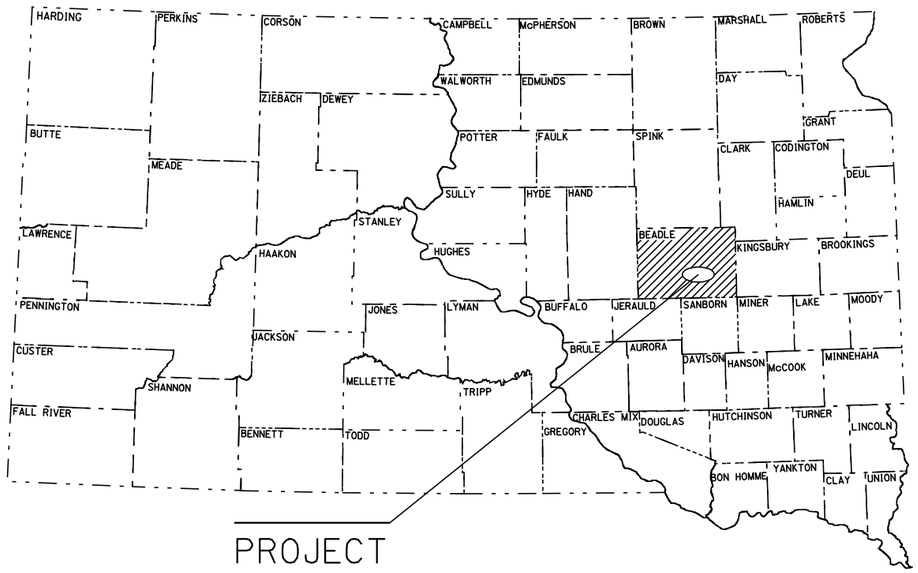
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	1	22
Printing Date:	Revised By:	Date:	



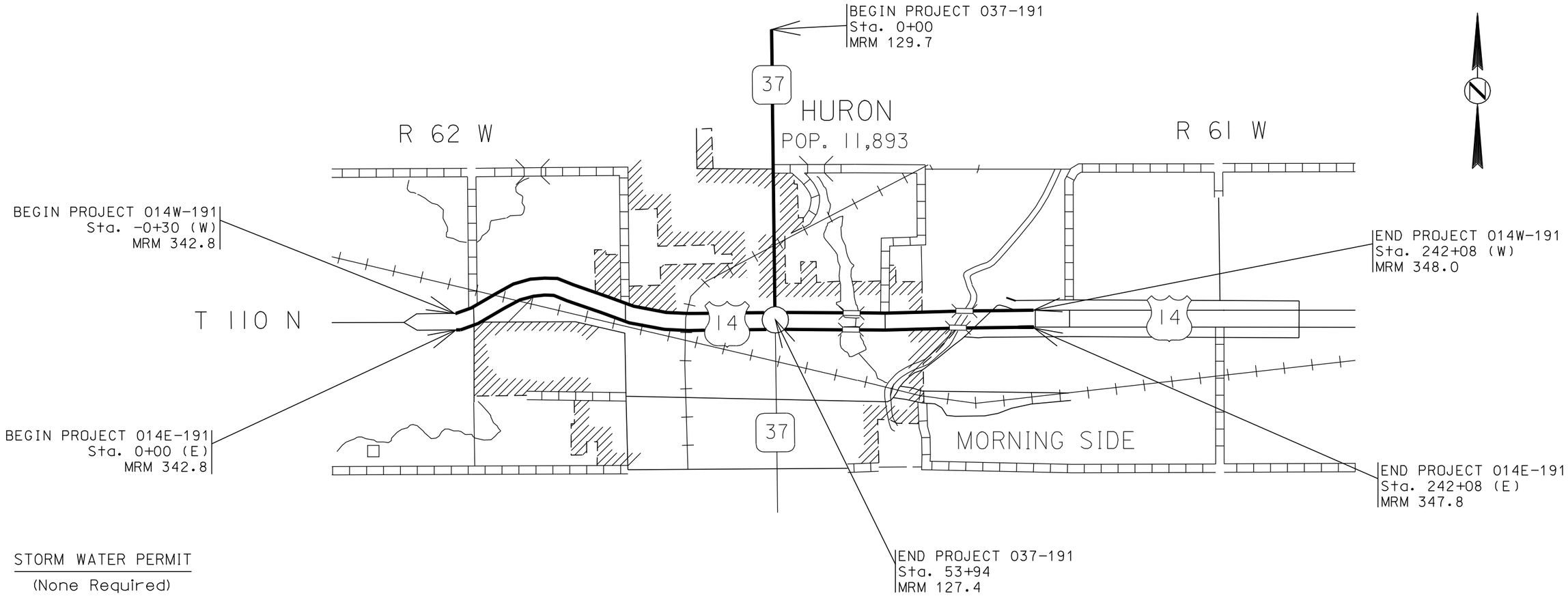
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT 014E–191, 014W–191, and 037–191
US HIGHWAY 14 AND SD HIGHWAY 37
BEADLE COUNTY

PCC PAVEMENT REPAIR
PCN ileq, iler, and iles

INDEX OF PLAN SHEETS



STORM WATER PERMIT

(None Required)

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	014E-191 PCN i1eq	014W-191 PCN i1er	037-191 PCN i1es	TOTAL	UNIT
009E0010	Mobilization	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	329.3	727.6	246.9	1303.8	SqYd
380E6000	Dowel Bar	228	396	12	636	Each
380E6110	Insert Steel Bar in PCC Pavement	790	1,700	263	2,753	Each
390E0200	Repair Type A Spall	58.0	85.3	11.0	154.3	SqFt
634E0010	Flagging	25	50	25	100	Hour
634E0100	Traffic Control	927	927	628	2,482	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	1	1	3	Each
634E0610	4” Temporary Pavement Marking Tape Type 2	1,320	1,320	360	3,000	Ft
671E7010	Adjust Manhole	0	0	3	3	Each

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SPECIFICATIONS

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	3	22
Printing Data: 9-Apr-09	Revised By:	Date:	

Highway US 14 (East Bound)

TABLE OF PCC PAVEMENT REPAIR

STATION	LANE	LENGTH (Ft)	WIDTH (Ft)	NONREINFORCED PCC PAVEMENT REPAIR (SqYds)	INSERT STEEL BAR IN PCC PAVEMENT			DOWEL BAR (Each)	Comments
					1 1/4" x 18" PLAIN ROUND DOWEL BARS (Each)	No. 9 x 18" DEFORMED TIE BARS (Each)	No. 5 x 24" DEFORMED TIE BARS (Each)		
1+09 (E)	Both	6	24	16.0	18	16	2	0	
4+29 (E)	Outside	6	12	8.0	9	8	2	0	
11+34 (E)	Outside	6	12	8.0	0	16	2	12	
13+17 (E)	Outside	6	12	8.0	0	16	2	12	
15+02 (E)	Outside	6	12	8.0	0	16	2	12	
30+35 (E)	Both	6	24	16.0	18	16	2	0	
31+49 (E)	Inside	6	12	8.0	0	16	2	12	
40+75 (E)	Outside	6	12	8.0	0	16	2	12	
53+68 (E)	Inside	6	12	8.0	0	16	2	12	
59+24 (E)	Inside	6	12	8.0	0	16	2	12	
65+99 (E)	Outside	6	12	8.0	0	16	2	12	
77+29 (E)	Inside	6	12	8.0	0	16	2	12	
80+98 (E)	Both	6	24	16.0	0	32	2	24	
85+61 (E)	Both	6	24	16.0	18	16	2	0	
95+47 (E)	Inside	6	12	8.0	0	16	2	12	
104+07 (E)	Outside	6	14	9.3	0	18	2	12	
112+80 (E)	Outside	6	12	8.0	0	16	2	12	
117+27 (E)	Inside	6	12	8.0	0	16	2	12	
117+86 (E)	Outside	6	12	8.0	0	16	2	12	
130+02 (E)	Inside	4	12	5.3	9	8	2	0	
135+08 (E)	Outside	4	12	5.3	9	8	2	0	
136+25 (E)	Inside	6	24	16.0	18	16	2	0	
141+55 (E)	Inside	4	12	5.3	9	8	2	0	
152+22 (E)	Outside	6	12	8.0	0	16	2	12	
163+84 (E)	Outside	4	12	5.3	9	8	2	0	
166+94 (E)	Outside	4	6	2.7	5	4	2	0	
175+60 (E)	Both	6	24	16.0	18	16	2	0	
198+71 (E)	Outside	4	6	2.7	5	4	2	0	
199+94 (E)	Inside	4	6	2.7	5	4	2	0	
201+59 (E)	Inside	6	16	10.7	0	22	2	12	
220+22 (E)	Both	6	24	16.0	18	16	2	0	
222+10 (E)	Both	6	24	16.0	18	16	2	0	
223+93 (E)	Outside	6	12	8.0	0	16	2	12	
238+97 (E)	Both	6	24	16.0	18	16	2	0	
240+00 (E)	Inside	6	12	8.0	9	8	2	0	
			TOTALS:	**329.3**	**212**	**500**	**78**	**228**	

TABLE OF TYPE A SPALL REPAIR

Station	Lane	Ft	FT	SqFt
10+90 (E)	Outside	2	2	4.0
16+87 (E)	Outside	2	2	4.0
28+50 (E)	Outside	3	1	3.0
38+31 (E)	Inside	3	1	3.0
49+10 (E)	Outside	3	3	9.0
49+37 (E)	Inside	1	1.5	1.5
52+47 (E)	Inside	3	1	3.0
54+92 (E)	Inside	1	1.5	1.5
61+96 (E)	Inside	2	2	4.0
63+55 (E)	Inside	2	2	4.0
74+22 (E)	Outside	2	1	2.0
99+77 (E)	Outside	2	1	2.0
106+72 (E)	Outside	2	1	2.0
107+79 (E)	Inside	2	2	4.0
116+50 (E)	Outside	2	1	2.0
125+06 (E)	Outside	2	1	2.0
156+40 (E)	Outside	2	2	4.0
160+78 (E)	Outside	3	1	3.0
			TOTAL:	**58.0**

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	4	22
Printing Data: 9-Apr-09	Revised By:	Date:	

Highway US 14 (West Bound)

