

PLOT SCALE - 200,000000:1,000000

PLOTTED FROM - TRRC11951

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079S-492 079-492 etc.	01	10

Plotting Date: 13-MAY-2010

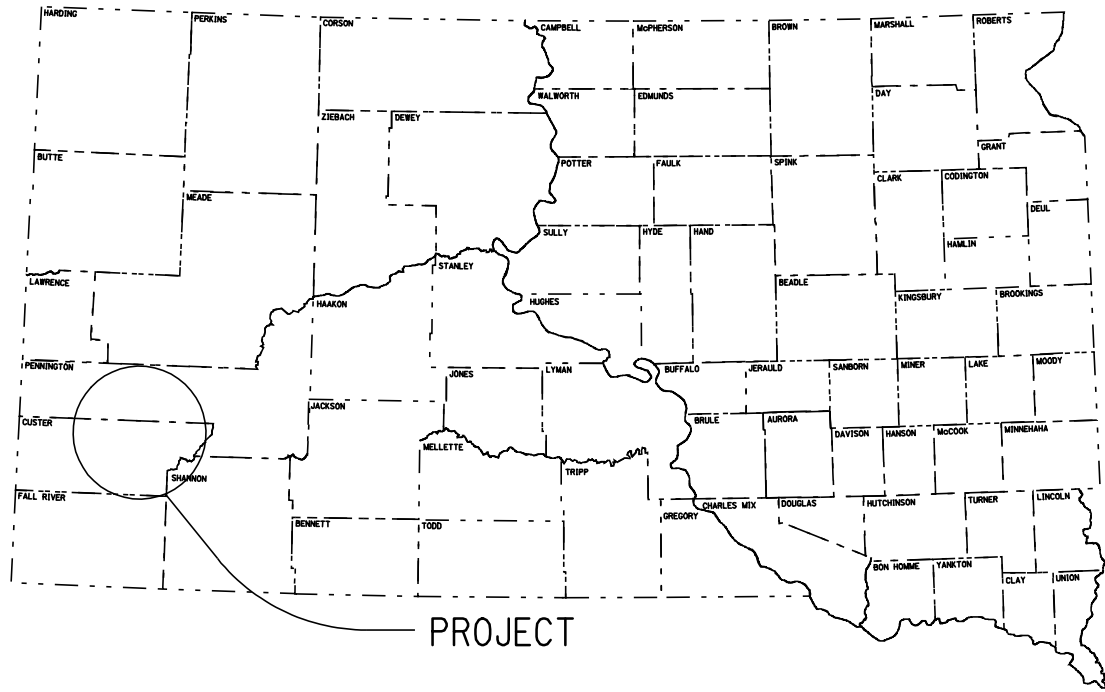
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

