PLOT SCALE - 1:7920

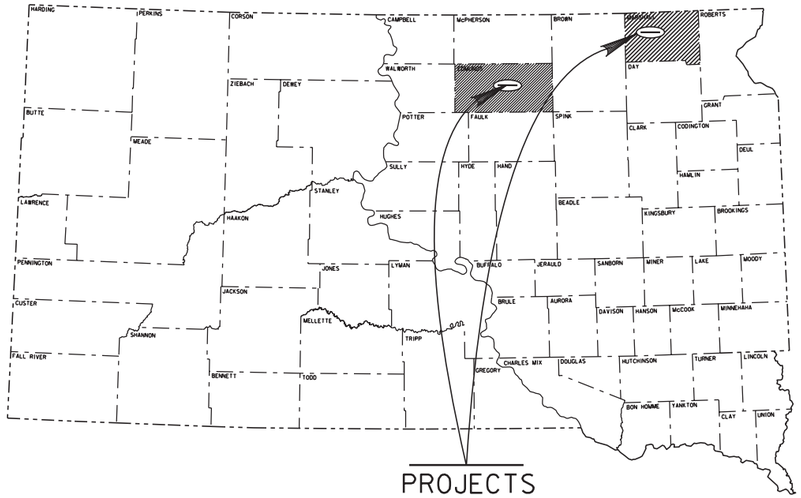
PLOTTED FROM - TRAB12245

PLOT NAME - 1

FILE - ...\US 12 - BRITTON\TITLE PAGE.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-152 & 010-151	1	25

Plotting Date: 05/21/2013



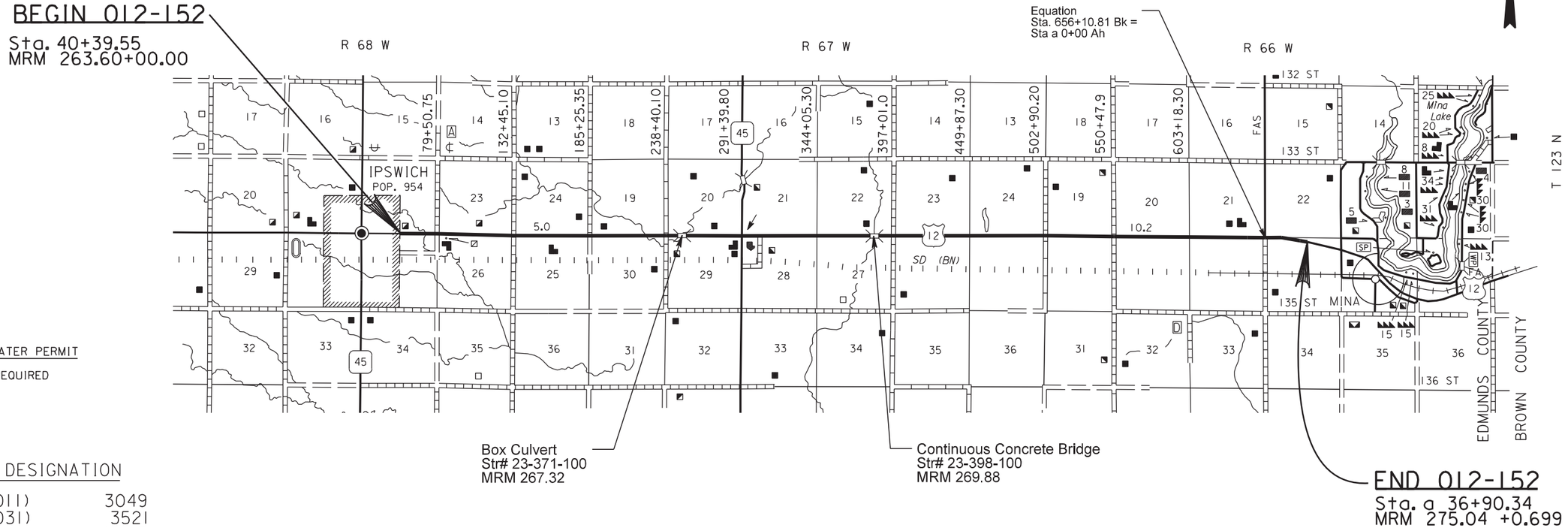
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 012–152 & 010–151
US HIGHWAY 12 & SD 10
EDMUNDS & MARSHALL COUNTIES