TABLE OF PCC PAVEMENT REPAIR

STATION	LANE	LENGTH (Ft)	WIDTH (Ft)	NONREINFORCED PCC PAVEMENT REPAIR (SqYds)	INSERT STEEL BAR IN PCC PAVEMENT			DOWEL BAR (Each)	Comments
					1 1/4" x 18" PLAIN ROUND DOWEL BARS (Each)	No. 9 x 18" DEFORMED TIE BARS (Each)	No. 5 x 24" DEFORMED TIE BARS (Each)		
0+30 (W)	Outside	6	12	8.0	9	8	2	0	
1+29 (W)	Inside	6	12	8.0	0	16	2	12	
11+99 (W)	Both	6	24	16.0	0	32	2	24	
13+30 (W)	Both	6	24	16.0	0	32	2	24	
15+40 (W)	Outside	6	12	8.0	0	16	2	12	
18+53 (W)	Both	6	24	16.0	18	16	2	0	
22+68 (W)	Both	6	24	16.0	18	16	2	0	
32+00 (W)	Outside	6	12	8.0	0	16	2	12	
36+68 (W)	Outside	4	12	5.3	9	8	2	0	
39+44 (W)	Both	6	24	16.0	18	16	2	0	
41+97 (W)	Inside	6	12	8.0	0	16	2	12	
43+18 (W)	Both	8	24	21.3	18	16	3	0	
44+20 (W)	Outside	4	12	5.3	9	8	2	0	
48+11 (W)	Both	6	24	16.0	18	16	2	0	
48+40 (W)	Both	6	24	16.0	18	16	2	0	
50+59 (W)	Both	6	24	16.0	18	16	2	0	
53+05 (W)	Inside	6	12	8.0	0	16	2	12	
53+68 (W)	Both	6	24	16.0	18	16	2	0	
60+45 (W)	Outside	6	12	8.0	0	16	2	12	
62+31 (W)	Both	6	24	16.0	18	16	2	0	
63+52 (W)	Inside	4	12	5.3	9	8	2	0	
64+10 (W)	Both	6	24	16.0	18	16	2	0	
64+98 (W)	Both	6	24	16.0	18	16	2	0	
69+61 (W)	Both	6	24	16.0	0	32	2	24	
72+09 (W)	Inside	4	4	1.8	3	3	2	0	
72+09 (W)	Outside	4	4	1.8	3	3	2	0	
73+29 (W)	Outside	6	12	8.0	0	16	2	12	
77+00 (W)	Outside	4	12	5.3	9	8	2	0	
78+21 (W)	Both	6	24	16.0	18	16	2	0	
86+40 (W)	Inside	4	12	5.3	9	8	2	0	
95+75 (W)	Outside	6	12	8.0	0	16	2	12	
96+95 (W)	Outside	6	12	8.0	0	16	2	12	
99+45 (W)	Outside	6	12	8.0	0	16	2	12	
100+66 (W)	Outside	4	12	5.3	9	8	2	0	
103+12 (W)	Outside	6	12	8.0	0	16	2	12	
103+73 (W)	Outside	4	12	5.3	9	8	2	0	
105+59 (W)	Outside	6	12	8.0	0	16	2	12	
108+04 (W)	Outside	6	12	8.0	0	16	2	12	
110+52 (W)	Both	6	24	16.0	18	16	2	0	
111+13 (W)	Both	6	24	16.0	18	16	2	0	

TABLE OF PCC PAVEMENT REPAIR

STATION	LANE	LENGTH (Ft)	WIDTH (Ft)	NONREINFORCED PCC PAVEMENT REPAIR (SqYds)	INSERT STEEL BAR IN PCC PAVEMENT			DOWEL BAR (Each)	Comments
					1 1/4" x 18" PLAIN ROUND DOWEL BARS (Each)	No. 9 x 18" DEFORMED TIE BARS (Each)	No. 5 x 24" DEFORMED TIE BARS (Each)		
113+18 (W)	Outside	6	12	8.0	0	16	2	12	
124+69 (W)	Both	6	24	16.0	0	16	2	12	
125+13 (W)	Both	8	24	21.3	18	16	3	0	
135+42 (W)	Both	6	24	16.0	18	16	2	0	
137+78 (W)	Outside	6	12	8.0	0	16	2	12	
157+38 (W)	Inside	6	12	8.0	0	16	2	12	
158+65 (W)	Inside	6	14	9.3	0	18	2	12	
167+13 (W)	Inside	6	12	8.0	0	16	2	12	
169+60 (W)	Inside	4	12	5.3	0	16	2	12	
170+83 (W)	Both	6	24	16.0	18	16	2	0	
172+04 (W)	Inside	4	12	5.3	9	8	2	0	
172+68 (W)	Both	6	24	16.0	18	16	2	0	
176+38 (W)	Inside	6	12	8.0	0	16	2	12	
176+95 (W)	Inside	4	12	5.3	9	8	2	0	
179+72 (W)	Outside	4	12	5.3	9	8	2	0	
180+94 (W)	Inside	6	12	8.0	0	16	2	12	
198+89 (W)	Both	6	24	16.0	18	16	2	0	
199+94 (W)	Inside	6	12	8.0	0	16	2	12	
203+15 (W)	Inside	6	12	8.0	0	16	2	12	
206+25 (W)	Inside	6	12	8.0	0	16	2	12	
214+17 (W)	Both	6	24	16.0	18	16	2	0	
215+35 (W)	Inside	6	12	8.0	0	16	2	12	
220+92 (W)	Outside	6	12	8.0	0	16	2	12	
222+78 (W)	Both	6	24	16.0	18	16	2	0	
224+61 (W)	Outside	6	12	8.0	9	8	2	0	
228+71 (W)	Inside	6	4	2.7	3	3	2	0	
231+81 (W)	Both	6	24	16.0	18	16	2	0	
232+25 (W)	Inside	6	12	8.0	9	8	2	0	
235+33 (W)	Inside	6	12	8.0	9	8	2	0	
239+01 (W)	Outside	4	6	2.7	5	4	2	0	
			TOTALS	**727.6**	**536**	**1006**	**158**	**396**	

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	5	22
Printing Data: 9-Apr-09	Revised By:	Date:	

Highway US 14 (West Bound)

TABLE OF TYPE A SPALL REPAIR

Station	Lane	Ft	FT	SqFt
74+71 (W)	Inside	2	1	2.0
104+36 (W)	Outside	2	2	4.0
116+68 (W)	Outside	2	1	2.0
123+50 (W)	Turn	2	3	6.0
131+78 (W)	Outside	1	1	1.0
131+78 (W)	Inside	1	1	1.0
144+67 (W)	Inside	2	2	4.0
146+73 (W)	Outside	1	1	1.0
156+15 (W)	Outside	1	1	1.0
160+07 (W)	Outside	2	1	2.0
164+34 (W)	Inside	2	2	4.0
182+16 (W)	Inside	1	1	1.0
183+38 (W)	Inside	2	2	4.0
184+01 (W)	Inside	2	1	2.0
184+58 (W)	Inside	1	2	2.0
192+71 (W)	Outside	1	1	1.0
192+71 (W)	Inside	1	1	1.0
202+92 (W)	Outside	2	1	2.0
202+92 (W)	Inside	2	1	2.0
205+80 (W)	Inside	2	1	2.0
206+86 (W)	Inside	2	2	4.0
208+06 (W)	Outside	1.5	1.5	2.3
212+96 (W)	Outside	1	2	2.0
213+56 (W)	Outside	1	1	1.0
217+86 (W)	Inside	1	1	1.0
218+46 (W)	Outside	1	1	1.0
219+09 (W)	Outside	2	1	2.0
219+70 (W)	Inside	2	1	2.0
220+59 (W)	Inside	1	1	1.0
225+84 (W)	Outside	3	1	3.0
225+84 (W)	Inside	2	1	2.0
226+21 (W)	Inside	2	2	4.0
226+67 (W)	Inside	2	2	4.0
226+87 (W)	Inside	2	2	4.0
230+54 (W)	Outside	1	1	1.0
238+38 (W)	Inside	2	1	2.0
241+47 (W)	Inside	2	2	4.0
			TOTAL:	**85.3**

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E191, 014 W191, & 037-191	6	22
Printing Data: 9-Apr-09	Revised By:	Date:	

SD Highway 37

TABLE OF PCC PAVEMENT REPAIR

STATION	LANE	LENGTH (Ft)	WIDTH (Ft)	NONREINFORCED PCC PAVEMENT REPAIR (SqYds)	INSERT STEEL BAR IN PCC PAVEMENT			DOWEL BAR (Each)	Comments
					1 1/4" x 18" PLAIN ROUND DOWEL BARS (Each)	No. 9 x 18" DEFORMED TIE BARS (Each)	No. 5 x 24" DEFORMED TIE BARS (Each)		
14+52	SB Outside	27	12	36.0	18	0	22	0	
16+57	SB Both	27	24	72.0	36	0	22	0	
25+36	NB Both	18	24	48.0	36	0	14	0	Manhole
27+86	NB Outside	7	7	5.4	5	5	6	0	Manhole
29+82	NB Outside	7	7	5.4	5	5	6	0	Manhole
35+69	SB Outside	40	12	53.3	18	0	32	12	
35+69	SB Inside	20	12	26.7	18	0	16	0	
			TOTALS:	**246.9**	**137**	**9**	**117**	**12**	

TABLE OF TYPE A SPALL REPAIR

Station	Lane	Ft	FT	SqFt
-0+20	SB Inside	1	1	1.0
0+00	SB Inside	3	2	6.0
0+20	SB Inside	2	2	4.0
			Total:	**11.0**

SCOPE OF WORK

Work on this project includes, but is not limited to removal and replacement of nonreinforced PCC pavement.

No work will be allowed during State Fair Week (September 2 through September 7, 2009). The Contractor shall schedule work so that all lanes are open to traffic during this period.

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.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain SHPO clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. The Contractor shall arrange and pay for this survey. In lieu of a cultural resources survey, the Contractor could request a literature search on the site and 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. Jim Donohue, State Archaeological Research Center at 605-394-1937 shall be contacted for a literature search.

If borrow material is furnished from within the current geographical reservation boundaries or historic boundaries of the Lake Traverse, Yankton, or Flandreau-Santee reservations, the Contractor shall obtain THPO (Tribal Historical Preservation Office) clearance from the Tribal Cultural Resources Officer. This requirement is in addition to the SHPO clearance. If no Tribal contact exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO and THPO responses, the Contractor should submit a cultural resources survey report or the results of the literature search along with a legal description of the site, a topographical map with the site clearly marked, and evidence of prior site disturbance to Terrence G. Keller, DOT Environmental Supervisor, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3721). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO approval. The Contractor is responsible for obtaining all required permits and clearances for the borrow and/or waste disposal site(s) prior to commencing construction activities at the borrow and/or waste disposal site(s). The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

MAINTENANCE OF TRAFFIC

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

Storage of vehicles and equipment shall be as near the right-of-way as possible. Contractor’s employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Work activities during non-daylight hours are subject to prior approval.

One lane of traffic shall be maintained in each direction on mainline construction.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

Locations of signs on traffic control layouts are diagrammatic. Portable stands may be used on the shoulders or on driving lanes closed to traffic. The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas, and one feet above the pavement in rural areas.

All breakaway sign supports shall comply with FHWA NCHRP 350 crashworthy requirements. The Contractor shall provide post installation details at the preconstruction meeting for all steel post breakaway sign support assemblies.

All operations shall be confined to a 12 ft lane plus the shoulder, leaving the adjoining 12 ft lane open for thru traffic.