**PROJECTs 079S-492, 079-492, 079-452, 079S-452,
079N-452, 079-452, 079S-452,
079N-452, 016WB-452 & 16EB-452**

**HIGHWAYs SD79 & US16B
CUSTER & PENNINGTON COUNTIES**

**ASPHALT SHOULDER JOINT REPAIR
PCNs ilt8, ilt9, ilta, iltb, iltc, iltD, ilte, iltf, iltg, & iltH**



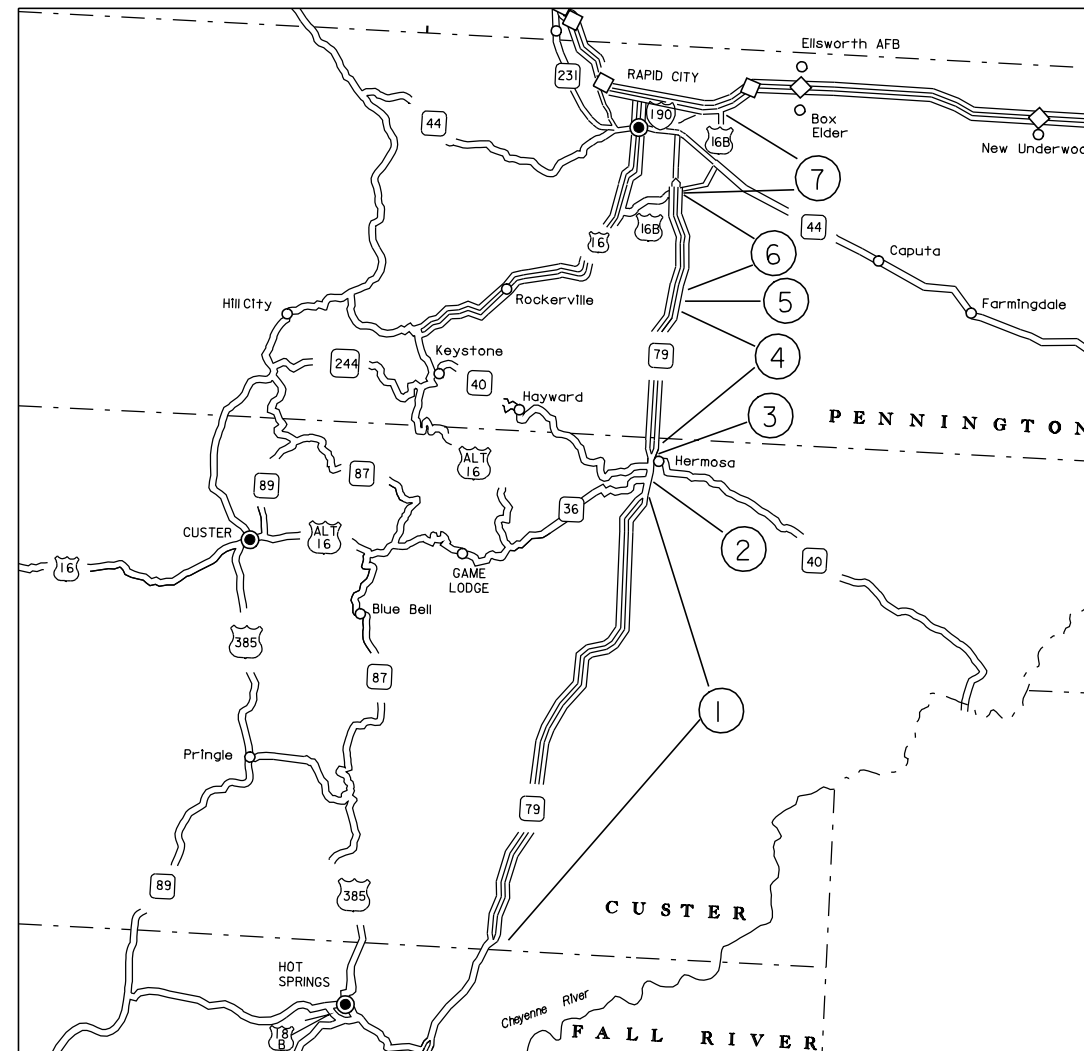
PROJECT

- ① SD79, MRM 33.7 to MRM 58.9, 079S-492, ilt8
- ② SD79, MRM 58.9 to MRM 59.5, 079-492, ilt9
- ③ SD79, MRM 59.6 to MRM 60.6, 079-452, iltA
- ④ SD79, MRM 60.6 to MRM 67.9, 079S-452, iltb & 079N-452, iltc
- ⑤ SD79, MRM 67.9 to MRM 69.2, 079-452, iltD
- ⑥ SD79, MRM 69.2 to MRM 74.7, 079S-452, ilte & 079N-452, iltf
- ⑦ US16B, MRM 67.1 to MRM 72.6, 016WB-452, iltg & 016EB-452, iltH

Storm Water Permit
No Permit Required

INDEX OF SHEETS

- Sheet 1: Title Sheets
- Sheets 2-7: Estimate of Quantities & Plan Notes
- Sheets 8-9: Shoulder Repair Details
- Sheets 10: Standard Plates



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ESTIMATE OF QUANTITIES (i1t8, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	114.5	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	7.3	Ton
350E0010	Asphalt Concrete Crack Sealing	1,000	Lb
360E0020	AE150S Asphalt for Surface Treatment	14.1	Ton
360E1030	Type 2A Cover Aggregate	131.1	Ton
633E1405	Pavement Marking Paint, 4" Yellow	21,106	Ft
634E0010	Flagging	100	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	21,106	Ft

ESTIMATE OF QUANTITIES (i1t9, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	6.2	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	0.4	Ton
350E0010	Asphalt Concrete Crack Sealing	200	Lb
360E0020	AE150S Asphalt for Surface Treatment	0.8	Ton
360E1030	Type 2A Cover Aggregate	7.3	Ton
633E1405	Pavement Marking Paint, 4" Yellow	2,133	Ft
634E0010	Flagging	20	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	2,133	Ft