PCC PAVEMENT REPAIR

PCN i30d & i2xm

INDEX OF SHEETS



STORM WATER PERMIT

NONE REQUIRED

DESIGN DESIGNATION

ADT (2011)	3049
ADT (2031)	3521
DHV	457.7
D	51
T DHV	9.5
T ADT	20.8
V	65

US 12

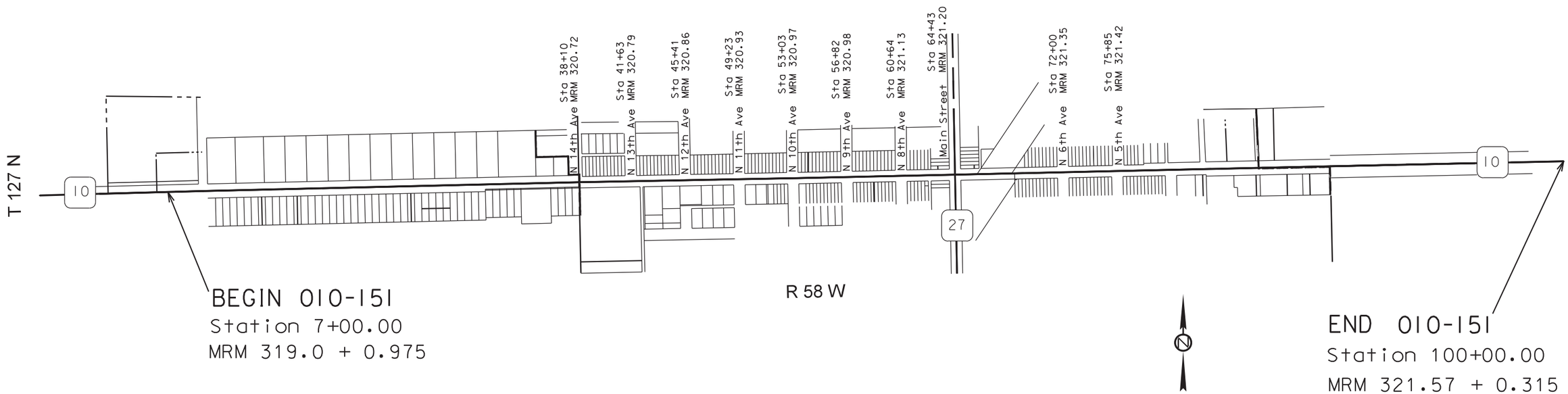
LENGTH	63,920.48 FEET	12.106 MILES
EXCEPTIONS	114.5 FEET	0.022 MILES
NET	63,805.98 FEET	12.084 MILES

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	2	25
Plotting Date: 05/22/2013			

