STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA PCCP REPAIR	1	35

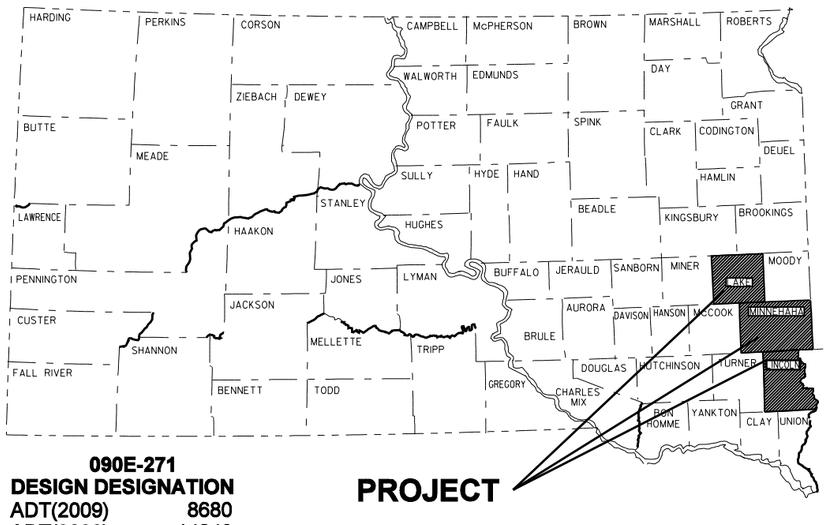
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECTS 034–272, 042–271, 229 N/S–271, 029 N/S–271, 090 E/W–271 & 229 N–271
LAKE, MINNEHAHA & LINCOLN COUNTIES

PCC PAVEMENT REPAIR, CURB & GUTTER REPAIR & MEDIAN CONCRETE BARRIER REPAIR

PCN I1PR, I1PS, I1PT, I1PU, I1PW, I1PX, I1Q4, I1Q5 & I1QD

INDEX OF SHEETS



090E-271

DESIGN DESIGNATION	
ADT(2009)	8680
ADT(2029)	14840
DHV	2020
D	100%
T DHV	7.1%
T ADT	15.7%
V	65 MPH

090W-271

DESIGN DESIGNATION	
ADT(2009)	8680
ADT(2029)	14840
DHV	2020
D	100%
T DHV	7.1%
T ADT	15.7%
V	65 MPH

034-272

DESIGN DESIGNATION	
ADT(2009)	3675
ADT(2029)	5475
DHV	820
D	50%
T DHV	4.0%
T ADT	8.9%
V	65 MPH

042-271

DESIGN DESIGNATION	
ADT(2009)	5310
ADT(2029)	6610
DHV	995
D	50%
T DHV	1.6%
T ADT	3.6%
V	65 MPH

029 S-271

DESIGN DESIGNATION	
ADT(2009)	15600
ADT(2029)	26095
DHV	2795
D	100%
T DHV	5.5%
T ADT	12.0%
V	65 MPH

229 S-271

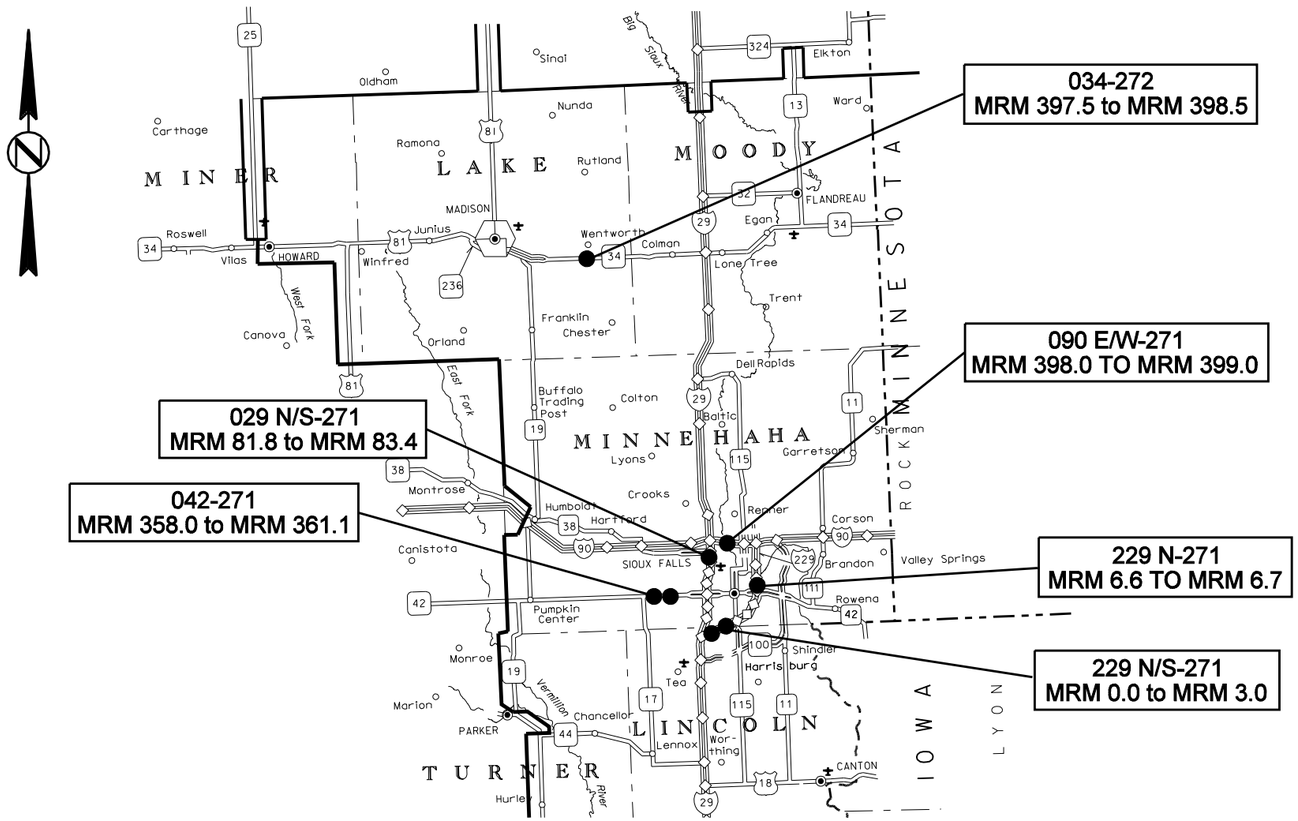
DESIGN DESIGNATION	
ADT(2009)	15605
ADT(2029)	29010
DHV	3105
D	100%
T DHV	4.1%
T ADT	9.1%
V	65 MPH

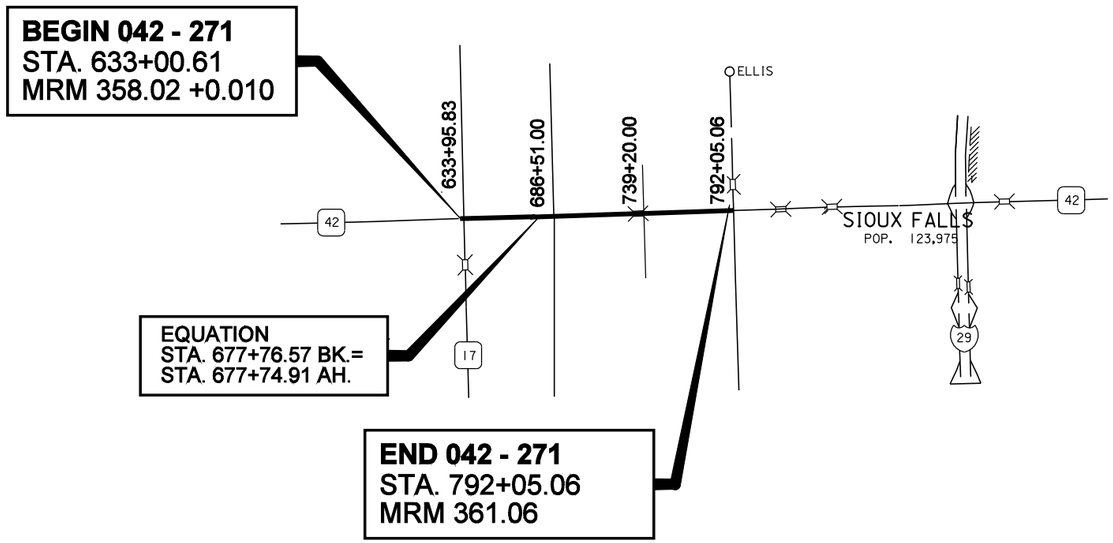
229 N-271

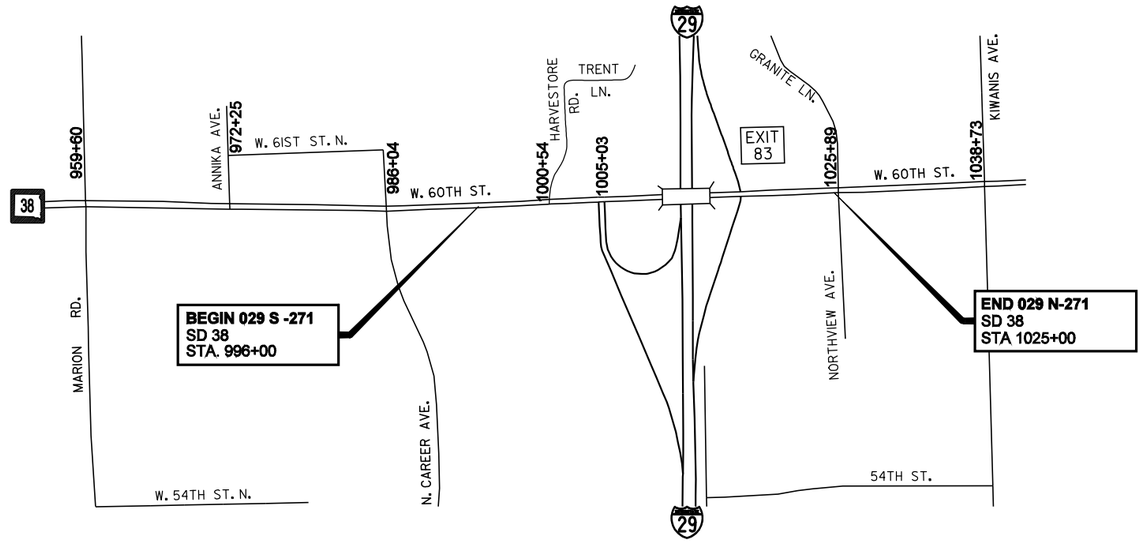
DESIGN DESIGNATION	
ADT(2009)	15605
ADT(2029)	29010
DHV	3105
D	100%
T DHV	4.1%
T ADT	9.1%
V	65 MPH

029 N-271

DESIGN DESIGNATION	
ADT(2009)	15600
ADT(2029)	26095
DHV	2795
D	100%
T DHV	5.5%
T ADT	12.0%
V	65 MPH







Control of Access = 996+00
Control of Access = 1025+00

PLOT SCALE - 2000.000000:1.000000

PLOTTED FROM - TRSF12115

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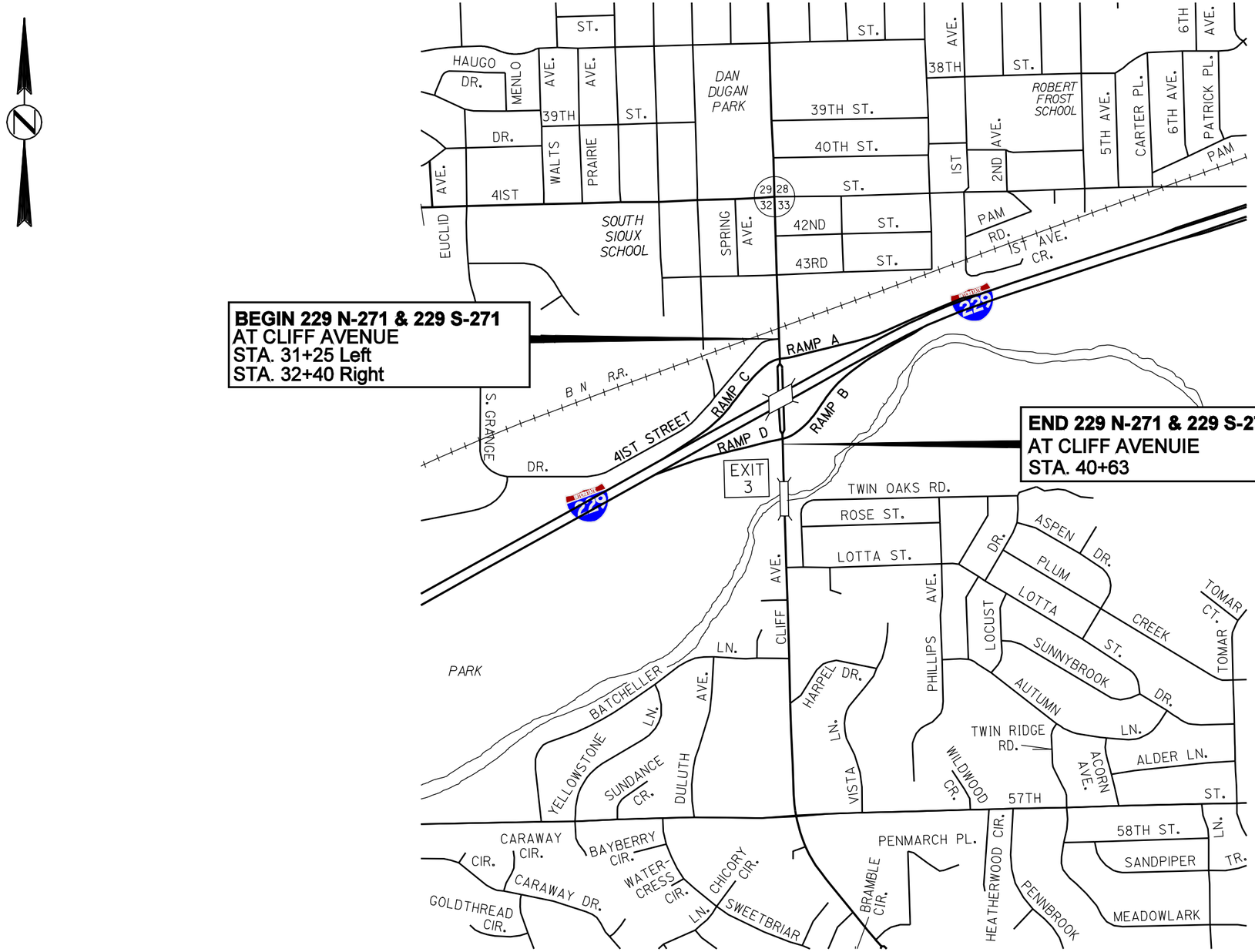


BEGIN 229 N-271 & 229 S-271
AT CLIFF AVENUE
STA. 31+25 Left
STA. 32+40 Right

END 229 N-271 & 229 S-271
AT CLIFF AVENUIE
STA. 40+63

Cliff Avenue Stationing

41st Street = 31+81.38

Ramp A = 31+74.63

Ramp C = 33+55.69

Ramp D = 39+85.29

Ramp B = 39+92.91

Begin Control of Access = 31+25 Left & 32+40 Right
End Control of Access = 40+63

ESTIMATE OF QUANTITIES – 034-272 PCN I1PR

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5020	Fast Track Concrete for PCC Pavement Repair	13.3	SqYd
380E6000	Dowel Bar	12	Each
380E6110	Insert Steel Bar in PCC Pavement	23	Each
634E0010	Flagging	15	Hour
634E0100	Traffic Control	408	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	2,000	Ft
634E0610	4" Temporary Pavement Marking Tape Type 2	144	Ft

ESTIMATE OF QUANTITIES – 042-271 PCN I1PS

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5020	Fast Track Concrete for PCC Pavement Repair	64.3	SqYd
380E6000	Dowel Bar	96	Each
380E6110	Insert Steel Bar in PCC Pavement	182	Each
634E0010	Flagging	50	Hour
634E0100	Traffic Control	884	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	20,000	Ft
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0610	4" Temporary Pavement Marking Tape Type 2	1,440	Ft

ESTIMATE OF QUANTITIES – 229 N-271 PCN I1PT

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	1,131.6	SqYd
380E6000	Dowel Bar	917	Each
380E6110	Insert Steel Bar in PCC Pavement	1,627	Each
634E0010	Flagging	50	Hour
634E0100	Traffic Control	566	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	5,280	Ft

ESTIMATE OF QUANTITIES – 229 S-271 PCN I1PU

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5020	Fast Track Concrete for PCC Pavement Repair	66.7	SqYd
380E5030	Nonreinforced PCC Pavement Repair	60.4	SqYd
380E6000	Dowel Bar	89	Each
380E6110	Insert Steel Bar in PCC Pavement	171	Each
634E0010	Flagging	50	Hour
634E0100	Traffic Control	566	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	4,560	Ft

ESTIMATE OF QUANTITIES 029 N-271 PCN I1PW

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	300	Ft
380E5030	Nonreinforced PCC Pavement Repair	68.9	SqYd
380E6000	Dowel Bar	46	Each
380E6110	Insert Steel Bar in PCC Pavement	228	Each
634E0010	Flagging	25	Hour
634E0100	Traffic Control	556	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	2,990	Ft
634E0420	Type C Advance Warning Arrow Panel	1	Each
650E1095	Type F69.5 Concrete Curb and Gutter	100	Ft
650E1395	Type FL69.5 Concrete Curb and Gutter	200	Ft

ESTIMATE OF QUANTITIES 029 S-271 PCN I1PX

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	300	Ft
380E5030	Nonreinforced PCC Pavement Repair	56.3	SqYd
380E6000	Dowel Bar	84	Each
380E6110	Insert Steel Bar in PCC Pavement	244	Each
634E0010	Flagging	25	Hour
634E0100	Traffic Control	556	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	2,990	Ft
634E0420	Type C Advance Warning Arrow Panel	1	Each
650E1095	Type F69.5 Concrete Curb and Gutter	100	Ft
650E1395	Type FL69.5 Concrete Curb and Gutter	200	Ft

ESTIMATE OF QUANTITIES 090 E-271 PCN I1Q4

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	19.3	SqYd
380E6110	Insert Steel Bar in PCC Pavement	43	Each
634E0010	Flagging	25	Hour
634E0100	Traffic Control	742	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	1,560	Ft
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES 090 W-271 PCN I1Q5

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	34.9	SqYd
380E6000	Dowel Bar	18	Each
380E6110	Insert Steel Bar in PCC Pavement	78	Each
634E0010	Flagging	25	Hour
634E0100	Traffic Control	742	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Road Markers	1,560	Ft
634E0420	Type C Advance Warning Arrow Panel	1	Each

ESTIMATE OF QUANTITIES – 229 N-271 PCN I1QD (Median Barrier Repair)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
460E0010	Class A45 Concrete, Bridge Barrier	3.6	CuYd
460E0300	Breakout Structural Concrete	3.6	CuYd
480E0200	Epoxy Coated Reinforcing Steel	103	Lb
634E0010	Flagging	10	Hour
634E0100	Traffic Control	590	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each

TABLE FOR PCC PAVEMENT REPAIR on 034-272 PCN I1PR

MRM	LANE	DRIVING LANE LENGTH Ft	DRIVING LANE WIDTH Ft	FAST TRACK CONCRETE 8" PCCP SqYds	NEW JOINT CON-FIG.	INSERT STEEL BAR IN PCC PAVEMENT: No. 8 x 18" DEFORMED TIE BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
397.901	EB	8	15	13.3	R	20	3	12
	TOTALS			13.3		20	3	12

TABLE FOR PCC PAVEMENT REPAIR on 042-271 PCN I1PS

STA.	LANE	DRIVING LANE LENGTH Ft	DRIVING LANE WIDTH Ft	FAST TRACK CONCRETE PCCP SqYds	NEW JOINT CON-FIG.	INSERT STEEL BAR IN PCC PAVEMENT: 1¼" x 18" PLAIN ROUND DOWEL BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 9 x 18" DEFORMED TIE BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
639+12	WB	4	7	3.1	B	4	4		
654+12	EB	4	4	1.8	B	2	2		
665+15	EB	6	9	6.0	R		12	4	9
667+33	EB	4	7	3.1	B	4	4		
668+90	EB	4	11	4.9	R		14		11
668+90	WB	4	7	3.1	R		8		7
671+67	EB	4	4	1.8	B	2	2		
719+34	EB	4	14	6.2	R		18		14
719+34	WB	4	14	6.2	R		18		14
745+96	WB	4	6	2.7	R		8		6
752+58	WB	5	5	2.8	R		6	4	5
755+55	WB	4	6	2.7	R		8		6
769+00	WB	5	8	4.4	R		10	4	8
779+06	WB	4	4	1.8	R		4		4
782+61	Turn	4	12	5.3	R		16		12
782+61	WB	4	14	6.2	B	9	9		
791+50	EBR	4	5	2.2	B	3	3		
	TOTALS:			64.3		24	146	12	96