ESTIMATE OF QUANTITIES (i1ta, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	12.1	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	0.8	Ton
350E0010	Asphalt Concrete Crack Sealing	1,267	Lb
360E0020	AE150S Asphalt for Surface Treatment	1.4	Ton
360E1030	Type 2A Cover Aggregate	13.8	Ton
634E0010	Flagging	50	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1tb, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	18.7	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	1.2	Ton
350E0010	Asphalt Concrete Crack Sealing	8,448	Lb
360E0020	AE150S Asphalt for Surface Treatment	2.2	Ton
360E1030	Type 2A Cover Aggregate	21.6	Ton
634E0010	Flagging	60	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1tc, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	31.6	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	2.0	Ton
350E0010	Asphalt Concrete Crack Sealing	8,870	Lb
360E0020	AE150S Asphalt for Surface Treatment	3.9	Ton
360E1030	Type 2A Cover Aggregate	36.3	Ton
634E0010	Flagging	60	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1td, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	10.5	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	0.7	Ton
350E0010	Asphalt Concrete Crack Sealing	3,802	Lb
360E0020	AE150S Asphalt for Surface Treatment	1.3	Ton
360E1030	Type 2A Cover Aggregate	12.1	Ton
634E0010	Flagging	60	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1te, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	55.2	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	3.5	Ton
350E0010	Asphalt Concrete Crack Sealing	2,112	Lb
360E0020	AE150S Asphalt for Surface Treatment	6.7	Ton
360E1030	Type 2A Cover Aggregate	63.3	Ton
634E0010	Flagging	60	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1tf, SD79)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	4.7	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	0.3	Ton
350E0010	Asphalt Concrete Crack Sealing	1,056	Lb
360E0020	AE150S Asphalt for Surface Treatment	0.5	Ton
360E1030	Type 2A Cover Aggregate	5.3	Ton
634E0010	Flagging	40	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1tg, US16B)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	20.9	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	1.3	Ton
350E0010	Asphalt Concrete Crack Sealing	7,814	Lb
360E0020	AE150S Asphalt for Surface Treatment	2.3	Ton
360E1030	Type 2A Cover Aggregate	23.6	Ton
634E0010	Flagging	60	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES (i1th, US16B)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	29.9	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	1.9	Ton
350E0010	Asphalt Concrete Crack Sealing	4,625	Lb
360E0020	AE150S Asphalt for Surface Treatment	3.6	Ton
360E1030	Type 2A Cover Aggregate	34.0	Ton
634E0010	Flagging	50	Hour
634E0100	Traffic Control	524	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in this Proposal.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to Tom Lehmkuhl, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/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 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/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/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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	079S-492, 079-492, etc.	3	10

PERMIT FOR THE PENNINGTON COUNTY AIR QUALITY CONTROL DISTRICT

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."

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, South Dakota 57501-3181
605-773-3151

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.

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for trackout, 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.

ASPHALT CONCRETE COMPOSITE

The Asphalt Concrete Composite shall be used to fill and level to the dimensions provided in these plans prior to the asphalt surface treatment. The quantity provided in these plans is an estimate and may not be required at all locations as directed by the Engineer.

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 2 Asphalt Concrete specifications.

All other requirements in the Standard Specifications for Asphalt Concrete Composite shall apply except that the mixture may be placed with a blade or other equipment approved by the Engineer. The equipment used shall fill and level the asphalt shoulder settlement adjacent to the edge of the concrete in accordance with the dimensions detailed in these plans.

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

RATES OF MATERIALS FOR ASPHALT SHOULDER REPAIR

The Estimate of Quantities is based on the following quantities of materials per station.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.01 tons/station applied 2 feet wide (Rate=0.05 gallons per square yard).

Asphalt Concrete Composite for filling and leveling. This rate will vary based on the actual depth placed.

AE150S Asphalt for Surface Treatment applied 2 feet wide (Rate = 0.28 gallon per square yard).

Type 2A Cover Aggregate applied 2 feet wide (Rate = 23 pounds per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Fog Seal applied 6 feet wide (0.05 gallons per square yard).

COVER AGGREGATE

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

Quality tests on the Cover Aggregate for abrasion and soundness are required by specification. The Contractor shall notify the Area Office prior to sampling and a representative from the Area office shall witness all sampling of aggregates to be submitted to the Central Testing Laboratory for quality testing. Satisfactory test results for the Cover Aggregate shall be obtained prior to its use on the Project.

After the aggregate stockpiles have been produced, the Contractor shall submit samples of the aggregates to the asphalt supplier, prior to construction, to evaluate the mix design and verify compatibility of the aggregate and asphalt. The mix design shall be submitted to the Engineer and to the Bituminous Engineer at least two week prior to the start of construction. With the mix design submittal, the Contractor shall also submit to the Bituminous Engineer a sample of each aggregate and emulsion. The design may be verified by the Department. Approval of the mix design and compatibility test shall be made by the Engineer prior to starting work.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	079S-492, 079-492, etc.	4	10

