.0	
VARIABLE			VARIOUS				60			
65+55	200.0	0.3	EBDL/PL							66.0
65+70	1.0	3.0	WBDL						3.0	
66+14	1.0	12.0	WBPL						12.0	
66+34	1.0	12.0	WBDL						12.0	
66+34	1.0	12.0	WBPL						12.0	
66+50	1.0	3.0	WBDL						3.0	
66+88	0.5	0.5	WBPL						0.3	
66+88	End Overlay					529.6				
67+06	1.0	1.0	WBPL						1.0	
67+25	24.0	0.3	WBDL/PL							7.9
67+35	200.0	0.3	EBDL/PL							66.0
67+45	24.0	0.3	WBDL/PL							7.9
67+68	0.5	3.0	WBDL						1.5	
68+08	1.0	1.0	EBDL						1.0	
68+08	0.5	3.0	WBPL						1.5	
Equation 68+21.57 Bk = 64+14.63 Ah										
64+22	0.5	12.0	WBPL						6.0	
64+43	0.5	12.0	WBPL						6.0	
64+63	0.5	0.5	WBDL						0.3	
64+80	0.5	2.0	WBDL						1.0	
64+80	0.5	0.5	WBDL						0.3	
64+81	1.0	1.0	EBPL						1.0	
64+89	0.5	3.0	EBPL						1.5	
64+90	1.0	1.0	WBDL						1.0	

REPAIR QUANTITIES – P 0231(15)79 (CONT.)

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
64+99	0.5	0.5	EBPL					0.3		
65+10	0.5	1.0	WBPL					0.5		
65+17	1.0	1.0	WBDL					1.0		
65+17	1.0	1.0	WBPL					1.0		
65+17	1.0	1.0	EBPL					1.0		
65+30	2.0	2.0	WBDL					4.0		
65+42	20.0	0.3	WBDL							6.6
VARIABLE			VARIOUS				60			
65+82	1.0	3.0	EBDL					3.0		
65+93	1.0	1.0	EBDL					1.0		
66+02	1.0	1.0	EBPL					1.0		
66+20	1.0	3.0	EBDL					3.0		
66+31	1.0	1.0	WBPL					1.0		
66+31	2.0	2.0	WBDL					4.0		
66+31	0.5	6.0	EBDL					3.0		
69+39	1.0	2.0	WBPL					2.0		
69+78	0.5	0.5	EBPL					0.3		
69+78	4.0	4.0	EBDL					16.0		
69+78	0.5	0.5	EBPL					0.3		
69+94	0.5	12.0	EBPL					6.0		
70+05	1.0	1.0	EBPL					1.0		
70+09	20.0	0.3	WBPL							6.6
70+27	20.0	0.3	WBPL							6.6
70+27	1.0	1.0	EBDL					1.0		
70+33	0.5	2.0	EBPL					1.0		
70+34	2.0	2.0	WBDL					4.0		
70+49	10.0	0.3	WBDL							3.3
70+52	1.0	12.0	EBDL					12.0		
VARIABLE			VARIOUS				60			
70+70	1.0	1.0	EBDL					1.0		
70+70	1.0	1.0	EBDL					1.0		
70+80	0.5	4.0	EBPL					2.0		
70+83	1.0	2.0	WBDL					2.0		
71+03	1.0	12.0	Center					12.0		
71+03	12.0	12.0	EBPL	16.0	7.2					
71+30	1.0	1.0	EBDL					1.0		
71+38	0.5	2.0	EBPL					1.0		
71+40	2.0	4.0	WBDL					8.0		
71+40	40.0	0.3	WBDL							13.2
71+48	1.0	2.0	EBDL					2.0		
71+52	1.0	1.0	Center					1.0		
71+58	4.0	8.0	EBDL					32.0		
71+58	4.0	12.0	EBPL	5.3	2.4					
71+60	1.0	1.0	WBPL					1.0		

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
71+60	1.0	2.0	WBDL					2.0		
71+60	1.0	1.0	WBDL					1.0		
71+73	1.0	1.0	EBPL					1.0		
71+73	40.0	0.3	EBPL							13.2
71+80	0.5	0.5	WBDL					0.3		
71+82	4.0	12.0	EBPL	5.3	2.4					
71+82	2.0	4.0	Right Turn					8.0		
71+99	3.0	12.0	EBPL	4.0	1.8					
72+00	1.0	3.0	WBDL					3.0		
72+00	1.0	1.0	WBPL					1.0		
72+27	1.0	1.0	WBPL					1.0		
72+27	1.0	8.0	WBDL					8.0		
72+38	1.0	10.0	EBDL					10.0		
NORTH DEADWOOD AVENUE										
Southbound										
	1.0	1.0	Turn Lane						1.0	
	1.0	1.0	Thru						1.0	
	1.0	3.0	Turn Lane						3.0	
	2.0	4.0	Turn Lane						8.0	
	1.0	1.0	Turn Lane						1.0	
	1.0	3.0	Turn Lane						3.0	
	1.0	1.0	Thru						1.0	
	0.5	1.0	Thru						0.5	
	0.5	1.0	Thru						0.5	
	0.5	6.0	Thru						3.0	
Northbound										
	40.0	0.3								13.2
	1.0	3.0	Right						3.0	
	1.0	1.0	Right						1.0	
	1.0	1.0	Right						1.0	
	1.0	1.0	Right						1.0	
	120.0	0.3	Left						39.6	39.6
	1.0	10.0	Left						10.0	
	1.0	1.0	Left						1.0	
	1.0	1.0	Left						1.0	
	1.0	1.0	Left						1.0	
	20.0	0.3	Left						6.6	6.6
SOUTH STURGIS ROAD										
Southbound										
	1.0	10.0	Driving						10.0	
	1.0	1.0	Driving						1.0	
	1.0	1.0	Passing						1.0	
	0.5	1.0	Passing						0.5	
	0.5	1.0	Passing						0.5	

REPAIR QUANTITIES – P 0231(15)79 (CONT.)

Revised 3-23-15 klh

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
	1.0	1.0	Passing						1.0	
	1.0	2.0	Passing						2.0	
	1.0	3.0	Passing						3.0	
	20.0	0.3	DL/PL						6.6	6.6
Northbound										
	260.0	0.3	Turn Lane							85.8
	1.0	3.0	Passing						3.0	
	1.0	2.0	Driving						2.0	
	1.0	1.0	Right						1.0	
	1.0	4.0	Right						4.0	
	6.0	6.0	Right						36.0	
	21.0	1.0	Driving						21.0	
	1.0	4.0	Right						4.0	
	1.0	3.0	Right						3.0	
	1.0	2.0	Right						2.0	
NORTH STURGIS ROAD										
Southbound										
Skin Patch (2")	60.0	13.0	Driving			9.8				
Skin Patch (2")	60.0	13.0	Passing			9.8				
	1.0	3.0	Driving						3.0	
	1.0	4.0	Driving						4.0	
	1.0	1.0	Passing						1.0	
	0.5	2.0	Driving						1.0	
	20.0	0.3	DL/PL							6.6
	0.5	1.0	Passing						0.5	
	0.5	2.0	Passing						1.0	
	160.0	1.0	Turn Lane						160.0	
	1.0	6.0	Right						6.0	
	90.0	1.0	Turn Lane						90.0	
	2.0	9.0	Right						18.0	
	2.0	12.0	Turn Lane						24.0	
	3.0	3.0	Right						9.0	
	30.0	1.0	Driving						30.0	
Northbound										
	2.0	2.0	Driving						4.0	
	1.0	1.0	Driving						1.0	
	1.0	2.0	Driving						2.0	
	1.0	1.0	Driving						1.0	
	1.0	3.0	Driving						3.0	
	1.0	1.0	Driving						1.0	
	1.0	3.0	Passing						3.0	
	1.0	3.0	Passing						3.0	
	8.0	12.0	Driving	10.7	4.8					
	20.0	0.3	DL/PL							6.6
P 0231(15)79 TOTALS:				145.7	65.8	549.2	900	430.30	1,631.6	815.6

REPAIR QUANTITIES – NH 0044(196)44

Approx. Station	Length Ft.	Width Ft.	Lane	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Concrete) Sq. Ft.	Repair Type B Spall Sq. Ft.
72+84	0.5	2.0	WBDL		1.0	
73+18	0.5	12.0	EBDL		6.0	
73+23	0.5	1.0	Right Turn		0.5	
73+23	0.5	1.0	Right Turn		0.5	
73+23	0.5	1.0	Right Turn		0.5	
73+23	0.5	1.0	Right Turn		0.5	
73+23	0.5	1.0	Right Turn		0.5	
73+38	1.0	12.0	EBDL		12.0	
73+45	1.0	2.0	EBDL		2.0	
73+58	1.0	12.0	EBPL		12.0	
73+67	1.0	6.0	EBPL		6.0	
73+77	1.0	4.0	WBDL		4.0	
73+81	1.0	1.0	EBDL		1.0	
73+81	1.0	1.0	EBDL		1.0	
74+00	0.5	1.0	EBDL		0.5	
74+24	1.0	2.0	EBDL		2.0	
74+45	0.5	0.5	EBPL		0.3	
74+45	0.5	0.5	EBPL		0.3	
74+63	0.5	0.5	Turn Lane		0.3	
74+71	0.5	1.0	EBDL		0.5	
74+94	1.0	2.0	EBDL		2.0	
74+99	0.5	0.5	EBDL		0.3	
75+02	0.5	0.5	WBDL		0.3	
75+20	0.5	0.5	EBDL		0.3	
75+57	0.5	1.0	EBPL		0.5	
75+57	0.5	2.0	Accel		1.0	
VARIABLE			VARIOUS	60		
75+63	1.0	1.0	WBPL		1.0	
76+19	1.0	3.0	EBDL		3.0	
76+38	1.0	1.0	EBDL		1.0	
76+66	0.5	0.5	WBPL		0.3	
76+97	1.0	4.0	EBDL		4.0	
77+27	1.0	1.0	WBPL		1.0	
77+38	1.0	1.0	EBDL		1.0	
77+57	1.0	2.0	WBDL		2.0	
77+80	1.0	2.0	EBDL		2.0	
77+97	1.0	1.0	EBDL		1.0	
77+97	1.0	1.0	EBPL		1.0	
78+35	1.0	1.0	WBDL		1.0	
78+37	2.0	2.0	EBDL		4.0	
78+48	0.5	2.0	WBDL		1.0	
78+90	0.5	0.5	WBPL		0.3	
79+14	1.0	1.0	WBDL		1.0	
79+19	1.0	1.0	EBPL		1.0	
79+40	1.0	1.0	EBDL		1.0	

REPAIR QUANTITIES – NH 0044(196)44 (CONT.)