010–151

MARSHALL COUNTY

CITY OF BRITTON



BEGIN 010-151
Station 7+00.00
MRM 319.0 + 0.975

END 010-151
Station 100+00.00
MRM 321.57 + 0.315

DESIGN DESIGNATION

ADT (2012)	1930
ADT (2032)	2311
DHV	249.6
D	50%
T DHV	4.2%
T ADT	9.2%
V	40 mph

SD 10

LENGTH	8448 FEET	1.60 MILES
EXCEPTIONS	000 FEET	0.00 MILES
NET	8448 FEET	1.60 MILES

PLOT SCALE - 1:220.5

PLOT NAME - 1

FILE - ...\SD 10 LAYOUT MAP.DGN

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	3	25

ESTIMATE OF QUANTITIES

BID ITEM		012-152	010-151		
NUMBER	BID ITEM	PCN i30d	PCN i2xm	TOTAL	UNIT
009E0010	Mobilization	LS	LS	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter		60	60	Ft
110E7700	Remove Drop Inlet Frame and Grate Assembly for Reset		1	1	Each
110E7710	Remove Manhole Frame & Lid for Reset		2	2	Each
120E0100	Unclassified Excavation, Digouts	25	25	50	CuYd
260E2010	Gravel Cushion	50	50	100	Ton
380E5020	Fast Track Concrete for PCC Pavement Repair	340.5	20	360.5	SqYd
380E5030	Nonreinforced PCC Pavement Repair		1363.8	1363.8	SqYd
380E6000	Dowel Bar	73	375	448	Each
380E6110	Insert Steel Bar in PCC Pavement	835	1623	2458	Each
634E0010	Flagging	120	80	200	Hour
634E0100	Traffic Control	515	1505	2020	Unit
634E0120	Traffic Control, Miscellaneous	LS	LS	Lump Sum	LS
634E0610	4" Temporary Pavement Marking Tape Type 2		1440	1440	Ft
650E0080	Type B68 Concrete Curb & Gutter		60	60	Ft
670E7000	Reset Drop Inlet Frame and Grate Assembly		1	1	Each
671E7000	Reset Manhole Frame and Lid		2	2	Each
734E0845	Sediment Control at Inlet with Frame & Grate		35	35	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet		96	96	Ft
734E5010	Sweeping		6	6	Hour

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact Jim Donohue, State Archaeological Research Center (ARC) at 605-394-1741 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	5	25

TABLE OF CONCRETE REMOVAL AND REPAIR - US 12 IPSWICH TO MINA

MRM	Description	380E5020 Fast Track Concrete for PCC Pavement Repair	380E6110 Insert Steel Bar In PCC Pavement Each			380E6000 Dowel Bars
		Sq.Yd.	#5	#8	1"	Each
263.626	WBL	6.67	4			12
263.671	WBL	5.33	4	8		12
263.672	EBL	5.33	4	8	12	
263.672	WBL	5.33	2	8		
263.838	EBL	11.33	12		12	
263.862	EBL	1.78	4	3	4	
263.944	WBL	17.33	10		24	
264.229	EBL	3.61	4	5	6	
264.297	EBL	8.89	12		5	5
264.300	EBL	7.22	10			5
264.302	EBL	10.56	14			5
264.306	EBL	9.44	12			5
264.309	EBL	8.61	12		5	
264.555	EBL	4.44	6	4	5	
264.565	EBL	12.67	14		12	
264.194	EBL	8.89	12		10	
267.169	WBL	6.22	10		4	4
267.172	WBL	8.44	14		4	
267.334	EBL	10.67	6	8	12	
267.334	WBL	2.22	2	3	4	
268.183	EBL	7.11	12		4	4
268.186	EBL	7.11	12		4	
268.933	EBL	2.67	4	4		6
268.934	EBL	4.00	8	4		
268.987	EBL	3.56	4	5	8	
269.069	EBL	12.00	14		6	6
269.072	EBL	12.00	14		6	
269.152	EBL	6.22	10		4	4
269.152	EBL	0.89	2	2		
269.529	EBL	10.67	6	8	12	
269.533	EBL	9.33	6	8	12	
269.559	EBL	9.33	6	8	12	
269.634	EBL	2.67	4	3	4	
269.672	EBL	3.33	4	4	5	
270.323	WBL	2.44	4	4	5	
271.352	WBL	20.00	12		24	
271.607	EBL	10.56	14		10	
271.686	EBL	10.00	14		5	5
271.687	EBL	2.22	4	4		
271.718	EBL	4.18	6	3	5	
271.333	EBL	1.78	4	3	4	
272.264	EBL	9.33	4	8	12	
272.780	EBL	5.33	4	16		
272.782	EBL	1.78	4	3	4	
272.806	WBL	5.33	4	8	12	
272.822	WBL	5.33	4	8	12	
273.524	EBL	9.72	14		10	
273.928	WBL	6.67	4	16		
	TOTALS =	**340.54**	**370**	**166**	**299**	**73**