TABLE FOR PCC PAVEMENT REPAIR on 229 N-271 & 229 S-271 PCN I1PT & I1PU

MRM	LANE	LEFT LANE LENGTH Ft	LEFT LANE WIDTH Ft	RIGHT LANE LENGTH Ft	RIGHT LANE WIDTH Ft	FAST TRACK CONCRETE PCCP SqYds	PCCP SqYds	NEW JOINT CON-FIG.	INSERT STEEL BAR IN PCC PAVEMENT: 1¼" x 18" PLAIN ROUND DOWEL BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 9 x 18" DEFORMED TIE BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
0.850	SB	15	18			30.0		R		24	6	18
0.850	SB			15	22	36.7		R		28	6	22
LOUISE OFF RAMP BOTTOM	NB	6	12.5				8.3	R		16	2	12
LOUISE OFF RAMP BOTTOM	NB			40	12.5		55.6	R	16		14	12
LOUISE OFF RAMP MIDDLE	NB	70	12.5				97.2	B	8	8	25	36
LOUISE OFF RAMP MIDDLE	NB			40	12.5		55.6	W	16		14	12
LOUISE OFF RAMP TOP	SB	5	12.5	5	12.5		13.9	B	16	16		
WESTERN OFF RAMP BOTTOM	NB	9	4				4.0	R		4	3	4
WESTERN OFF RAMP MIDDLE	NB	5	9				5.0	R		12	2	9
WESTERN OFF RAMP TOP	NB	30	20				66.7	W	26		11	20
WESTERN OFF RAMP TOP	NB			4	12		5.3	R		16		12
WESTERN ON RAMP MIDDLE	NB	6.5	3				2.2	R		4	2	3
WESTERN ON RAMP TOP	NB			TRIANGULAR			9.0	R			22	
WESTERN OFF RAMP MIDDLE	SB	8.5	4				3.8	R		4	3	4
WESTERN ON RAMP TOP	SB	4	27				12.0	R		36		27
WESTERN ON RAMP MIDDLE	SB	4	6				2.7	R	8			6
WESTERN ON RAMP TOP	SB			RADIUS			28.0	B			24	12
	TOTALS:					66.7	369.3		90	168	134	209

TABLE FOR PCC PAVEMENT REPAIR on 029 N-271 & 029 S-271 PCN I1PW & I1PX

SD38 / 60th Street North Crossroad at I29

STA.	LANE	LANE LENGTH Ft	WIDTH Ft	9" PCCP SqYds	NEW JOINT CON-FIG.	INSERT STEEL BAR IN PCC PAVEMENT: 1¼" x 18" PLAIN ROUND DOWEL BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 9 x 18" DEFORMED TIE BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
1000+67	EBT	4	12	5.3	R		16		12
1000+67	EBL	7	12	9.3	R		16	2	12
1003+32	EBR	4	4	1.8	R		4		4
1004+52	EBR	4	12	5.3	R		16		12
* 1005+03	EBR	6	12	8.0	R		16	2	12
* 1005+03	EBL	13	12	17.3	R		16	5	12
* 1005+03	EBT	4	12	5.3	R		16		12
1006+52	EBL	4	4	1.8	R		4		4
1016+12	EBL	4	4	1.8	R		4		4
1021+05	EBR	4	4	1.8	R		4		4
1021+44	EB	4	12	5.3	R		16		12
1022+82	EBR	4	5	2.2	R		6		6
1024+88	WBR	4	4	1.8	R		4		4
1022+70	WBR	6	12	8.0	R		16	2	12
* 1019+40	WBL	13	12	17.3	R		16	5	
* 1019+38	WBR	13	12	17.3	R		16	5	
1017+91	WBR	4	4	1.8	R		4		4
1017+30	WBS	13	8	11.6	R	5	5	5	
1004+78	WBL	5	4	2.2	R		4	2	4
	TOTALS:			125.2		5	199	28	130

* Detector Loops can be removed at these locations.

TABLE FOR PCC PAVEMENT REPAIR on 029 N-271 & 029 S-271 PCN I1PW & I1PX

Benson Road Crossroad at I29

LOCATION	REMOVE CURB & GUTTER LENGTH Ft	F69.5 CURB & GUTTER LENGTH Ft	FL69.5 CURB & GUTTER LENGTH Ft	INSERT STEEL BAR IN PCCP No. 5 x 24" DEFORMED TIE BARS Each
VARIOUS LOCATIONS ON I29 & BENSON RD X-ROAD	600	200	400	240

TABLE FOR PCC PAVEMENT REPAIR on 090 E-271 & 090 W-271 PCN I1Q4 & I1Q5

MRM	LANE	PASSING LANE LENGTH Ft	PASSING LANE WIDTH Ft	DRIVING LANE LENGTH Ft	DRIVING LANE WIDTH Ft	PCCP SqYds	NEW JOINT CON-FIG.	INSERT STEEL BAR IN PCC PAVEMENT: 1¼" x 18" PLAIN ROUND DOWEL BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 9 x 18" DEFORMED TIE BARS Each	INSERT STEEL BAR IN PCC PAVEMENT: No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
398.200	WB	8	18			16.0	R		24	6	18
398.500	WB	5	12			6.7	B	8	8	2	
398.500	WB			5	22	12.2	B	14	14	2	
398.700	EB	7	18			14.0	B	12	12	3	
398.700	EB			4	12	5.3	B	8	8		
	TOTALS					54.2		42	66	13	18

JOINT REPAIR CONFIGURATIONS

W = Two Working Joints (Use only if repair is full roadway width and uniform length (across all lanes))
T = Two Tied Joints
B = One Working & One Tied Joint
R = Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	7	35

TABLE FOR PCC PAVEMENT REPAIR ON CLIFF AVENUE 229 N-271 PCN I1PT

STA.	DESCRIP.	NB DRIVING LANE L Ft	NB DRIVING LANE W Ft	NB PASSING LANE L Ft	NB PASSING LANE W Ft	CENTER LANE L Ft	CENTER LANE W Ft	SB PASSING LANE L Ft	SB PASSING LANE W Ft	SB DRIVING LANE L Ft	SB DRIVING LANE W Ft	PCCP SqYds	NEW JOINT CON-FIG.	INSERT STEEL BAR IN PCC PAVEMENT 1¼" x 18" PLAIN ROUND DOWEL BARS Each	No. 9 x 18" DEFORMED TIE BARS Each	No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
31+60		16	11	12	11	7	11					42.8	R		44	2	33
32+60								4	11	4	11	9.8	R		28	2	22
32+80								4	11	4	11	9.8	R		28	2	22
33+00										4	12	5.3	R		16	4	12
33+20										4	12	5.3	R		16	4	12
33+40								4	11	4	11	9.8	R		28	2	22
33+60										4	11	4.9	R		14	4	11
33+80										4	11	4.9	R		14	4	11
34+00						4	4			4	11	6.7	R		20	6	15
34+20										4	11	4.9	R		14	4	11
34+40										4	11	4.9	R		14	4	11
34+60								4	12	4	12	10.7	R		32	6	24
34+70		8	11	8	11	8	11	8	11	8	11	48.9	B	36	36	3	
34+80								4	4	4	4	3.6	R		10	6	8
35+00		4	11	4	4	4	4			4	4	10.2	R		30	8	23
35+20		4	11			4	11	4	11			14.7	R		44	4	33
35+40		4	11	4	11	4	11	4	11	4	11	24.4	B	36	36	2	
35+60		10	11	4	12	4	4	10	11			31.6	R		50	10	38
35+80										4	4	1.8	R		4	4	4
36+20		4	13	4	4							7.6	R		22	6	17
36+60		4	11	4	11	4	11	4	11	4	11	24.4	B	36	36	2	
36+80						4	14			4	11	11.1	R		32	6	25
37+20						4	4	4	4			3.6	R		10	4	8
37+40						4	4	6	4	4	12	9.8	R		26	8	20
37+60				4	12	4	4	4	4	4	12	14.2	R		42	12	32
37+80						4	4	4	4	4	12	8.9	R		26	8	20
38+00						4	4	4	12	4	11	12.0	R		36	8	27
38+20										4	12	5.3	R		16	4	12
38+40						4	4	4	4			3.6	R		10	4	8
38+60		4	12			4	4	4	4			8.9	R		26	6	20
38+80		4	4	4	4							3.6	R		10	6	8
39+00				4	4	4	4	4	4			5.3	R		16	8	12
39+20						4	14					6.2	R		18	2	14
39+40		4	11					104	11	104	11	259.1	R		44	43	121
39+60		4	11									4.9	R		14	2	11
39+80		4	14									6.2	R		18	2	14
40+00		4	12									5.3	R		16	2	12
Ramp C																	
33+50	27' Rt	4	10									4.4	R		12	2	10
33+64	34' Rt	4	16									7.1	R		20	2	16
34+00	38' Rt	28	22									68.4	R		28	11	22
34+20	28' Rt	6	12									8.0	R		16	2	12
Ramp B																	
39+30	79' Lt	12	14									18.7		18	18	4	12
39+44	79' Lt	4	4									1.8		4	4	2	4
Ramp D																	
39+52	Radius											16.7				18	8
40+10	Radius											42.6				27	20
TOTALS:												**822.7**		**130**	**994**	**282**	**797**

JOINT REPAIR CONFIGURATIONS

W = Two Working Joints (Use only if repair is full roadway width and uniform length (across all lanes))
T = Two Tied Joints
B = One Working & One Tied Joint
R = Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

SPECIFICATIONS

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

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

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.

SCOPE OF WORK

This project consists of full depth replacement of concrete pavement in areas where concrete pavement blowups or major failures have occurred. Full depth areas vary in length and width, however the minimum length is 4 feet.

This project consists of full depth replacement of concrete pavement.

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.

EXISTING PCC PAVEMENT

The existing pavement is Nonreinforced PCC Pavement.

Route	Pavement Thickness
SD Hwy 34	8”
SD Hwy 42	9”
Interstate 229 Mainline	10”
I-229 & Louise Ave.	9.5”
I-229 & Western Ave.	9”
Cliff Ave. between 41st St. and Big Sioux River	9”
Interstate 29 & 60th Street	9”
Interstate 90	11”

Existing contraction joints are spaced at approximately 20'. Longitudinal joints are reinforced with No. 5 x 24” deformed tie bars spaced 30” to 48” center to center. Transverse joints are reinforced with 1¼” x 18” plain round dowel bars spaced 12” center to center.

On SD Hwy 34 the existing transverse contraction joints are spaced at approximately 15'. The rural section has transverse joints that are skewed 2.5’ in 15’.

The aggregate in the existing PCC Pavement is quartzite.

NONREINFORCED PCC PAVEMENT REPAIR - GENERAL

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

Existing concrete pavement shall be sawed full depth at the beginning and end of the PCCP repair areas. When either the beginning or end of a PCCP repair area falls close to an existing joint or crack, the PCCP repair area shall be extended to eliminate the existing joint or crack. Where possible, new working joints shall be adjacent to existing working joints.

Saw cuts that extend beyond the repair area shall be minimized and filled with a non-shrinkage mortar mix at the Contractor’s expense.

Existing concrete pavement in the replacement areas shall be removed by the lift out method or by means that minimize damage to the base and sides of remaining in place concrete. All removed material shall be removed from within the right-of-way by the end of the workday. Damage to adjacent concrete caused by the Contractor’s operations shall be removed and replaced at the Contractor’s expense.

If the pavement replacement area is entirely on either side of the existing contraction joint, the location of one of the working joints will be at the original location. Any existing dowel bar assemblies shall be sawed off or removed.

Concrete placed adjacent to asphalt shoulders shall be formed full depth to match the width of existing concrete pavement. Asphalt shoulders adjacent to concrete pavement replacements shall be repaired with new hot-mix asphalt.

At repair locations where the new working joint is not opposite the existing working joint, the Contractor shall place a ¼ inch preformed asphalt expansion joint material along the longitudinal joint from the existing working joint to the new working joint. The expansion joint material shall meet the requirements of AASHTO M33. Cost for this material shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

All joints (longitudinal and transverse) through and around the repair areas will be sawed and sealed in accordance with the details shown in these plans. Refer to Saw and Seal Joints notes.

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 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 at no additional cost to the State.

Cost for this work shall be incidental to the contract unit prices per square yard for Nonreinforced PCC Pavement Repair and Fast Track Concrete for PCC Pavement Repair.

NONREINFORCED PCC PAVEMENT REPAIR

Concrete for four-lane roadway repair shall meet the requirements of the Standard Specifications Section 380, except as modified by the following notes:

The fine aggregate shall be screened over a one-inch square-opening screen just prior to introduction into the concrete paving mix.

The slump requirement will be limited to 3" maximum after water reducer is added and the concrete shall contain 4.5% to 7.0% entrained air. The concrete mix shall contain a minimum of 50% coarse aggregate by weight. Coarse aggregate shall be crushed ledge rock, Size No. 1 unless an alternative gradation is approved by the Concrete Engineer as part of the mix design submittal. The concrete mix shall contain at least 650 lbs of Type I, II or 600 lbs of III cement per cubic yard. The minimum 28 day compressive strength shall be 4,000 psi. The Contractor is responsible for the mix design used. The Contractor shall submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

The use of a water reducer at manufacturer's recommended dosage will be required.

Concrete shall be cured with white pigmented curing compound (AASHTO M148, Type 2) applied as soon as practical at a rate of 125 square feet per gallon. Concrete shall be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60 degrees Fahrenheit or higher throughout the cure period. If the concrete temperature falls below 60 degrees Fahrenheit, the cure time shall be extended or other measures shall be taken, at no additional cost to the State. In addition to the curing requirements a strength of 4,000 psi must be attained prior to opening to traffic.

Concrete shall be covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. Insulation blanket shall have an R-value of at least 0.5, as rated by the manufacturer. Insulation blanket shall be left in place, except for joint sawing operations. Insulation blanket shall be overlapped on to the existing concrete by 4’.

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing concrete, sawing and sealing joints, repairing asphalt shoulders, labor, tools and equipment shall be included in the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

FAST TRACK CONCRETE FOR PCC PAVEMENT REPAIR

Fast Track Concrete shall be used for two-lane roadway & I-229 repair locations to ensure that the pavement repair area has obtained 3800 psi within 8 hours after placement so it can be opened to traffic.

The slump requirement prior to use of a set accelerator or super-plasticizer will be limited to 2" maximum. After the addition of all admixtures the maximum slump shall be 8 inches and the concrete shall contain 4.5% to 7.5% entrained air. The concrete mixture shall contain a minimum of 50% coarse aggregate by weight. The concrete mix shall contain at least 700 lbs. of type I, II, or 650 lbs of III cement per cubic yard. The minimum 28 day compressive strength shall be 4000 psi. Coarse aggregate shall be crushed ledge rock, Size No. 1, unless an alternative gradation is approved by the Concrete Engineer as part of the mix design submittal. The Contractor is responsible for the mix design used. The Contractor shall submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

The use of a set accelerator and super-plasticizer at manufacturer's recommended dosage will be required. Both admixtures shall be added at the project site.

Fast Track Concrete shall be cured with white pigmented curing compound (AASHTO M148, Type 2) applied as soon as practical at a rate of 125 square feet per gallon. In addition, the concrete shall be immediately covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. The insulation blanket shall have an R value of at least 0.5, as rated by the manufacturer. Insulation blanket shall be overlapped on to the existing concrete by 4’. The insulation blanket shall be left in place, except for joint sawing operations, until 3,800 psi strength is attained.

The contraction joint sawing shall be performed as soon as possible after placement of concrete to avoid random cracking. Contraction joints shall be initially sawed to the plans detailed depth and to a width of 1/8”.

The concrete repair area shall be removed, replaced, and opened to traffic in the same day during daylight hours. If the repair cannot be accomplished within the same day the Contractor shall place and compact gravel cushion within the repair area prior to night fall and the roadway shall be open to normal traffic. The Contractor shall be responsible for the additional cost for providing, placing and compacting the gravel cushion.

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing Fast Track Concrete, sawing and sealing joints, repairing asphalt shoulders, labor, tools and equipment shall be included in the contract unit price per square yard for Fast Track Concrete for PCC Pavement Repair.

STEEL BAR INSERTION

Locations and quantities of concrete repair are subject to change in the field at the discretion of the Engineer.
The Contractor will be responsible for ordering the actual quantity of steel bars necessary to complete the work.

On 8” concrete repair areas:
The Contractor shall insert the steel bars (1" x 18" epoxy coated plain round dowel bars and No. 8 x 18" epoxy coated deformed tie bars for transverse joints and No. 5 x 24” epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

On 8.5” to 11” concrete repair areas:
The Contractor shall insert the steel bars (1¼” x 18” epoxy coated plain round dowel bars and No. 9 x 18” epoxy coated deformed tie bars for transverse joints and No. 5 x 24” epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

Steel bars shall be cut to the specified length by sawing and shall be free from burring or other deformations. Shearing will not be permitted.

Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (equivalent to AASHTO M235, Type IV, Grade 3).

Steel bars shall be inserted in the transverse joint on 18" centers. The first steel bar in the transverse joint shall be placed 9" from the outside edge of the slab. Steel bars shall be inserted in the longitudinal joint on 30" centers and shall be a minimum of 15" from either transverse joint. A typical one-lane patch 12' wide and 6’ long will require 18 steel bars (8 in each transverse joint and 2 in the longitudinal joint).

The diameter of the drilled holes in the existing concrete pavement for the steel bars shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. Holes drilled into the existing concrete pavement shall be located at mid-depth of the slab and true and normal. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

A rigid frame or mechanical device will be required to guide the drill to ensure proper horizontal and vertical alignment of the steel bars in the drilled holes.

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturer’s designated rate and be equipped with an automatic shut-off. The pump shall shut off when any of the components are not being metered at the designated rate.

Fill the drilled holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Care shall be taken to prevent epoxy from running out of the horizontal holes prior to steel bar insertion. Rotate the steel bar during insertion to eliminate voids and ensure complete bonding of the bar. Insertion by the dipping method will not be allowed.

Cost for the epoxy resin adhesive, steel bars, drilling of holes, inserting the steel bars into the drilled holes and all other items incidental to the insertion of the steel bars shall be included in the contract unit price per each for Insert Steel Bar In PCC Pavement.

SAW AND SEAL JOINTS

All longitudinal and transverse joints at concrete repair areas shall be sawed and sealed.

Joints shall not be sealed unless they are thoroughly clean and dry. Cleaning shall be accomplished by sand blasting and other tools as necessary. Just prior to sealing, each joint shall be blown out using a jet of compressed air to remove all traces of dust.

Longitudinal and transverse joints in urban sections shall be sealed with Hot Poured Elastic Joint Sealer. Transverse joints in rural sections shall be sealed with Low Modulus Silicone Sealant. Longitudinal joints in rural sections may be sealed with either Hot Poured Elastic Joint Sealer or Low Modulus Silicone Sealant.

Cost for sawing and sealing of the longitudinal construction joint and both transverse joints shall be incidental to the contract unit prices per square yard for Nonreinforced PCC Pavement Repair and/or Fast Track Concrete for PCC Pavement Repair.

CONCRETE CURB AND GUTTER

Existing concrete curb and gutter shall be removed and replaced as detailed in these plans or as directed by the Engineer. If the end of any section to be removed does not fall on an existing joint, a sawed joint (3" to 4" deep) must be made to provide a vertical face with the new joint.

Existing foundation material shall be shaped and compacted to a firm, uniform bearing surface, conforming to the existing section or established grades as set by the Engineer. Unsuitable foundation material shall be removed and replaced as directed. Cushion material shall be furnished, placed, and compacted by the Contractor.

Cost for labor, equipment, material and incidentals required for excavation and providing cushion material shall be incidental to the contract unit prices for the various items.

Curb and Gutter shall be tied to existing PCC pavement with drilled in No. 5 x 24” epoxy coated deformed tie bars spaced 30” center to center. Refer to the notes for Steel Bar Insertion. Cost for this work shall be included in the contract unit price per each for Insert Steel Bar in Concrete Pavement.