Approx. Station	Length	Width	Lane	Reseal PCC Pavement Joint, Hot Pour	Repair Type A Spall (Concrete)	Repair Type B Spall
	Ft.	Ft.		Ft.	Sq. Ft.	Sq. Ft.
79+72	0.5	0.5	EBDL		0.3	
79+87	1.0	8.0	EBDL		8.0	
80+51	1.0	1.0	WBDL		1.0	
VARIABLE			VARIOUS	60	0.0	
80+81	1.0	1.0	EBDL		1.0	
80+85	1.0	5.0	WBDL		5.0	
80+93	1.0	1.0	WBPL		1.0	
81+47	1.0	1.0	WBDL		1.0	
81+47	0.5	0.5	WBPL		0.3	
82+07	0.5	1.0	EBDL		0.5	
82+17	0.5	8.0	WBDL		4.0	
83+48	1.0	1.0	EBDL		1.0	
83+60	0.5	0.5	WBPL		0.3	
83+99	1.0	1.0	WBDL		1.0	
83+99	0.5	0.5	WBPL		0.3	
83+99	1.0	1.0	EBPL		1.0	
84+19	0.5	1.0	EBPL		0.5	
84+39	1.0	1.0	EBPL		1.0	
84+74	1.0	1.0	WBDL		1.0	
84+98	1.0	1.0	WBDL		1.0	
85+12	0.5	0.5	WBDL		0.3	
VARIABLE			VARIOUS	60		
85+80	5.0	0.5	WBDL		2.5	
85+98	0.5	0.5	EBPL		0.3	
85+98	0.5	0.5	WBPL		0.3	
85+98	0.5	0.5	WBDL		0.3	
86+29	10.0		EBPL			3
86+38	1.0	2.0	WBDL		2.0	
86+38	20.0		WBPL			5.0
86+44	0.5	0.5	WBDL		0.3	
86+98	1.0	1.0	WBDL		1.0	
87+18	1.0	1.0	WBPL		1.0	
87+37	0.5	5.0	EBPL		2.5	
88+79	0.5	5.0	EBPL		2.5	
88+99	0.5	5.0	EBPL		2.5	
88+99	1.0	4.0	WBPL		4.0	
88+99	0.5	2.0	Center		1.0	
89+53	1.0	2.0	EBPL		2.0	
89+57	1.0	1.0	WBDL		1.0	
89+57	1.0	1.0	EBDL		1.0	

Approx. Station	Length	Width	Lane	Reseal PCC Pavement Joint, Hot Pour	Repair Type A Spall (Concrete)	Repair Type B Spall
	Ft.	Ft.		Ft.	Sq. Ft.	Sq. Ft.
89+59	0.5	0.5	WBDL		0.3	
90+19	2.0	2.0	EBPL		4.0	
90+33	1.0	1.0	EBDL		1.0	
VARIABLE			VARIOUS	60	0.0	
91+35	0.5	0.5	WBDL		0.3	
91+59	1.0	2.0	WBPL		2.0	
91+95	0.5	0.5	WBDL		0.3	
92+50	0.5	1.0	WBDL		0.5	
92+82	1.0	1.0	Center		1.0	
92+82	20.0					5.0
92+82	6.0					1.5
93+41	0.5	0.5	WBDL		0.3	
93+79	2.0	2.0	EBDL		4.0	
94+00	0.5	1.0	WBPL		0.5	
94+25	1.0	1.0	WBDL		1.0	
94+39	2.0	2.0	EBPL		4.0	
94+79	1.0	1.0	WBDL		1.0	
95+35	0.5	2.0	WBPL		1.0	
VARIABLE			VARIOUS	60	0.0	
96+45	1.0	1.0	EBPL		1.0	
96+45	1.0	3.0	EBDL		3.0	
96+75	1.0	4.0	EBPL		4.0	
97+17	0.5	6.0	WBPL		3.0	
97+36	6.0		WBPL			1.5
97+46	0.5	0.5	WBDL		0.3	
98+35	0.5	0.5	WBPL		0.3	
98+63	0.5	0.5	WBDL		0.3	
98+63	1.0	2.0	WBPL		2.0	
98+63	0.5	2.0	EBDL		1.0	
98+63	20.0					5.0
98+96	2.0	5.0	WBDL		10.0	
98+96	10.0					2.5
99+36	0.5	3.0	EBDL		1.5	
99+36	0.5	2.0	EBPL		1.0	
99+36	1.0	1.0	WBPL		1.0	
99+36	60.0				0.0	15.0
99+56	1.0	1.0	WBDL		1.0	
100+08	11.0		WBPL		0.0	2.8
VARIABLE			VARIOUS	60		
101+51	1.0	1.0	WBDL		1.0	

Approx. Station	Length	Width	Lane	Reseal PCC Pavement Joint, Hot Pour	Repair Type A Spall (Concrete)	Repair Type B Spall
	Ft.	Ft.		Ft.	Sq. Ft.	Sq. Ft.
102+43	0.5	0.5	WBPL		0.3	
102+83	2.0	2.0	WBPL		4.0	
102+83	1.0	1.0	EBPL		1.0	
103+03	1.0	1.0	EBDL		1.0	
103+03	1.0	1.0	EBDL		1.0	
103+22	1.0	1.0	WBPL		1.0	
103+22	1.0	1.0	WBDL		1.0	
103+23	1.0	1.0	WBPL		1.0	
103+23	1.0	1.0	WBDL		1.0	
103+88	1.0	2.0	WBDL		2.0	
103+88	0.5	1.0	WBPL		0.5	
104+28	2.0	2.0	EBDL		4.0	
104+40	1.0	1.0	WBDL		1.0	
104+59	2.0	2.0	EBDL		4.0	
104+59	0.5	0.5	EBDL		0.3	
104+85	0.5	0.5	WBDL		0.3	
105+33	1.0	1.0	WBPL		1.0	
105+62	0.5	0.5	Center		0.3	
105+62	0.5	0.5	EBPL		0.3	
	200.0		Center			50.0
			Transverse Joints	10176		
NH 0044(196)44 TOTALS:				10,536	212.7	90.8

TRAFFIC CONTROL – GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. 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.
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. The quantity of traffic control units 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 per project.
7. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
8. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
9. 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.
10. 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.

11. 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".
12. 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.
13. All construction operations shall be conducted in the general direction of traffic movement.
14. 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.
15. Temporary Road 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".
16. Drums are required in all lane closure tapers.
17. Signal timing may need to be adjusted during construction. The Engineer will coordinate with the Region Traffic Engineer for timing adjustments.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	11	26

PROJECT OVERVIEW

NOTE: The quantities listed by stationing in these plans may vary from actual field quantities.

- West of Sturgis Road (Sta. 0+85) to east of Sturgis Road (Sta. 7+21)
 - Reseal PCC Pavement Joint, Hot Pour
 - Repair Type B Spall
 - Maintenance Patching (Full Depth Repair)
 - Repair Type A Spall (Asphalt Patching Material)
- East of Sturgis Road (Sta. 7+21) to West of Deadwood Avenue (Sta. 60+95)
 - Reseal PCC Pavement Joint, Hot Pour
 - Repair Type B Spall
 - Maintenance Patching (Full Depth Repair)
 - Repair Type A Spall (Concrete Patching Material)
- West of Deadwood Avenue (Sta. 60+95) to east of Deadwood Avenue (Sta. 66+88)
 - Reseal PCC Pavement Joint, Hot Pour
 - Repair Type B Spall
 - Repair Type A Spall (Asphalt Patching Material)
 - 1.5" Asphalt Concrete Composite Overlay
- East of Deadwood Avenue (Sta.66+88) to Mountain View Rd. (Sta.72+57)
 - Reseal PCC Pavement Joint, Hot Pour
 - Repair Type B Spall
 - Repair Type A Spall (Concrete Patching Material)
 - Maintenance Patching (Full Depth Repair)
- North Deadwood Avenue
 - Repair Type B Spall
 - Repair Type A Spall (Asphalt Patching Material)
- South Sturgis Road
 - Repair Type B Spall
 - Repair Type A Spall (Asphalt Patching Material)
- North Sturgis Road
 - Repair Type B Spall
 - Maintenance Patching (Full Depth Repair and Skin Patch)
 - Repair Type A Spall (Asphalt Patching Material)
- Mountain View Rd. (Sta.72+57) to west of 12th Street (Sta. 105+88)
 - Reseal PCC Pavement Joint, Hot Pour
 - Repair Type B Spall
 - Repair Type A Spall (Concrete Patching Material)

SEQUENCE OF OPERATIONS

The Contractor shall provide a Sequence of Operations, at least one week in advance of the preconstruction meeting, to the Engineer for approval. The following restrictions shall apply:

- 1 – 1000' lane closure in each direction for the entire project length (both projects) on Omaha/West Chicago – 1000' does not include the tapers.
- Intersection work at Sturgis Road/West Chicago shall be done at night. Lane closures for this work will only be allowed from 6:00 pm until 6:00 am. Intersection work shall be from Sta. 7+21 to 0+85 on West Chicago and includes both legs of Sturgis Road. All traffic control devices shall be removed from the roadway by 6:00 am.
- The West Chicago portion of the intersection of Deadwood Avenue/West Chicago shall be done at night. Lane closures for this work will only be allowed from 6:00 pm until 6:00 am. Intersection work shall be from Sta. 60+95 to 66+88 on West Chicago. All traffic control devices shall be removed from the roadway by 6:00 am.
- Only two lane closure setups will be paid for regardless of where or when they are used. A lane closure setup is as described above.
- One lane of traffic on each leg of the intersections shall be maintained at all times during intersection night work.
- The traffic signals shall be set to flashing red during intersection night work.
- Standard Plates shown in these plans shall be used for traffic control.

TYPE C ADVANCE WARNING ARROW PANEL

The quantity of Type C Advance Warning Arrow Panels paid will be the most installations in place at any one time regardless of the number of setups per project.

TEMPORARY PAVEMENT MARKING (TABS)

Temporary pavement marking tabs shall be used on the top of the asphalt concrete overlay and as directed by the Engineer. Tabs shall be used for edge lines, centerlines, lane lines, skips, and as directed by the Engineer. Tabs shall be spaced at 5'. Tabs shall be installed prior to opening the lanes to traffic. Tabs shall be removed the same day that permanent pavement marking is installed.

Any marking covered or damaged shall be replaced prior to the end of the day at no cost to the State.

All costs for furnishing, installing, and removing the tabs when no longer needed shall be included in the contract unit price per foot for Temporary Pavement Marking.

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.

CONTRACTOR FURNISHED PROGRESS SCHEDULES

The Contractor shall furnish the Engineer two copies of a bar chart method progress schedule at the preconstruction meeting. The schedule shall consist of a construction schedule and brief written narrative. The schedule shall contain the following information:

1. A time scale to graphically show percentage of work scheduled for completion within the contract completion requirements.
2. Definition and relation of work activities to contract pay items.
3. Work activities (prime contractor and all subcontractor activities) in the order they will be performed including submittals, approvals, deliveries, temporary traffic control, and permanent signing/stripping.
4. All major work activities that are controlling factors in the completion of the work.
5. The time required for each activity and its relationship in time to other activities.
6. The total expected time to complete all work.
7. The expected work shifts in days per week and hours per day and the days when work is not expected to be performed.
8. Expected adverse weather delays.

The schedule shall be updated, revised and resubmitted on a bi-weekly interval until the project is substantially complete. There will be no direct payment for the contractor furnished schedule. All costs associated with the schedule shall be incidental to the related items. Failure to properly submit the required construction schedules will result in the withholding of progress payments until an approved schedule is received.

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

The Contractor shall furnish portable changeable message signs to be used for the duration of the project. Message signs shall be installed to inform the traveling public of when construction will begin for each phase (2 week advance notice), advising the general public of the conditions ahead, and as directed by the Engineer. The changeable message signs shall be furnished, programmed, and maintained for the entire project duration. The Engineer will assist in determining the location and messages to be programmed into the message sign. 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 message signs will not be allowed. The portable changeable 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.