Note: **Quantities provided are for information only. Actual quantities to be determined on construction.**

The above quantities are included in the Estimate of Quantities

TABLE OF CONCRETE REMOVAL AND REPAIR - SD 10 BRITTON

				380E5030	110E7710	671E7000	110E7700	670E7000	380E6110			380E6000	110E0300	650E0080	
				Nonreinforced PCC Pavement Repair	Remove Manhole Frame and Lid for Reset	Reset Manhole Frame and Lid	Remove Drop Inlet Frame and Grate Assembly for Reset	Reset Drop Inlet Frame and Grate Assembly	Insert Steel Bar In PCC Pavement Each			Dowel Bars	Remove Concrete Curb and Gutter	Type B68 Concrete Curb and Gutter	
MRM	Lane	Length	Width	Sq.Yd.	Each	Each	Each	Each	1"	#8	#5	Each	Feet	Feet	Comments
320.058	EBL	10.0	7.0	7.8					6	6	6				Half Panel
320.075	WBL	18.0	14.0	28.0					26		12				Whole Panel
320.173	EBL	18.0	14.0	28.0					26		12	14			Whole Panel
320.194	EBL	20.0	14.0	31.1					26		12				Whole Panel
320.213	EBL	50.0	14.0	77.8					26		32	28			Whole Panel
320.348	WBL	16.0	14.0	24.9					26		10				Whole Panel
320.357	EBL	85.0	14.0	132.2					26		56	56	40	40	Whole Panel
320.365	WBL	30.0	14.0	46.7					26		20	14			Whole Panel
320.367	WBL	14.0	7.0	10.9					12		10				Half Panel
320.372	WBL	30.0	14.0	46.7					26		20	14			Whole Panel
320.375	WBL	6.0	7.0	4.7					6	6	4				Half Panel
320.448	WBL	30.0	6.0	20.0					10		20	5			Half Panel
320.458	WBL	90.0	6.0	60.0					10		60	20			Half Panel
320.535	WBL	20.0	9.0	20.0					16		12				Whole Panel
320.548	EBL	6.0	14.0	9.3					13	13	4				Half Panel
320.549	WBL	18.0	14.0	28.0					26		12				Whole Panel
320.550	WBL	30.0	9.0	30.0					16		20	8			Whole Panel
320.592	WBL	18.0	7.0	14.0					12		12				Whole Panel
320.654	WBL	120.0	8.0	106.7					14		80	54			Half Panel
320.722	WBL	10.0	7.0	7.8					6	6	6				Half Panel
320.727	WBL	18.0	14.0	28.0					26		12				Whole Panel
320.764	WBL	18.0	14.0	28.0					26		12				Whole Panel
320.797	EBL	8.0	14.0	12.4					13	13	6				Half Panel
320.820	EBL	6.0	14.0	9.3					13	13	4				Half Panel
320.872	EBL	24.0	6.0	16.0					10		16	7			Half Panel
320.873	EBL	20.0	14.0	31.1					26		13				Whole Panel
320.875	EBL	18.0	7.0	14.0					6		12				Half Panel
320.887	EBL	18.0	14.0	28.0					26		12				Whole Panel
320.899	WBL	8.0	14.0	12.4					13	13	6				Whole Panel
320.981	EBL	8.0	14.0	12.4					13	13	6				Half Panel
321.013	EBL	80.0	14.0	124.4					26		54	56			Whole Panel
321.023	WBL	36.0	14.0	56.0					26		24	28			Whole Panel
321.040	WBL	10.0	10.0	11.1			1	1	9	9	6		20	20	Whole Panel
321.056	WBL	10.0	14.0	15.6					13	13	6				Whole Panel
321.150	EBL	18.0	14.0	28.0					26		12				Whole Panel
321.202	WBL	8.0	8.0	7.1	1	1			7	7	6				Manhole Diamond Blockout
321.281	WBL	8.0	14.0	12.4					13	13	6				Half Panel
321.283	EBL	8.0	14.0	12.4					13	13	6				Half Panel
321.293	WBL	8.0	8.0	7.1	1	1			7	7	6				Manhole Diamond Blockout
321.300	EBL	120.0	8.0	106.7					14		80	54			Half Panel
321.348	WBL	28.0	8.0	24.9					7	7	20	7			Half Panel
321.543	EBL	26.0	11.0	31.8					20		18	10			Whole Panel +, Just into turning lanes
			Totals	1363.8	2	2	1	1	708	152	763	375	60	60	