There will be no separate payment for Curb and sidewalk ramps and/or curb openings and detectable warnings. Cost for this work shall be included in the contract unit prices for the various items.

The Contractor shall satisfactorily restore all disturbed areas adjacent to the new concrete placement to the satisfaction of the Engineer. Cost for this restoration work shall be incidental to the contract unit prices for the various items.

The Contractor shall use caution when removing existing Curb and Gutter. If any adjacent colored median pavement, sidewalk or detectable warning panels are damaged during construction, the Contractor will be responsible for repair or replacement as determined by the Engineer at no cost to the Department.

Quantities shall be field verified for proper payment. All areas to be replaced shall be designated by the Engineer.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking (except stop bars) shall consist of Temporary Road Markers and shall be included in the contract unit price per foot for Temporary Road Markers. One workspace requiring 1,000’ double yellow on SD34 undivided, ten workspaces requiring 1,000’ double yellow on SD42 undivided, two workspaces with 350’ tapers on (I29 & Benson Road), eight workspaces with 660’ tapers on I-29 & SD Hwy 38 (60th Street North), two workspaces with 780’ tapers on I229, seven workspaces with interim white edgeline on I229 ramps equals 7000’, four workspaces with 780’ tapers on I90, four work spaces on Cliff Avenue with 320’ tapers, equals 39,660’.

Temporary pavement marking for 24” white stop bars shall consist of 4” Temporary Pavement Marking Tape – Type 2 and shall be included in the contract unit price per foot for 4” Temporary Pavement Marking Tape – Type 2. (10 workspaces at 144’ = 1,440’ on SD Hwy 42) (1 workspace at 144’ = 144’ on SD Hwy 34) equals = 1584’.

SEQUENCE OF OPERATION

Due to the Sturgis Motorcycle Rally, no lane closures will be allowed (except for emergency repair) in the:

- I 90 Westbound lanes from Thursday, August 5th through Monday, August 9, 2010.
- I 90 Eastbound lanes from Thursday, August 12 through Monday, August 16, 2010.

Any work activities on I 229 mainline will be conducted between 6:30 p.m. and 6:00 a.m. only. Contractor should perform a test pour at another location to ensure that a strength of 3800 psi will be attained by 6:00 am on I-229. Traffic shall be returned to the normal driving lanes during nonworking hours. Traffic shall be maintained at all times on the Interstate 229 on\off ramps.

Any work activities on SD Hwy 38 (60th Street North) within 100 feet of the I-29 Interchange on\off ramps shall be conducted between Friday 6:30 p.m. and 6:00 a.m. Monday only. Traffic shall be returned to the normal driving lanes during nonworking hours. Traffic shall be maintained at all times on the Interstate 29 on\off ramps.

Any work activities on I 229 mainline for Median Barrier repair will be conducted between 8:30 a.m. and 3:00 p.m. and between 6:30 p.m. and 6:00 a.m. only. Traffic shall be returned to the normal driving lanes during nonworking hours. Traffic shall be maintained at all times on the Interstate 229 on\off ramps.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. 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 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.

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.

Sufficient traffic control devices have been included in these plans to sign two workspace on a two-lane highway and two workspace on a four-lane highway. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per unit for Traffic Control.

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR

A Type III Barricade shall be installed at the end of a lane closure taper as detailed in these plans. Additional Type III Barricades shall be installed facing traffic within the closed lane at a spacing of 1/4 mile. Each mainline concrete repair location from which the in place concrete has been removed shall be marked with a minimum of two reflectorized drums. In areas containing numerous concrete repair locations, two reflectorized drums should be installed at a spacing of 660’ alternating with the Type lll Barricades.

Signs may be mounted on portable supports.

Construction workspaces on divided roadways shall be limited to 3 miles in length. Construction workspaces on rural undivided roadways shall be limited to 400 feet in length or less depending on site distance. The distance between the closest points of any two construction workspaces, including channeling devices, shall not be less than 1 mile. Drivers in two-way traffic workspaces must be able to see approaching traffic through and beyond the work zone.

For two lane rural portion of the project, the Contractor will be required to use Flaggers at each lane closure during peak traffic hours. Peak traffic hours are assumed to be between 6:30 AM to 8:30 AM and from 4:00 PM to 6:00 PM.

Construction workspaces in urban areas shall be limited to 3 blocks or 1000 feet in length whichever is less. The minimum distance between workspaces shall be 3 blocks or 1000 feet.

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC Pavement repair areas shall be filled with cold asphalt mix during the cure of concrete placed in a repair area, and until the lane open to traffic is closed. Cold asphalt mix can be obtained from the Department of Transportation Maintenance shops located in Sioux Falls.

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR (Continued)

Holes in the asphalt shoulders created during removal and replacement of PCC Pavement repair areas shall be filled with gravel or hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Hot-mix asphalt concrete shall be furnished by the Contractor.

Cost for furnishing asphalt concrete, hauling and placing asphalt shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair or Fast Track Concrete for PCC Pavement Repair.

Routing traffic onto the asphalt or gravel shoulders during any phase of the construction will not be allowed.

Damage to the shoulders, median or ditch due to the Contractor's operations shall be repaired by the Contractor, to the satisfaction of the Engineer, at no expense to the State. This includes the routing of traffic onto these shoulders around the work zones.

Extra care shall be taken to protect the in place asphalt shoulders. In all work zones in these plans with asphalt shoulders, the same channelizing devices and spacing used on centerline, will also be required on the shoulders. These channelizing devices shall be placed in locations to adequately keep traffic completely off these shoulders. Continuous maintenance of the shoulder devices will be required to keep them in place. Cost for these extra channelizing devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Joints in approaches to signalized intersections containing vehicle detector loops shall not be sawed, sealed or otherwise disturbed.

The Contractor will be required to contact the City of Sioux Falls to adjust signal timings to accommodate traffic when a lane is closed near a signalized intersection.

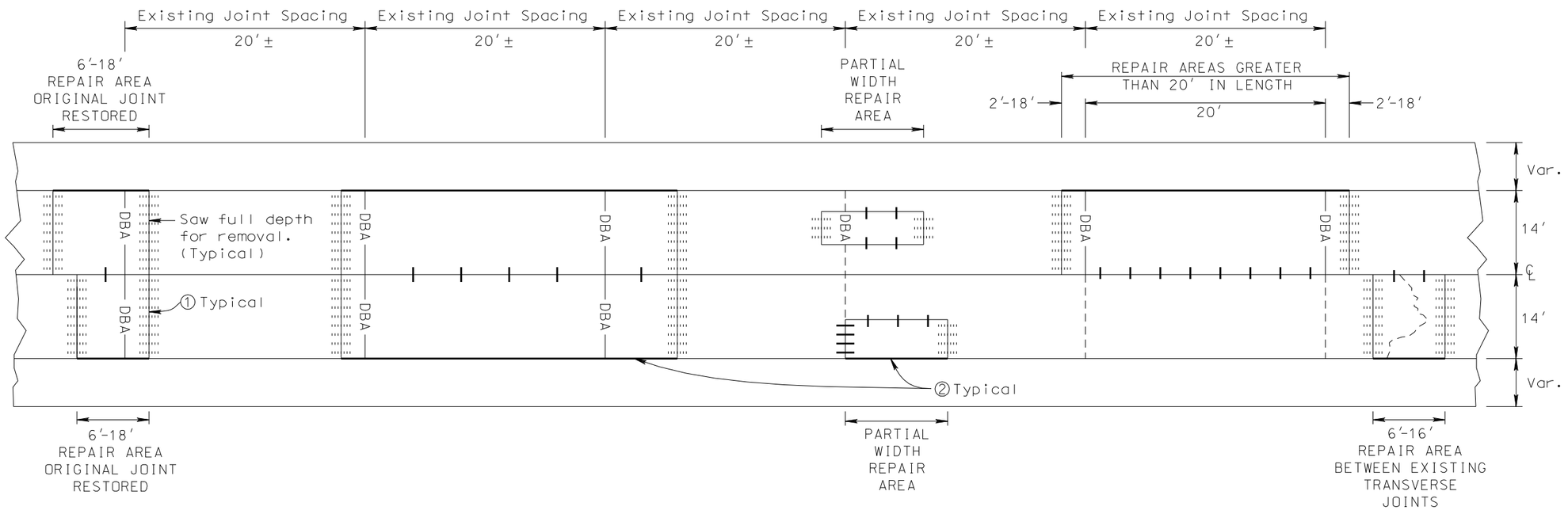
Tall reflectorized cones (42” minimum height) or Reflectorized drums or Type II Barricades shall be used to maintain a minimum of two-way traffic at intersecting streets. The Contractor shall mark and maintain alternating one-way access to businesses and residences along the project with cones, drums or Type I Barricades. The Contractor shall advise affected businesses before restriction and anticipated duration of construction time.

The Contractor shall maintain pedestrian access at crosswalk locations. Additional traffic control devices shall be used as necessary to accommodate the pedestrian traffic if work activities block an existing crosswalk.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	12	35

NONREINFORCED PCC PAVEMENT REPAIR

TWO LANE WITH ASPHALT CONCRETE SHOULDERS
TYPICAL REPAIR AREAS



NOTES:

1. Where possible, transverse joints shall be constructed full roadway width.
2. All edges of repair areas that are adjacent to asphalt concrete shall be formed to match the width of the existing concrete pavement.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 4 feet in length)

| No. 5 x 30" epoxy coated deformed tie bars.
Sawed Joint - spaced 48" center to center.
Construction Joint - spaced 48" center to center.

| No. 5 x 24" epoxy coated deformed tie bars.
Drilled In - spaced 30" center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼" x 18" epoxy coated plain round dowel bars spaced 18" center to center.

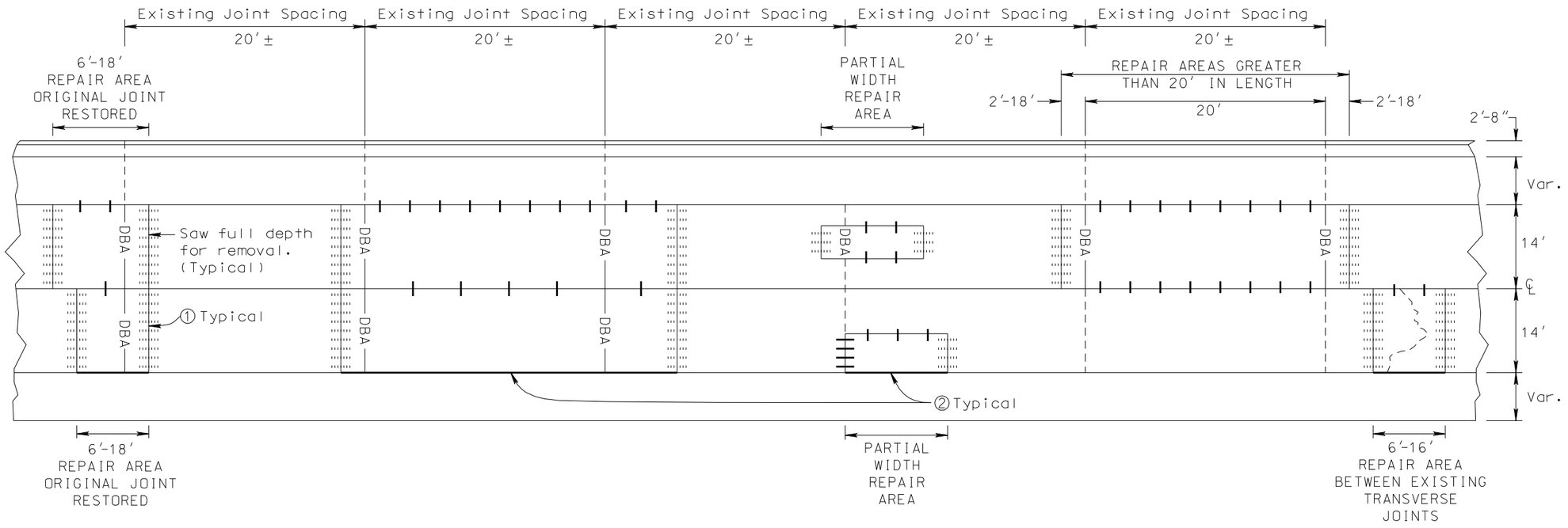
····· Drilled in No. 9 x 18" epoxy coated deformed tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	13	35

NONREINFORCED PCC PAVEMENT REPAIR

TWO LANE WITH ONE PCC SHOULDER WITH CURB AND GUTTER
TYPICAL REPAIR AREAS



NOTES:

1. Where possible, transverse joints shall be constructed full roadway width.
2. All edges of repair areas that are adjacent to asphalt concrete shall be formed to match the width of the existing concrete pavement.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 4 feet in length)

| No. 5 x 30″ epoxy coated deformed tie bars.
Sawed Joint - spaced 48″ center to center.
Construction Joint - spaced 48″ center to center.

| No. 5 x 24″ epoxy coated deformed tie bars.
Drilled In - spaced 30″ center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

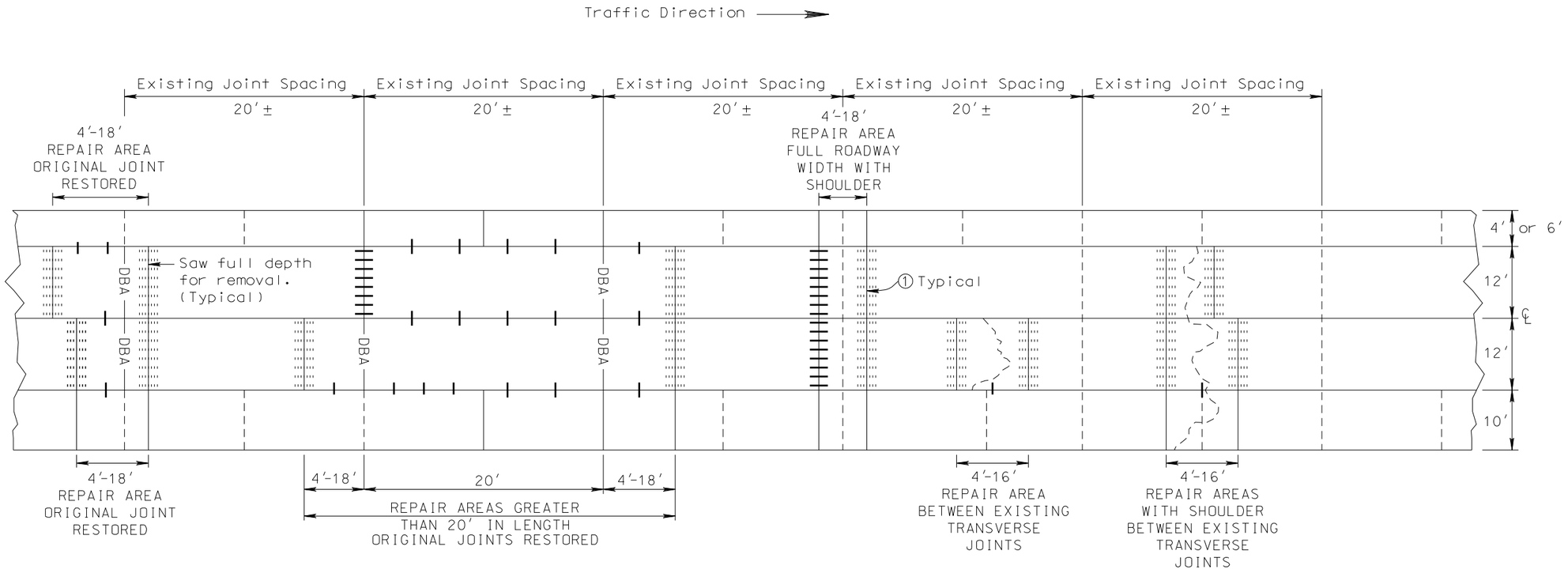
..... Drilled in No. 9 x 18″ epoxy coated deformed tie bars spaced 18″ center to center.

DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	14	35

NONREINFORCED PCC PAVEMENT REPAIR

FOUR LANE DIVIDED WITH PCCP SHOULDERS
TYPICAL REPAIR AREAS



NOTE:

① Where possible, transverse joints shall be constructed full roadway width.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 4 feet in length)

| No. 5 x 30″ epoxy coated deformed tie bars.
Sawed Joint - spaced 48″ center to center.
Construction Joint - spaced 48″ center to center.

| No. 5 x 24″ epoxy coated deformed tie bars.
Drilled In - spaced 30″ center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

····· Drilled in No. 9 x 18″ epoxy coated deformed tie bars spaced 18″ center to center.

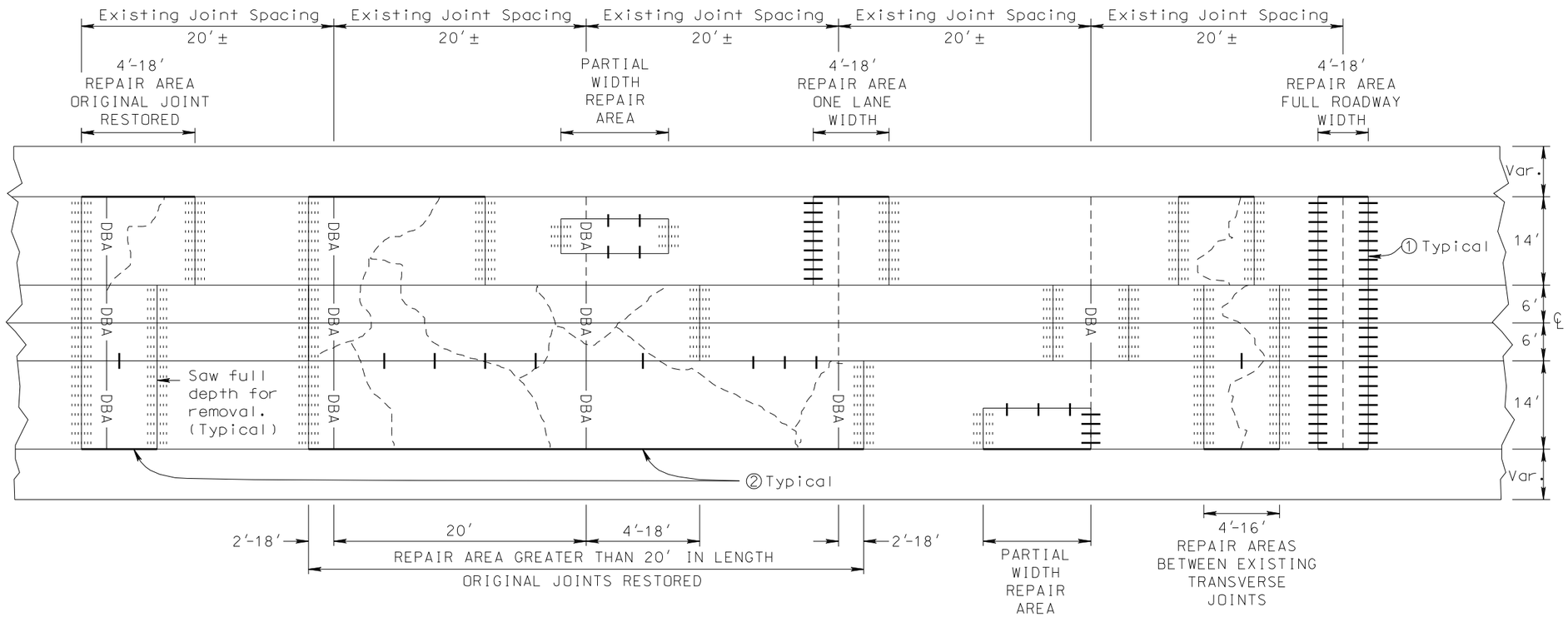
DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	15	35

NONREINFORCED PCC PAVEMENT REPAIR

TWO LANE WITH CENTER TURN LANE & ASPHALT CONCRETE SHOULDERS

TYPICAL REPAIR AREAS



NOTES:

1. Where possible, transverse joints shall be constructed full roadway width.
2. All edges of repair areas that are adjacent to asphalt concrete shall be formed to match the width of the existing concrete pavement.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 5 feet in length)

| No. 5 x 30" epoxy coated deformed tie bars.
Sawed Joint - spaced 48" center to center.
Construction Joint - spaced 48" center to center.

| No. 5 x 24" epoxy coated deformed tie bars.
Drilled In - spaced 30" center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼" x 18" epoxy coated plain round dowel bars spaced 18" center to center.