TABLE OF ASPHALT SHOULDER REPAIR, SD79 S(i1t8)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
58.863	58.988	Outside	660	0.2	1.7	1.5
58.623	58.792	Outside	892	0.2	2.3	2.0
58.553	58.596	Outside	227	0.1	0.6	0.5
58.436	58.504	Outside	359	0.1	0.9	0.8
58.200	58.306	Outside	560	0.1	1.4	1.2
57.660	57.700	Outside	211	0.1	0.5	0.5
56.750	56.800	Outside	264	0.1	0.7	0.6
56.556	56.611	Outside	290	0.1	0.7	0.6
55.360	55.429	Outside	364	0.1	0.9	0.8
54.840	54.994	Outside	813	0.2	2.1	1.8
54.285	54.452	Outside	882	0.2	2.3	2.0
53.830	53.898	Outside	359	0.1	0.9	0.8
53.613	53.803	Outside	1,003	0.3	2.6	2.2
53.100	53.540	Outside	2,323	0.6	5.9	5.2
52.891	53.075	Outside	972	0.3	2.5	2.2
52.607	52.830	Outside	1,177	0.3	3.0	2.6
52.139	52.192	Outside	280	0.1	0.7	0.6
51.777	52.100	Outside	1,705	0.5	4.4	3.8
51.618	51.703	Outside	449	0.1	1.1	1.0
51.397	51.446	Outside	259	0.1	0.7	0.6
50.737	51.037	Outside	1,584	0.4	4.0	3.5
50.426	50.701	Outside	1,452	0.4	3.7	3.2
48.173	48.291	Outside	623	0.2	1.6	1.4
48.055	48.091	Outside	190	0.1	0.5	0.4
47.710	47.750	Outside	211	0.1	0.5	0.5
47.537	47.645	Outside	570	0.2	1.5	1.3
46.830	46.870	Outside	211	0.1	0.5	0.5
46.725	46.772	Outside	248	0.1	0.6	0.6
46.293	46.668	Outside	1,980	0.5	5.1	4.4
46.053	46.169	Outside	612	0.2	1.6	1.4
45.465	45.576	Outside	586	0.2	1.5	1.3
45.318	45.378	Outside	317	0.1	0.8	0.7
44.875	45.023	Outside	781	0.2	2.0	1.7
44.299	44.510	Outside	1,114	0.3	2.8	2.5

**TABLE OF ASPHALT SHOULDER REPAIR, SD79 S (i1t8)
(CONTINUED)**

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
44.035	44.121	Outside	454	0.1	1.2	1.0
43.200	43.346	Outside	771	0.2	2.0	1.7
41.950	42.050	Outside	528	0.1	1.3	1.2
40.983	41.060	Outside	407	0.1	1.0	0.9
40.377	40.422	Outside	238	0.1	0.6	0.5
40.290	40.340	Outside	264	0.1	0.7	0.6
39.030	39.109	Outside	417	0.1	1.1	0.9
38.835	38.917	Outside	433	0.1	1.1	1.0
38.541	38.589	Outside	253	0.1	0.6	0.6
35.820	35.870	Outside	264	0.1	0.7	0.6
34.896	34.958	Outside	327	0.1	0.8	0.7
34.350	34.400	Outside	264	0.1	0.7	0.6
34.100	34.200	Outside	528	0.1	1.3	1.2
33.700	33.800	Outside	528	0.1	1.3	1.2
58.894	59.298	Median	2,133	0.6	5.5	4.7
58.779	58.862	Median	438	0.1	1.1	1.0
57.927	58.030	Median	544	0.1	1.4	1.2
56.910	56.975	Median	343	0.1	0.9	0.8
56.740	56.843	Median	544	0.1	1.4	1.2
56.610	56.650	Median	211	0.1	0.5	0.5
56.190	56.240	Median	264	0.1	0.7	0.6
55.510	55.555	Median	238	0.1	0.6	0.5
55.356	55.450	Median	496	0.1	1.3	1.1
54.826	55.063	Median	1,251	0.3	3.2	2.8
53.972	54.078	Median	560	0.1	1.4	1.2
53.656	53.715	Median	312	0.1	0.8	0.7
53.551	53.603	Median	275	0.1	0.7	0.6
53.476	53.528	Median	275	0.1	0.7	0.6
53.234	53.409	Median	924	0.2	2.4	2.1
52.373	53.213	Median	4,435	1.2	11.3	9.9
51.655	52.332	Median	3,575	0.9	9.1	7.9
43.116	43.155	Median	206	0.1	0.5	0.5
42.156	42.241	Median	449	0.1	1.1	1.0
41.950	42.050	Median	528	0.1	1.3	1.2
40.766	40.930	Median	866	0.2	2.2	1.9
38.850	38.900	Median	264	0.1	0.7	0.6
37.947	38.029	Median	433	0.1	1.1	1.0
36.878	37.004	Median	665	0.2	1.7	1.5
36.375	36.431	Median	296	0.1	0.8	0.7
34.890	35.000	Median	581	0.2	1.5	1.3
		Totals	51,310	14.1	131.1	114.5

TABLE OF ASPHALT SHOULDER REPAIR, SD79 (i1t9)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
59.047	59.179	Outside	697	0.2	1.8	1.5
58.894	59.298	Median	2,133	0.6	5.5	4.7
		Totals	2,830	0.8	7.3	6.2

TABLE OF ASPHALT SHOULDER REPAIR, SD79 (i1ta)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
60.20	60.30	Southbound	528	0.1	1.3	1.2
59.51	59.55	Southbound	211	0.1	0.5	0.5
59.51	60.40	Northbound	4,699	1.2	12.0	10.4
		Totals	5,438	1.4	13.8	12.1