Contractor will be allowed to encroach on the traffic lane approximately 3 feet if flagger signs and a flagger are used. The flagger signs and flagging are included in the Estimate of Quantities.

Type III Barricades 8’ wide shall protect PCC Pavement replacement during open excavation and concrete cure periods.

A maximum of two closures for divided highway and one lane closure for undivided highway shall be paid for. If more closures are utilized, additional cost of signing shall be at the Contractor’s expense.

Not more than 3 Type C Advanced Arrow Panels will be measured and paid for. Payment will be made for actual number of arrow panels utilized on project. No payment will be made for panels being reused at different repair areas as determined by the Engineer.

The contractor shall be required to accommodate over-width vehicles that travel through the project.

Maintenance of existing delineators shall be the Contractor's responsibility.

Included in the Estimate of Quantities are enough signs for lane closures in the Eastbound and Westbound lanes simultaneously for projects 014E-191 and 014W-191 and one lane closure on 037-191 for either south bound or north bound traffic at a time.

Lane closures on Hwy 14 will be limited to either west of the Hwy 37 junction or east of the junction for each direction of traffic at one time. Closing of one lane throughout the entire project will not be allowed.

EXISTING PCC PAVEMENT

The existing PCC Pavement for project 014E-191 and 014W-191 is 9'' thick, contains 1/4" reinforcement wire and was constructed using quartzite aggregate. The existing PCC Pavement for project 037-191 is 8'' nonreinforced and was constructed using natural coarse aggregate and natural sand. Existing transverse joints were cut perpendicular to centerline and used consistent joint spacing. The existing joint spacing from the junction of US Hwy 14 and SD Hwy 37 to the intersection of SD Hwy 37 and 15th St. on SD Hwy 37 is 20 Feet. The existing joint spacing on US Hwy 14 is 60 feet. The transverse joints were constructed with dowel bar assemblies. Transverse joints were sealed with low modulus silicone sealant.

REMOVE CONCRETE PAVEMENT

Approximate locations of existing non-reinforced concrete pavement to be removed are provided in the Table of Pavement Removal and Repair. Prior to removal the Contractor shall saw cut full depth at the limits of the removal area as directed by the Engineer. Existing concrete in the replacement areas shall be removed by the lift out method or by means that minimize damage to the sides of the remaining in place concrete. All removed concrete shall be removed from within the right of way by the end of the workday and disposed of at the Contractor's waste disposal site.

The Contractor shall notify the Engineer two working days prior to beginning work at each particular location so the Engineer may mark out removal limits. The Engineer shall mark exact dimensions prior to removal of concrete pavement. Payment will be made for quantity marked out and measured in the field. Variations from plans estimated quantities and/or locations will not be considered cause for re-negotionaion of the contract unit prices.

Care shall be exercised in the removal of concrete slab panels to avoid damage to adjacent pavement, manholes and growth joints. Existing growth joints shall be preserved and remain in place. Damage to adjacent pavement, manholes and/or growth joints shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

After concrete removal has been accomplished, the Contractor shall shape, water and recompact the remaining granular material prior to placement of concrete. Any additional gravel cushion required to prepare the area shall be furnished and placed by the Contractor and shall be incidental to the contract unit price per square yard NONREINFORCED PCC PAVEMENT REPAIR.

Gravel cushion material shall be from a Contractor furnished source. Moisture content and compaction shall be to the satisfaction of the Engineer.

Removal of Concrete Pavement will be incidental to the contract unit price per square yard NONREINFORCED PCC PAVEMENT REPAIR. This payment will be full compensation for full and partial depth sawing, removal of all PCC Pavement, disposal of all removed material, and all equipment, labor, and incidentals necessary to satisfactorily complete work.

NONREINFORCED PCC PAVEMENT REPAIR

Concrete shall meet the requirements of the Standard Specifications Section 380, except as modified by the following notes:

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. Coarse aggregate shall be crushed ledge rock, Size No.

	LB./CU.YD	LB./CU.YD
CEMENT	800 (TYPE I-II)	710 (TYPE III)
FINE AGGREGATE	1039	1114
COARSE AGGREGATE	1726	1668

1. Mix proportions shall be as follows, dependent upon type of cement the Contractor elects to use:

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

Concrete shall be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete 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 time requirements a minimum strength of 4,000 psi must be attained prior to opening to traffic.

A broom finish will be required. A transverse metal tine finish will be required as specified by the Engineer. Prior to opening to traffic, transverse and longitudinal joints shall be temporarily sealed with a backer rod of sufficient size approved by the Engineer. The cost of the backer rod and its installation shall
be incidental to the contract unit price per square yard for NONREINFORCED PCC PAVEMENT REPAIR. This backer rod shall be removed during permanent joint sealing operations.

If the area of removal requires a transverse contraction joint to be reestablished, a dowel bar assembly shall be installed at the joint and paid for at the contract unit price per each for DOWEL BAR. Centerline of individual dowel bars in the dowel bar assembly shall be parallel to the roadway centerline. Sawing of the contraction joint shall commence when the concrete has hardened sufficiently to permit sawing without raveling.

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. Low Modulus Silicone meeting the requirements of Section 870 of the Standard Specifications may be used to seal longitudinal joints. All work and materials involved in sealing joints shall be incidental to the contract unit price per square yard for NONREINFORCED PCC PAVEMENT REPAIR.

No saw cut slurry will be allowed to enter drop inlets located throughout the project. Contractor shall be responsible for accomplishing this with a method as approved by the engineer. All cost for materials and work related to this effort shall be incidental to the contract unit price per square yard for NONREINFORCED PCC PAVEMENT REPAIR.

Tie bars that require drilling holes and epoxy injection shall be measured and paid for at the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

Placement of NONREINFORCED PCC PAVEMENT REPAIR will be paid for at the contract unit price per square yard. This payment will be full compensation for removal of in place concrete, for concrete, and for equipment, labor, and incidentals necessary to satisfactorily complete the work.

STEEL BAR INSTALLATION

The Contractor shall install the steel bars (**1 1/4** inch epoxy coated plain round dowel bars and No. **5** and No. **9** epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

The steel bars shall be cut to the specified length by sawing and shall be free from burring or 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).

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.

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 manufacturers 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 from the back to the front 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 hole prior to steel bar insertion. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed.

Steel bars shall not be placed closer than 6 inches to any longitudinal joint, not closer than 18 inches to any transverse joint, and not closer than 15 inches to any construction joint.

Concrete shall be placed when the epoxy for anchoring the steel bars has hardened sufficiently to permit no movement of the steel bars as recommended by the manufacturer.

All costs for the installation of steel bars shall be incidental to the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

CURING OF CONCRETE

Portland Cement Concrete Pavement Repair shall be cured with Linseed Oil Base Emulsion Compound in accordance with Section 821 of Standard Specifications.

TYPE A SPALL REPAIR

Some corner breaks at centerline need to be removed if larger than a 3” X 3” area. This work shall consist of sawing a minimum of 6” X 12” area and removing the pavement and filling with patching compound.

The Contractor shall saw an area a minimum of 6” X 12” and remove the material to a minimum depth of 3” until sound concrete is found. If the existing corner spall area is less than 3” X 3” then do not complete the spall repair and reseal per PCC Pavement Joint notes.

Type A spall repair shall be completed in the same lane closure as the full depth PCC Pavement Repair.

Spall repair locations will be marked in the field by the Engineer.

The Contractor shall fill the area (with the foam core board or other approved material in place) with an approved patching material. The patching material shall be vibrated with a small hand held vibrator capable of thoroughly consolidating the patching compound into the area. The top surface of the filled area shall be trowel finished and cured.

ADJUSTMENT OF MANHOLES AND LIDS

The manholes located in repair areas on SD Hwy 37 at stations 25+36, 27+86, and 29+82 in the outside lane may need to be adjusted to the elevation of the new concrete. Adjusting the manholes may consist of removing the upper course of brick or removing concrete walls, replacing the removed materials with brick or Class M6 concrete, or placing adjusting rings if necessary, and resetting the manhole frame and lid. The contractor shall note all broken manhole frames, lids, and rings and contact the city of Huron before work begins for replacement. All manhole frames, lids, and rings that are cracked or broken due to carelessness of the contractor shall be replaced with new manhole frames, lids, and rings that conform to the Standard Specifications at the contractor’s expense. Manholes shall be adjusted to the satisfaction of the Engineer. The Engineer may eliminate some or all of the ADJUST MANHOLE from the contract if it is deemed the existing elevation is close to the elevation of the new concrete. All costs involved for adjusting the manholes shall be incidental to the contract unit price per each for ADJUST MANHOLE.

ASPHALT CONCRETE SHOULDERS

To allow for form placement at locations where full depth repairs are adjacent to asphalt concrete shoulders, the Contractor shall be allowed to saw cut full depth existing asphalt concrete shoulder. The saw cut shall be parallel to and no more than one foot from existing pavement edge. All costs incurred in performing the above-mentioned work, and for equipment, labor, and incidentals necessary to complete work shall be incidental to the contract unit price per square yard for NONREINFORCED PCC PAVEMENT REPAIR.

Upon completion of pavement repair, the Contractor shall reestablish asphalt concrete shoulder. Asphalt Concrete Composite shall be placed at a depth that matches that of the existing asphalt concrete shoulder depth. All costs for furnish and installing granular material, for furnishing and installing Asphalt Concrete Composite, and for all equipment, labor, and incidentals necessary to complete work shall be incidental to the contract unit price per square yard for NONREINFORCED PCC PAVEMENT REPAIR.