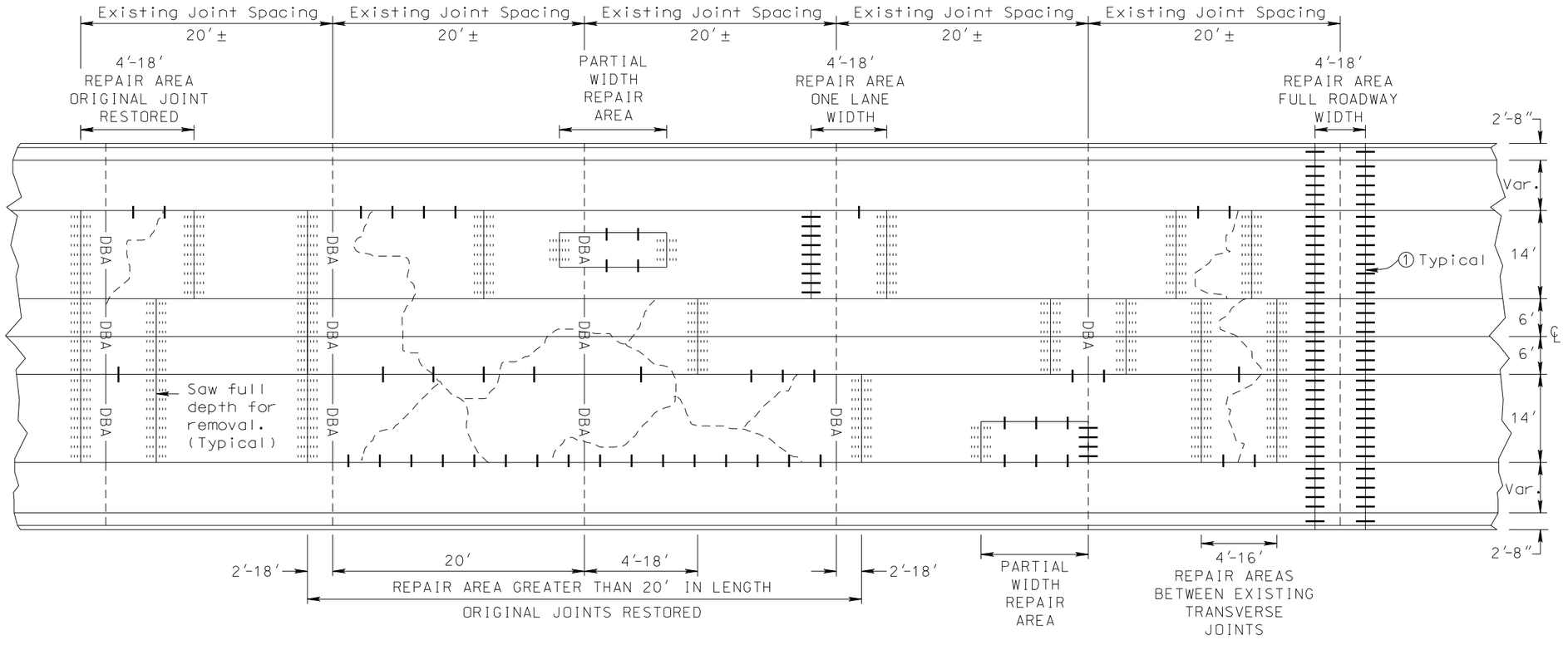
⋯⋯ Drilled in No. 9 x 18" epoxy coated deformed tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	16	35

NONREINFORCED PCC PAVEMENT REPAIR

TWO LANE WITH CENTER TURN LANE, PCCP SHOULDERS AND CURB & GUTTER
TYPICAL REPAIR AREAS



NOTES:

① Where possible, transverse joints shall be constructed full roadway width.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 5 feet in length)

| No. 5 x 30″ epoxy coated deformed tie bars.
Sawed Joint - spaced 48″ center to center.
Construction Joint - spaced 48″ center to center.

| No. 5 x 24″ epoxy coated deformed tie bars.
Drilled In - spaced 30″ center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

····· Drilled in No. 9 x 18″ epoxy coated deformed tie bars spaced 18″ center to center.

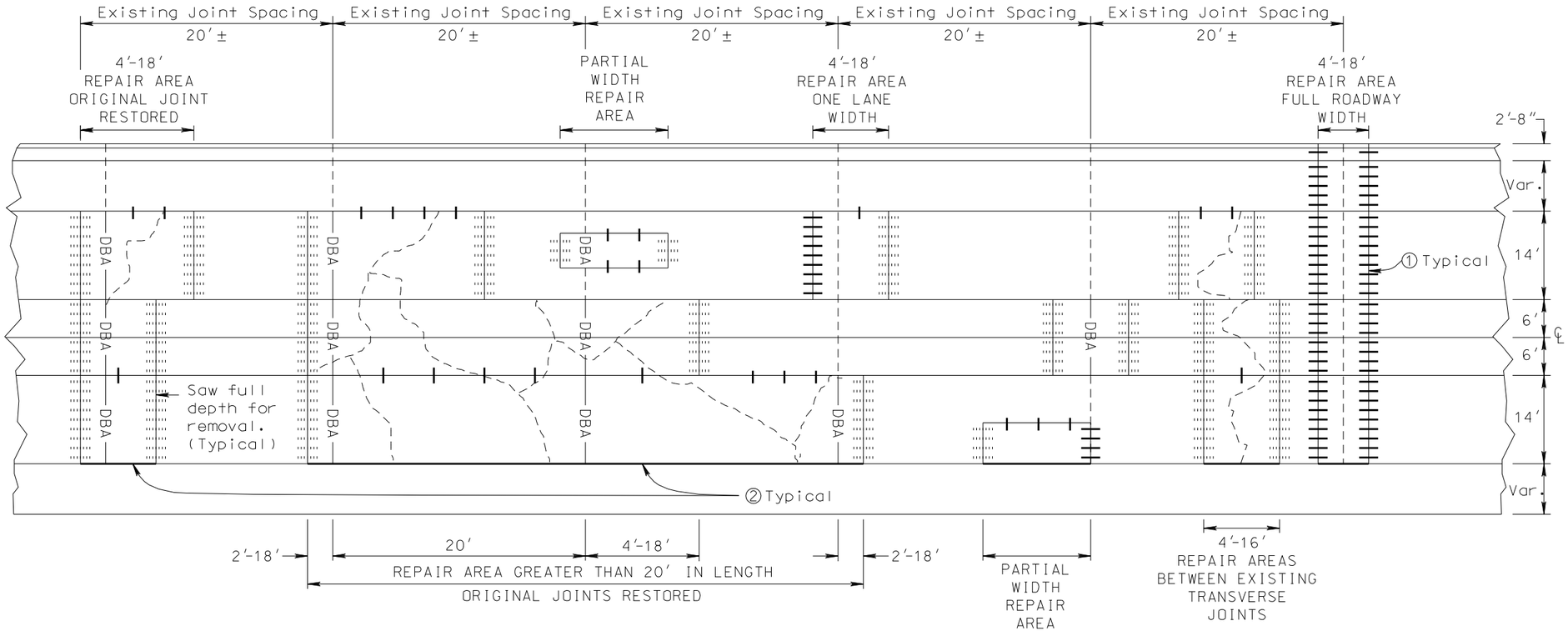
DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	17	35

NONREINFORCED PCC PAVEMENT REPAIR

TWO LANE WITH CENTER TURN LANE, ONE ASPHALT CONCRETE SHOULDER AND CURB & GUTTER

TYPICAL REPAIR AREAS



NOTES:

1. Where possible, transverse joints shall be constructed full roadway width.
2. All edges of repair areas that are adjacent to asphalt concrete shall be formed to match the width of the existing concrete pavement.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 5 feet in length)

| No. 5 x 30″ epoxy coated deformed tie bars.
Sawed Joint - spaced 48″ center to center.
Construction Joint - spaced 48″ center to center.

| No. 5 x 24″ epoxy coated deformed tie bars.
Drilled In - spaced 30″ center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

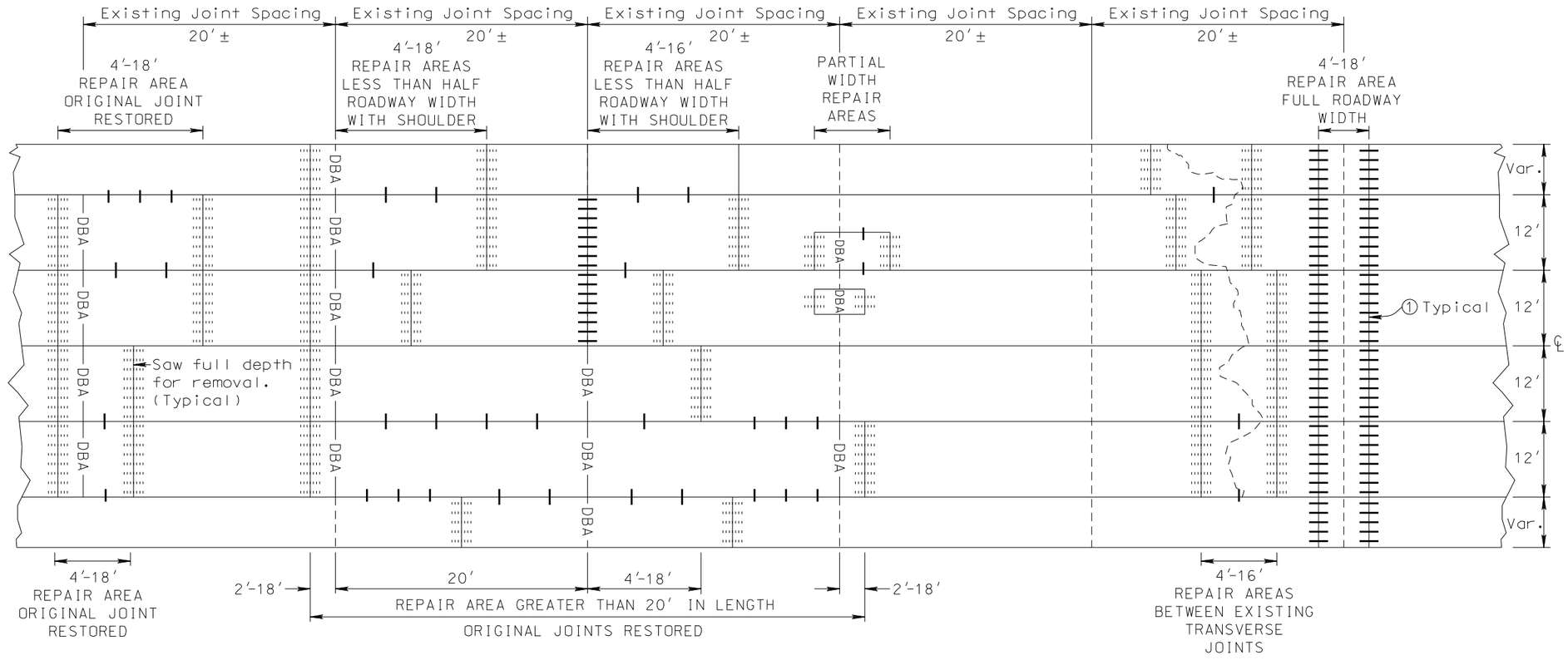
····· Drilled in No. 9 x 18″ epoxy coated deformed tie bars spaced 18″ center to center.

DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	18	35

NONREINFORCED PCC PAVEMENT REPAIR

FOUR LANE WITH PCCP SHOULDERS
TYPICAL REPAIR AREAS



NOTE:

① Where possible, transverse joints shall be constructed full roadway width.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 5 feet in length)

| No. 5 x 30″ epoxy coated deformed tie bars.
Sawed Joint - spaced 48″ center to center.
Construction Joint - spaced 48″ center to center.

| No. 5 x 24″ epoxy coated deformed tie bars.
Drilled In - spaced 30″ center to center.

Steel Bars for Transverse Joints

— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

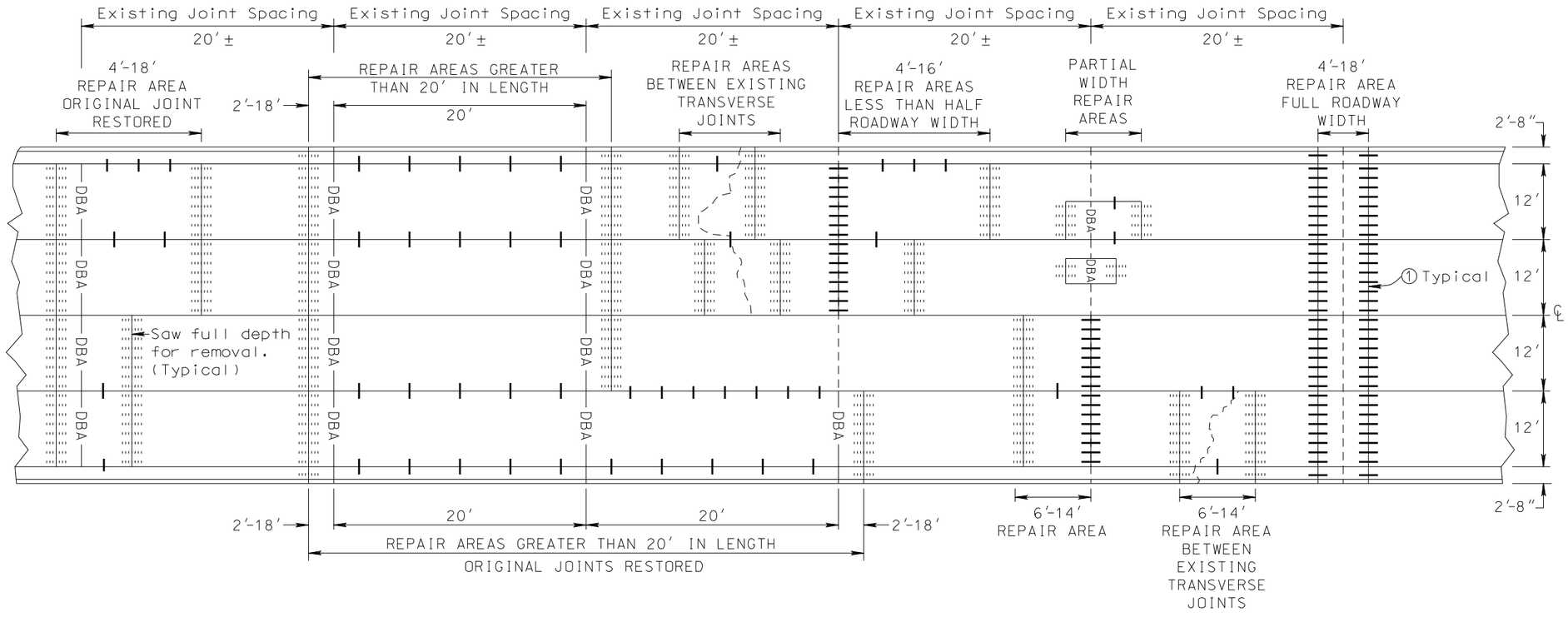
····· Drilled in No. 9 x 18″ epoxy coated deformed tie bars spaced 18″ center to center.

DBA Dowel Bar Assembly

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	19	35

NONREINFORCED PCC PAVEMENT REPAIR

FOUR LANE WITH CURB & GUTTER
TYPICAL REPAIR AREAS



NOTE:

(1) Where possible, transverse joints shall be constructed full roadway width.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 5 feet in length)

| No. 5 x 30″ epoxy coated deformed tie bars.
Sawed Joint - spaced 48″ center to center.
Construction Joint - spaced 48″ center to center.

| No. 5 x 24″ epoxy coated deformed tie bars.
Drilled In - spaced 30″ center to center.

Steel Bars for Transverse Joints

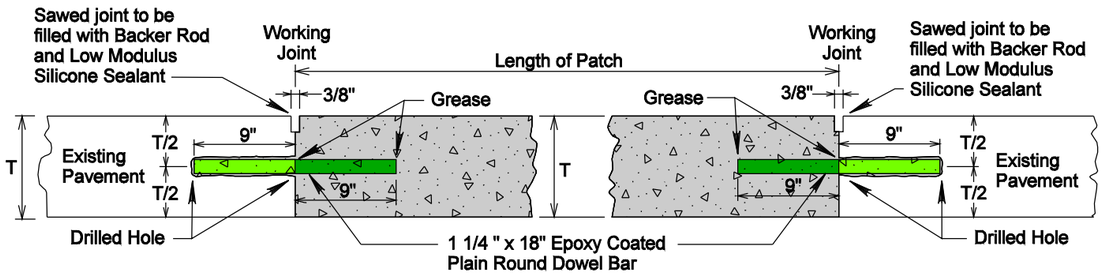
— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

····· Drilled in No. 9 x 18″ epoxy coated deformed tie bars spaced 18″ center to center.

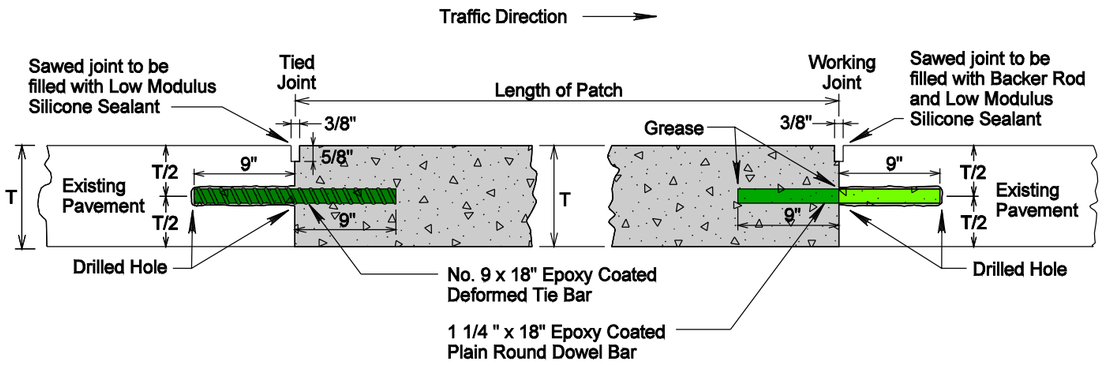
DBA Dowel Bar Assembly

NONREINFORCED PCC PAVEMENT REPAIR

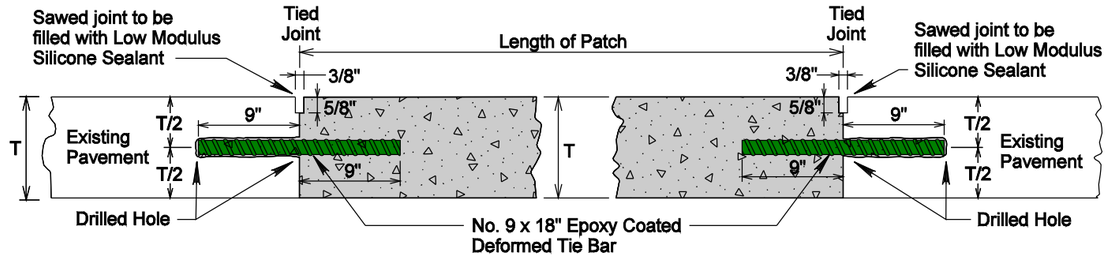
PLAIN ROUND DOWEL BAR INSERTION (TWO WORKING JOINTS)



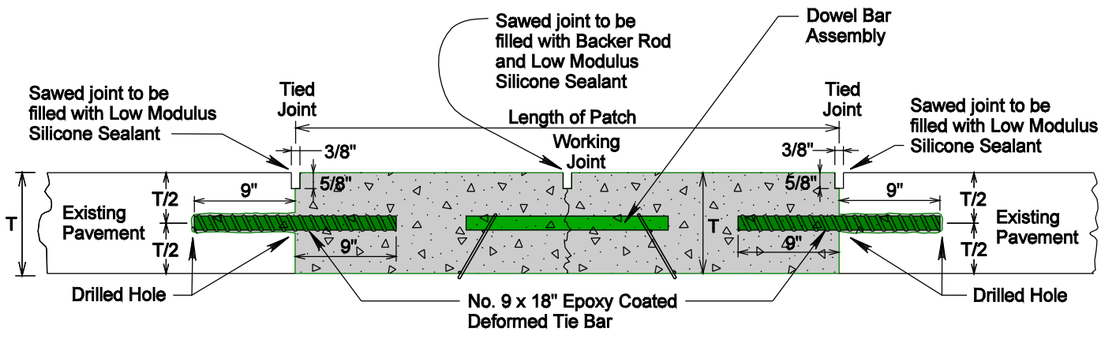
DEFORMED TIE BAR AND PLAIN ROUND DOWEL BAR INSERTION (ONE TIED JOINT AND ONE WORKING JOINT)



DEFORMED TIE BAR INSERTION (TWO TIED JOINTS)



DEFORMED TIE BAR INSERTION WITH DOWEL BAR ASSEMBLY (TWO TIED JOINTS AND ONE WORKING JOINT)



T = Existing and new pavement thickness.