CONTRACTOR FURNISHED SPEED MONITORING RADAR TRAILER

The Contractor shall provide 2 solar powered speed trailers to monitor traffic speeds on designated routes at locations specified in the field by the Engineer. All costs associated with furnishing, maintaining, transporting, relocating if necessary, and removing the speed trailers from locations specified by the Engineer shall be included in the contract unit price per Each for Contractor Furnished Speed Monitoring Radar Trailer.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	12	26

INVENTORY OF TRAFFIC CONTROL DEVICES – PCN 05a5

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
R10-6	36" x 24"	STOP HERE ON RED	3	20	60
W3-4	48" x 48"	BE PREPARED TO STOP	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W9-3	48" x 48"	CENTER LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	8	34	272
W20-5	48" x 48"	CENTER LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER (SYMBOL)	4	34	136
W21-5	48" x 48"	SHOULDER WORK	2	34	68
*****		TYPE 3 BARRICADE - 8 FT. DOUBLE SIDED	4	56	224
TOTAL UNITS					1168

INVENTORY OF TRAFFIC CONTROL DEVICES – PCN 05a6

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
R1-1	30" x 30"	STOP	1	21	21
W3-4	48" x 48"	BE PREPARED TO STOP	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W9-3	48" x 48"	CENTER LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	8	34	272
W20-5	48" x 48"	CENTER LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER (SYMBOL)	4	34	136
W21-5	48" x 48"	SHOULDER WORK	2	34	68
*****		TYPE 3 BARRICADE - 8 FT. DOUBLE SIDED	4	56	224
TOTAL UNITS					1129

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	13	26

PERMANENT PAVEMENT MARKINGS

Included in the estimate of quantities are pavement markings for intersections of West Chicago/Sturgis Road and West Chicago/Deadwood Ave. The Engineer shall determine the extent of the markings to be placed at West Chicago/Sturgis Road due to the concrete repair.

The location of the existing pavement marking shall be documented prior to removal, so that replacement can be at the existing location.

Application of permanent pavement marking shall be completed within 14 calendar days following completion of the pavement repair.

COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor shall apply the Cold Applied Plastic Pavement Marking material as per manufacturer's instructions.

Cold applied plastic pavement markings shall be placed into a recessed groove on the surface.

Final locations of markings will be determined by Engineer.

GROOVE PAVEMENT FOR COLD APPLIED PLASTIC MARKINGS

The grooving shall be completed within the following tolerance:

Depth of Groove: 110 mils, ± 10 mils.

The bottom of the groove shall be uniform and free of loose material. The groove shall be flat and of uniform depth for the entire width of the groove.

Existing grooves that do not meet the 110 mil depth requirement shall be re-grooved. In areas where the existing groove depth meets the 110 mil depth requirements and portions of the existing markings are still in place, the existing markings shall be removed. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price for various Grooving for Cold Applied Plastic Marking.

Markings that fall outside of the groove shall be removed (at least 90%) using additional methods approved by the Engineer. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price for various Grooving for Cold Applied Plastic Marking.

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

SAWED-IN, PREFORMED DETECTOR LOOPS

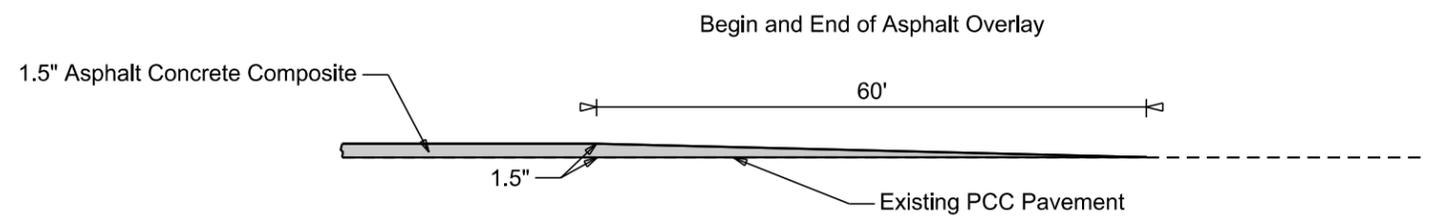
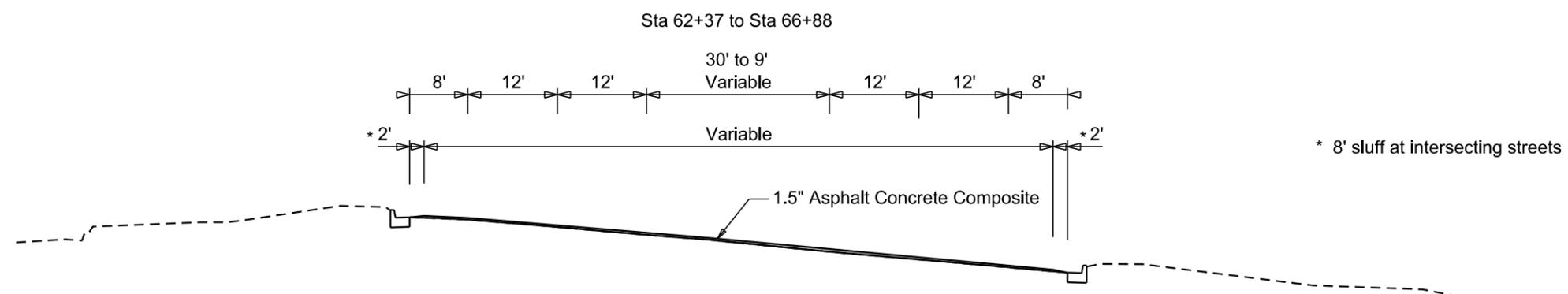
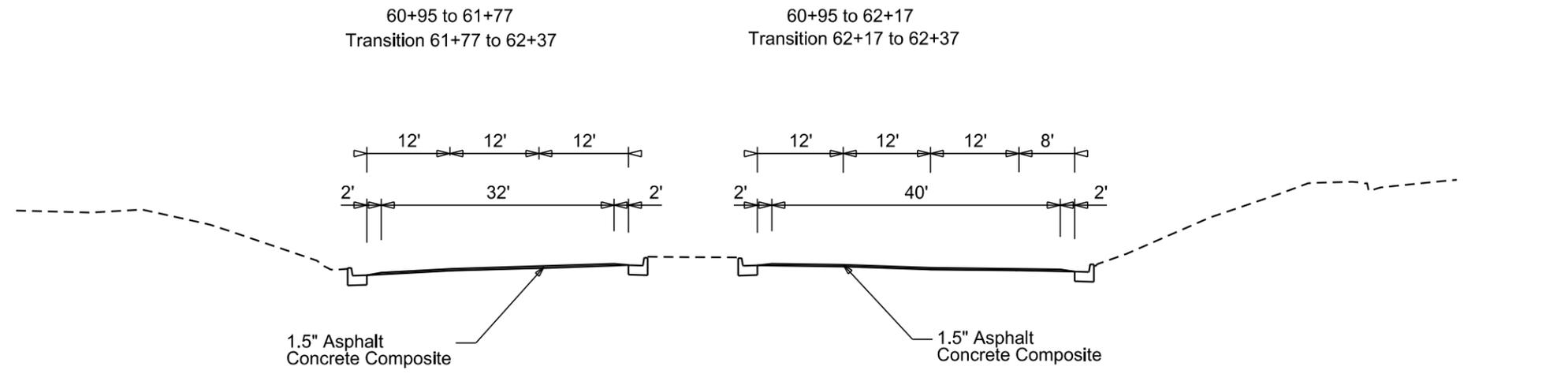
Included in the estimate of quantities are 4 Sawed-in, Preformed Detector Loops to be used as directed by the Engineer.

SURFACING TYPICAL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	14	26

Plotting Date: 03/16/2015

Plot Scale - 1:200



Plotted From - trcs11610

File - ...apj\penn05a5 & 05a6\typ.dgn

HORIZONTAL ALIGNMENT DATA

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			652490.683	1194218.257
		TL= 2276.99	S 87°51'29" E		
PC	22+76.99			652405.577	1196493.658
PI	25+85.98	R = 1909.86	Delta = 18°22'49" R	652394.028	1196802.432
PT	28+89.66			652285.705	1197091.813
		TL= 615.06	S 69°28'40" E		
PC	35+04.73			652070.082	1197667.844
PI	37+98.43	R = 1909.86	Delta = 17°29'05" L	651967.121	1197942.901
PT	40+87.56			651951.559	1198236.185
		TL= 2252.91	S 86°57'45" E		
PC	63+40.46			651832.184	1200485.925
PI	65+83.50	R = 1145.92	Delta = 23°56'54" R	651819.306	1200728.618
PT	68+19.43			651709.024	1200945.190
EQNBK	68+21.57			651708.054	1200947.095
EQNAHD	a 64+14.63			651708.054	1200947.095
		TL= 575.57	S 63°00'51" E		
PC	a 69+88.06			651447.847	1201458.092
PI	a 73+16.69	R = 692.76	Delta = 50°45'27" L	651298.725	1201750.940
PT	a 76+01.76			651431.193	1202051.688
		TL= 306.45	N 66°13'42" E		
PC	a 79+08.21			651554.719	1202332.137
PI	a 80+76.77	R = 716.30	Delta = 26°29'00" R	651622.663	1202486.393
PT	a 82+39.30			651614.688	1202654.761
		TL= 1705.15	S 87°17'17" E		
PC	a 99+44.45			651534.011	1204357.999
PI	a 100+84.63	R = 5730.00	Delta = 2°48'10" L	651527.379	1204498.026
PT	a 102+24.76			651527.601	1204638.210
		TL= 350.27	N 89°54'32" E		
POE	a 105+75.04			651528.158	1204988.484

CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	16	26

HORIZONTAL AND VERTICAL CONTROL POINTS							
Point	Station	Offset	Description	Northing	Easting	Elevation	
1009	a 67+34.26	32.81 R	R.C. BENCH NAVD88 ELEV. BRASS CAP IN SW. WINGWALL BRIDGE OVER RAPID CREEK	651533.780	1201217.040	3265.04	
1005	3+74.86	64.71 L	R.C. BENCH NAVD88 ELEV. BRASS CAP IN CONCRETE NW. QUAD OF W. CHICAGO & HWY #79	652541.340	1194595.270	3395.10	
2089	22+85.10	59.78 L	R.C. BENCH NAVD88 ELEV. BRASS CAP IN CONC. N. SIDE OF W. CHICAGO & 32 ST.	652464.980	1196504.250	3393.74	
52.12	44+67.98	0.92 R	BRASS CAP IN RTWALL WEST MEDIAN BETWEEN BRIDGES BENCH LOOP ELEV.	651930.480	1198616.030	3326.43	
52.11	48+39.16	0.78 L	BRASS CAP IN RTWALL EAST MEDIAN BETWEEN BRIDGES BENCH LOOP ELEV.	651912.513	1198986.777	3323.49	
ML003606	1+88.59	2.27 L	1 IN. STEEL ROD INBEDED IN CONC. MEDIAN BULL NOSE ACROSS FROM TRAILVIEW DR. W. SIDE GPS ELEV.	652485.903	1194406.796	3382.46	
ML003607	0+44.83	245.66 L	SPIKE NAIL 3.3 FT. BEHIND C/G ON E. SIDE OF TRAILVIEW DR. GPS ELEV.	652734.498	1194272.238	3397.49	
ML004809	6+17.33	6.07 R	PK NAIL IN CONC. MEDIAN E. SIDE OF HWY # 79 & W. CHICAGO GPS ELEV.	652461.546	1194834.931	3398.71	
ML004811	6+93.19	253.18 R	HARD NAIL 2.8 FT. BEHIND C/G W. SIDE OF HWY # 79 IN FRONT OF JACKSON & HEWITT GPS ELEV.	652211.771	1194901.502	3390.56	
ML006438	34+06.65	7.59 R	SPIKE NAIL IN MEDIAN S. FROM BSG OFFICE GPS ELEV.	652097.354	1197573.330	3336.72	
ML006439	61+58.68	8.21 L	PK NAIL MEDIAN IN CONC. N. OF THE POWER HOUSE GPS ELEV.	651850.012	1200304.834	3287.88	
ML006440	53+34.13	5.70 R	REFERENCE MARK	651879.810	1199480.706	3318.10	
ML001943	17+05.86	2.97 R	REBAR & CAP (TRAVERSE POINT) MEDIAN IN CONC. N. OF R.C. # 3 FIRE STATION GPS ELEV.	652423.958	1195922.816	3414.72	

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/xx); SF = 0.99978357
The elevations shown on this sheet are based on NAVD 88.