ASPHALT CONCRETE COMPOSITE

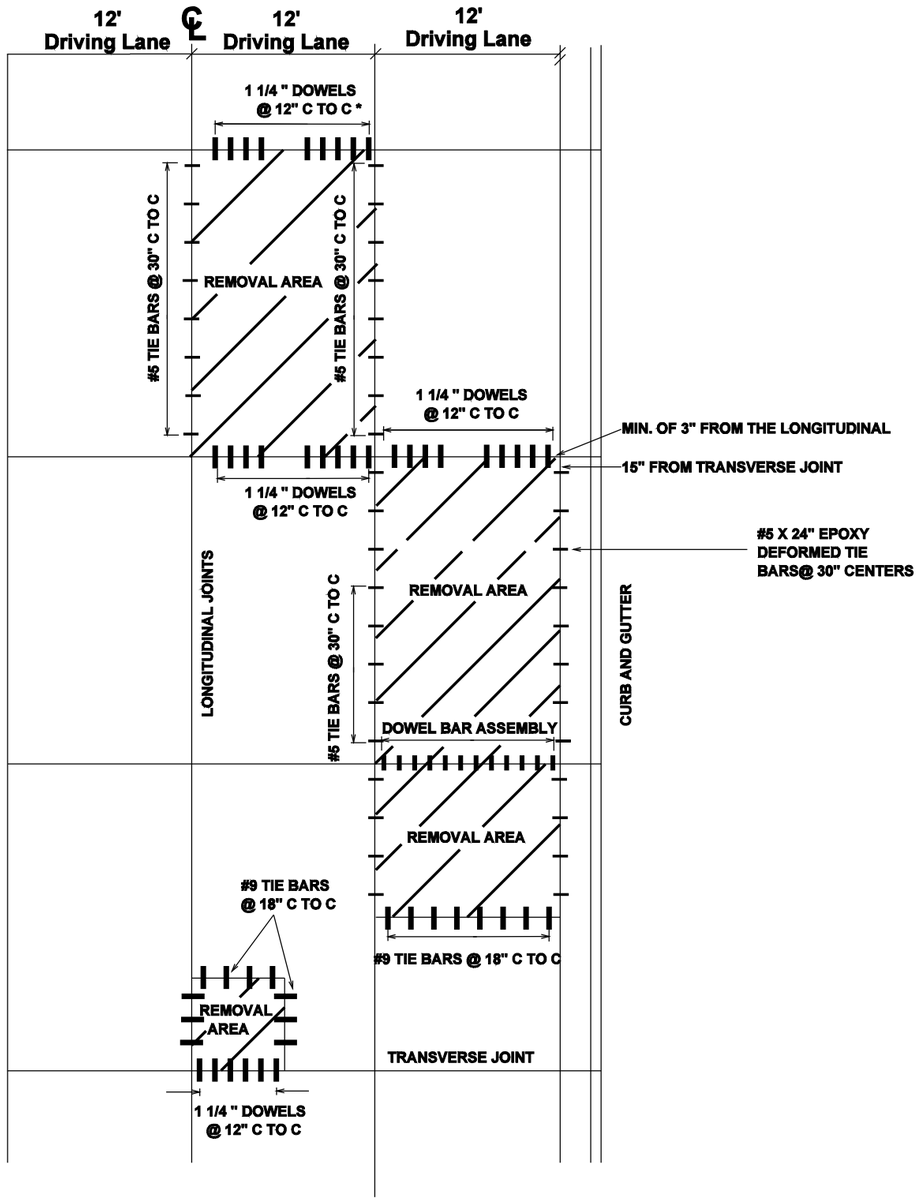
Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1.

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

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

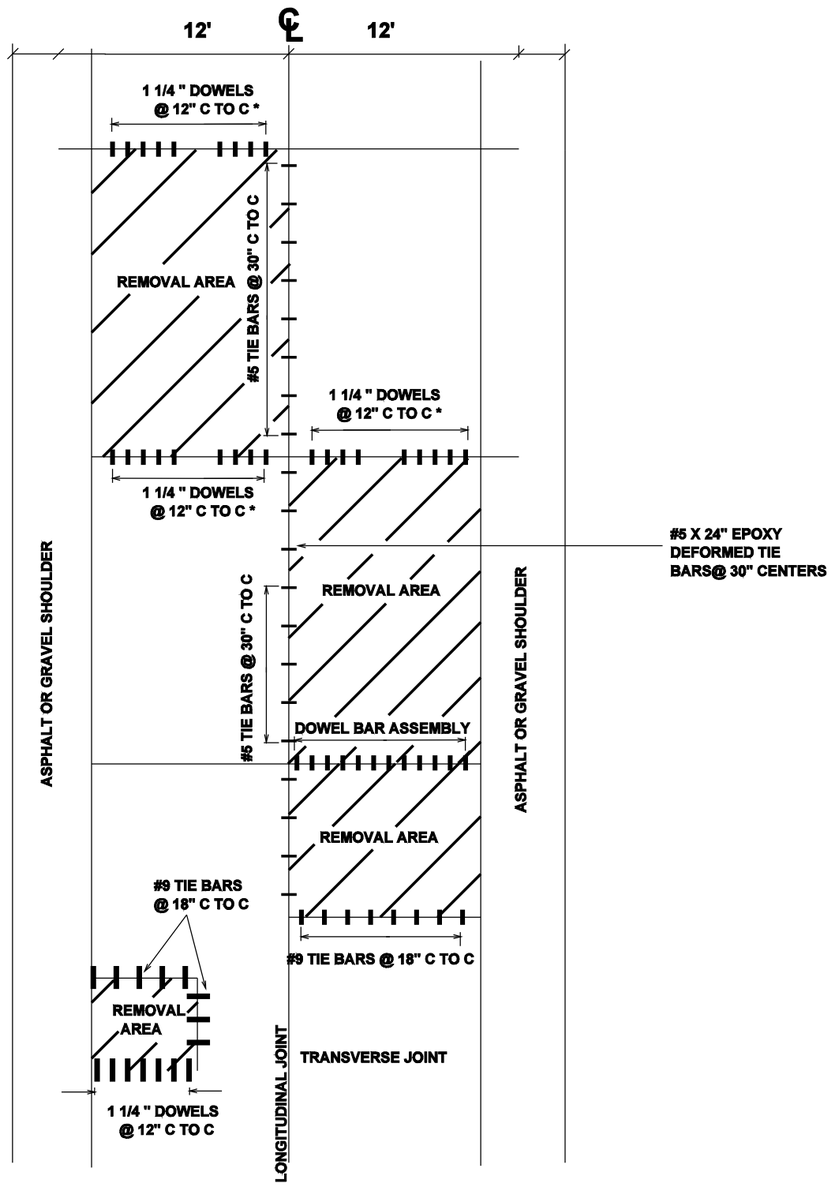
It can be anticipated that hand work will be required to shape the asphalt concrete.

FULL DEPTH CONCRETE PAVEMENT REPAIR



*** Refer to Bar Spacing Detail on following sheet.**

FULL DEPTH CONCRETE PAVEMENT REPAIR



*** Refer to Bar Spacing Detail on following sheet.**

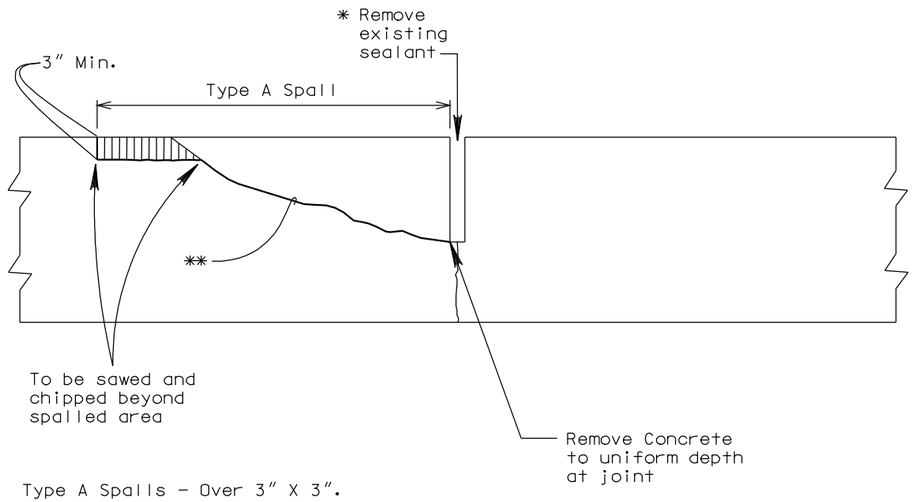
PLOT SCALE - 9.8700001:1.000000

PLOTTED FROM - TRHJINT05

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	11	22
Plotting Date: 09-APR-2009			

REPAIR OF TYPE A SPALLS

SPALL REMOVAL

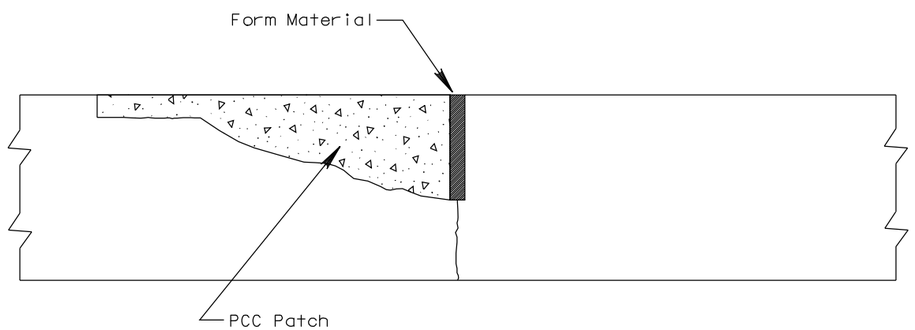


Type A Spalls - Over 3" X 3".

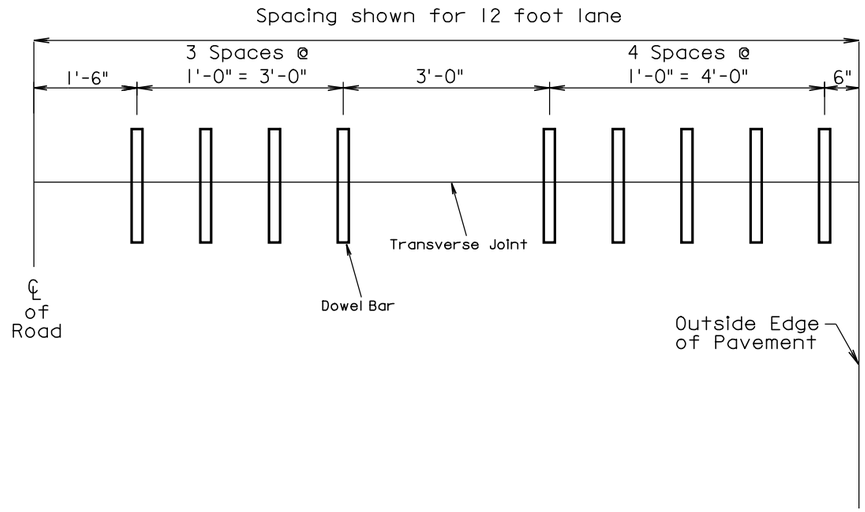
* Existing Sealant to be removed is low modulus silicone sealant with backer rod or hot poured elastic joint sealer.