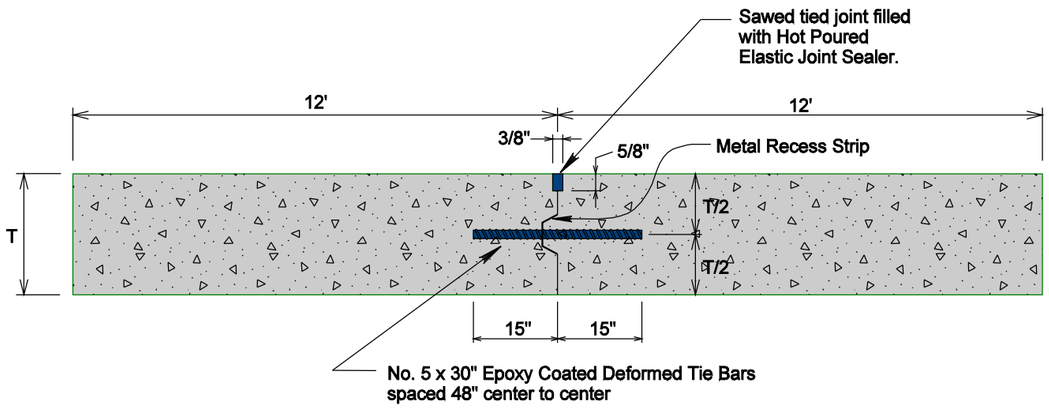
Bar embedded to a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Cost for furnishing and inserting steel bars (deformed tie and plain round dowel) shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

Cost for furnishing and installing dowel bar assembly shall be included in the contract unit price per each for Dowel Bar.

NONREINFORCED PCC PAVEMENT REPAIR

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY

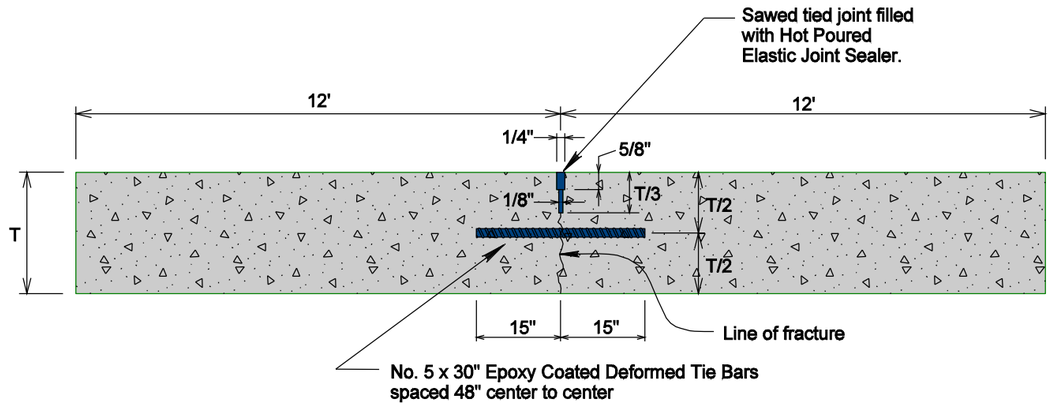


T = New pavement thickness.

Deformed tie bars will only be inserted on centerline when there is full width pavement removal.

Cost for furnishing and inserting centerline tie bars shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

SAWED LONGITUDINAL JOINT

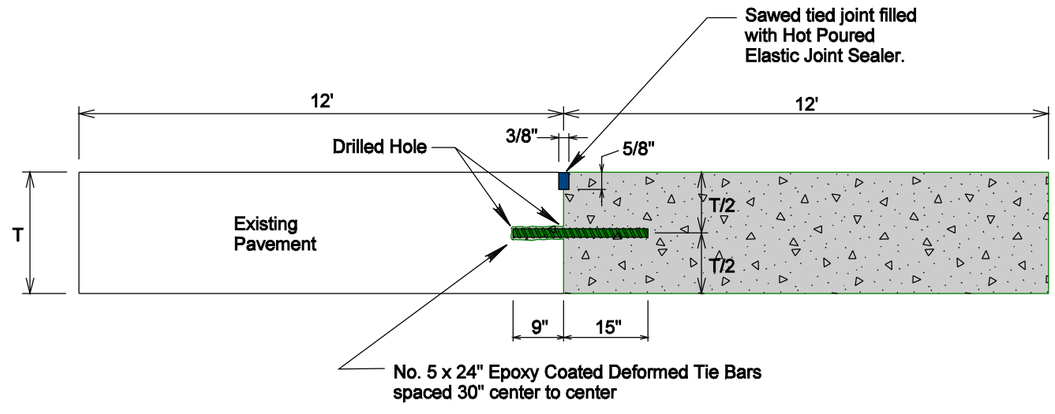


T = New pavement thickness.

The first saw cut to control cracking shall be a minimum of 1/3 the depth of the pavement. Additional sawing for widening the saw cut will be necessary.

Cost for furnishing and inserting centerline tie bars shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS



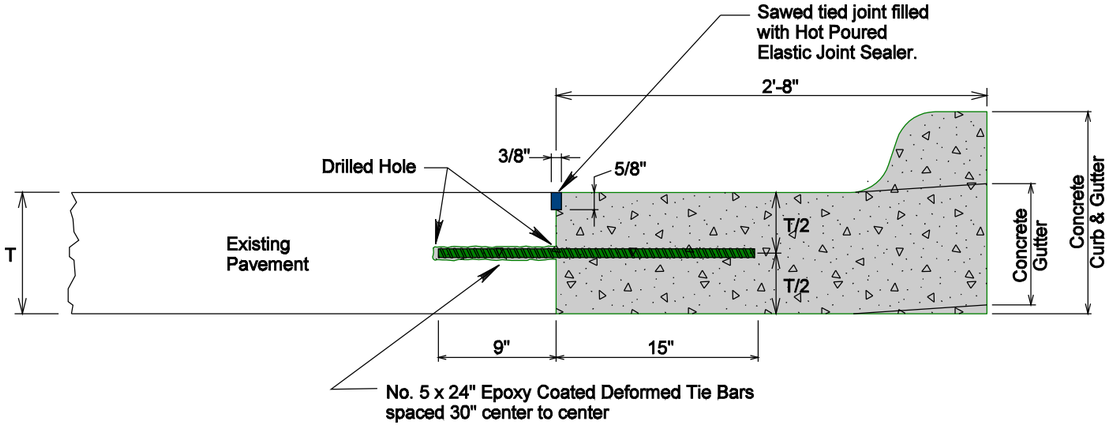
T = Existing and new pavement thickness.

Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

Cost for furnishing and inserting drilled in centerline tie bars shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS



T = Existing and new pavement thickness.

Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

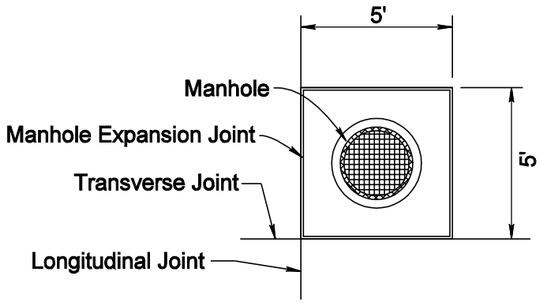
Cost for furnishing and inserting drilled in tie bars shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

TYPICAL PCC PAVEMENT REPAIR AROUND MANHOLES

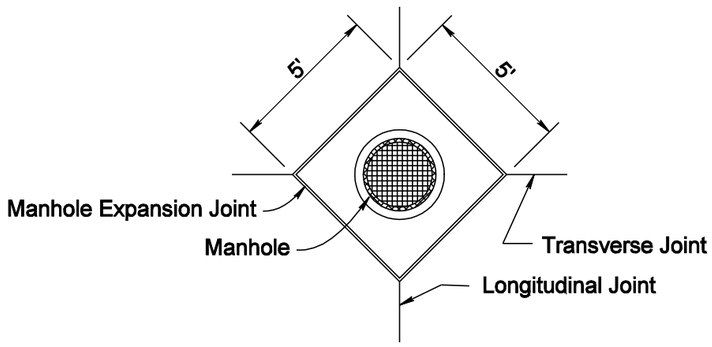
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	22	35

Plotting Date: 09-APR-2010

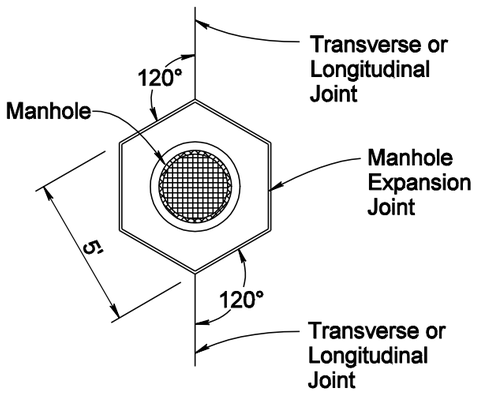
BOX-OUT DETAIL IN PCC PAVEMENT



Where the utility access is offset from the longitudinal and transverse joints

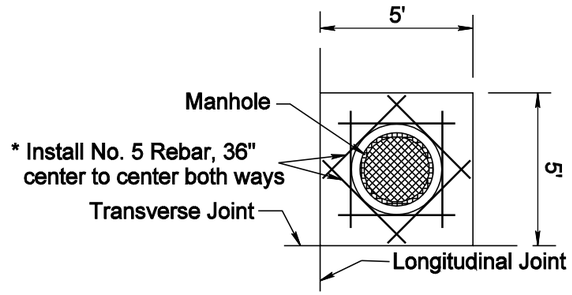


Where the utility access is intersected by the longitudinal and transverse joints

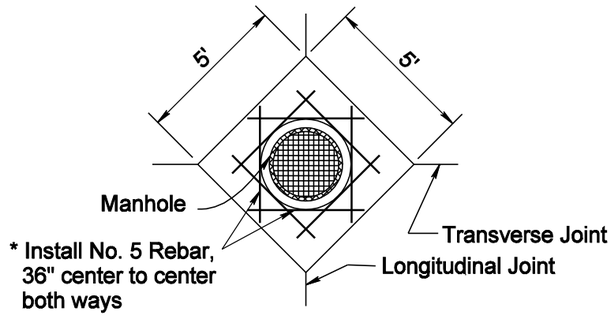


Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

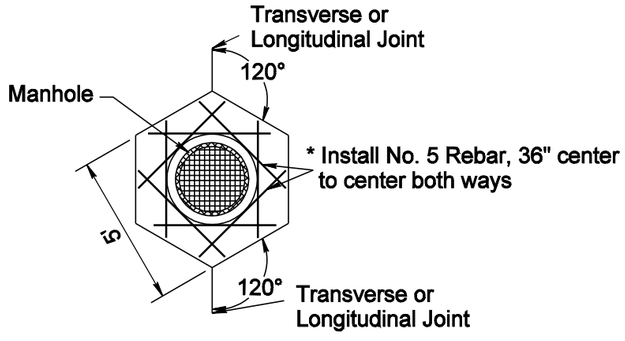
REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



Where the utility access is offset from the longitudinal and transverse joints

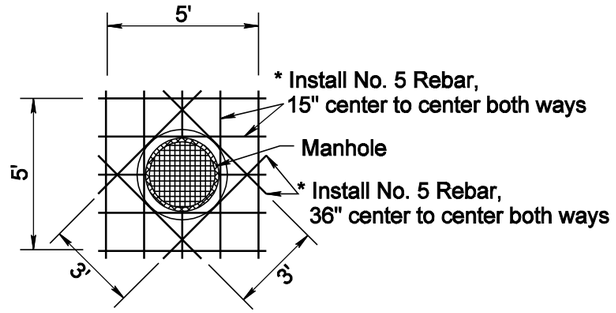


Where the utility access is intersected by the longitudinal and transverse joints



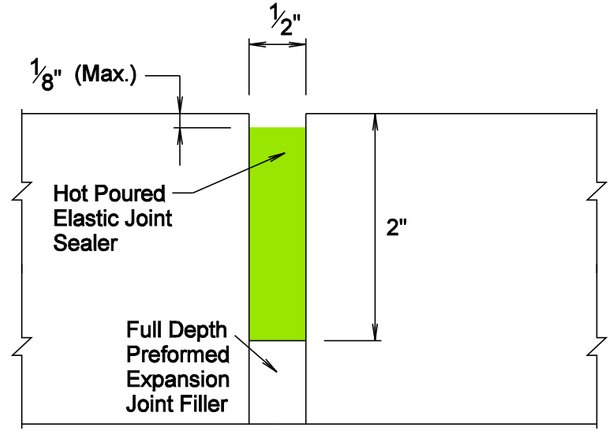
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

REBAR LAYOUT IN PCC PAVEMENT WITHOUT BOX-OUT



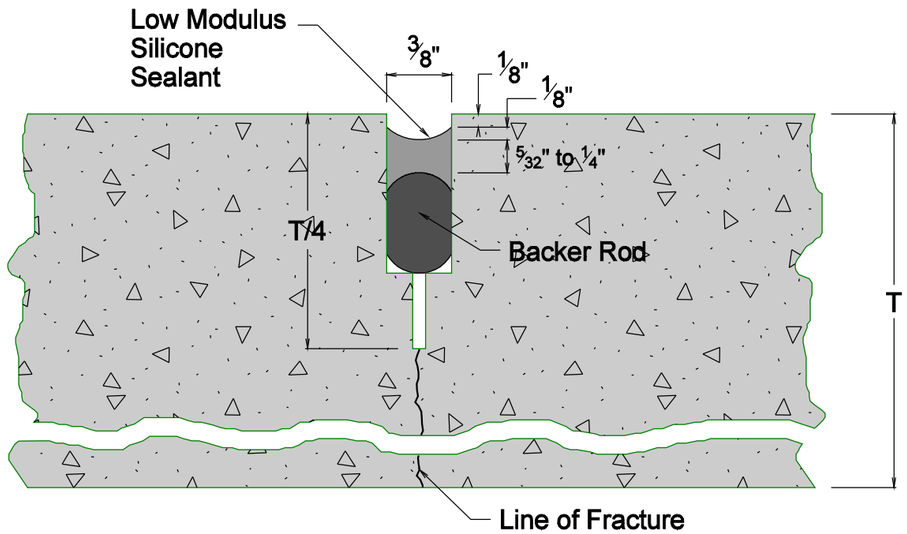
Note: The rebar shall not cross any joint in the concrete pavement. If manhole is next to a joint in the concrete pavement the Engineer shall approve a revised layout of the rebar.

MANHOLE EXPANSION JOINT DETAIL



* All rebar will be placed at the midpoint depth of the PCC Pavement. All cost associated with the installation of the rebar will be incidental to the contract unit price per square yard for the Nonreinforced PCC Pavement Repair or Fast Track Concrete for PCC Pavement Repair. When Box-Outs are used, the cost to construct them shall be incidental to the contract unit price per square yard for the Nonreinforced PCC Pavement Repair or Fast Track Concrete for PCC Pavement Repair

DETAILS FOR PCCP TRANSVERSE CONTRACTION JOINT



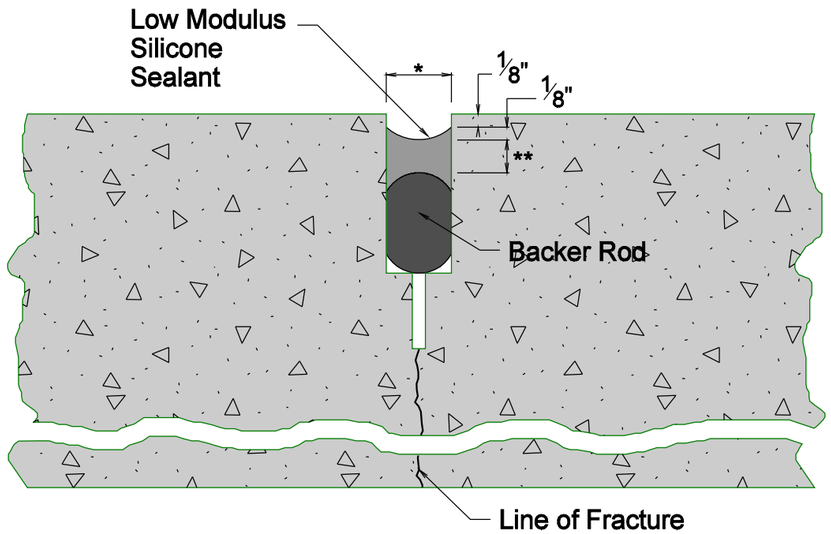
T = Pavement Thickness

NOTES:

The first saw cut to control cracking shall be a minimum of 1/4 the depth of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the Low Modulus Silicone Joint Sealant will be necessary.

Backer Rod shall be of nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

DETAILS FOR LOW MODULUS SILICONE SEALANT ON IN PLACE PCCP JOINTS



NOTES:

To adequately clean the joint, the edges must be sawed.

Backer Rod shall be of nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

* Joint width shall be 1/2 inch minimum.

** Thickness of sealant shall be 1/2 the joint width for joint widths less than or equal to one inch. For joint widths of more than one inch the thickness of sealant shall be 1/2 inch.