STATE OF SOUTH DAKOTA	PROJECT P 0231(15)79 & NH 0044(196)44	SHEET 17	TOTAL SHEETS 26
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Plotting Date: 03/23/2015 Revised 3-23-15 kih

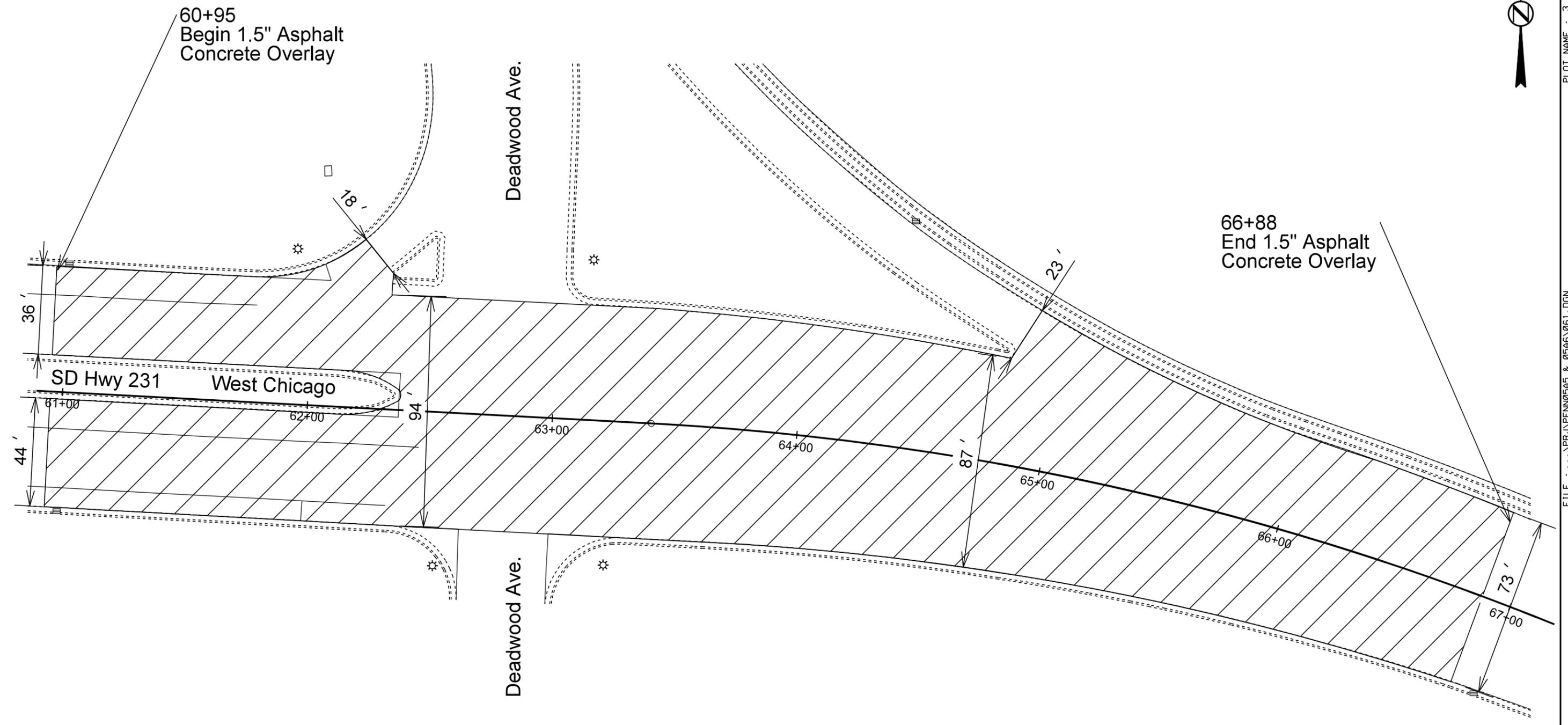
SURFACING LAYOUT

SD 231 & DEADWOOD AVE.

PLOT SCALE - 1:40



PLOT NAME - 3



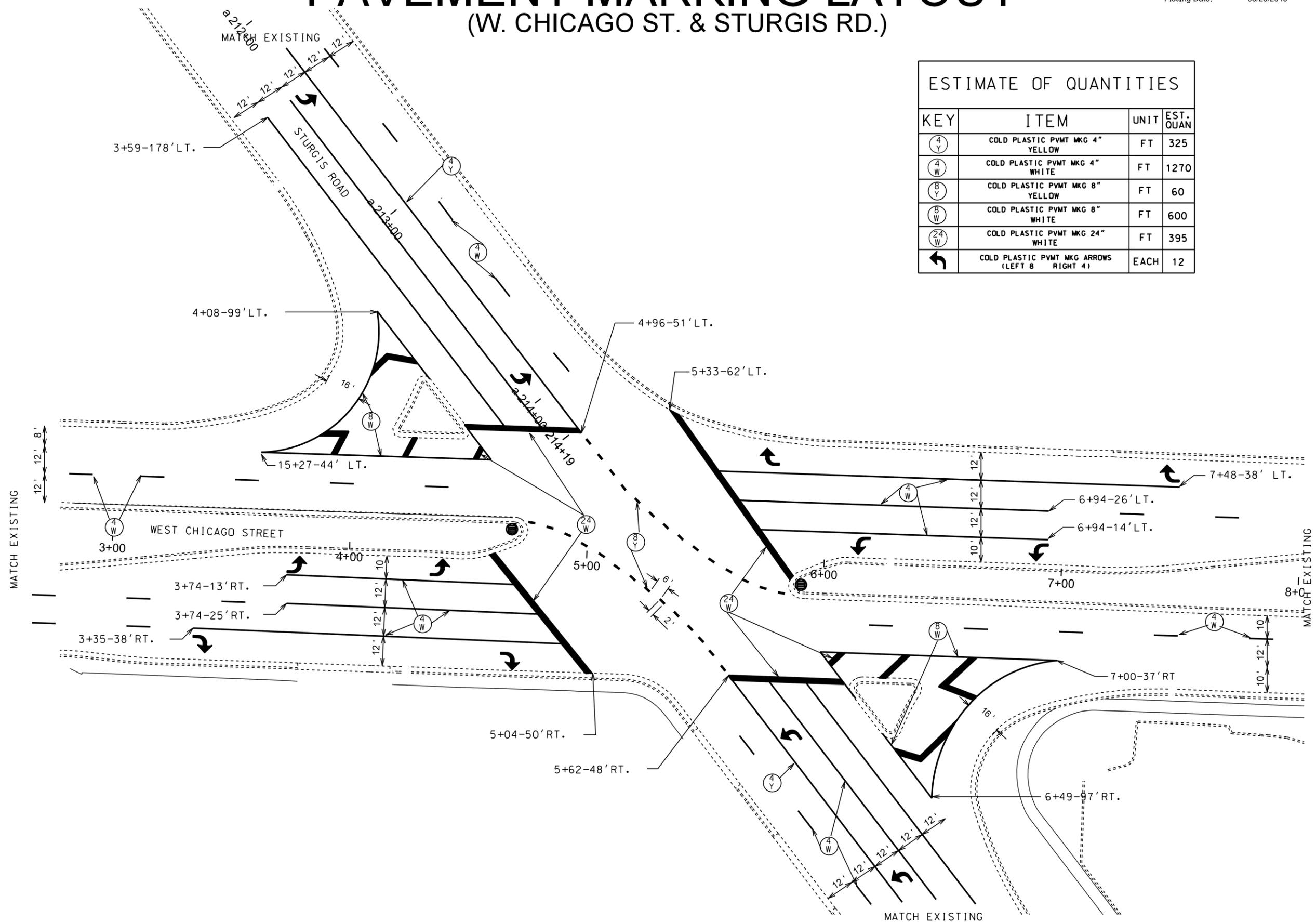
PLOTTED FROM - TRRC11610

FILE - ... \PRJ\PENNSA5 & 05A6\061.DGN

PAVEMENT MARKING LAYOUT

(W. CHICAGO ST. & STURGIS RD.)

ESTIMATE OF QUANTITIES			
KEY	ITEM	UNIT	EST. QUAN
(4 Y)	COLD PLASTIC PVMT MKG 4" YELLOW	FT	325
(4 W)	COLD PLASTIC PVMT MKG 4" WHITE	FT	1270
(8 Y)	COLD PLASTIC PVMT MKG 8" YELLOW	FT	60
(8 W)	COLD PLASTIC PVMT MKG 8" WHITE	FT	600
(24 W)	COLD PLASTIC PVMT MKG 24" WHITE	FT	395
↩	COLD PLASTIC PVMT MKG ARROWS (LEFT 8 RIGHT 4)	EACH	12



Plot Scale - 1:40

Plotted From - trcs11610

File - ...appj\penn05a5 & 05a6\017pm.dgn

PAVEMENT MARKING LAYOUT

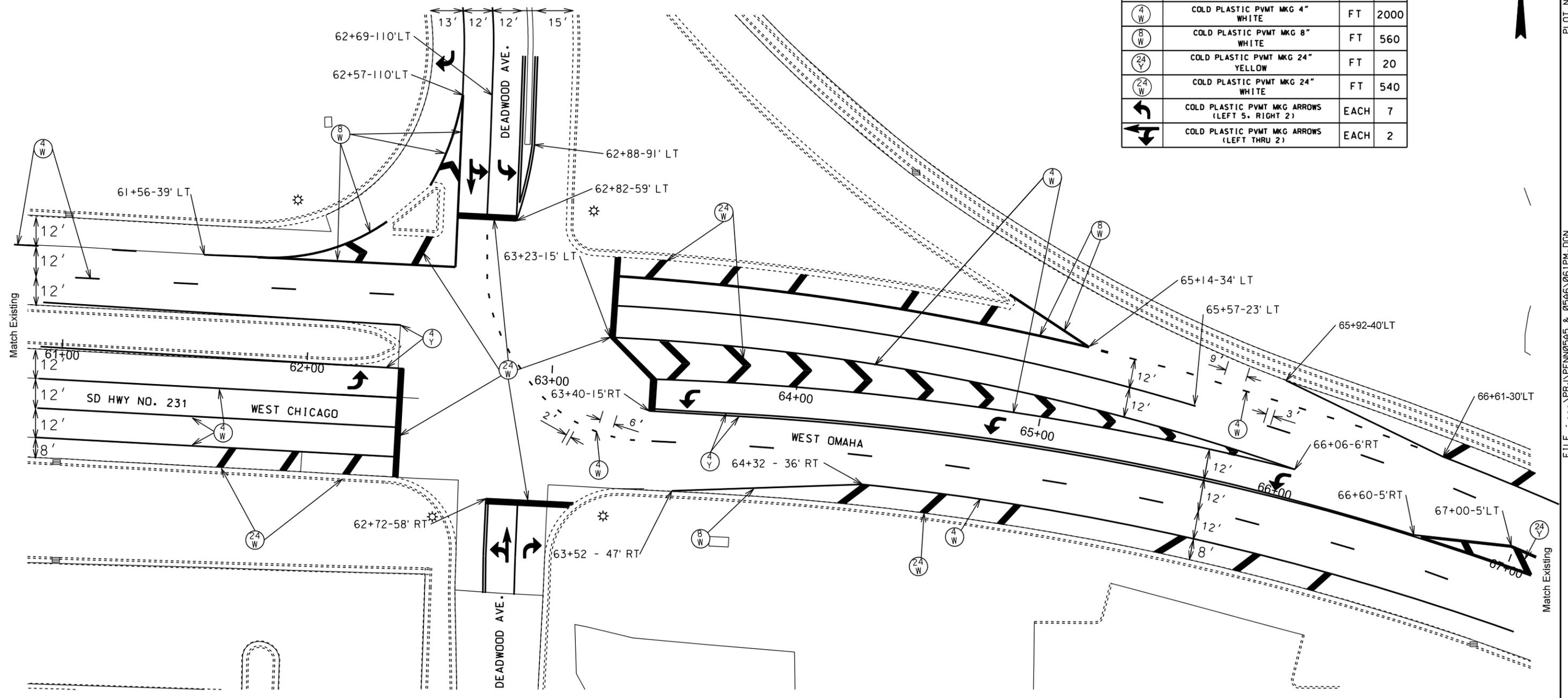
SD 231 & DEADWOOD AVE.