** Remove and chip to sound concrete.

SPALL PATCH



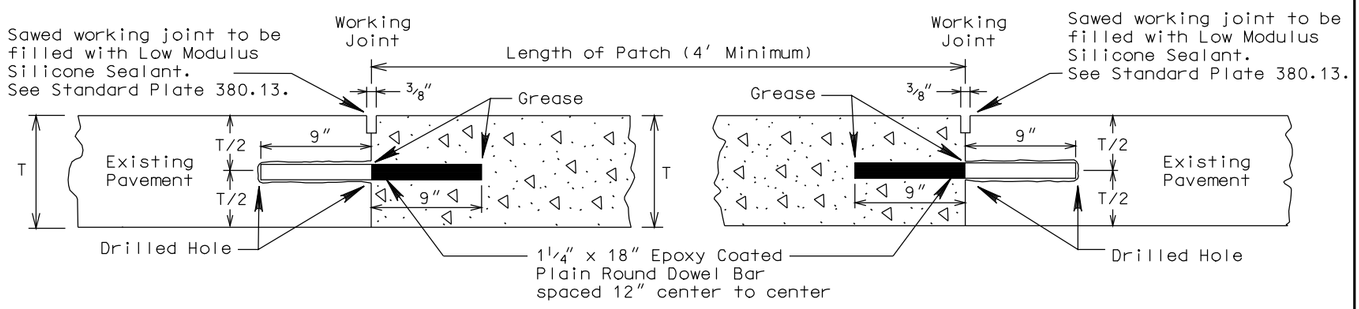
BAR SPACING DETAIL
FOR 1 1/4" SMOOTH DOWEL BARS



FILE - X:\WORK\PROJECT\PCC PAVEMENT REPAIR 2009\DESIGN 2009\PAVEMENT_REPAIR\DETAILS\PAVEMENT REPAIR DETAILS - PAGE 1.DGN

PCC PAVEMENT REPAIR, NONREINFORCED

PLAIN ROUND DOWEL BAR INSTALLATION
(TWO WORKING JOINTS)



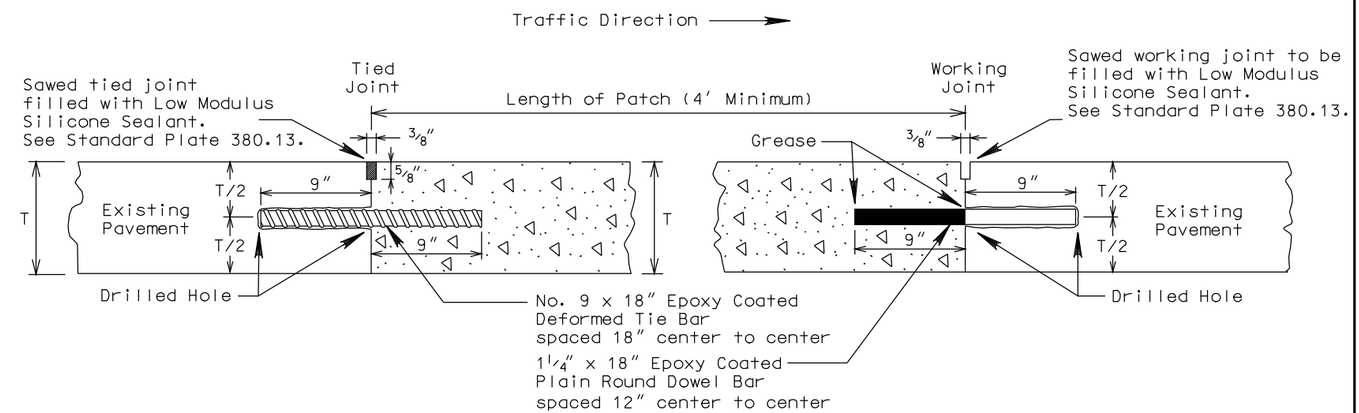
T = Existing and new pavement thickness.

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

Cost for furnishing and installing epoxy coated plain round dowel bars shall be included in the contract unit price per each for Install Steel Bar in Concrete Pavement.

PCC PAVEMENT REPAIR, NONREINFORCED

STEEL BAR INSTALLATION
(ONE TIED JOINT AND ONE WORKING JOINT)



T = Existing and new pavement thickness.

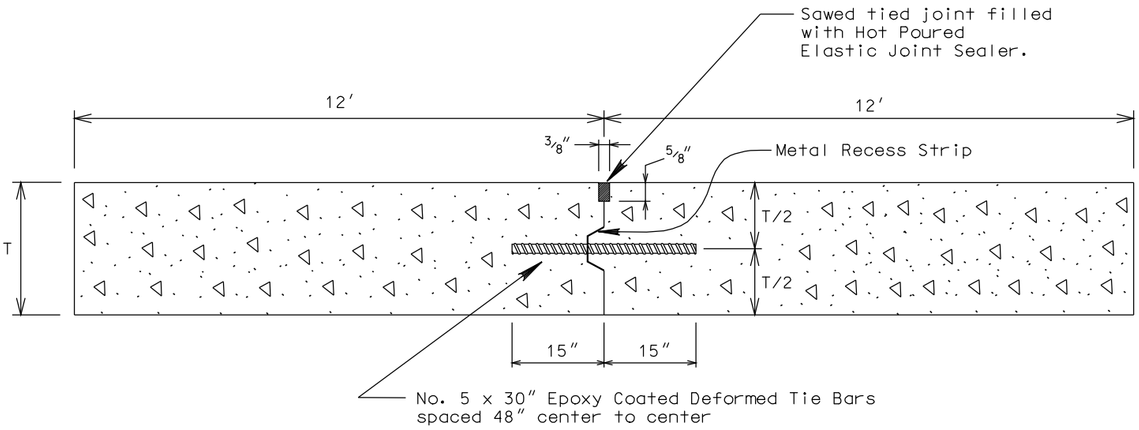
Bar embedded to a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
Plotting Date: 09-APR-2009	014 E-191, 014 W-191, & 037-191	12	22

PCC PAVEMENT REPAIR, NONREINFORCED

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



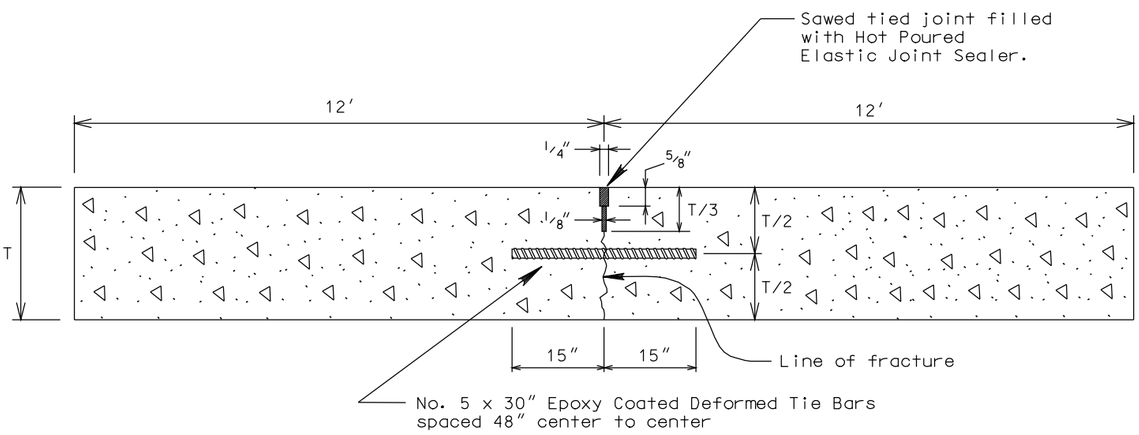
T = New pavement thickness.

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

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

PCC PAVEMENT REPAIR, NONREINFORCED

SAWED LONGITUDINAL JOINT



T = New pavement thickness.

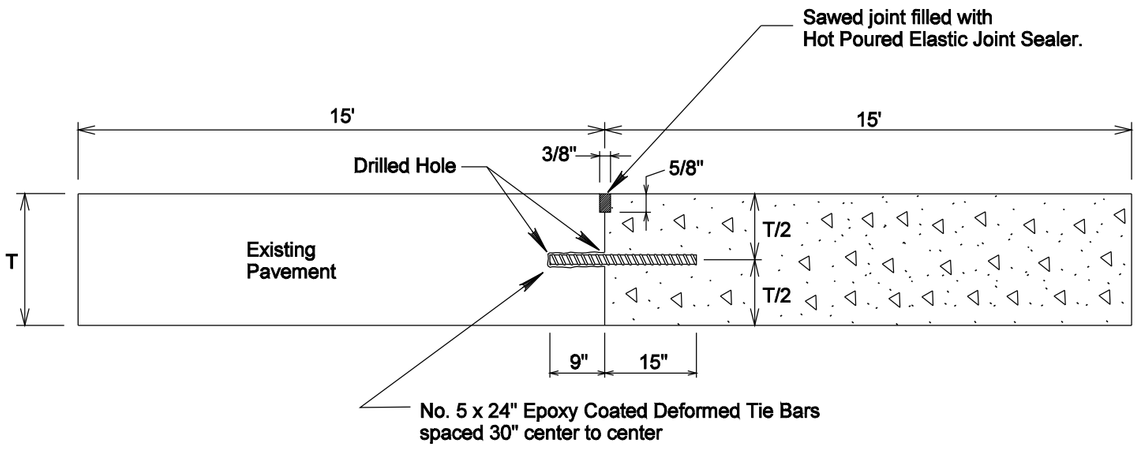
The first saw cut to control cracking shall be a minimum of 1/3 the depth of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the Hot Poured Elastic Joint Sealer will be necessary.

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
Plotting Date: 09-APR-2009	014 E-191, 014 W-191, & 037-191	13	22

NONREINFORCED PCC PAVEMENT REPAIR

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS



T = New existing and new pavement thickness.

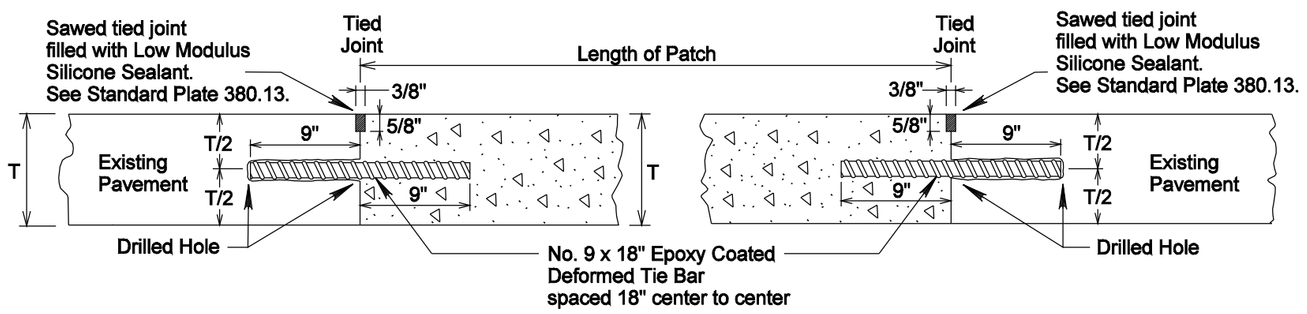
Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

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 Concrete Pavement.

NONREINFORCED PCC PAVEMENT REPAIR

DEFORMED TIE BAR INSERTION IN TRANSVERSE JOINT (TWO TIED JOINTS)



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.