TABLE OF ASPHALT SHOULDER REPAIR, SD79 S (i1tb)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
62.60	63.60	Outside	5,280	1.4	13.5	11.7
64.80	65.40	Outside	3,168	0.8	8.1	7.0
		Totals	8,448	2.2	21.6	18.7

TABLE OF ASPHALT SHOULDER REPAIR, SD79 N (i1tc)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
61.5	62.0	Outside	2,640	0.7	6.7	5.9
62.1	62.3	Outside	1,056	0.3	2.7	2.3
63.3	63.5	Outside	1,056	0.3	2.7	2.3
63.6	64.0	Outside	2,112	0.6	5.4	4.7
64.1	64.3	Outside	1,056	0.3	2.7	2.3
64.7	65.2	Outside	2,640	0.7	6.7	5.9
65.6	66.0	Outside	2,112	0.6	5.4	4.7
67.3	67.6	Outside	1,584	0.4	4.0	3.5
		Totals	14,256	3.9	36.3	31.6

TABLE OF ASPHALT SHOULDER REPAIR, SD79 (i1td)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
68.9	68.8	Northbound	528	0.1	1.3	1.2
69.2	69.0	Southbound	1,056	0.3	2.7	2.3
68.8	68.6	Southbound	1,056	0.3	2.7	2.3
68.3	67.9	Southbound	2,112	0.6	5.4	4.7
		Totals	4,752	1.3	12.1	10.5

TABLE OF ASPHALT SHOULDER REPAIR, SD79 S (i1te)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
74.7	72.9	Outside	9,504	2.5	24.3	21.1
72.9	72.0	Outside	4,752	1.3	12.1	10.6
72.0	71.6	Outside	2,112	0.6	5.4	4.7
71.5	71.1	Outside	2,112	0.6	5.4	4.7
70.8	70.5	Outside	1,584	0.4	4.0	3.5
70.4	69.9	Outside	2,640	0.7	6.7	5.9
69.6	69.2	Outside	2,112	0.6	5.4	4.7
		Totals	24,816	6.7	63.3	55.2

TABLE OF ASPHALT SHOULDER REPAIR, SD79 N (i1tf)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
71.8	71.7	Outside	528	0.1	1.3	1.2
73.6	73.9	Outside	1,584	0.4	4.0	3.5
		Totals	2,112	0.5	5.3	4.7

TABLE OF ASPHALT SHOULDER REPAIR, US16B W (i1tg)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
72.55	72.65	Outside	528	0.1	1.3	1.2
72.15	72.30	Outside	792	0.2	2.0	1.8
71.95	72.05	Outside	528	0.1	1.3	1.2
71.58	71.68	Outside	528	0.1	1.3	1.2
69.15	69.25	Outside	528	0.1	1.3	1.2
68.90	69.00	Outside	528	0.1	1.3	1.2
67.25	68.37	Outside	5,914	1.6	15.1	13.1
		Totals	9,346	2.3	23.6	20.9

TABLE OF ASPHALT SHOULDER REPAIR, US16B E (i1th)

MRM to	MRM	Shoulder Side	Length (Ft)	AE150S Asphalt for Surface Treatment (Tons)	Type 2A Cover Aggregate (Tons)	Asphalt Concrete Composite (Tons)
68.82	68.86	Outside	211	0.1	0.5	0.5
68.85	68.95	Outside	528	0.1	1.3	1.2
69.00	69.10	Outside	528	0.1	1.3	1.2
69.40	69.80	Outside	2,112	0.6	5.4	4.7
70.00	70.20	Outside	1,056	0.3	2.7	2.3
70.35	70.45	Outside	528	0.1	1.3	1.2
70.70	71.10	Outside	2,112	0.6	5.4	4.7
71.40	72.30	Outside	4,752	1.3	12.1	10.6
72.60	72.90	Outside	1,584	0.4	4.0	3.5
		Totals	13,411	3.6	34.0	29.9

SEALING QUANTITIES FOR LONGITUDINAL SHOULDER JOINT

All quantities are based on a factor of 0.4 lbs. of sealant per 1 foot of longitudinal shoulder joint. Only those joints that are open and accepting moisture will require sealing as directed by the Engineer. The locations and quantities provided in the tables are for estimating purposes only. The actual quantities used may vary depending upon the location and width of the open joint.

SEALING LONGITUDINAL SHOULDER JOINT

The Typical Reservoir Section shall be 1/2 inch wide x 1 inch deep. Wet sawing shall be required to construct to these dimensions. High pressure water followed by high pressure air shall be used to clean the joint. The PCC Pavement surface of the joint shall be free of existing asphalt and debris that would prevent bonding.

Joints 1/2 inch or greater in width and depth will not require sawing, but shall be thoroughly cleaned of debris to a depth of 1 inch.

The use of a squeegee will not be allowed on this project except for situations where the sealant begins to run out of the routed crack due to the grade or superelevation of the road. The squeegee shall be used to push the sealant material back into the crack and remove as much sealant as possible from the roadway surface.