ESTIMATE OF QUANTITIES			
KEY	ITEM	UNIT	EST. QUAN.
(4) Y	COLD PLASTIC PVMT MKG 4" YELLOW	FT	1300
(4) W	COLD PLASTIC PVMT MKG 4" WHITE	FT	2000
(8) W	COLD PLASTIC PVMT MKG 8" WHITE	FT	560
(24) Y	COLD PLASTIC PVMT MKG 24" YELLOW	FT	20
(24) W	COLD PLASTIC PVMT MKG 24" WHITE	FT	540
↩	COLD PLASTIC PVMT MKG ARROWS (LEFT 5, RIGHT 2)	EACH	7
↩↩	COLD PLASTIC PVMT MKG ARROWS (LEFT THRU 2)	EACH	2



PLOT SCALE - 1"=40'

PLOT NAME - 5

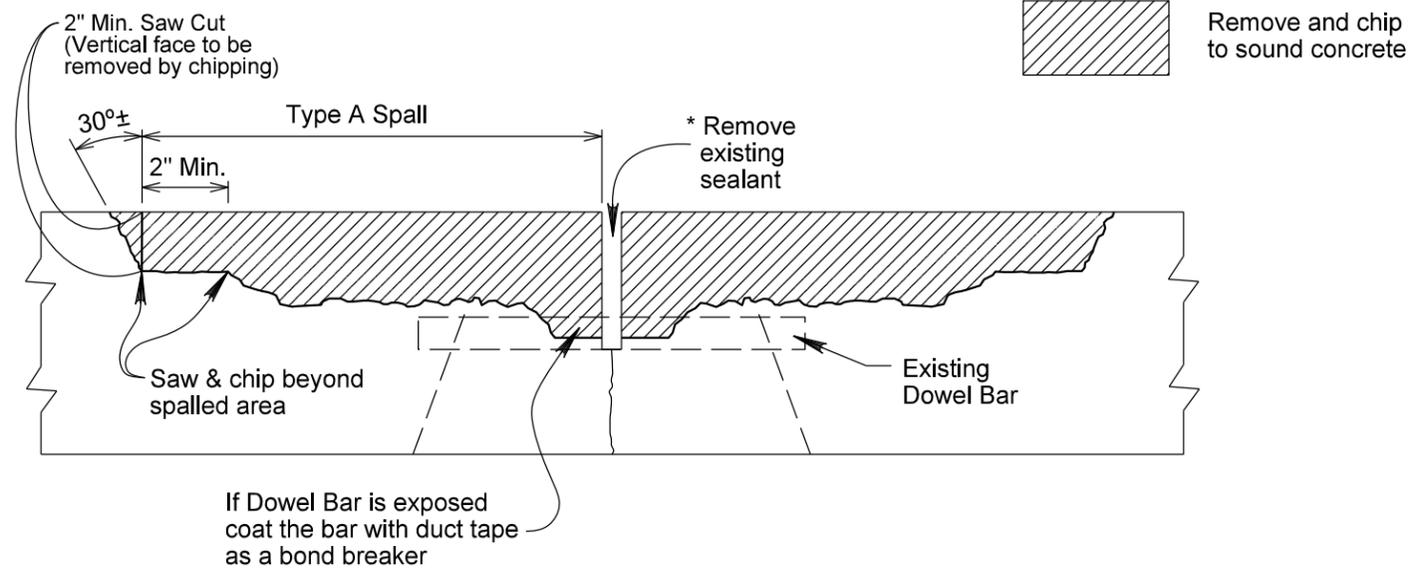


PLOTTED FROM - TRRC11610

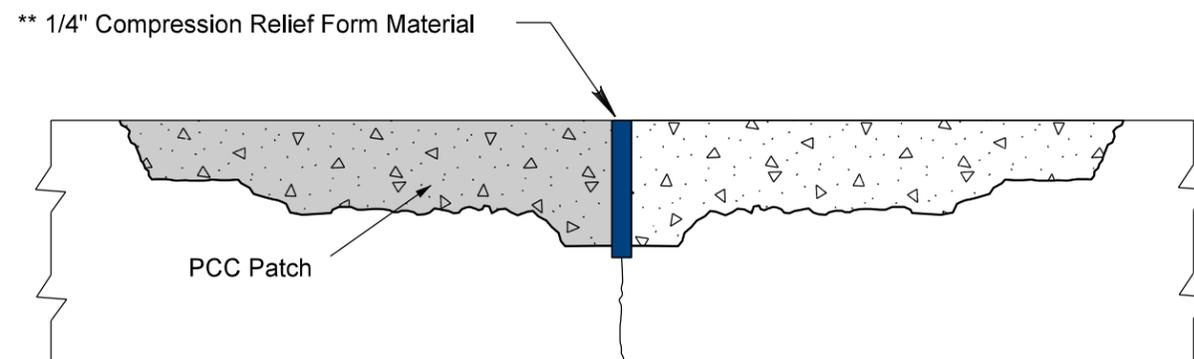
FILE - ... \PRJ\PENNSA5 & 05A6\06.IPM.DGN

REPAIR OF TYPE A SPALLS

SPALL REMOVAL



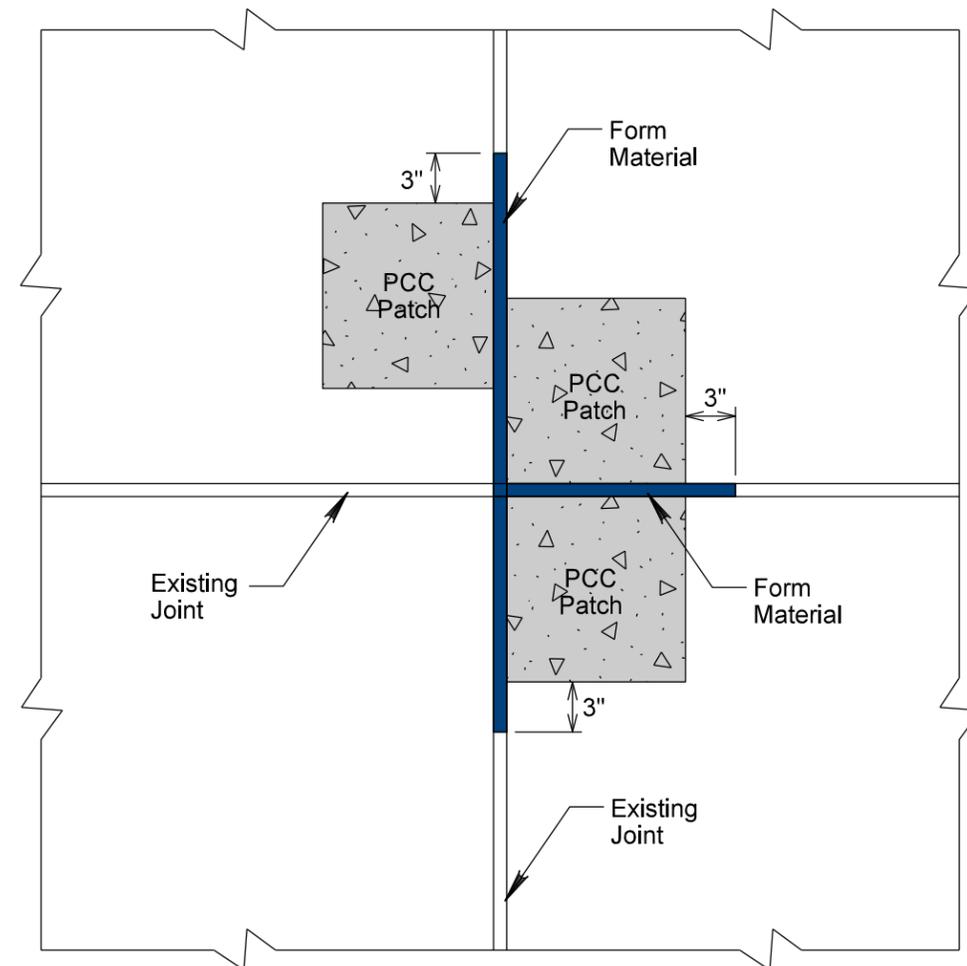
SPALL PATCH



** Compression Relief Form Material shall be removed by sawing or other means approved by the Engineer. Spall repaired joints shall then be sealed with Hot Poured Elastic Joint Sealer.

REPAIR OF TYPE A SPALLS

SPALL PATCHES (PLAN VIEW)



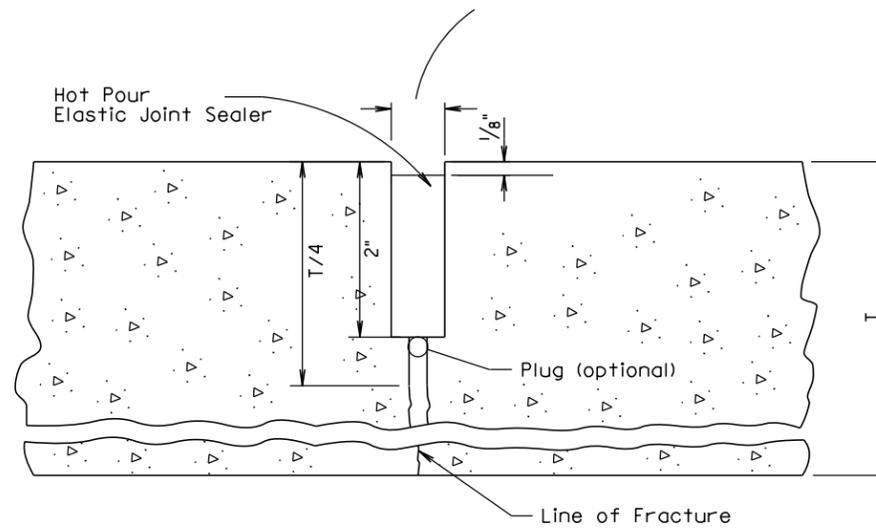
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(15)79 & NH 0044(196)44	21	26