SIGN TABULATION FOR 034-272 PCN I1PR

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2a	36" x 18"	END ROAD WORK	2	17	34
R1-1	48" x 48"	STOP	2	34	68
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)	1	34	34
W3-1a	48" x 48"	STOP AHEAD (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
				TOTAL UNITS	**408**

SIGN TABULATION FOR 042-271 PCN I1PS

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2a	36" x 18"	END ROAD WORK	4	17	68
R1-1	48" x 48"	STOP	4	34	136
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)	2	34	68
W3-1a	48" x 48"	STOP AHEAD (SYMBOL)	4	34	136
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK AHEAD	4	34	136
W20-4	48" x 48"	ONE LANE ROAD AHEAD	4	34	136
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
				TOTAL UNITS	**884**

SIGN TABULATION FOR 229 N-271 & 229 S-271 PCN I1PT & I1PU

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2a	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" X 48"	RAMP NARROWS	2	34	68
W13-1	24" x 24"	ADVISORY SPEED PLATE	2	16	32
W13-4	36" X 36"	ON RAMP	2	27	54
W20-1	48" x 48"	ROAD WORK AHEAD	6	34	204
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	10	40	400
				TOTAL UNITS	**1132**

SIGN TABULATION FOR 029 N-271 & 029 S-271 PCN I1PW & I1PX

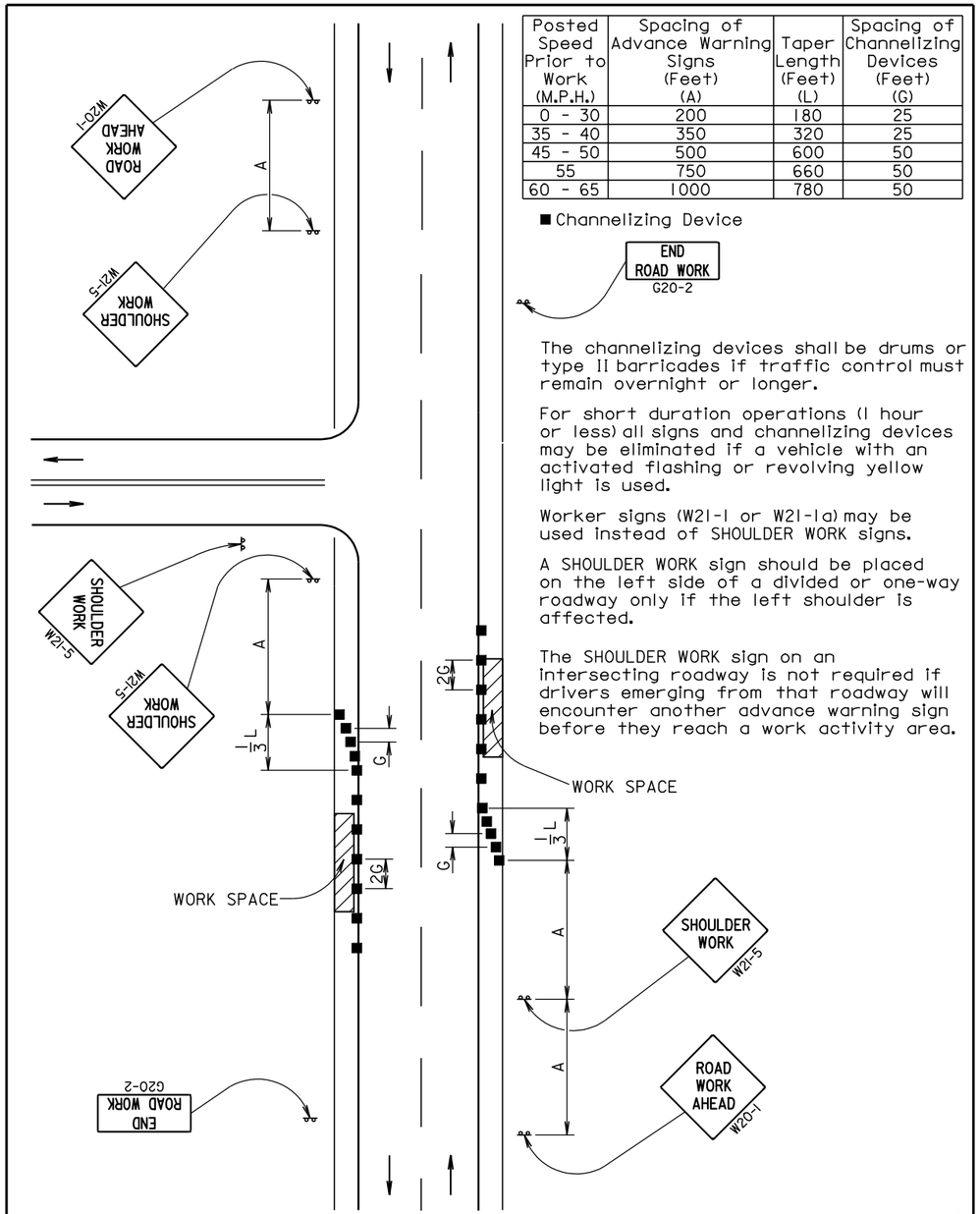
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2a	36" x 18"	END ROAD WORK	2	17	34
R3-7	30" X 30"	(LEFT OR RIGHT) LANE MUST TURN (LEFT OR RIGHT)	2	21	42
W1-6	48" x 24"	LARGE ARROW	1	24	24
W4-1A	48" X 48"	THRU TRAFFIC MERGE LEFT	1	34	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	2	34	68
W13-1	24" x 24"	ADVISORY SPEED PLATE	2	16	32
W13-4	36" x 36"	ON RAMP	2	27	54
W20-1	48" x 48"	ROAD WORK AHEAD	6	34	204
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
*****	*****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED	5	56	280
				TOTAL UNITS	**1112**

SIGN TABULATION FOR 090 E-271 & 090 W-271 PCN I1Q4 & I1Q5

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2a	36" x 18"	END ROAD WORK	2	17	34
R2-1	30" x 36"	SPEED LIMIT __	8	23	184
W3-5	48" x 48"	SPEED REDUCTION (__ MPH)	4	34	136
W4-1A	48" X 48"	THRU TRAFFIC MERGE LEFT	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	2	34	68
W13-1	24" x 24"	ADVISORY SPEED PLATE	2	16	32
W13-4	36" x 36"	ON RAMP	2	27	54
W20-1	48" x 48"	ROAD WORK AHEAD	6	34	204
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	4	34	136
SPECIAL	30" x 24"	FINES DOUBLED	4	18	72
*****	*****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED	4	56	224
				TOTAL UNITS	**1484**

SIGN TABULATION FOR 229 N-271 PCN I1QD

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2a	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W20-1	48" x 48"	ROAD WORK AHEAD	4	34	136
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
				TOTAL UNITS	**590**



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 type II barricades if traffic control must remain overnight or longer.

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

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

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

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

July 1, 2005

Published Date: 1st Qtr. 2010

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK ON SHOULDERS

PLATE NUMBER 634.03

Sheet 1 of 1

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

Flagger

■ Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

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

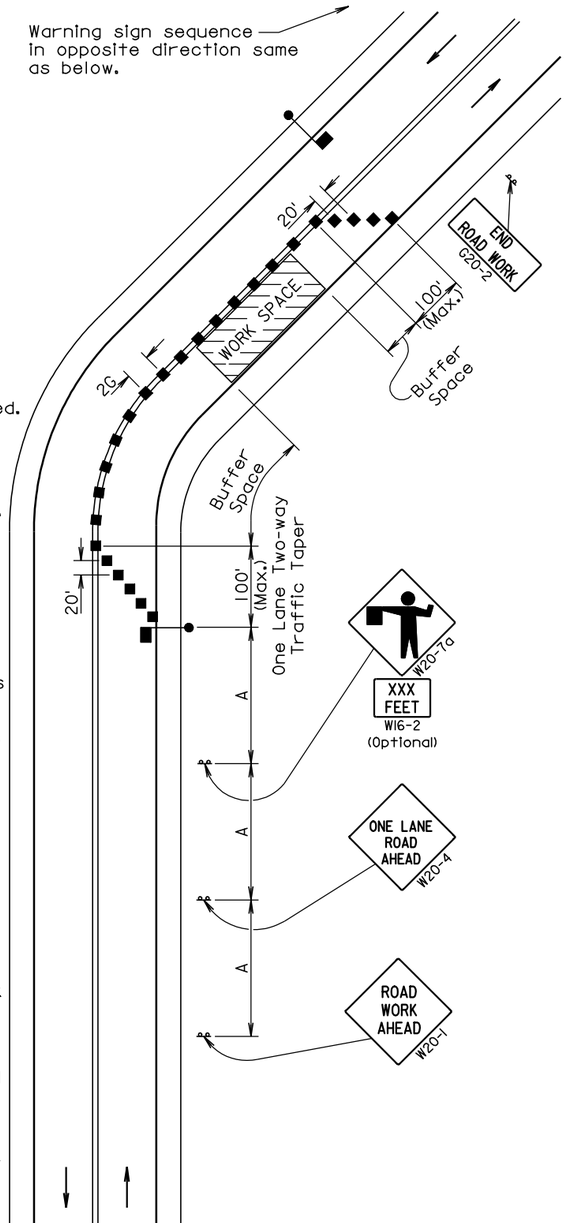
The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums or type II barricades along the centerline.

END ROAD WORK G20-2

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

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

The buffer space shall be a sufficient length so that the channelizing devices are visible to approaching traffic.



June 26, 2006

Published Date: 1st Qtr. 2010

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER 634.23

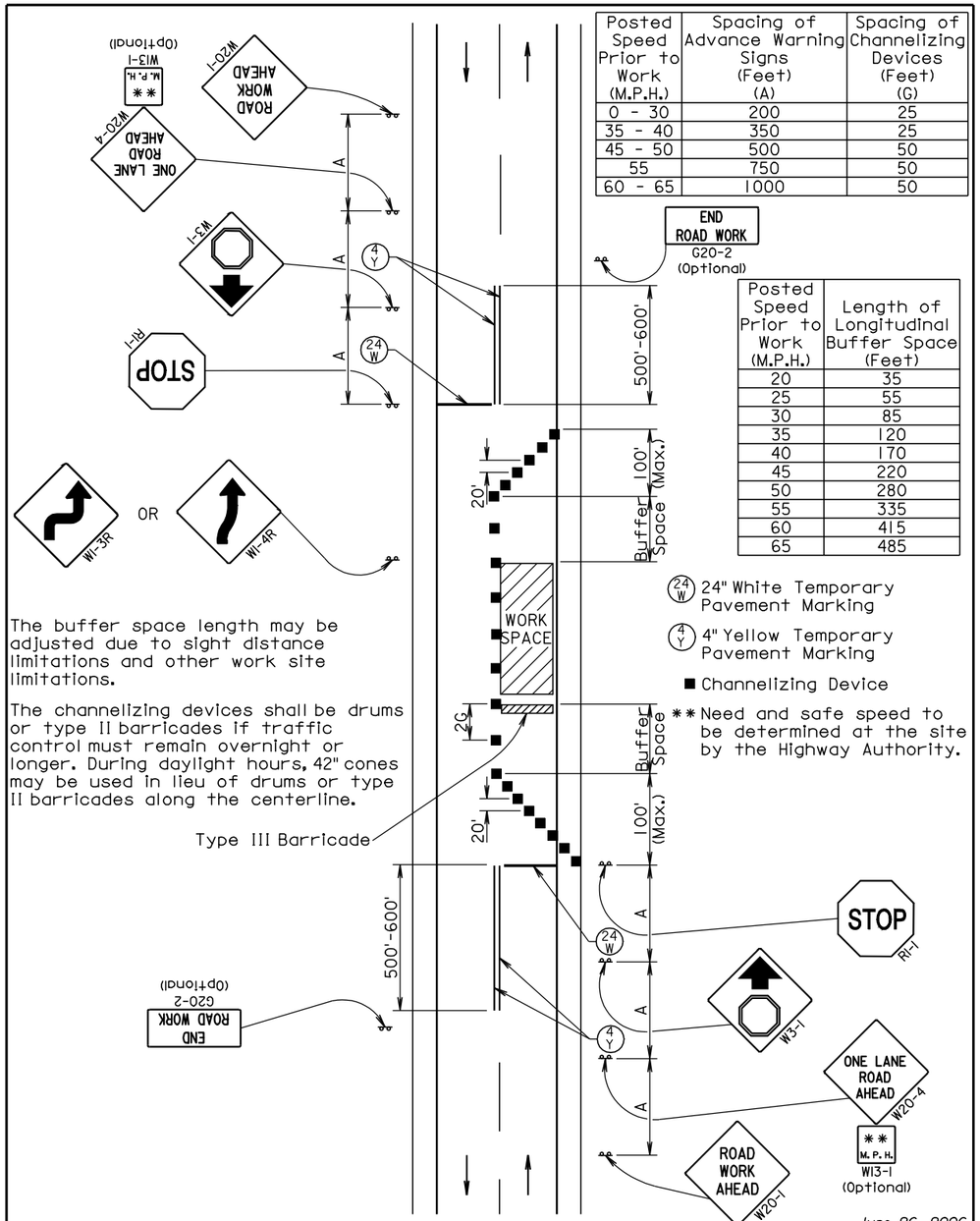
Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2010 SIOUX FALLS AREA CONCRETE REPAIR	26	35

Plotting Date: 09-APR-2010

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

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



24 W 24" White Temporary Pavement Marking

4 Y 4" Yellow Temporary Pavement Marking

■ Channelizing Device

** Need and safe speed to be determined at the site by the Highway Authority.

The buffer space length may be adjusted due to sight distance limitations and other work site limitations.

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

June 26, 2006

Published Date: 1st Qtr. 2010

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
LANE CLOSURE USING STOP SIGNS

PLATE NUMBER 634.25

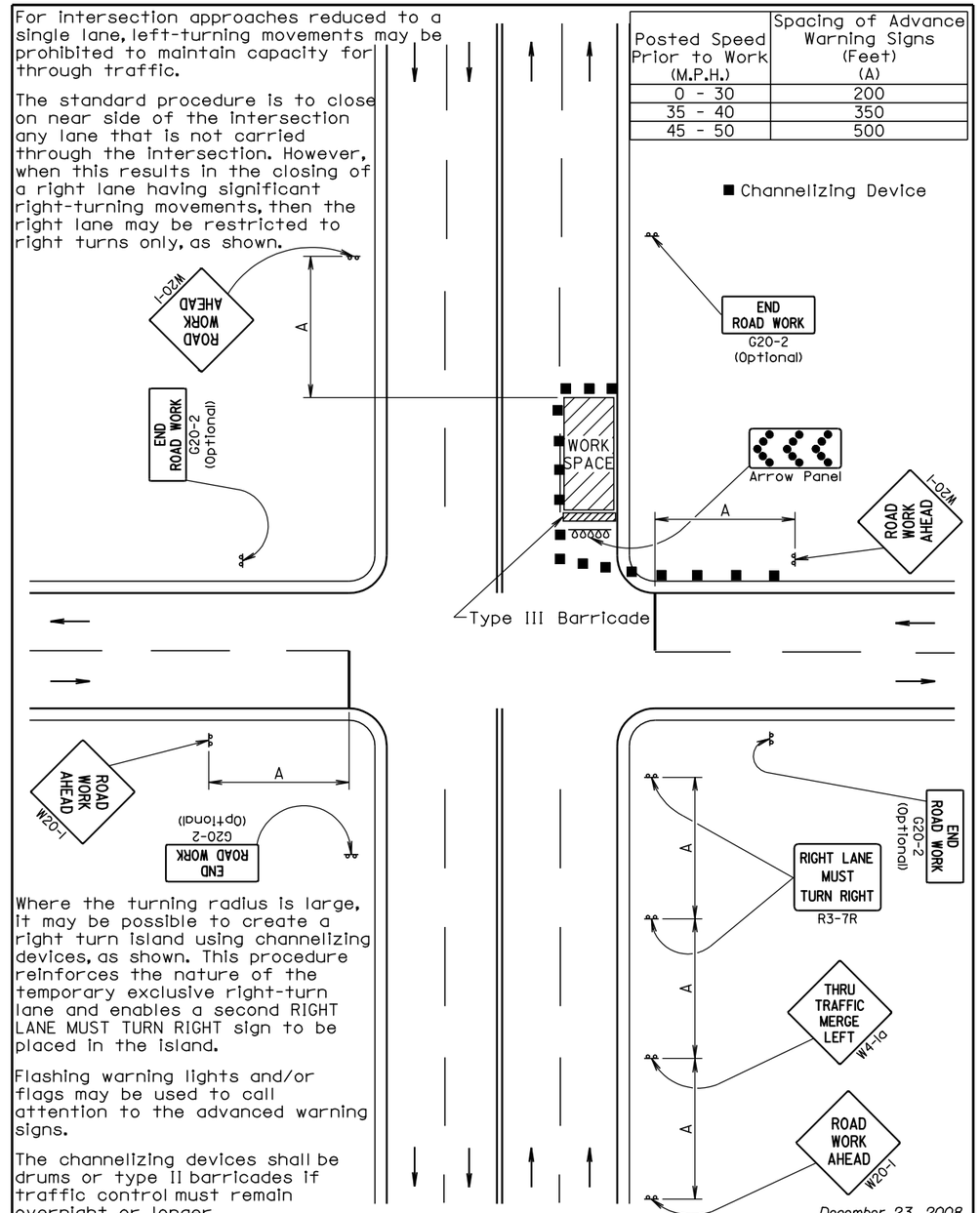
Sheet 1 of 1

For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through traffic.

The standard procedure is to close on near side of the intersection any lane that is not carried through the intersection. However, when this results in the closing of a right lane having significant right-turning movements, then the right lane may be restricted to right turns only, as shown.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500

■ Channelizing Device



Where the turning radius is large, it may be possible to create a right turn island using channelizing devices, as shown. This procedure reinforces the nature of the temporary exclusive right-turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island.

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

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer.

December 23, 2008

Published Date: 1st Qtr. 2010

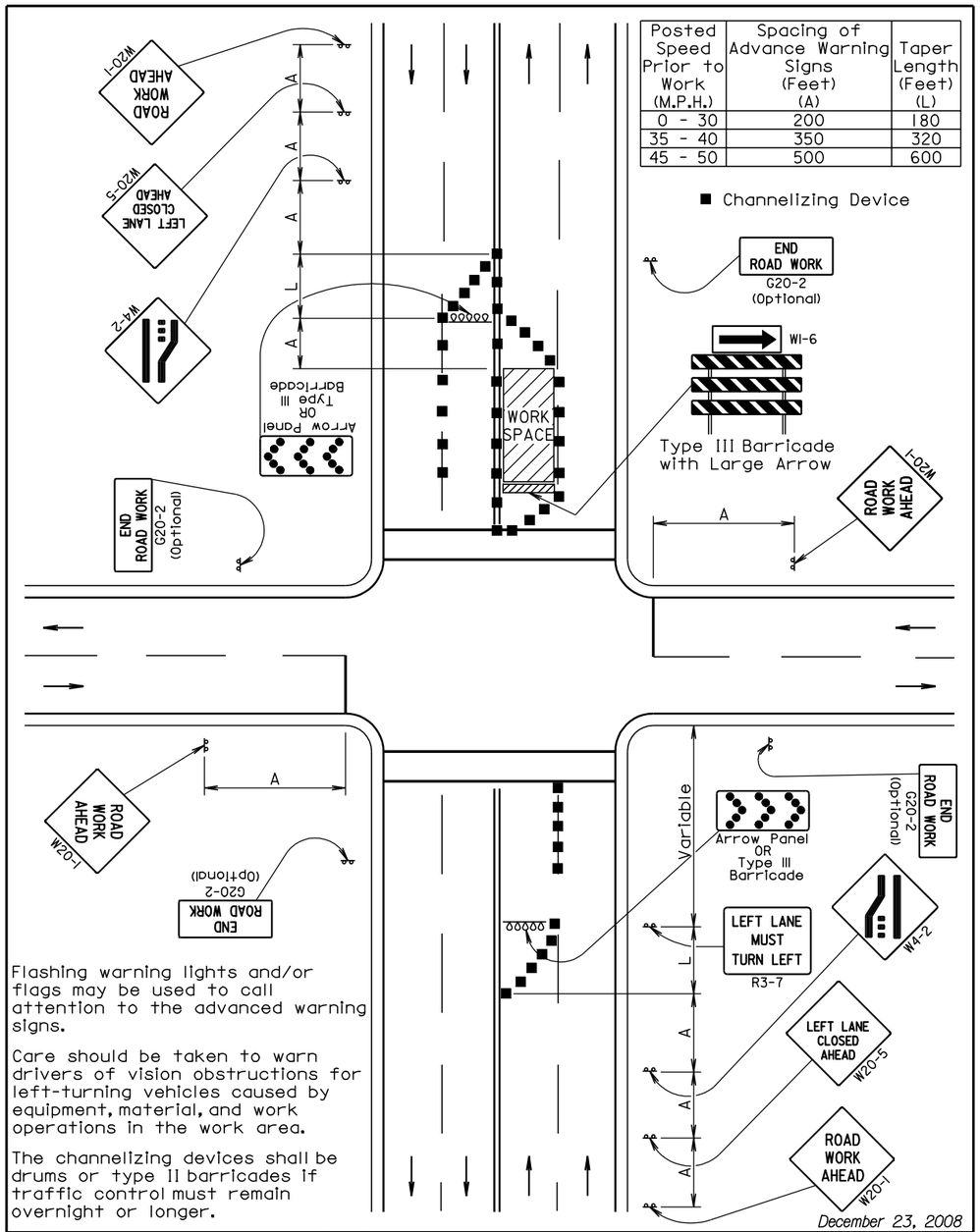
SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
RIGHT LANE CLOSURE FAR SIDE OF INTERSECTION

PLATE NUMBER 634.42

Sheet 1 of 1

Username - trsfi2115



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600

■ Channelizing Device

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

Care should be taken to warn drivers of vision obstructions for left-turning vehicles caused by equipment, material, and work operations in the work area.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer.

December 23, 2008

Published Date: 1st Qtr. 2010	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LEFT LANE CLOSURE FAR SIDE OF INTERSECTION	PLATE NUMBER 634.43 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

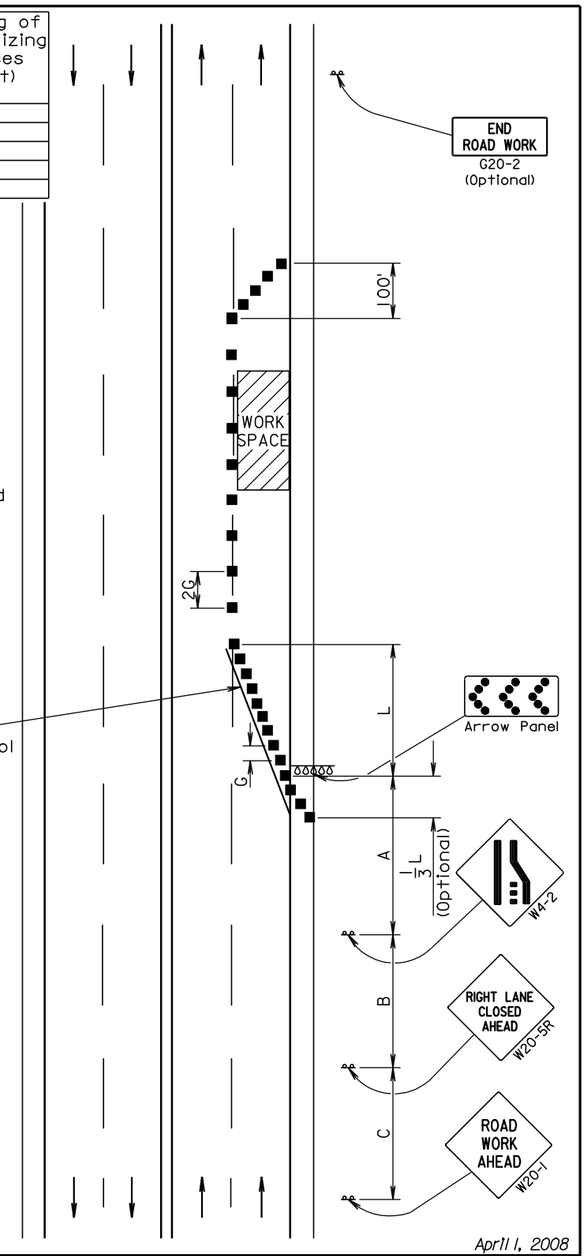
■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.