A blotting material such as toilet tissue shall be placed over the sealant material immediately after placement on all sealed cracks.

All other requirements stated in Section 350 of the Standard Specifications shall apply.

ROADWAY CLEANING

The Contractor shall be responsible for removing the debris created from reservoir widening from the roadway surface, including shoulders, intersecting roads, median crossovers and as directed by the Engineer.

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1ta)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
SD79	59.60	60.20	Southbound	3,168	1,267

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1tb)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
SD79 S	67.90	65.40	Outside	13,200	5,280
SD79 S	64.80	64.40	Outside	2,112	845
SD79 S	63.80	63.60	Outside	1,056	422
SD79 S	62.60	62.50	Outside	528	211
SD79 S	61.60	61.40	Outside	1,056	422
SD79 S	60.90	60.30	Outside	3,168	1,267
			Totals	21,120	8,448

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1tc)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
SD79 N	60.9	61.6	Outside	3,696	1,478
SD79 N	62.3	63.3	Outside	5,280	2,112
SD79 N	63.5	63.6	Outside	528	211
SD79 N	64.3	64.7	Outside	2,112	845
SD79 N	65.2	65.6	Outside	2,112	845
SD79 N	66.0	67.6	Outside	8,448	3,379
			Totals	22,176	8,870

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1td)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
SD79	69.2	67.9	Northbound	6,864	2,746
SD79	69.0	68.8	Southbound	1,056	422
SD79	68.6	68.3	Southbound	1,584	634
			Totals	9,504	3,802

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1te)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
SD79 S	73.1	72.9	Outside	1,056	422
SD79 S	71.6	71.5	Outside	528	211
SD79 S	71.1	70.8	Outside	1,584	634
SD79 S	70.5	70.4	Outside	528	211
SD79 S	69.9	69.6	Outside	1,584	634
			Totals	5,280	2,112

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1tf)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
SD79 N	71.9	71.7	Outside	1,056	422
SD79 N	73.9	73.6	Outside	1,584	634
			Totals	2,640	1,056

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1tg)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
US16B W	71.00	72.85	Outside	9,768	3,907
US16B W	68.37	70.22	Outside	9,768	3,907
			Totals	19,536	7,814

TABLE OF SEALING LONGITUDINAL SHOLDER JOINT(i1th)

Highway	MRM to	MRM	Shoulder Side	Length (Ft)	Asphalt Concrete Crack Sealing (Lb)
US16B E	67.89	68.83	Outside	4,963	1,985
US16B E	69.10	69.40	Outside	1,584	634
US16B E	69.50	69.60	Outside	528	211
US16B E	70.20	70.40	Outside	1,056	422
US16B E	70.45	70.70	Outside	1,320	528
US16B E	70.80	70.90	Outside	528	211
US16B E	71.10	71.40	Outside	1,584	634
			Totals	11,563	4,625

TRAFFIC CONTROL

Traffic control shall be in accordance with MUTCD Standards, Standard Specifications and these plans.

One lane of traffic shall be maintained in each direction at all times. 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.

Do not disturb any pavement marking tape.

All traffic control, materials and equipment shall be moved to a minimum distance of 30 feet from the edge of the traveled lanes during nights, weekends, and other non-working hours.

Indiscriminate driving of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

All Contractor's vehicles or equipment entering or leaving a closed work area shall display a flashing amber light.

The quantity of traffic control units paid shall be for the greatest number of signs in place at any one time per project (PCN), regardless of the number of set-ups on the project.

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

INVENTORY OF TRAFFIC CONTROL DEVICES (i1t8, i1t9, i1ta, i1tb, i1tc, i1td, i1te, i1tf, i1tg, & i1th)

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRE D	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R2-1	30" x 36"	SPEED LIMIT ##	4	23	92
W3-5	48" x 48"	SPEED REDUCTION	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	1	34	34
SPECIAL	30" x 24"	FINES DOUBLED	2	18	36
*****	*****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED	1	56	56
TOTAL UNITS					524

TEMPORARY PAVEMENT MARKING

Temporary Road Markers (Tabs) with covers shall be used to mark the yellow line on the median side. The tempoary road markers shall be spaced 20' apart. After completion of the Flush Seal, the protective covers on the temporary road markers shall be removed. It is not required to mark solid lines with tabs at five foot spacing. The Contractor shall be responsible for the visibilty and maintenance of tabs.

PERMANENT PAVEMENT MARKING

The Contractor shall advise the Engineer a minimum of 2 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones. All materials shall be applied as per manufacturer's recommendations.

Application of permanent pavement marking paint shall be completed within 7 days following completion of the asphalt surface treatment.