Plotting Date: 03/16/2015

RESEAL PCC PAVEMENT TRANSVERSE JOINT

Plot Scale - 1:200

Joint shall widened to a maximum of 1/8" wider than existing joint

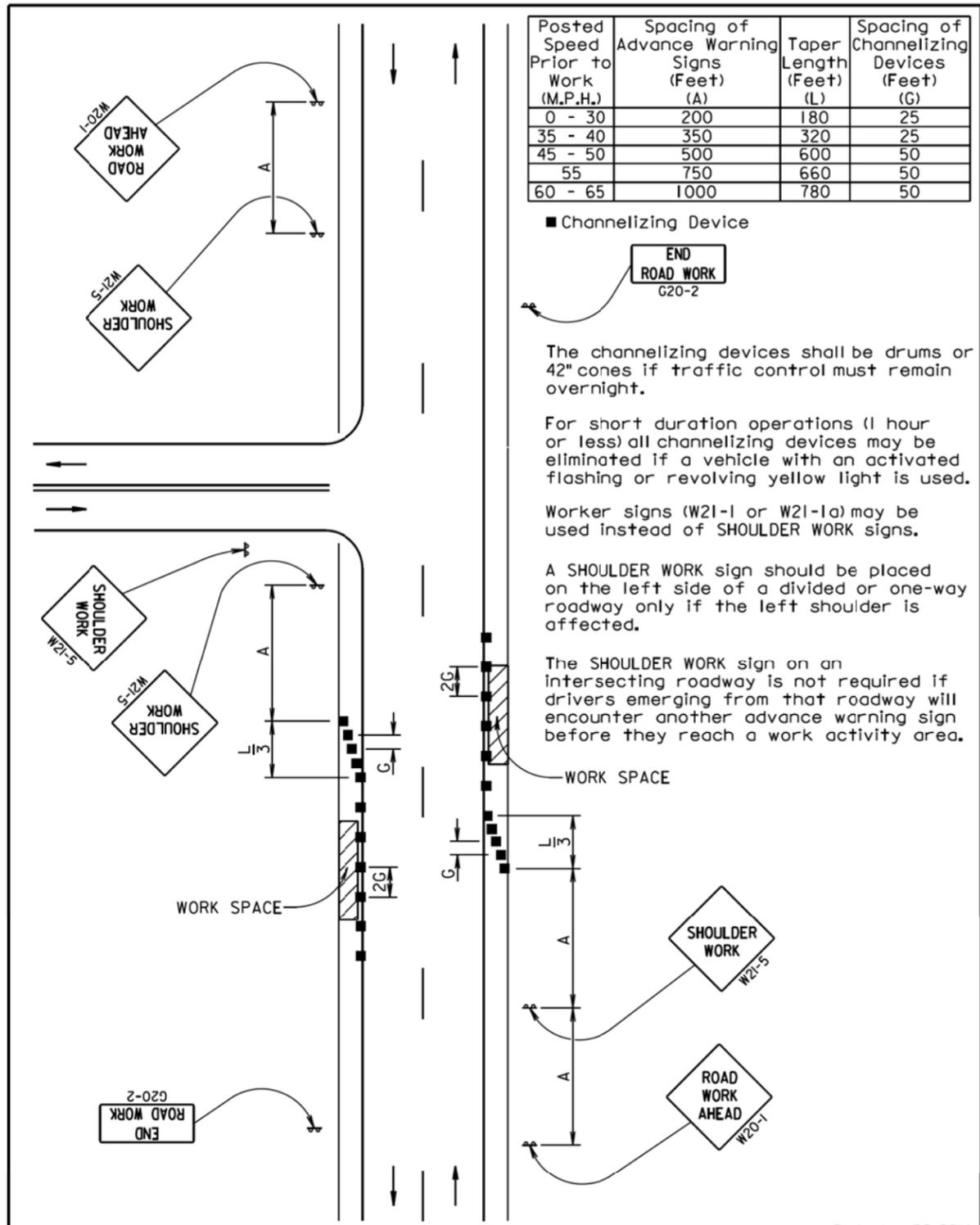


T/4 when saw cutting to control cracking.

Plotted From - trcs11610

File - ...Reseal Transverse Joint Hot Pour.dgn

Plot Scale - 1:200



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	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

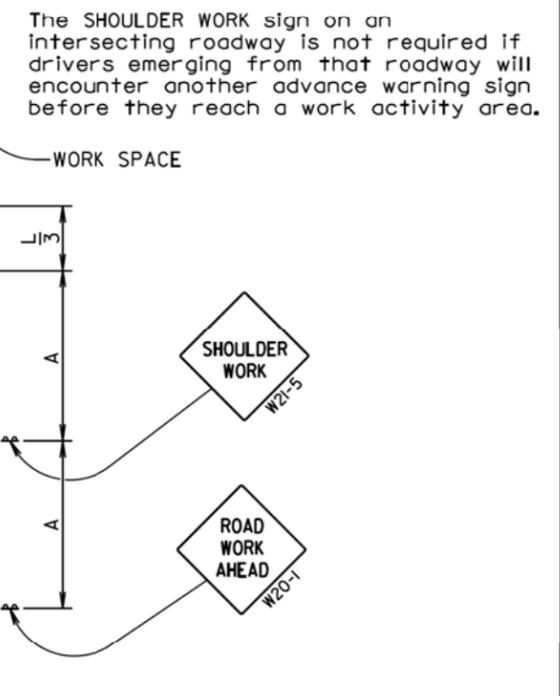
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all 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.

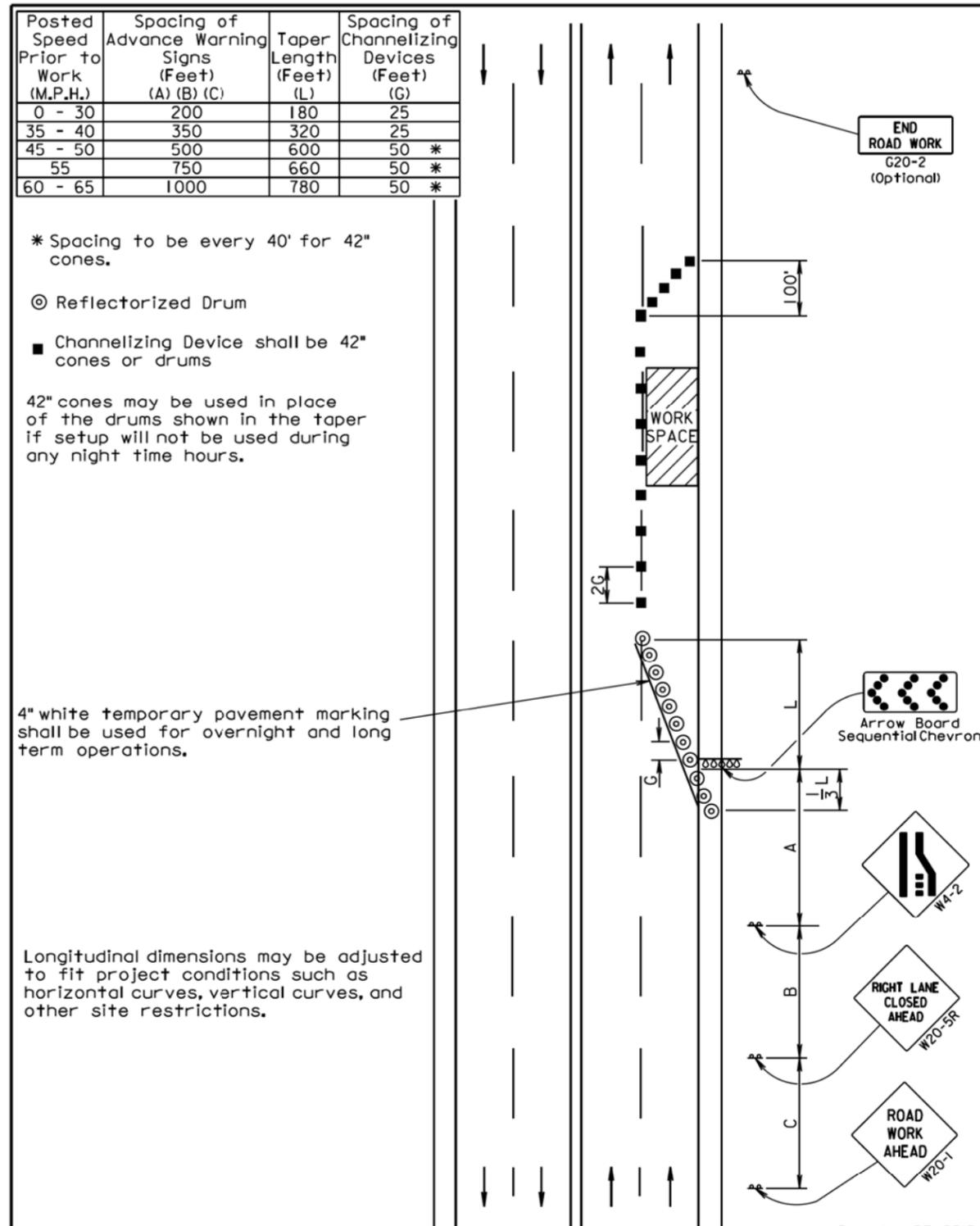
A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

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.



September 22, 2014

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
	Published Date: 4th Qtr. 2014	Sheet 1 of 1



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

* Spacing to be every 40' for 42" cones.

⊙ Reflectorized Drum

■ Channelizing Device shall be 42" cones or drums

42" cones may be used in place of the drums shown in the taper if setup will not be used during any night time hours.

4" white temporary pavement marking shall be used for overnight and long term operations.

Longitudinal dimensions may be adjusted to fit project conditions such as horizontal curves, vertical curves, and other site restrictions.

December 23, 2012

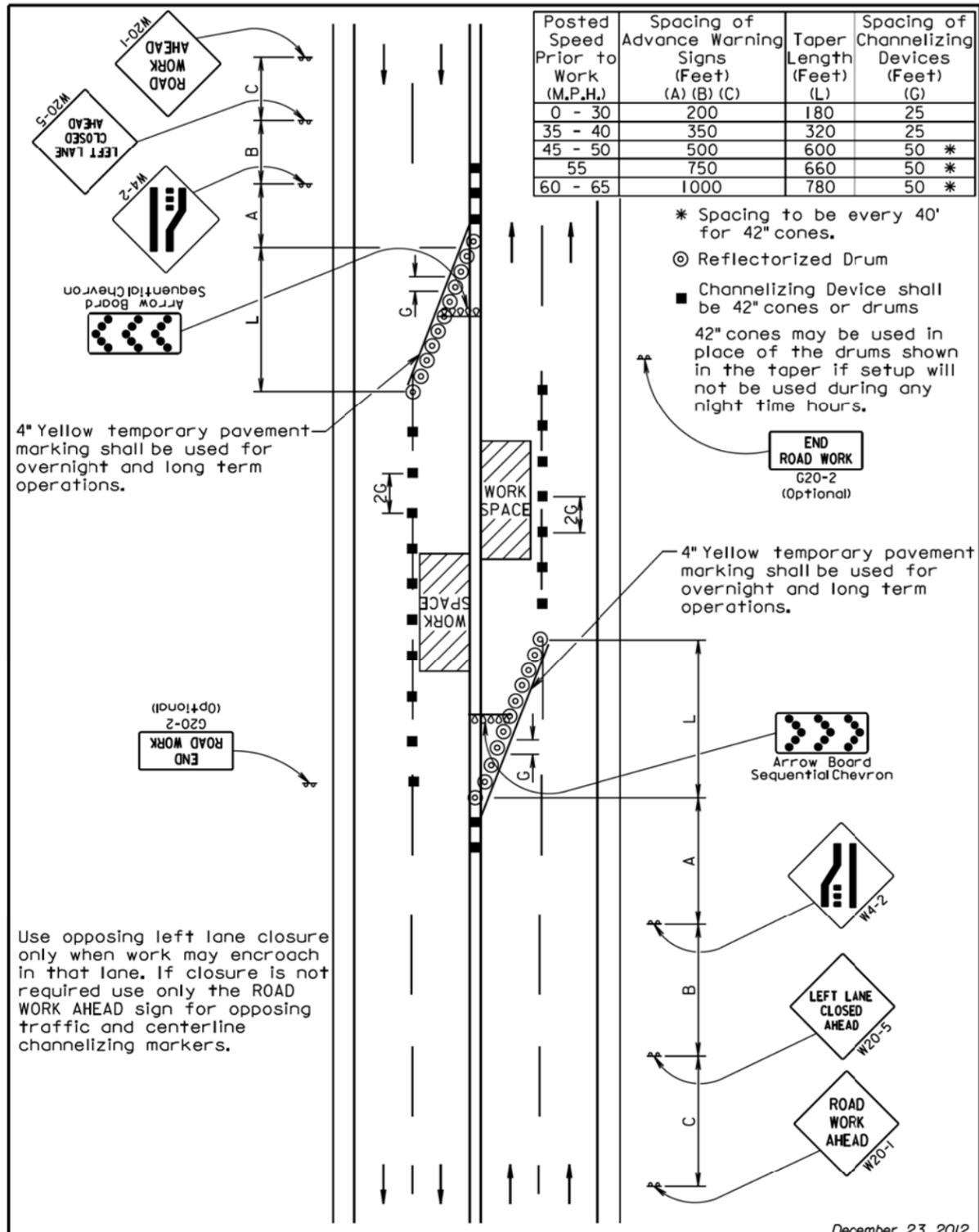
S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47
	Published Date: 4th Qtr. 2014	Sheet 1 of 1