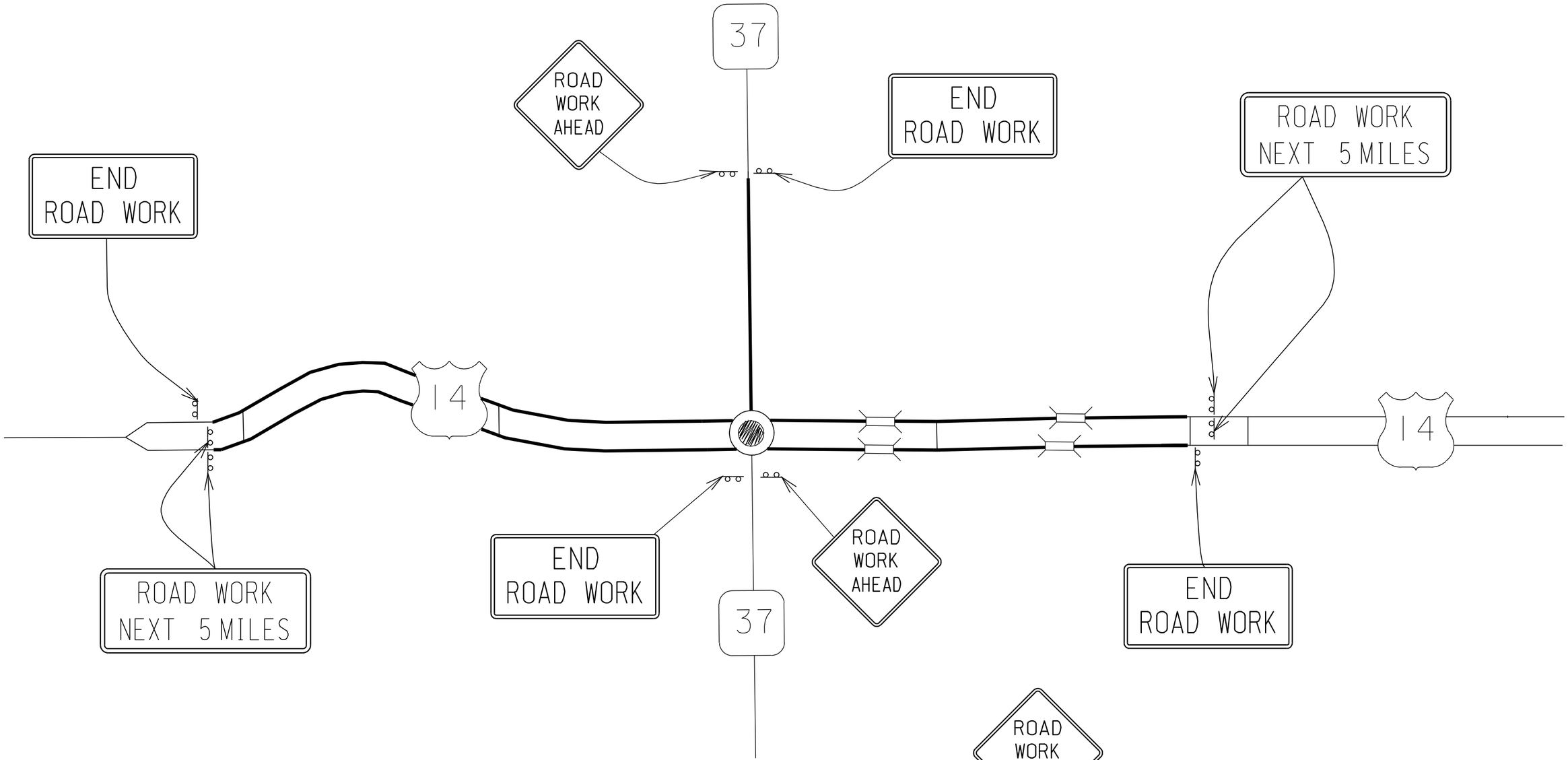
Cost for furnishing and inserting epoxy coated deformed tie bars shall be included in the contract unit price per each for Insert Steel Bar in Concrete Pavement.

Plotting Date: 09-APR-2009

STATE OF SOUTH DAKOTA	PROJECT
	014 E-191, 014 W-191, & 037-191
SHEET NO.	14
TOTAL SHEETS	22

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	15	22
Printing Date:	Revised By:	Date:	

FIXED LOCATION SIGNS



*Exact location of signs to be determined in the Field by the Engineer.

W20-1 ROAD WORK AHEAD signs shall be mounted on portable supports, and shall be placed on intersecting roadways as directed by the Engineer. ROAD WORK AHEAD signs shall be moved as necessary to keep current with the work activities.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	16	22

Plotting Date: 09-APR-2009

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.

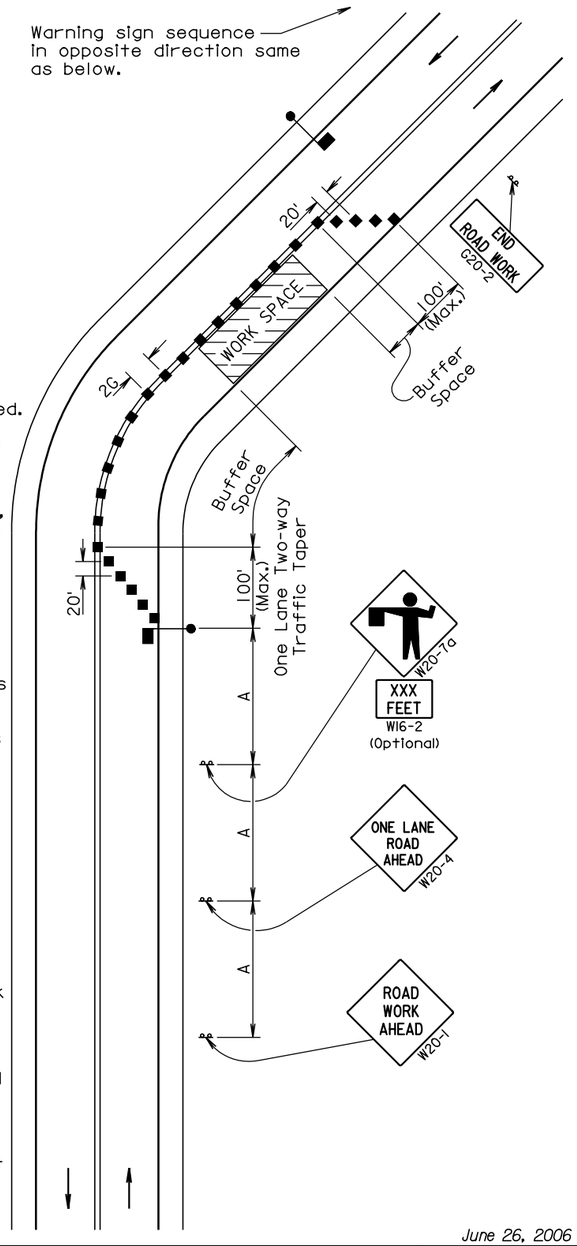
The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums or type II barricades along the centerline.

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. 2009	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			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

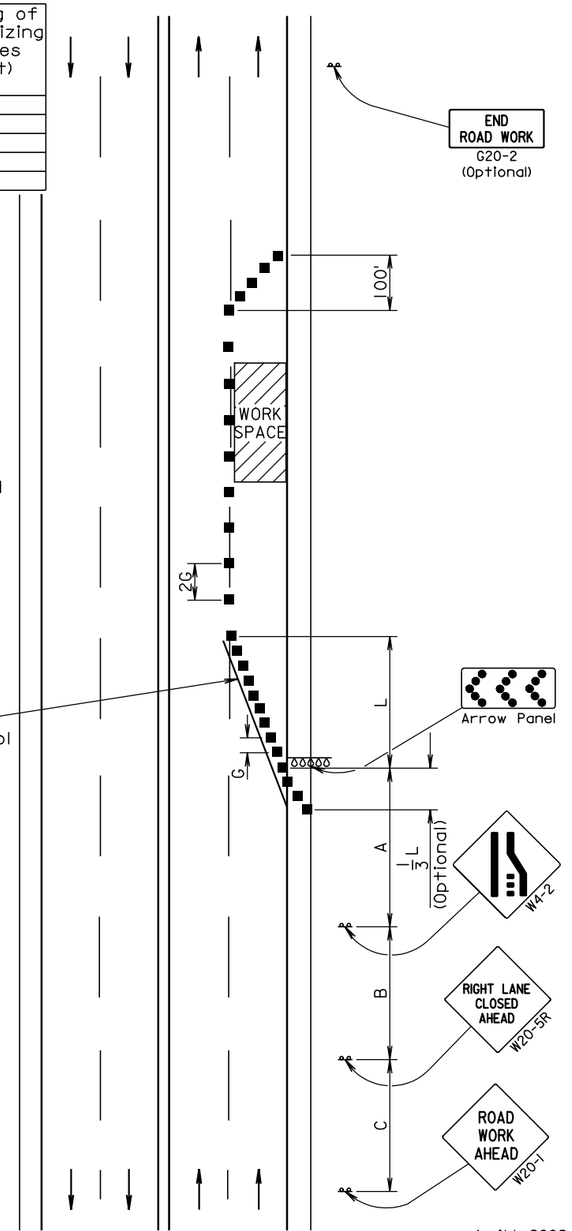
■ Channelizing Device

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.