Note: 20 sq yds of Fast Track Concrete for PCC Pavement Repair have been included in the Estimate of Quantities to be used at the Engineer's discretion.

Note: Quantities provided are for information only. Actual quantities to be determined on construction.

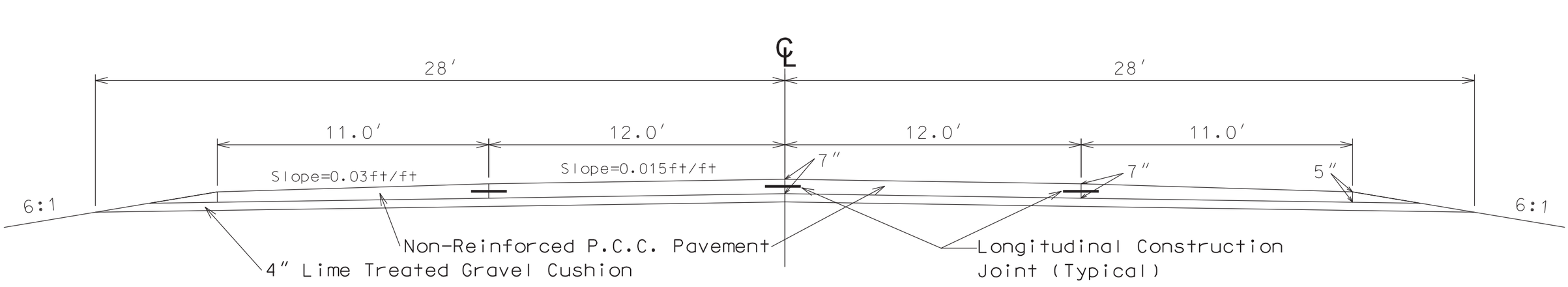
The above quantities are included in the Estimate of Quantities

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	7	25
Plotting Date: 05/13/2013			

TYPICAL SECTION US 12
IPSWICH TO MINA

Original Construction
(For Information Only)

US 12



PLOT SCALE - 1:1
PLOT NAME - 1
FILE - ...\TYPICAL SECTION US12.DGN
PLOTTED FROM - TRAB12245

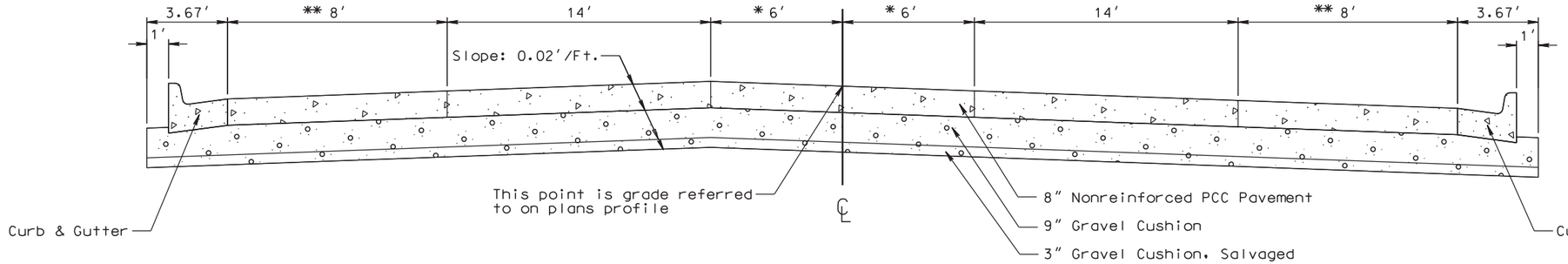
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	8	25
Plotting Date: 05/22/2013			