- Plotted From - Irrc11640

File - ...Standard Plates.dgn

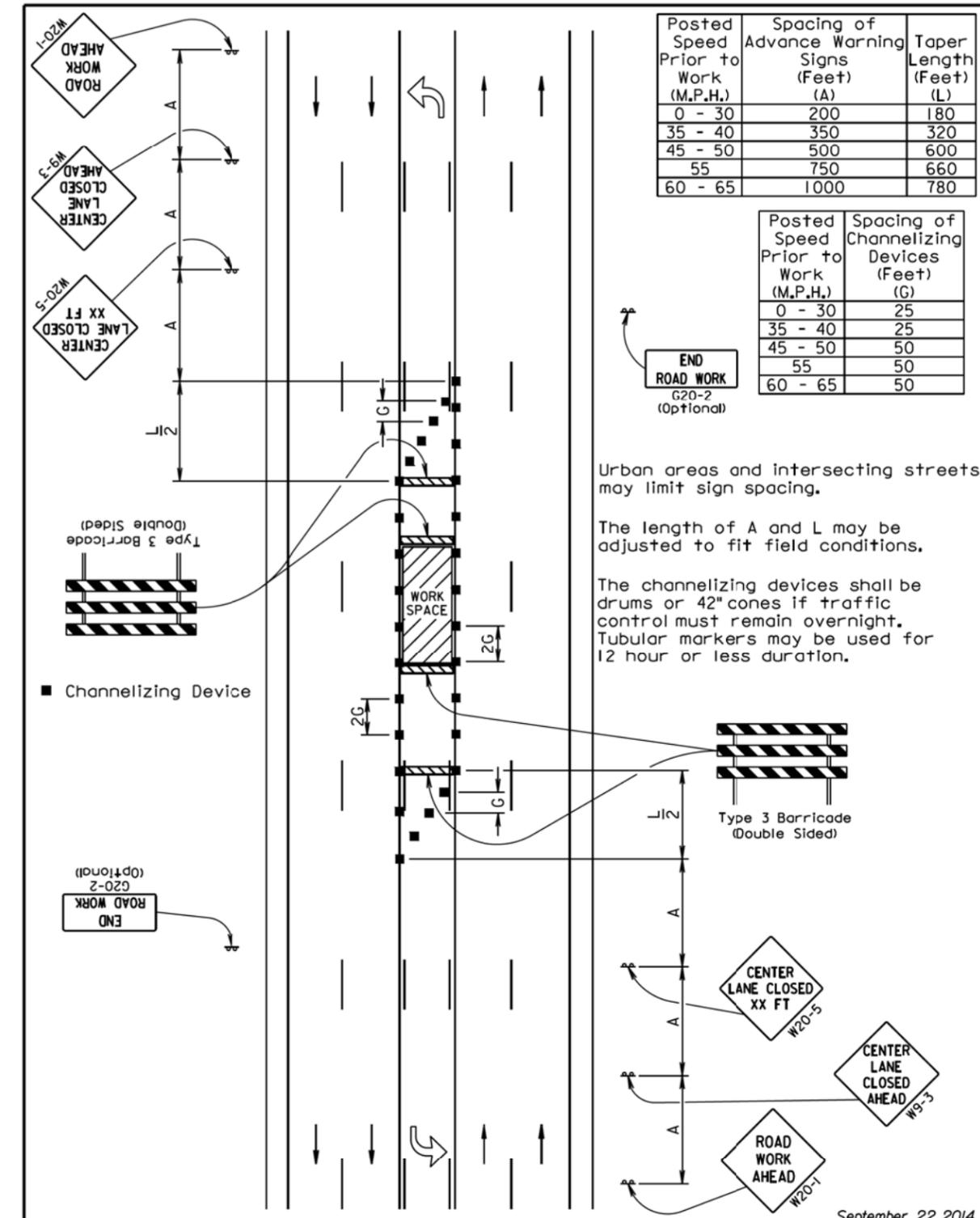
Plotting Date: 01/28/2015

Plot Scale - 1:200



December 23, 2012

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, LEFT LANE CLOSED	PLATE NUMBER 634.48
	Published Date: 4th Qtr. 2014	Sheet 1 of 1



September 22, 2014

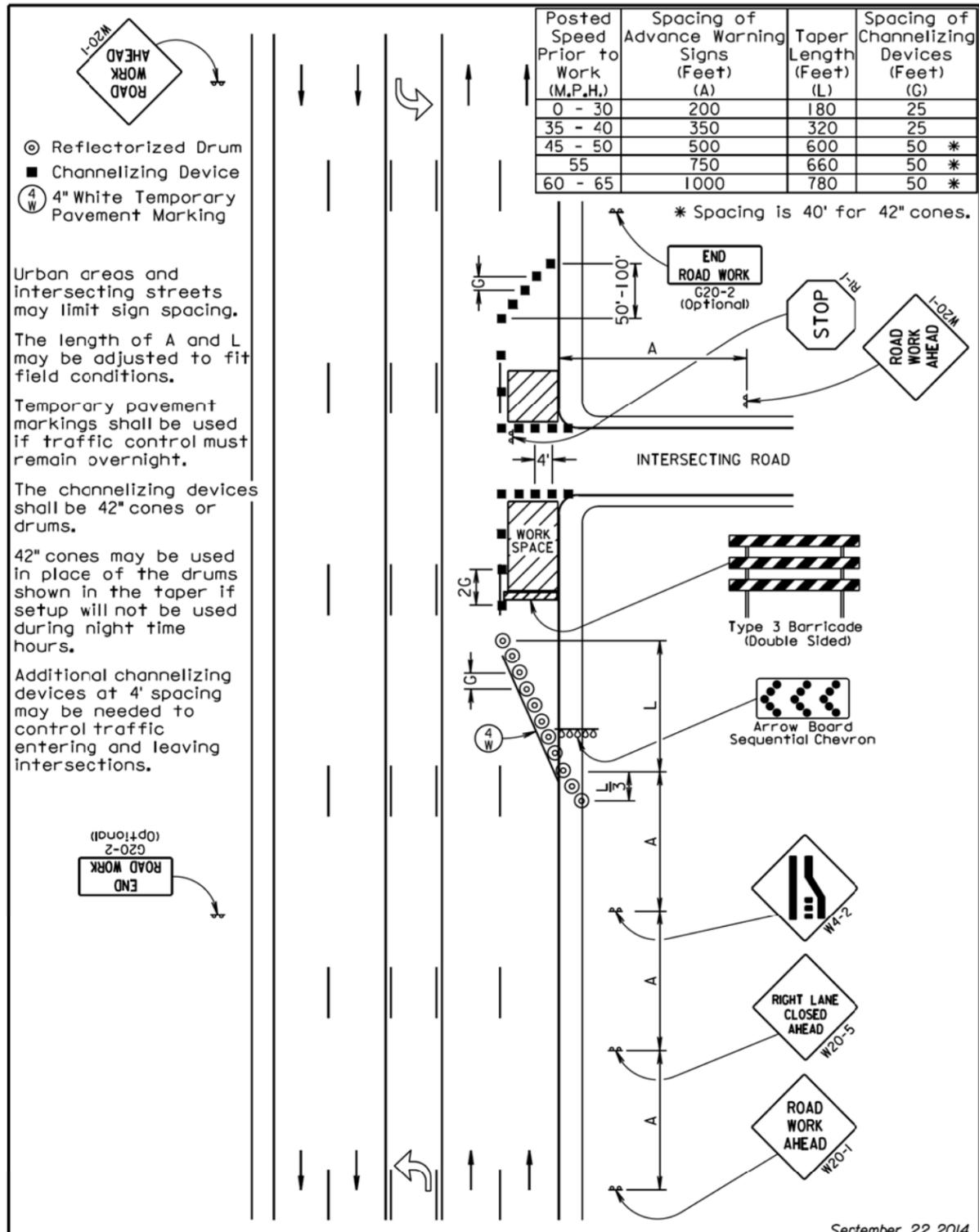
S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, CENTER LANE CLOSED	PLATE NUMBER 634.55
	Published Date: 4th Qtr. 2014	Sheet 1 of 1

Plotted From - Irrc11640

File - ...Standard Plates.dgn

Plotting Date: 01/28/2015

Plot Scale - 1:200

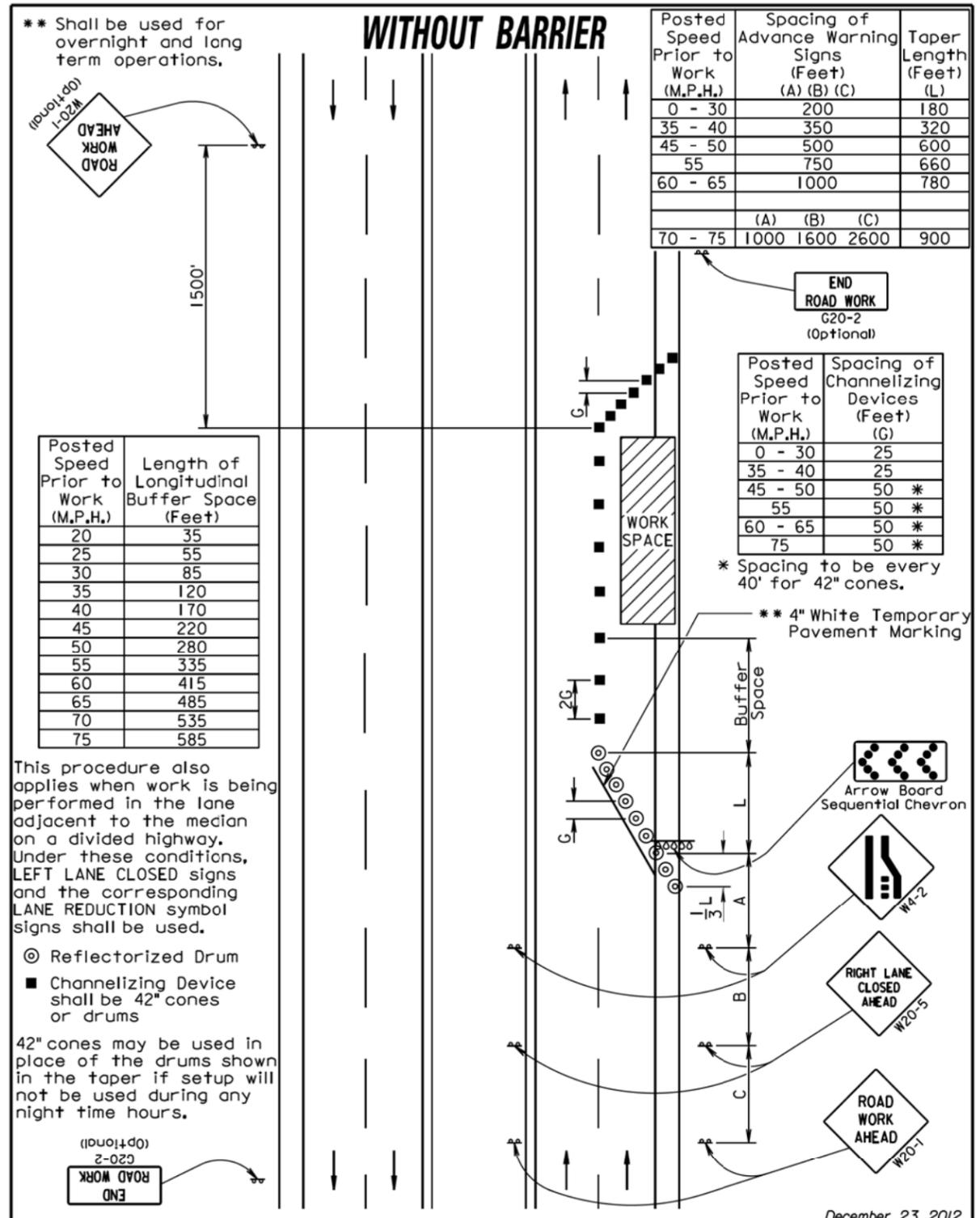


◎ Reflectorized Drum
 ■ Channelizing Device
 (4) 4" White Temporary Pavement Marking