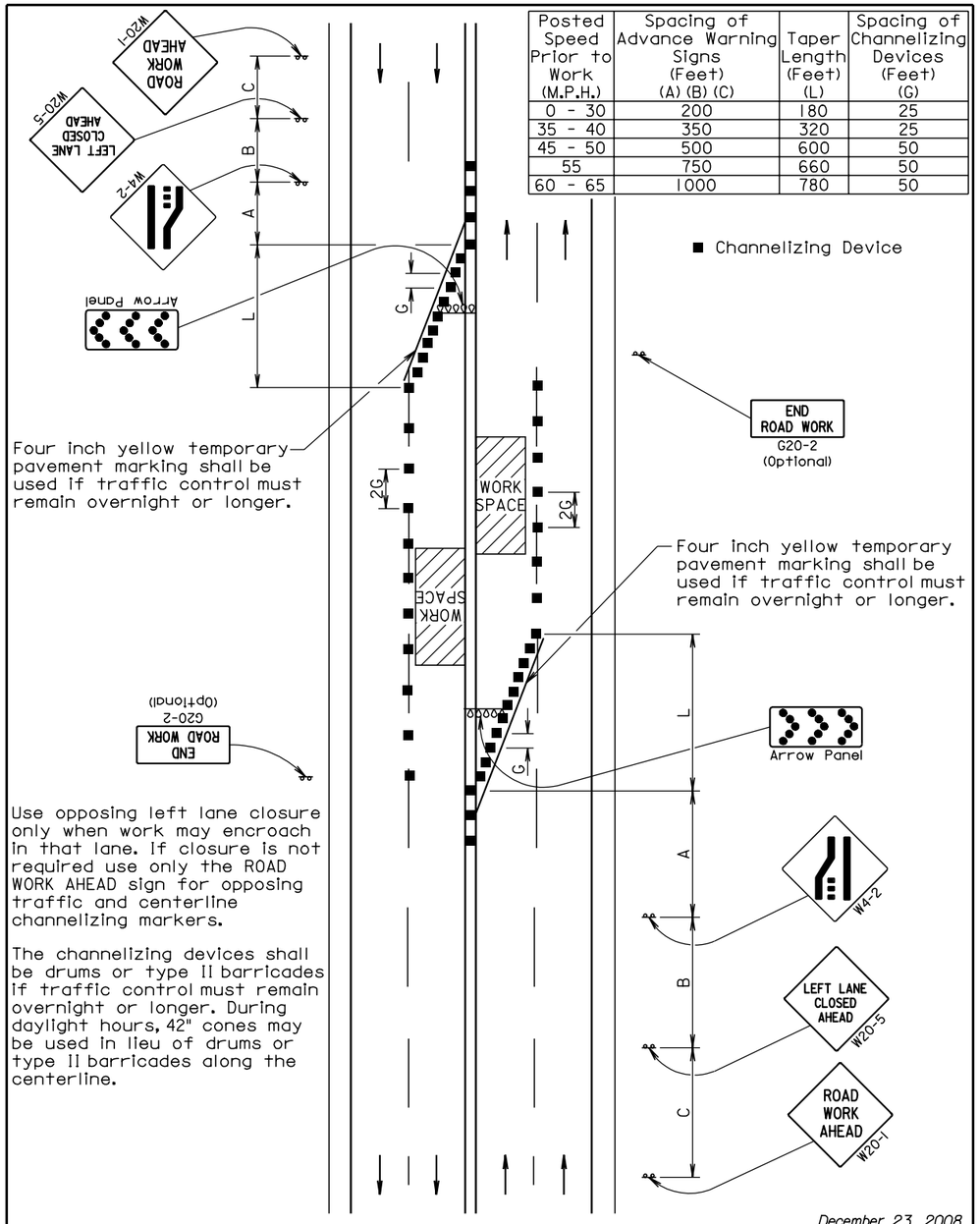
April 1, 2008

Published Date: 1st Qtr. 2009	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47
			Sheet 1 of 1

PLOTTED FROM - TRHWINT05

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	17	22
Plotting Date: 09-APR-2009			

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

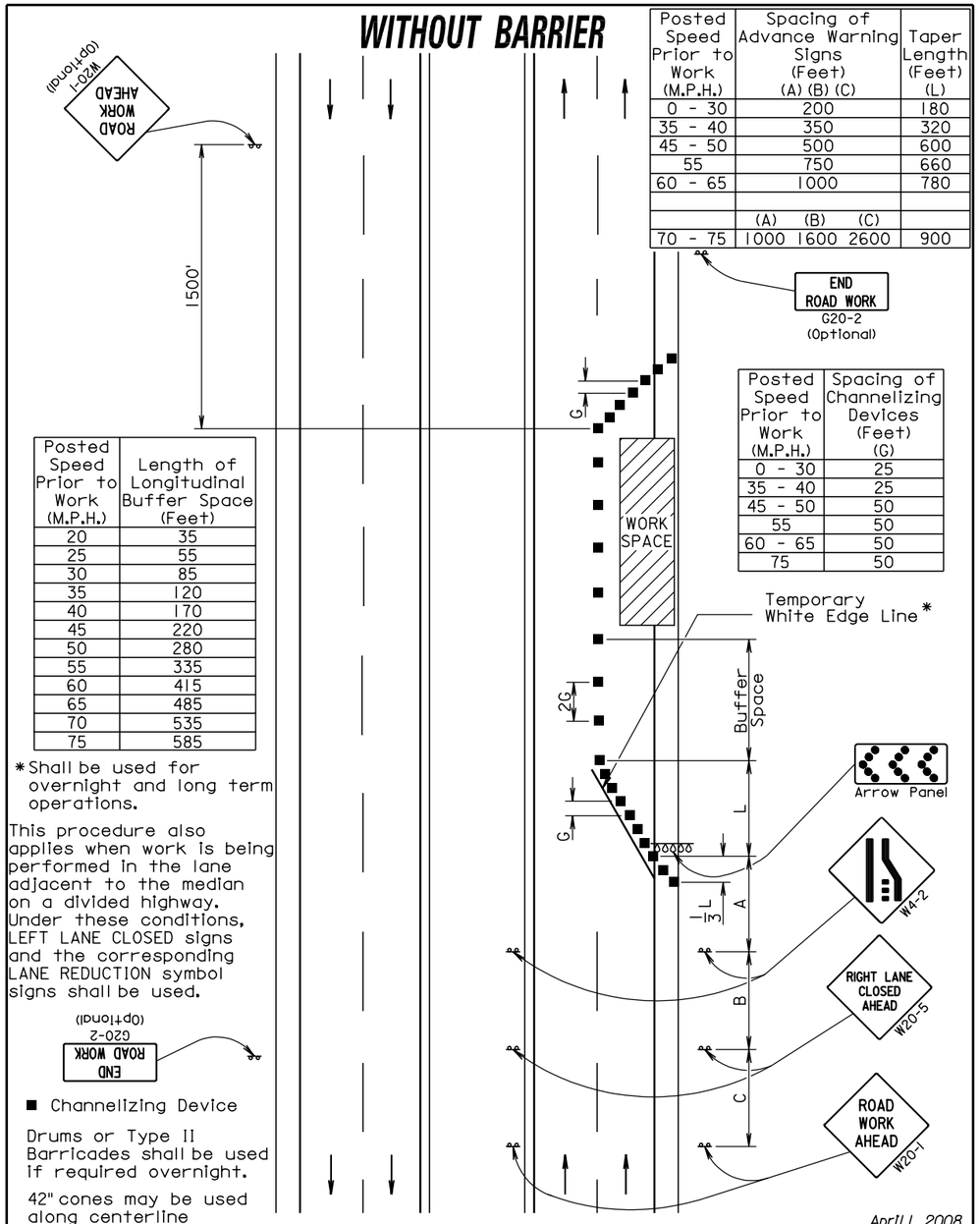
Published Date: 1st Qtr. 2009	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, LEFT LANE CLOSED	PLATE NUMBER 634.48 Sheet 1 of 1

WITHOUT BARRIER

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	900

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
70	535
75	585

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
75	50



*Shall be used for overnight and long term operations.

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

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

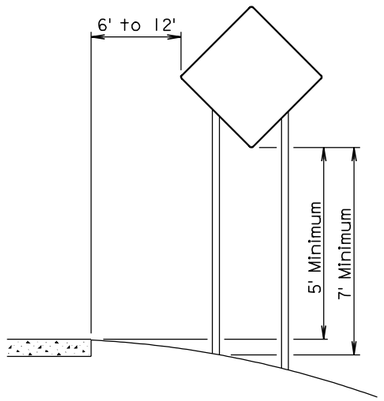
42" cones may be used along centerline

April 1, 2008

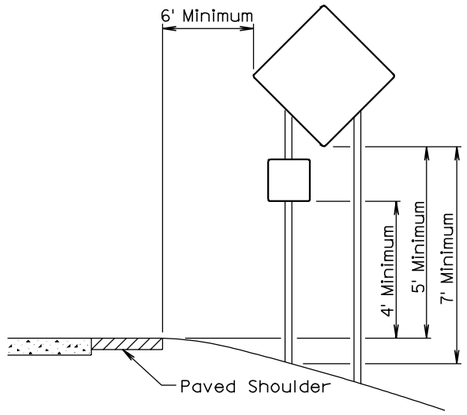
Published Date: 1st Qtr. 2009	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER	PLATE NUMBER 634.64 Sheet 1 of 1

PLOTTED FROM - TRHU1NT05

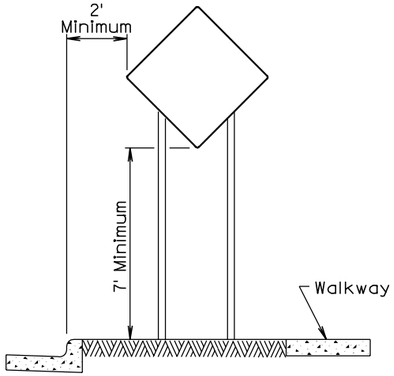
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	18	22
Plotting Date: 09-APR-2009			



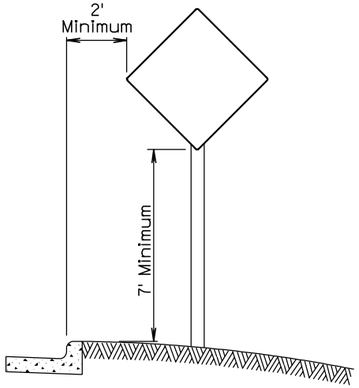
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



URBAN DISTRICT

December 23, 2003

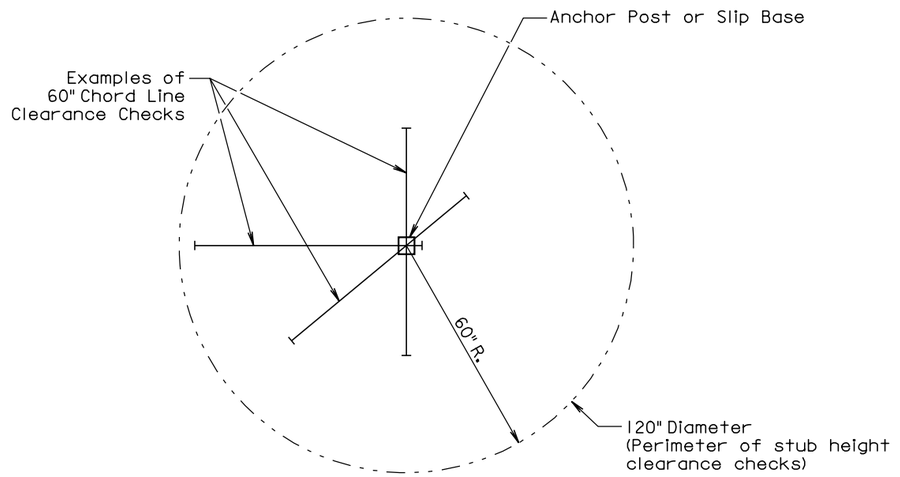
Published Date: 1st Qtr. 2009

SDDOT

BREAKAWAY SIGN SUPPORTS
(Typical Construction Signing)

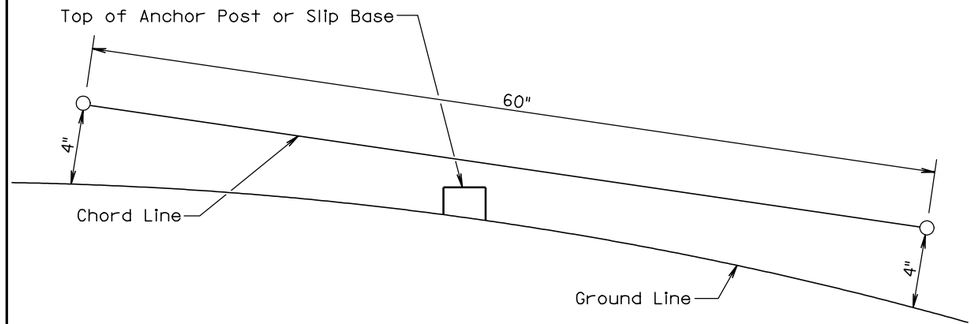
PLATE NUMBER 634.85

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. 2009

SDDOT

BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER 634.99

Sheet 1 of 1

PLOTTED FROM - TRHU1NT05

ITEMIZED LIST FOR TRAFFIC CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	19	22
Printing Data: 9-Apr-09	Revised By:	Date:	