TYPICAL SURFACING SECTIONS

Original Construction
(For Information Only)

SD 10 in BRITTON

Sta. 11+05.6 to Sta. 14+92
Sta. 54+14 to Sta. 66+70
Sta. 70+38 to Sta. 73+98
Sta. 87+98 to Sta. 91+65



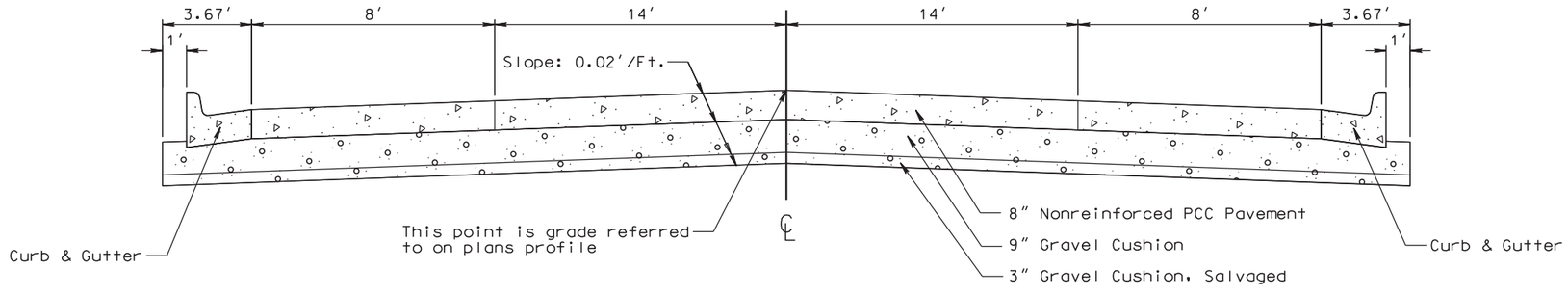
Transitions:

Sta. 12+62 to Sta. 14+92
Sta. 72+47.4 to Sta. 73+98
* 6′ to 0′

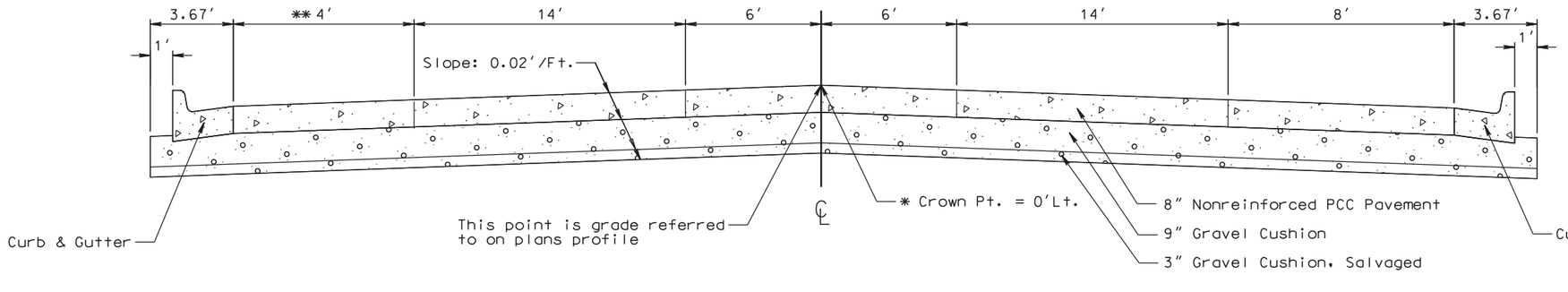
Sta. 54+14 to Sta. 55+64
Sta. 87+98 to Sta. 89+58
* 0′ to 6′

Sta. 66+40 to Sta. 66+70
** 8′ to 9′

Sta. 14+92 to Sta. 54+14
Sta. 73+98 to Sta. 87+98



Sta. 68+89 to Sta. 70+38



Transition:

Sta. 69+55 to Sta. 70+38
* Crown Pt. = 0′ Lt. to 6′ Lt.
** 4′ to 8′

PLOT SCALE - 1:200

PLOT NAME - 1

FILE ...\TYPICAL SECTIONS SD 10.DGN

PLOTTED FROM - TRAB12245

SCOPE OF WORK

Work on this project includes, but is not limited to PCC Pavement repair.

SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be adhered to. Any change must be approved in writing by the Engineer prior to the change being made.

1. PCC pavement repair US 12
2. PCC pavement repair SD 10

Construction activities will be permitted during daylight hours only.

Repair work will be limited to one project at a time. Repair work shall be completed in full before moving to the second route.

Once repair work starts on any route the Contractor shall be required to work continuously on the project. Closing sections of road and leaving the project or working on other sections of the project will not be permitted.

The City of Britton has Harvest Days on the 9th and 10th of August. There shall be no work allowed during Harvest Days. The Contractor shall coordinate the repair work so that there are no roadway closures within 3 blocks east or west of Main Street during this time.

EXISTING PCC PAVEMENT

The existing PCC Pavement at US 12, (Ipswich to Mina) is non-reinforced and was constructed using crushed ledge rock aggregate. The joint spacing on the project is (14, 16, 17, 19 feet) repeating with a 2 foot skew per 12 foot of lane. Transverse joints were sealed with low modulus silicone sealant.

The existing PCC Pavement at SD 10 is non-reinforced and was constructed using crushed ledge rock aggregate. Load transfer bars are located in the transverse joints. The joint spacing on the project is 20 feet. Transverse joints were sealed with hot poured elastic joint sealer.

DIMENSIONS OF EXISTING CONTRACTION JOINTS

All details and dimensions of the existing contraction joints contained in these plans are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and necessary dimensions affecting the satisfactory completion of the work required for this project.

MAINTENANCE OF TRAFFIC

The maximum length of a work zone on US 12 shall not exceed 2,000 feet. The length of a work zone shall be measured from the beginning of the lane closure taper to the end of the work zone closure.

There is one set of signs for the US 12 project (see traffic control layout). The Contractor shall be required to move and reset these signs according to their operations. All costs associated with moving and resetting of the traffic control shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

One lane of traffic shall be maintained in each direction at all times on US 12. Crossing of traffic into the oncoming lane will not be allowed. Traffic will be directed down the shoulders throughout the work zone.

Throughout the project, the Contractor must maintain local traffic and access to businesses and residences at all times.

The Contractor shall use 42” cones as channelizing devices along centerline.

The maximum length of a work zone on SD 10 shall be five city blocks. Road Work Ahead (W20-1) signs shall be placed on the intersecting side streets along the work zone. These signs may be located on temporary or permanent supports. These signs shall be covered or removed when work activities are not present within 750 feet of the intersecting street.

There is one set of signs for the SD 10 project. The Contractor shall be required to move and reset these signs according to their operations. All costs associated with moving and resetting of the traffic control shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

One lane of traffic shall be maintained in each direction at all times on SD 10. Crossing of traffic into the center turn lane or oncoming lane will not be allowed. Traffic will be directed down the parking lanes throughout the work zone. No Parking signs have been included in the estimate of quantities for this purpose.

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.

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.

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 foot above the pavement in rural areas.

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

There shall be no concrete repair work within the railroad ROW.

No traffic control devices shall be placed on the railroad lines.

Removal of 4” white skips or solid white lane lines in the traffic control lane tapers shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous. Removals shall be as directed by the Engineer.

The Contractor shall not park equipment or store materials within the ROW, unless allowed by the Engineer. Sidewalks shall remain open and usable at all times.

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.