Urban areas and intersecting streets may limit sign spacing.
 The length of A and L may be adjusted to fit field conditions.
 Temporary pavement markings shall be used if traffic control must remain overnight.
 The channelizing devices shall be 42" cones or drums.
 42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.
 Additional channelizing devices at 4' spacing may be needed to control traffic entering and leaving intersections.

September 22, 2014

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, OUTSIDE LANE CLOSED	PLATE NUMBER 634.60
	Published Date: 4th Qtr. 2014	Sheet 1 of 1



** Shall be used for overnight and long term operations.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.

◎ Reflectorized Drum
 ■ Channelizing Device shall be 42" cones or drums
 42" cones may be used in place of the drums shown in the taper if setup will not be used during any night time hours.

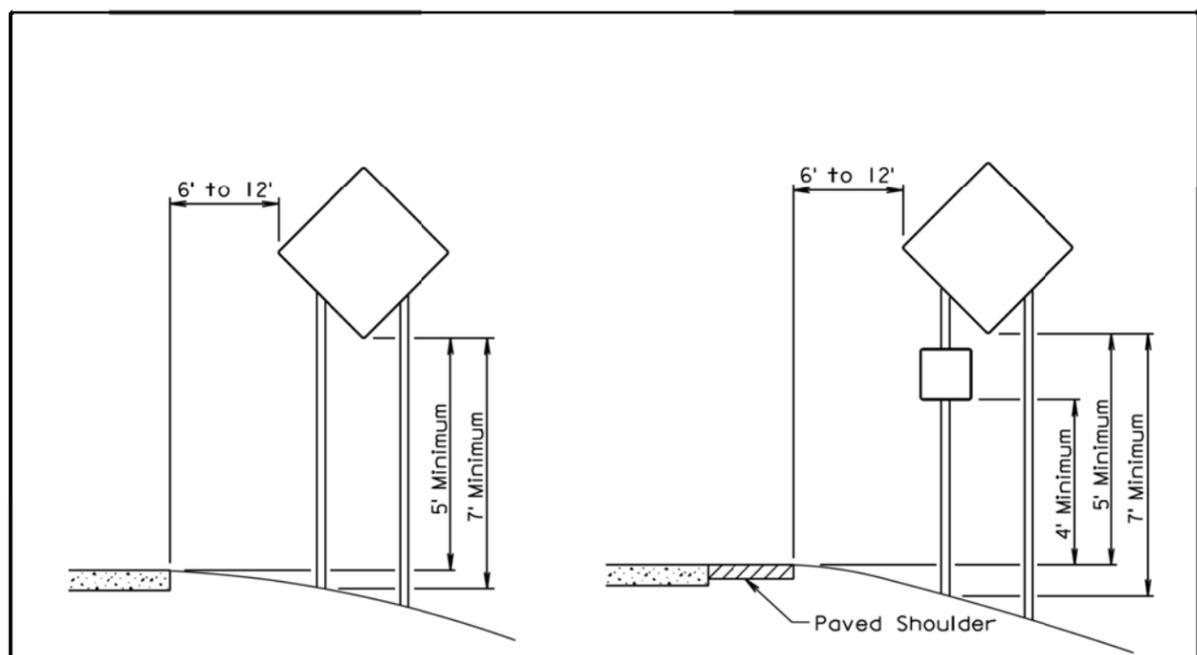
December 23, 2012

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER	PLATE NUMBER 634.64
	Published Date: 4th Qtr. 2014	Sheet 1 of 1

Plotted From - Irrc11640

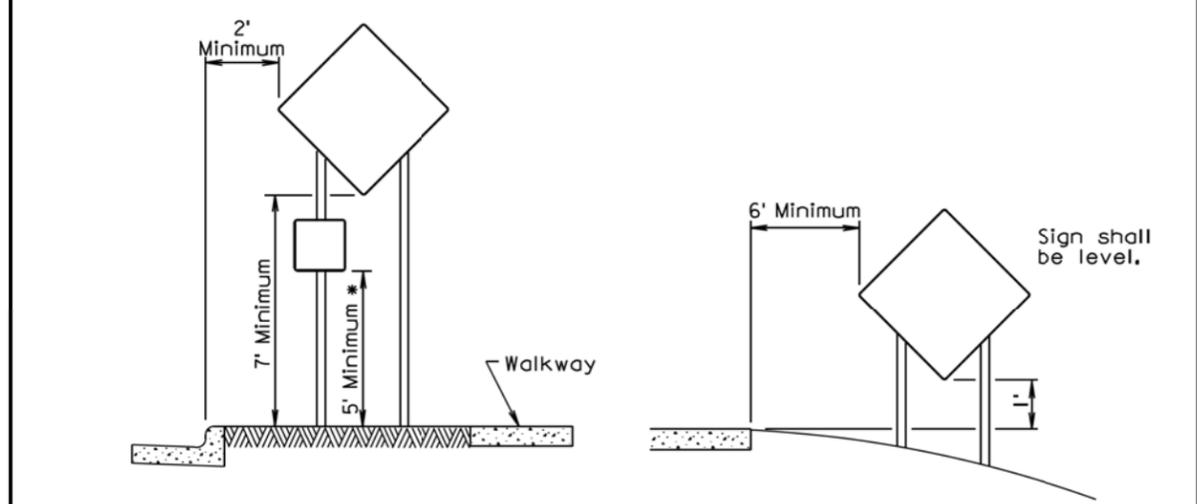
File - ...Standard Plates.dgn

Plot Scale - 1:200



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

RURAL DISTRICT 3 DAY MAXIMUM

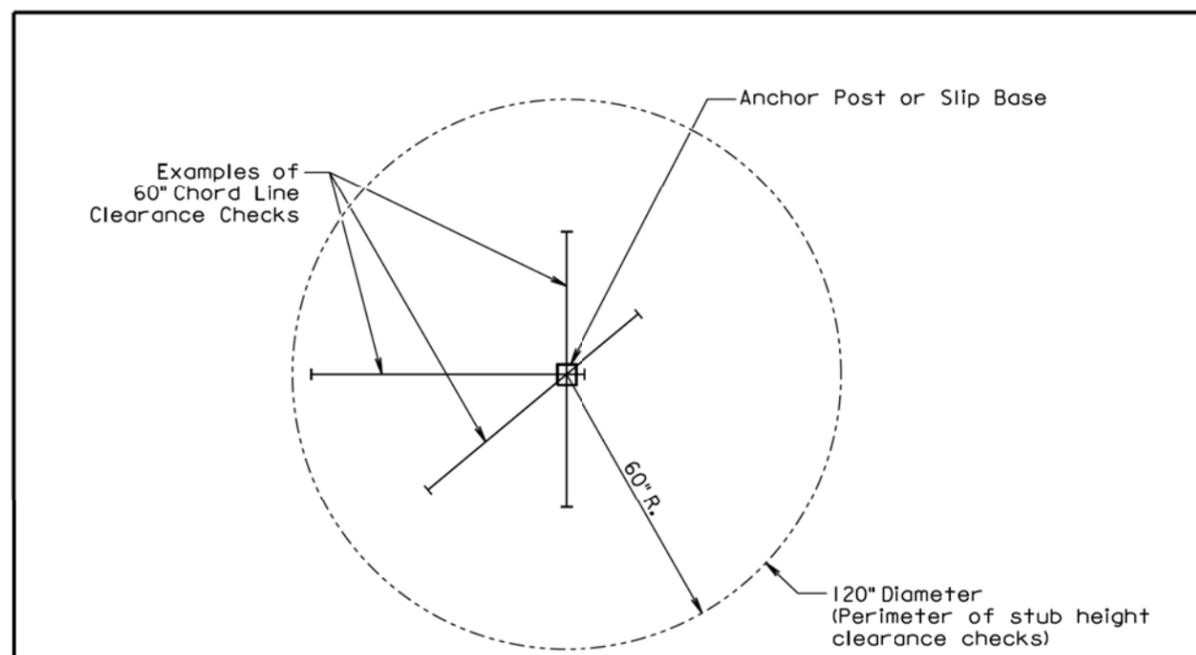
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

(Not applicable to regulatory signs)

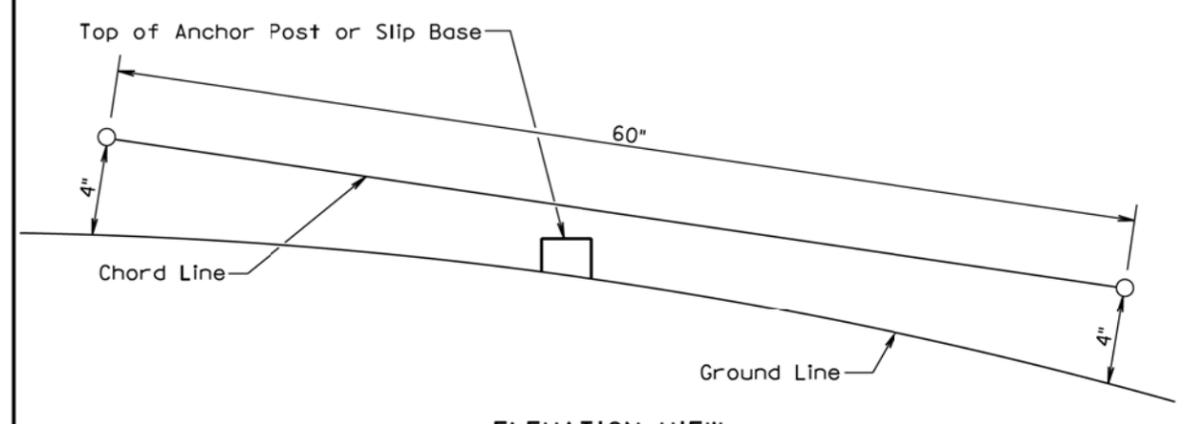
September 22, 2014

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

Published Date: 4th 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

Published Date: 4th Qtr. 2014

- Plotted From - Irrc11640

File - ...Standard Plates.dgn