PROJECT 014E-191

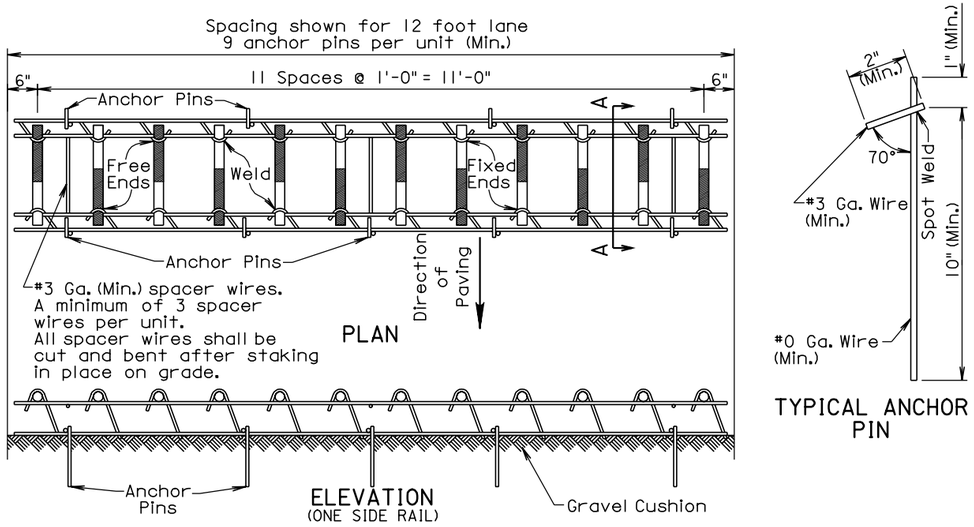
SIGN CODE	SIGN SIZE			DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	48"	x	24"	ROAD WORK NEXT ## MILES	2	24	48
G20-2A	36"	x	18"	END ROAD WORK	1	17	17
W4-2	48"	x	48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W8-1	36"	x	36"	BUMP	2	27	54
W20-1	48"	x	48"	ROAD WORK #### FT. OR AHEAD	6	34	204
W20-4	48"	x	48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48"	x	48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	2	34	68
W20-7a	48"	x	48"	FLAGGER	1	34	34
*****		*****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	10	40	400
						TOTAL UNITS	**927**

PROJECT 014W-191

SIGN CODE	SIGN SIZE			DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	48"	x	24"	ROAD WORK NEXT ## MILES	2	24	48
G20-2A	36"	x	18"	END ROAD WORK	1	17	17
W4-2	48"	x	48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W8-1	36"	x	36"	BUMP	2	27	54
W20-1	48"	x	48"	ROAD WORK #### FT. OR AHEAD	6	34	204
W20-4	48"	x	48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48"	x	48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	2	34	68
W20-7a	48"	x	48"	FLAGGER	1	34	34
*****		*****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	10	40	400
						TOTAL UNITS	**927**

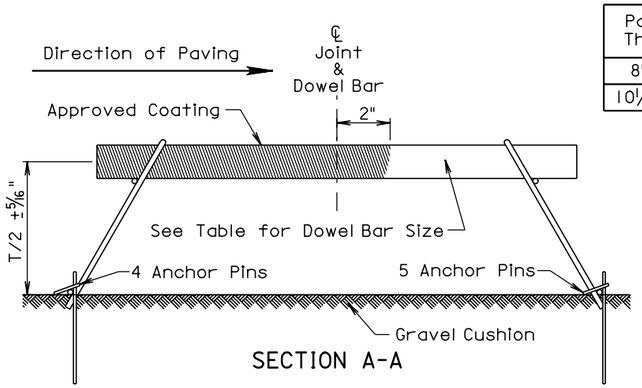
PROJECT 037-191

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)	1	34	34
W8-1	36"	x	36"	BUMP	2	27	54
W20-1	48"	x	48"	ROAD WORK #### FT. OR AHEAD	6	34	204
W20-4	48"	x	48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48"	x	48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	1	34	34
W20-7a	48"	x	48"	FLAGGER	1	34	34
*****		*****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	5	40	200
						TOTAL UNITS	**628**

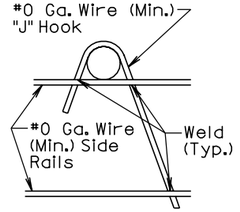


TYPICAL ANCHOR PIN

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



SECTION A-A



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.

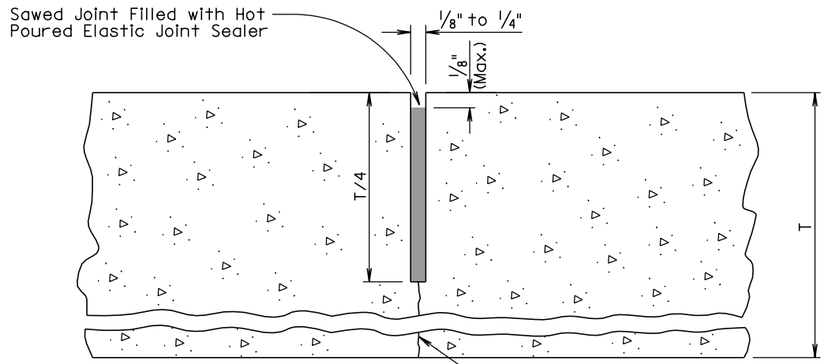
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

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. 2009	SDDOT	**PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS**	PLATE NUMBER 380.01 Sheet 1 of 1



GENERAL NOTES:

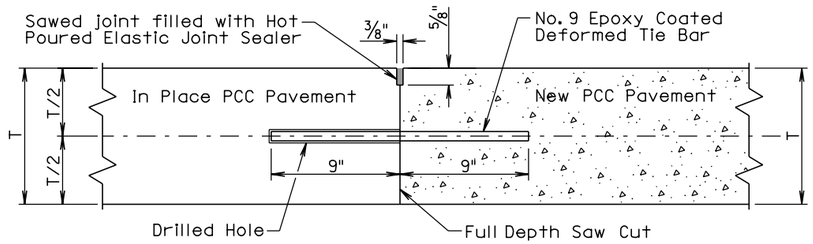
The saw cut to control cracking shall be a minimum of ¼ the thickness of the pavement.

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. 2009	SDDOT	**PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY**	PLATE NUMBER 380.03 Sheet 1 of 1

TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

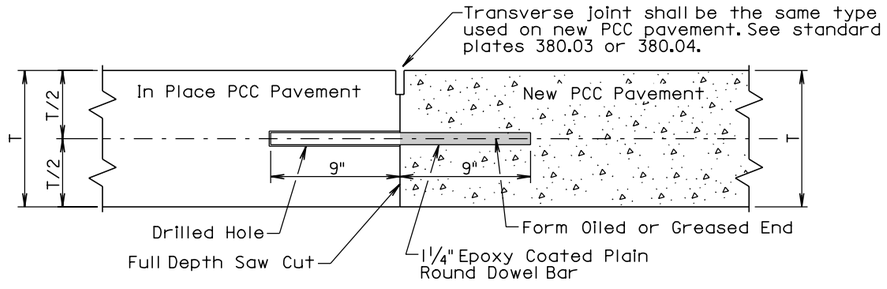
This detail shall be used when the transverse joint is less than 15 feet from the existing transverse contraction joint.

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No. 9 epoxy coated deformed tie bars shall be spaced 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

This detail shall be used when the transverse joint is 15 feet or greater from the existing transverse contraction joint.

The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

The 1¼" epoxy coated plain round dowel bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

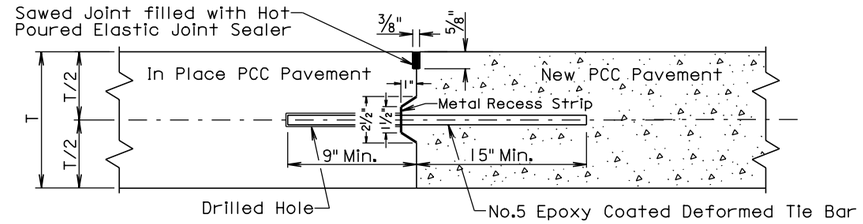
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

September 6, 2006

Published Date: 1st Qtr. 2009	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.06 Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(DRILLED IN BARS)



T = Pavement Thickness

GENERAL NOTES:

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

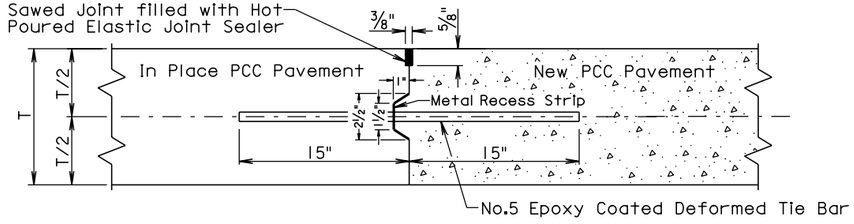
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(INSERTED OR FORMED IN BARS)



T = Pavement Thickness

GENERAL NOTES:

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

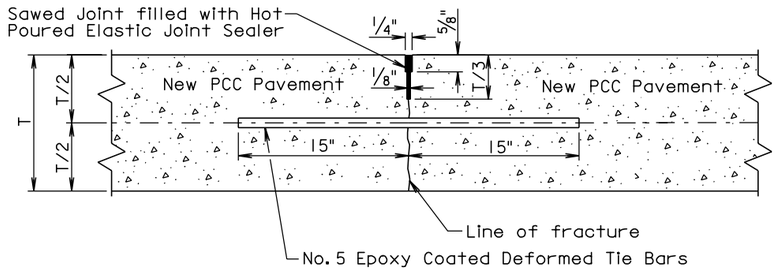
September 14, 2001

Published Date: 1st Qtr. 2009	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10 Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-191, 014 W-191, & 037-191	22	22
Plotting Date: 09-APR-2009			

SAWED LONGITUDINAL JOINT WITH TIE BARS

(POURED MONOLITHICALLY)



T = Pavement Thickness

GENERAL NOTES:

No. 5 epoxy coated deformed tie bars shall be spaced 48 inches center to center.

The tie bars shall be placed a minimum of 15 inches from the existing transverse contraction joints.

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

Published Date: 1st Qtr. 2009	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
			Sheet 2 of 2

PLOTTED FROM - TRHJINT05