RATES OF APPLICATION

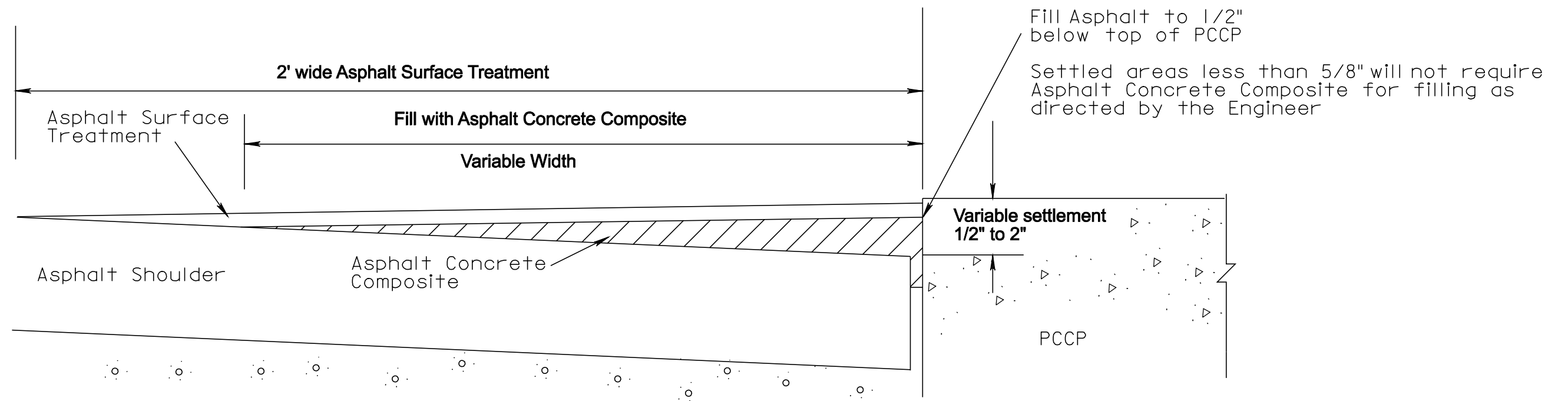
Median striping (yellow) – 16.9 gallons per mile. *

SD79, (i1t8) = 21,106 ft.
SD79, (i1t9) = 2,133 ft.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	079S-492 079-492 etc.	NO. 08	SHEETS 10

Plotting Date: 13-MAY-2010

Repair of Asphalt Shoulder



PLOT SCALE - 300,000000:1,000000

PLOTTED FROM - ITRC11951

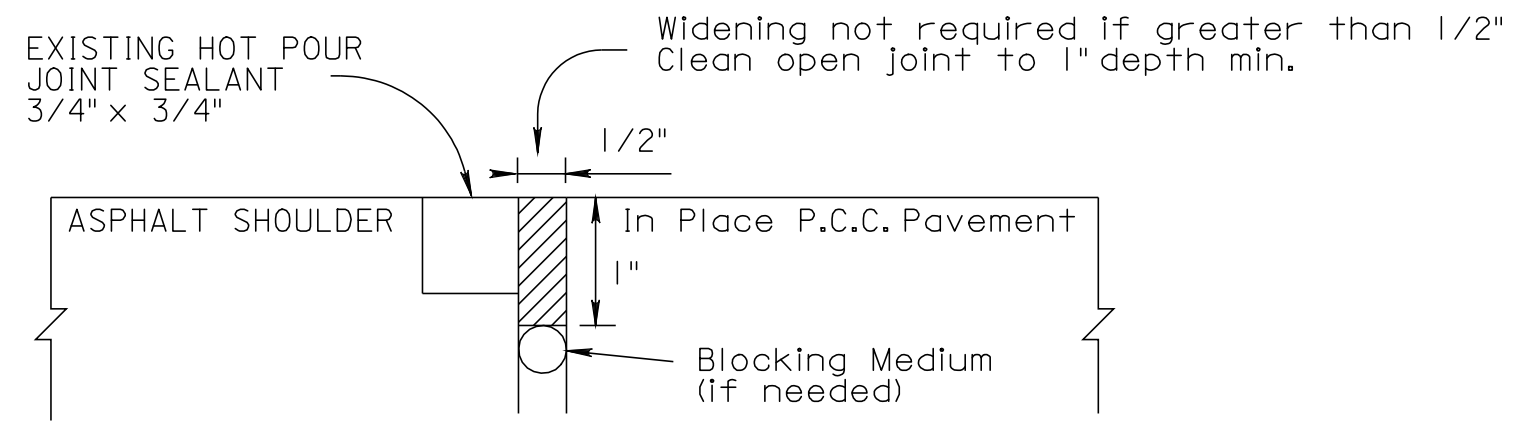
FILE - U:\REGION\RC\PR\2010\REGMAINT\PLANS\SD78\US16BSHOULDERREPAIR\ASPHALTECONCRETE\RC.R.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	079S-492 079-492 etc.	09	10

Plotting Date: 13-MAY-2010

SEAL EXISTING LONGITUDINAL SHOULDER JOINT

(ASPHALT CONCRETE CRACK SEALING)



Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45 - 50	50	600
55	50	660
60 - 65	50	780
70 - 75	50	900

Flagger (As Necessary)

■ Channelizing Device

* Speed appropriate for location.