42" cones may be used along centerline

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

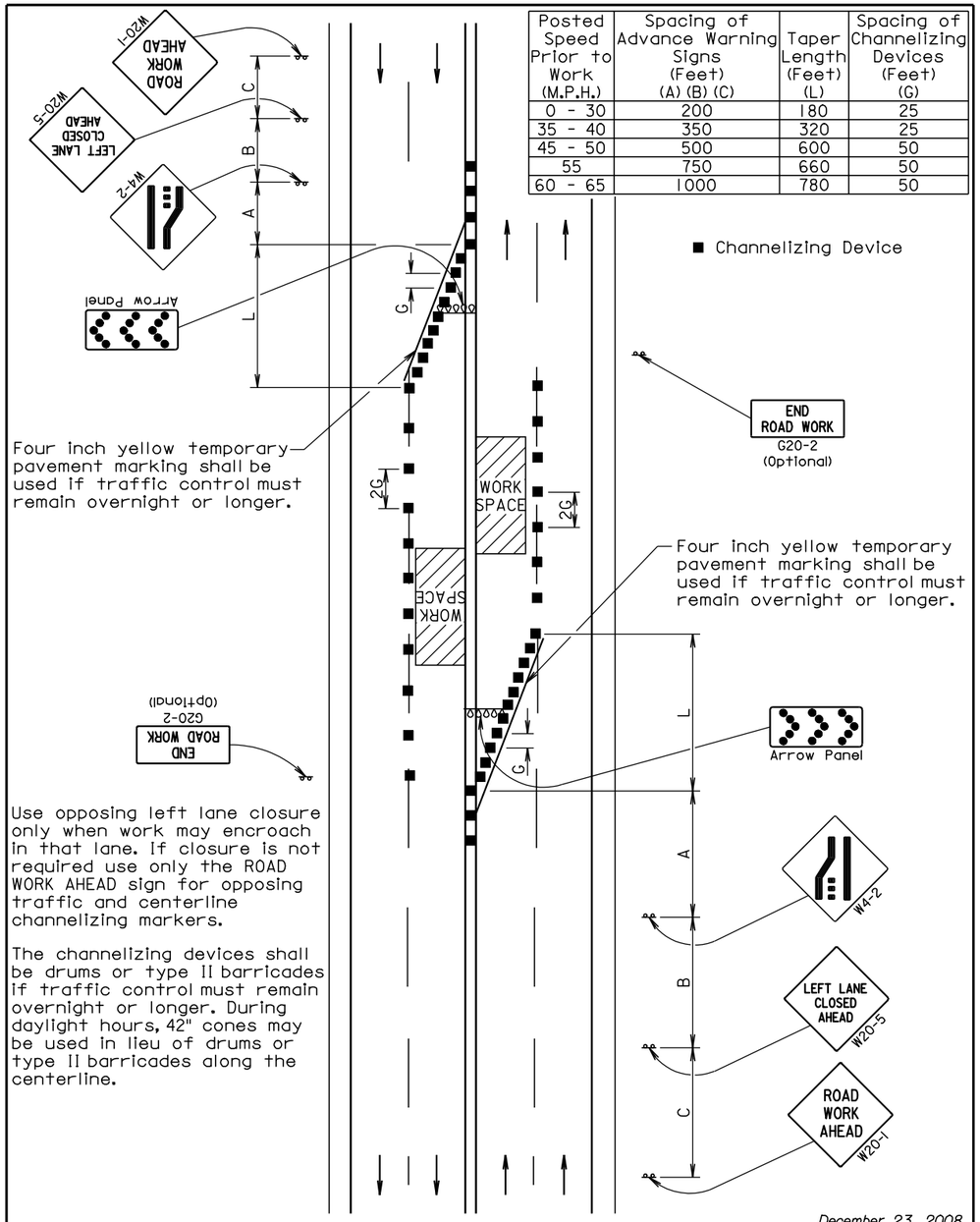
Four inch white temporary pavement marking shall be used if traffic control must remain overnight or longer.



April 1, 2008

Published Date: 1st Qtr. 2010	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47 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



Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and centerline channelizing markers.

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

December 23, 2008

Published Date: 1st Qtr. 2010

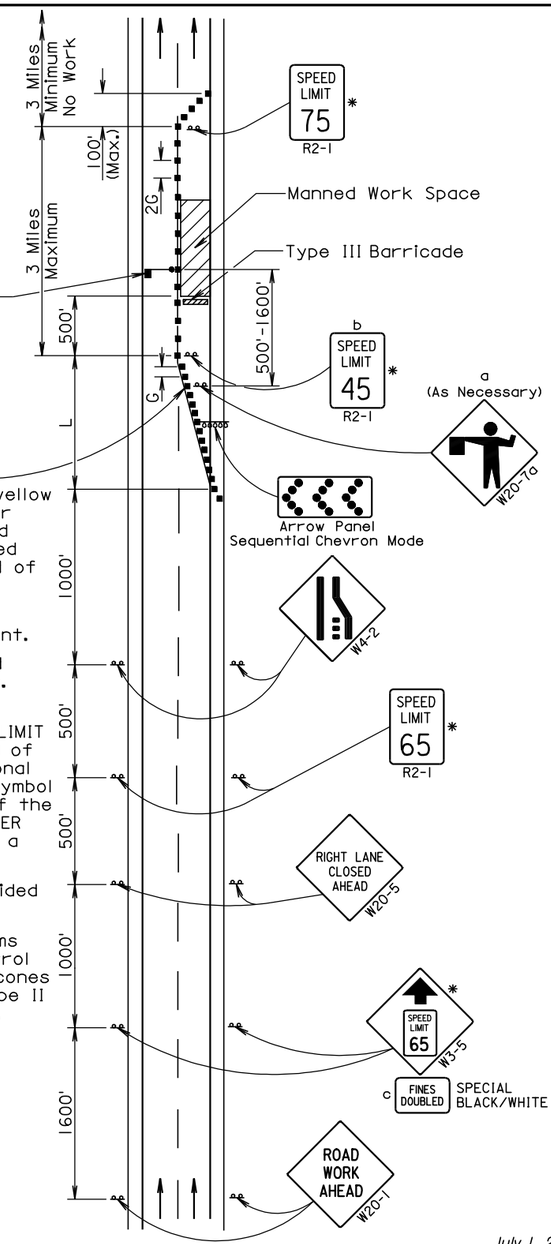
SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
4-LANE UNDIVIDED, LEFT LANE CLOSED

PLATE NUMBER 634.48

Sheet 1 of 1

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



■ 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: 1st Qtr. 2010

SDDOT

MANNED WORK SPACE SIGNING
FOR DIVIDED AND UNDIVIDED HIGHWAYS

PLATE NUMBER 634.63

Sheet 1 of 1

Username - trsf1215

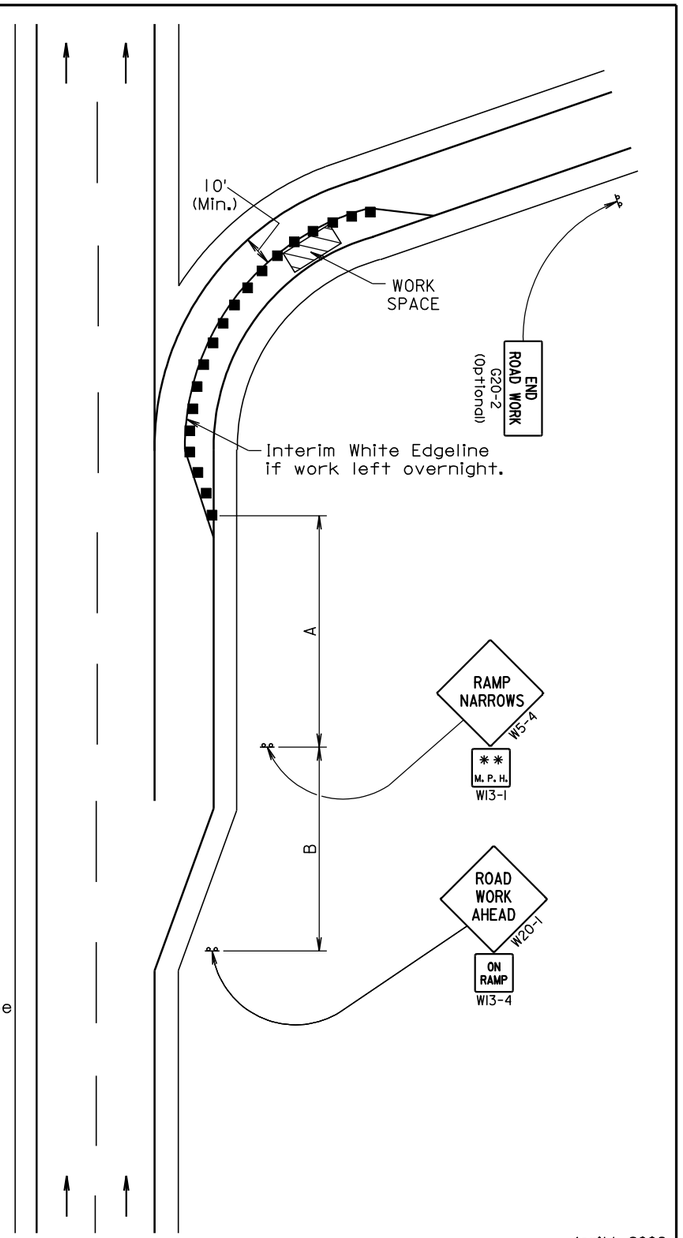
■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B)
45 - 50	500
55	750
60 - 65	1000
	(A) (B)
70 - 75	1000 1600

Truck off-tracking should be considered when determining whether the 10 foot minimum lane width is adequate.

** Need and safe speed to be determined by Highway Authority.



April 1, 2008

Published Date: 1st Qtr. 2010

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
PARTIAL EXIT RAMP CLOSURE

PLATE NUMBER 634.69

Sheet 1 of 1

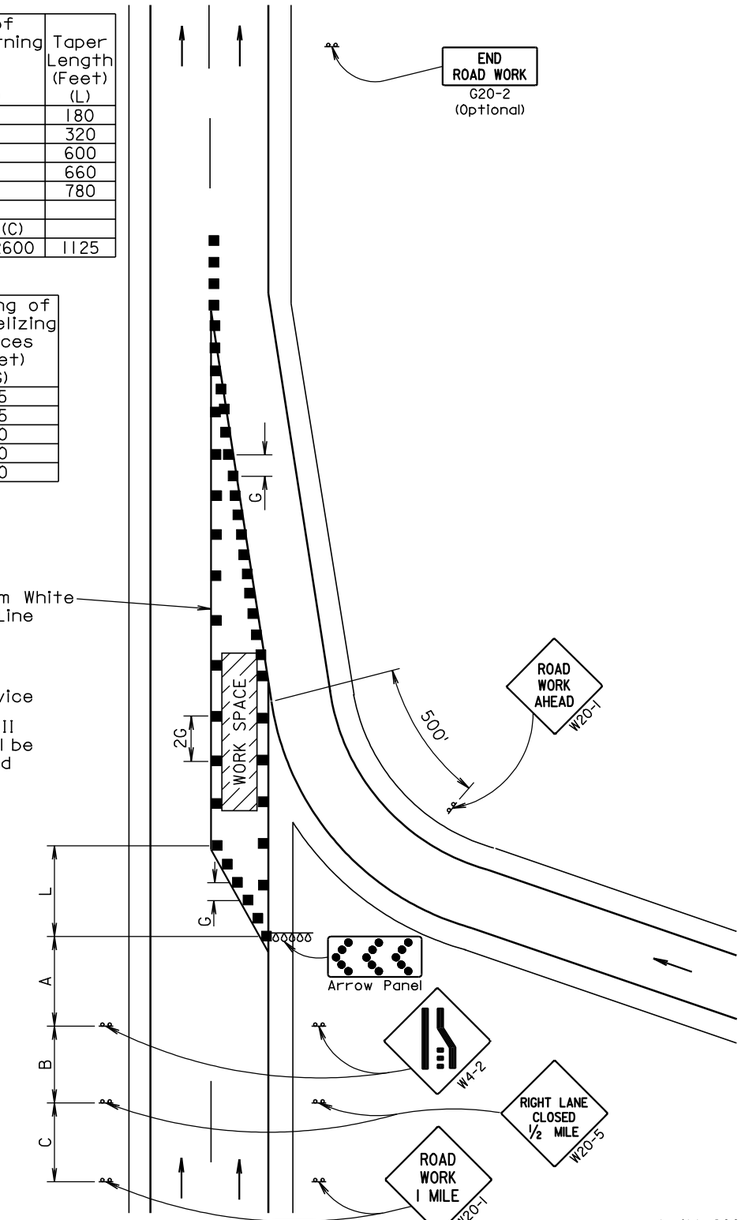
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 75	1000 1600 2600	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50
55	50
60 - 65	50

Interim White Edge Line

■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.



April 1, 2008

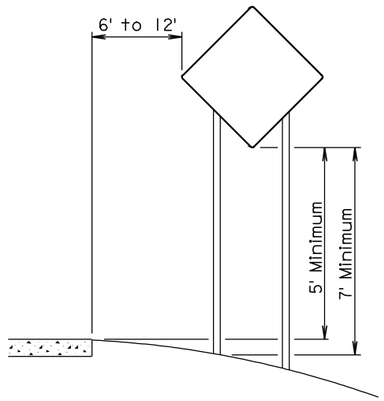
Published Date: 1st Qtr. 2010

SDDOT

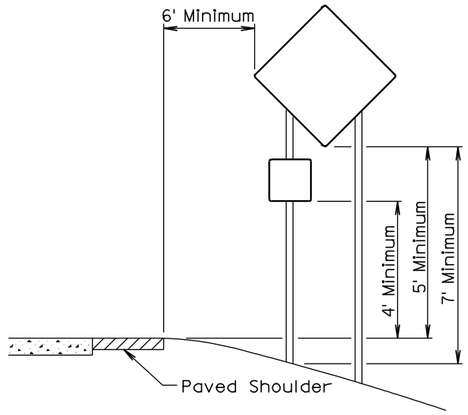
GUIDES FOR TRAFFIC CONTROL DEVICES
WORK IN VICINITY OF ENTRANCE RAMP

PLATE NUMBER 634.70

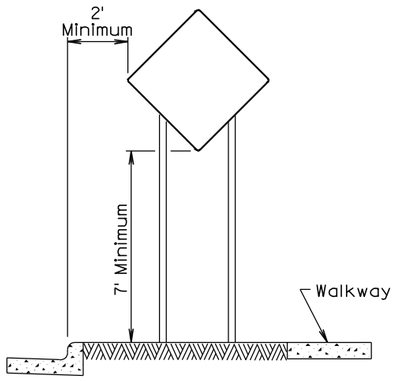
Sheet 1 of 1



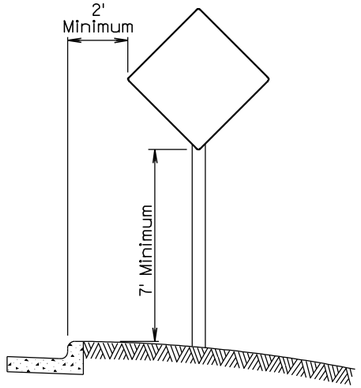
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



URBAN DISTRICT

December 23, 2003

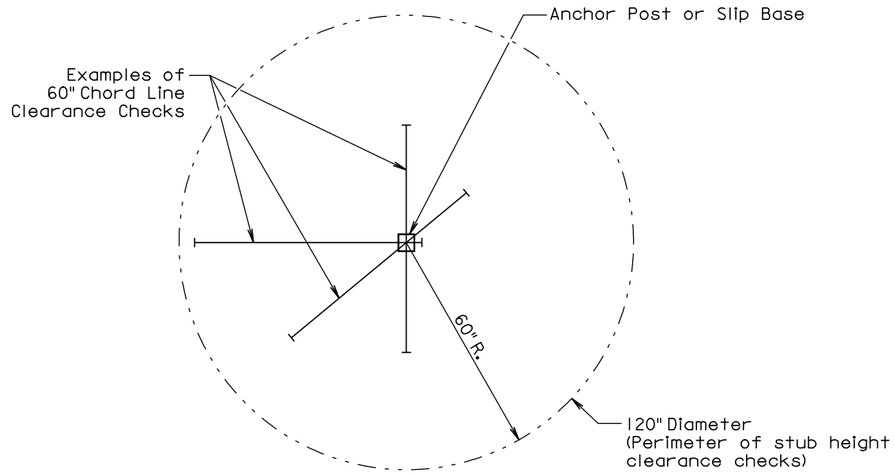
Published Date: 1st Qtr. 2010

SDDOT

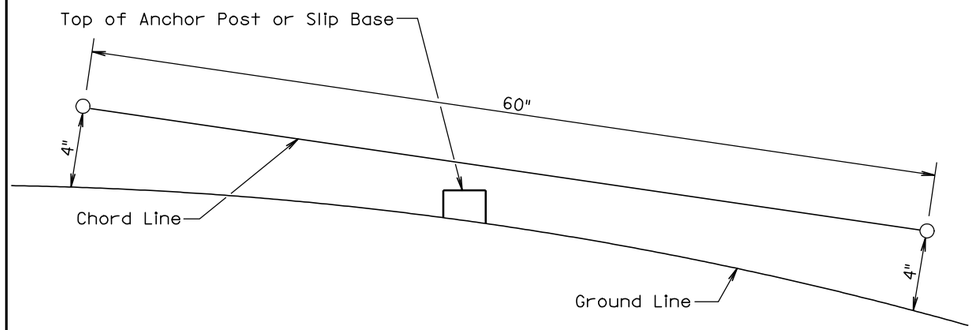
BREAKAWAY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER 634.85

Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

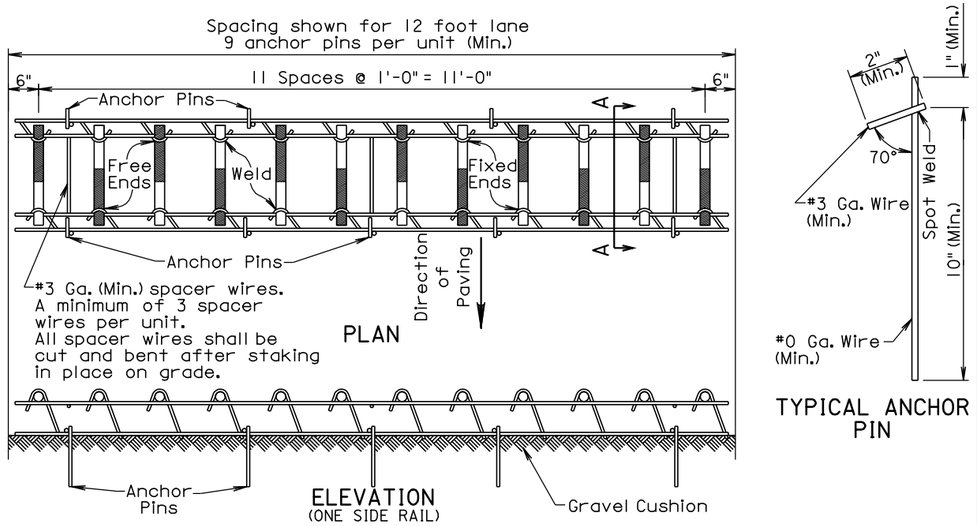
Published Date: 1st Qtr. 2010

SDDOT

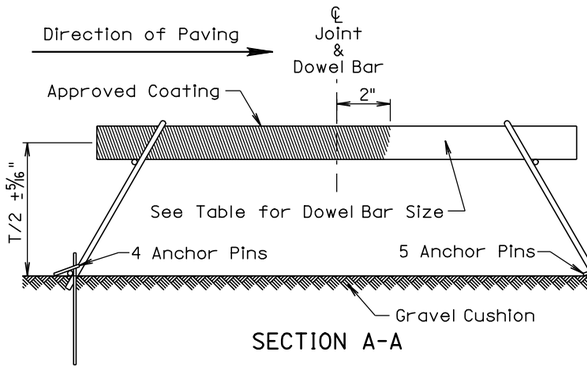
BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER 634.99

Sheet 1 of 1

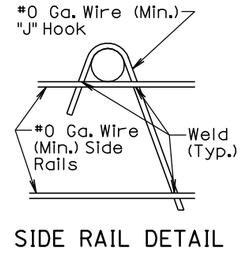


TYPICAL ANCHOR PIN



SECTION A-A

Pavement Thickness	Epoxy Coated Dowel Bar Size
8" to 10"	1¼" x 18"
10½" to 12"	1½" x 18"



SIDE RAIL DETAIL

GENERAL NOTES:

Longitudinal construction joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade ±1/8 inch in 18 inches and to all other dowel bars in the assembly ±1/16 inch in 18 inches.

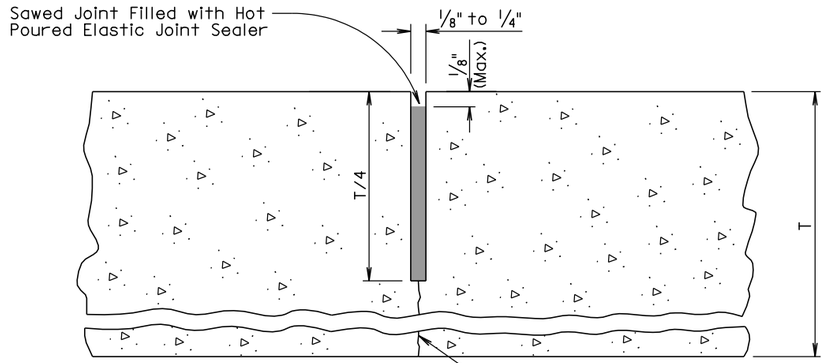
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

Supporting devices of the type shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

December 23, 2007

Published Date: 1st Qtr. 2010	SDDOT	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS	PLATE NUMBER 380.01 Sheet 1 of 1



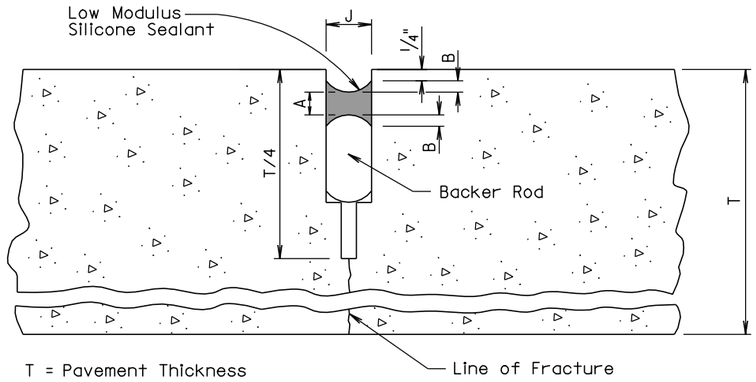
GENERAL NOTES:

The saw cut to control cracking shall be a minimum of ¼ the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement shall be removed as soon as the material has cooled. The extent of removal of material shall be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material shall be borne by the Contractor.

December 23, 2007

Published Date: 1st Qtr. 2010	SDDOT	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.03 Sheet 1 of 1



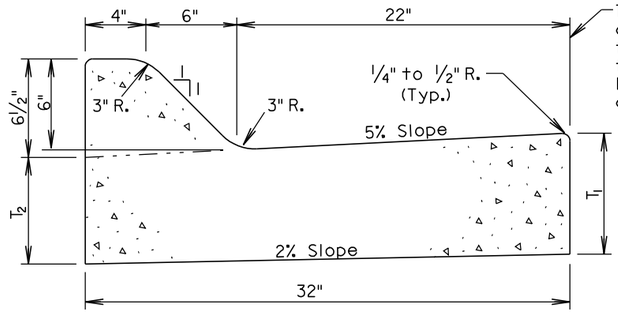
LOW MODULUS SILICONE SEALANT ALLOWABLE CONSTRUCTION TOLERANCES			
J = 3/8"			
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)
3/16	5/16	1/8	1/4
J = 1/2"			
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)
3/16	3/8	1/8	1/4
J = 5/8"			
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)
1/4	7/16	1/8	5/16

GENERAL NOTE:

The backer rod shall be a nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

June 26, 2009

Published Date: 1st Qtr. 2010	SDDOT	RESEAL PCC PAVEMENT JOINT (SILICONE)	PLATE NUMBER 380.13
			Sheet 1 of 1



Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5 1/16	0.057	17.6
F67	7	6 1/16	0.065	15.4
F68	8	7 1/16	0.073	13.6
F68.5	8.5	7 9/16	0.077	12.9
F69	9	8 1/16	0.082	12.3
F69.5	9.5	8 9/16	0.086	11.7
F610	10	9 1/16	0.090	11.1
F610.5	10.5	9 9/16	0.094	10.7
F611	11	10 1/16	0.098	10.2
F611.5	11.5	10 9/16	0.102	9.8
F612	12	11 1/16	0.106	9.4

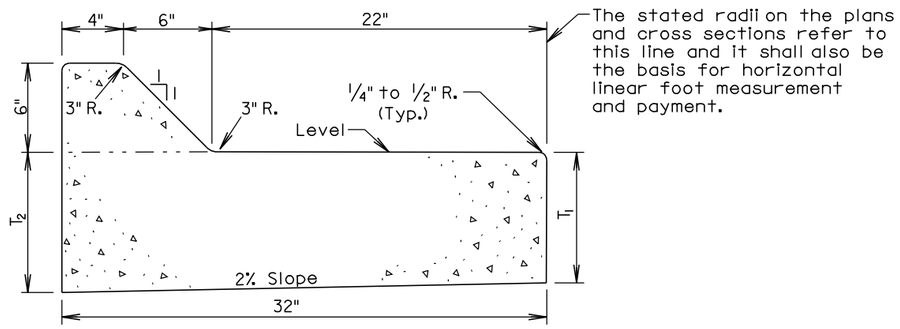
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

Published Date: 1st Qtr. 2010	SDDOT	TYPE F CONCRETE CURB AND GUTTER	PLATE NUMBER 650.20
			Sheet 1 of 1



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
FL66	6	$6\frac{5}{8}$	0.062	16.1
FL67	7	$7\frac{5}{8}$	0.071	14.1
FL68	8	$8\frac{5}{8}$	0.079	12.7
FL68.5	8.5	$9\frac{1}{8}$	0.084	11.9
FL69	9	$9\frac{5}{8}$	0.087	11.5
FL69.5	9.5	$10\frac{1}{8}$	0.091	11.0
FL610	10	$10\frac{5}{8}$	0.095	10.9
FL610.5	10.5	$11\frac{1}{8}$	0.100	10.0
FL611	11	$11\frac{5}{8}$	0.104	9.6
FL611.5	11.5	$12\frac{1}{8}$	0.108	9.3
FL612	12	$12\frac{5}{8}$	0.112	8.9

GENERAL NOTES:

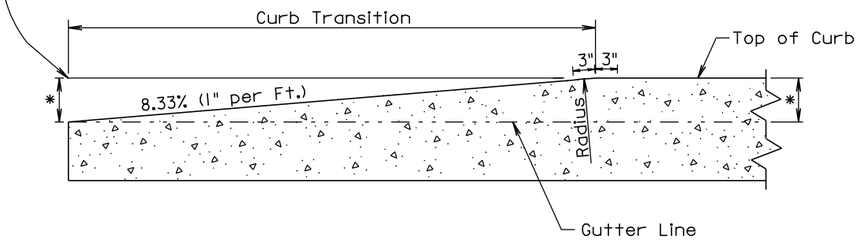
When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2006

Published Date: 1st Qtr. 2010	SDDOT	TYPE FL CONCRETE CURB AND GUTTER	PLATE NUMBER 650.25
			Sheet 1 of 1

End and theoretical elevation of top of curb and gutter shown on plans and cross sections.

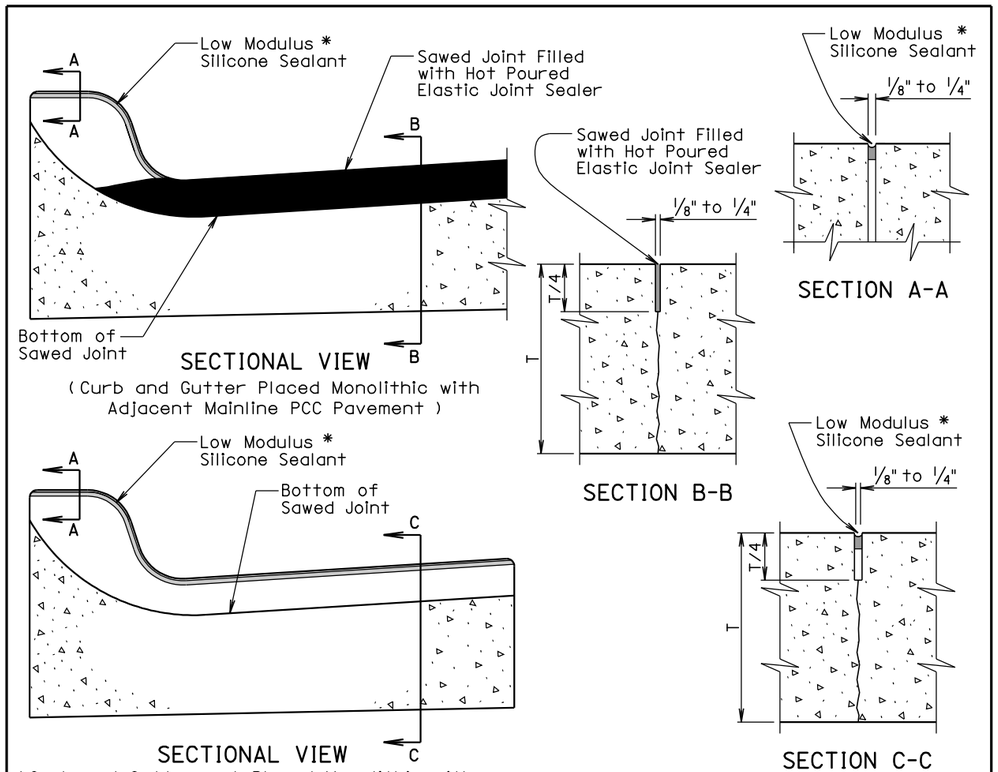


* Height of Curb

LONGITUDINAL SECTION OF CONCRETE CURB TAPER

September 14, 2005

Published Date: 1st Qtr. 2010	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1



* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

A 1/2" preformed expansion joint filler shall be placed transversely in the curb and gutter at the following locations:

1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
2. At each junction between new curb and gutter and existing curb and gutter.

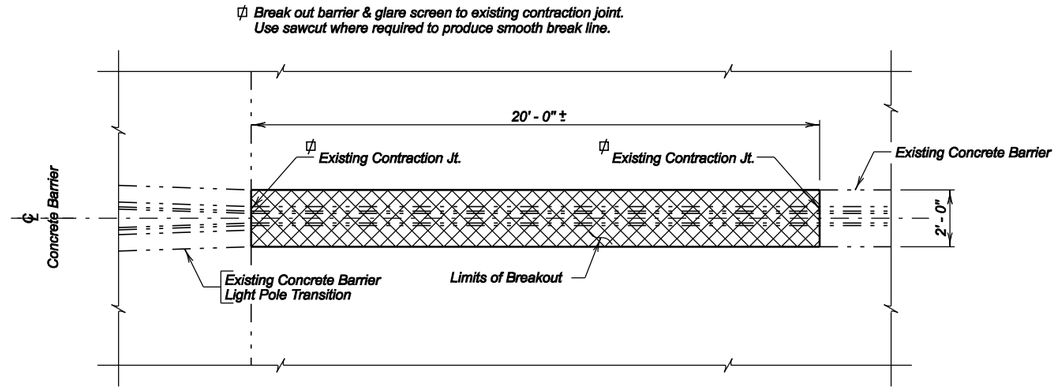
Transverse contraction joints shall be constructed at 10' intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete and the joint shall be sealed in accordance with the details shown above.

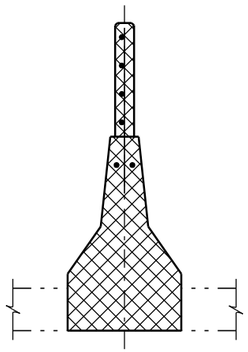
September 6, 2006

Published Date: 1st Qtr. 2010	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 1

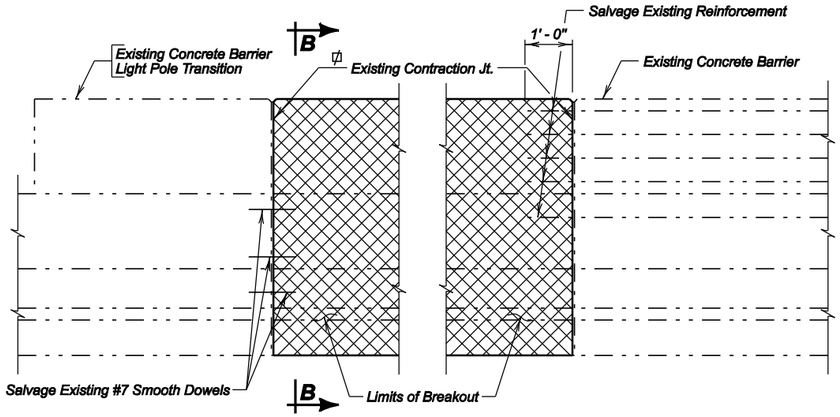
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.		35	35



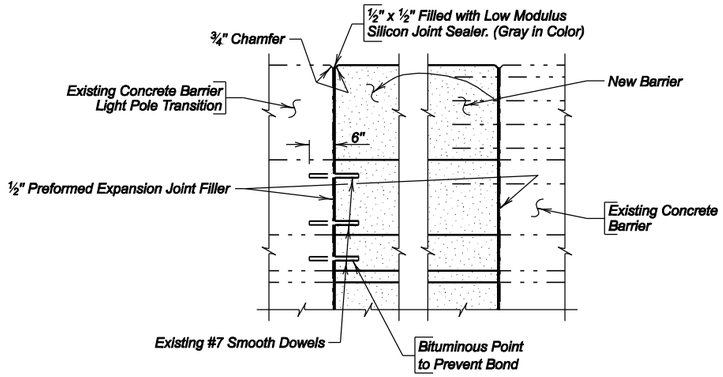
PLAN - BREAKOUT DETAILS



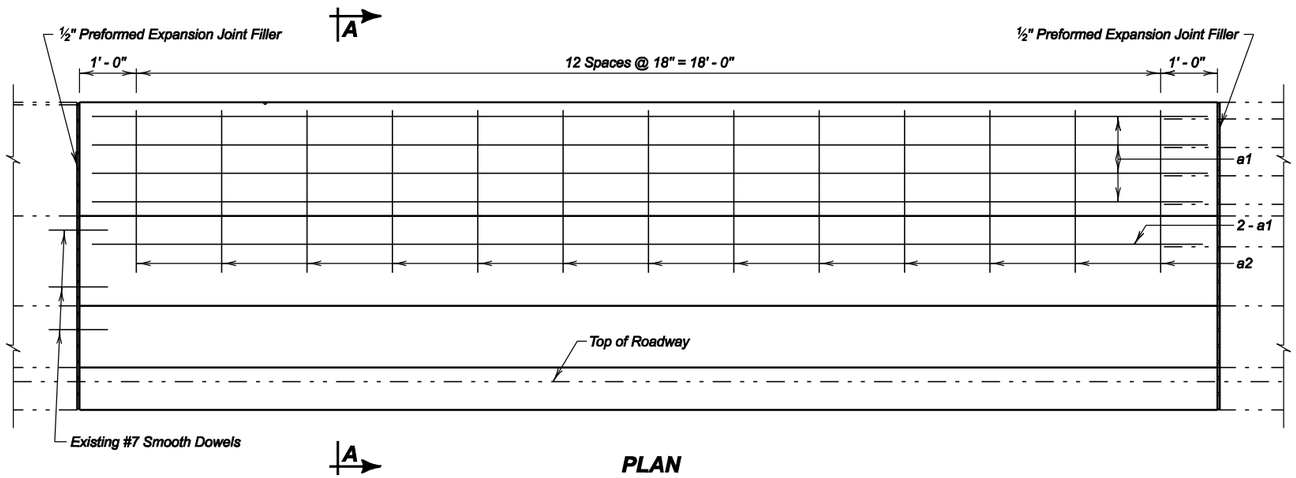
SEC. B-B



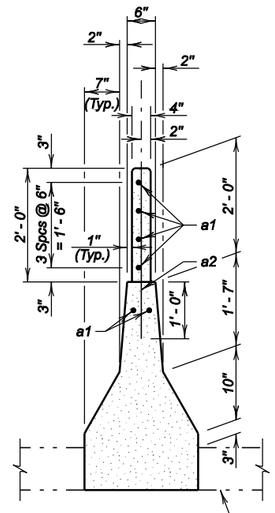
ELEVATION - BREAKOUT DETAILS



CONTRACTION JOINT DETAILS



PLAN



SEC. A-A

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
a1	6	4	19' - 8"	Str.
a2	13	4	2' - 9"	Str.

Note: All bars shall be epoxy coated.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete	Cu. Yd.	3.6
Epoxy Coated Reinforcing Steel	Lb.	103
Breakout Structural Concrete	Cu. Yd.	3.6

SPECIFICATIONS

1. Design Specifications: AASHTO Standard Specifications for Highway Bridges, 2002 Edition using Working Stress Method.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

GENERAL NOTES:

1. Barrier shall be built normal to the grade.
2. Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
3. Concrete shall be Class A45.
4. All exposed concrete corners and edges shall be chamfered ¾" unless noted otherwise.
5. Snap ties, if used, shall be epoxy coated. The epoxy coating shall be inert in concrete and compatible with the coating applied to the new epoxy coated reinforcing steel.
6. All Costs for ½" Preformed Expansion Joint Filler, Low Modulus Silicon Joint Sealer & Bituminous Paint shall be incidental to the various bid items.

CONCRETE BREAKOUT

1. The existing Median Barrier shall be broken out to the limits shown on the plans.
2. All broken out concrete & discarded reinforcing bars shall be disposed of by the Contractor. Any disposal of discarded material shall be in accordance with the Construction Specifications.
3. The Contract Unit Price per Cubic Yard for " Breakout Structural Concrete" shall include breaking out concrete, cleaning, straightening existing reinforcing steel & disposal of all broken out material.
4. The existing reinforcing in the Median Barrier is epoxy coated. Reinforcing steel that is exposed and is scheduled for use in the new construction shall be cleaned of all adhering concrete and rust (if present) with a wire brush and straightened to the satisfaction of the Engineer. Any reinforcing steel that is damaged during concrete breakout shall be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department. After all concrete removal and rebar straightening, the Contractor shall visually inspect the epoxy coating on the salvaged reinforcing steel with the Engineer and repair all areas of damaged epoxy coating as approved by the Engineer. The damaged coating areas shall be repaired with a touch up coating material supplied by an epoxy coating manufacturer who supplies coating material for new epoxy coated reinforcing steel. This coating shall be inert in concrete and compatible with the existing coating on the reinforcing steel. The coating shall be allowed to cure for 24 hours or as per the manufacturer's recommendations, whichever is more stringent, before concrete can be placed. These bars shall be clean and free from all surface contaminants before coating. The cost of cleaning and placing the epoxy touch up coating to the existing reinforcing steel shall be incidental to the various bid items.

DETAILS
FOR
MEDIAN BARRIER REPAIR

ADJ. TO I229
MRM 006.62

SEC. I5-TION-R49W
229 N-27I

MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
MARCH 2010

(1) OF (1)

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	DRAWN BY	CHECKED BY	
TB	GW	XX	Kevin N. Goeden
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