4" white temporary pavement marking tape for right lane closures and 4" yellow temporary pavement marking tape for left lane closures or temporary road markers at 5' spacing shall be installed when the lane is closed for a period of 24 hours or more.

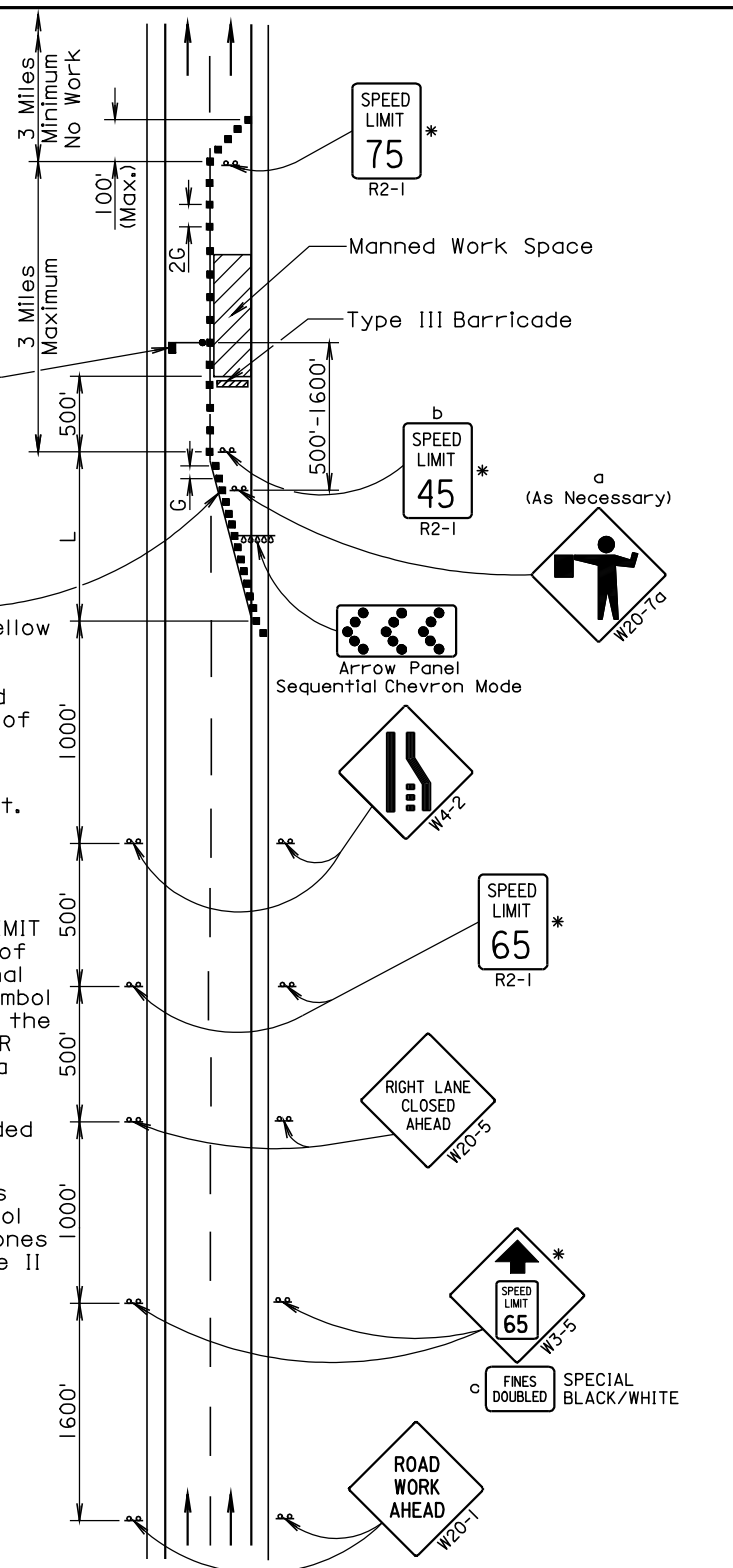
Signs a, b, and c shall be removed or covered when workers are not present.

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

If the spacing between manned work spaces is 1 mile or greater, a SPEED LIMIT 65(*) sign shall be posted at the end of the first manned work space. Additional SPEED LIMIT 45(*) sign(s) and FLAGGER symbol sign(s) shall be installed in advance of the next manned work space(s). The FLAGGER sign shall be used whenever there is a Flagger present.

Left mounted advance signs on undivided highways are not required.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. 42" cones may be used in lieu of drums or type II barricades only along the centerline.



July 1, 2005

Published Date: 2nd Qtr. 2010

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**MANNED WORK SPACE SIGNING
FOR DIVIDED AND UNDIVIDED HIGHWAYS**

PLATE NUMBER
634.63

Sheet 1 of 1