The Contractor shall designate an employee to maintain traffic as described in Section 634.3 of the Standard Specifications. This person shall be required to do routine night and weekend checks to ensure traffic control devices are in satisfactory condition. The Contractor shall submit a weekly log stating time and date of all such inspections. The log shall be signed by the person doing the inspections. The cost of the traffic control person shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

REMOVE CONCRETE PAVEMENT

Approximate locations of existing non-reinforced concrete pavement to be removed are provided in the Table of Concrete 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. Removed concrete panels shall not be placed on the roadway surface. 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 removal limits. The Engineer shall mark exact dimensions prior to removal of concrete pavement. Payment will be made for quantity marked and measured in the field. Variations from plans estimated quantities and/or locations will not be considered cause for re-negotiation of the contract unit prices.

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

Removal of Concrete Pavement shall be incidental to the various Nonreinforced PCC Pavement Repair or Fast Track Concrete for PCC Pavement Repair bid items. 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.

REMOVE CONCRETE CURB AND GUTTER

Approximate locations of existing concrete curb and gutter to be removed are provided in the Table of Concrete 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 means that minimize damage to the sides of the remaining in place concrete pavement and sidewalk. 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.

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 foot for Remove Concrete Curb and Gutter.

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

Costs for this work for full and partial depth sawing, removal of all curb and gutter, disposal of all removed material, and all equipment, labor, and incidentals necessary to satisfactorily complete work shall be incidental to the contract unit price per foot for Remove Concrete Curb and Gutter.

PCC PAVEMENT REPAIR AROUND MANHOLES

Locations of PCC Pavement Repair around manholes shall be done according to the Table of Concrete Removal and Repair-SD 10 Britton or at the discretion of the Engineer. Work shall be done in accordance with the notes for Nonreinforced PCC Pavement Repair – General, Steel Bar Insertion and the Typical PCC Pavement Repair around Manholes detail.

The manhole frame and lid may have to be removed for preparation of the repair area. Refer to the layout for Typical PCC Pavement Repair around Manholes. The steel bars may be bent as necessary to reset the manhole frame and lid as shown in the plans.

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing concrete, sawing and sealing joints, labor, tools and equipment shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair or Fast Track Concrete For Pavement Repair.

Cost for removing and resetting manhole frame and lid, where necessary, shall be incidental to the contract unit prices per each for Remove Manhole Frame and Lid for Reset and Reset Manhole Frame and Lid.

RESTORATION OF GRAVEL CUSHION

An inspection of the granular 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 price per square yard for Nonreinforced PCC Pavement Repair or Fast Track Concrete for PCC Pavement Repair.

EXCAVATION OF UNSTABLE MATERIAL

Included in the Estimate of Quantities are **25** Cubic Yards of Unclassified Excavation, Digouts for each project for the necessary removal of unstable material.

Backfill shall be Gravel Cushion paid for at the contract unit price per ton.

GRAVEL CUSHION

Gravel Cushion shall conform to the requirements of the Standard Specifications.

Included in the Estimate of Quantities is **50** tons of Gravel Cushion for each project for backfill of Unclassified Excavation, Digouts. The only time Gravel Cushion will be measured and paid for is in locations where digouts are required.

STEEL BAR INSERTION

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

The Contractor shall insert the steel bars (1 inch x 18 inch epoxy coated plain round dowel bar for transverse joints, 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.

Plain round dowel bars shall be cut to the specified length by sawing and shall be free from burring or other deformations. Shearing shall 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).

Epoxy coated plain round steel bars shall be installed on 12 inch centers in the transverse joint. The first steel bar shall be placed a minimum of 3 inches and a maximum of 6 inches from the outside edge of the slab.

Epoxy coated deformed steel bars shall be inserted on 18 inch centers in the transverse joint. The first steel bar shall be placed a minimum of 3 inches and a maximum of 9 inches from the outside edge of the slab.

Epoxy coated deformed steel bars shall be inserted on 30 inch centers in the longitudinal joint and shall be placed a minimum of 15 inches from the existing transverse contraction 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 shall 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 shall 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 shall not be allowed.

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

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. Payment shall be based on actual area replaced.

Existing concrete pavement shall be sawed full depth on all sides 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 shall be at the original location. Any existing dowel bar assemblies shall be sawed off or removed.

NONREINFORCED PCC PAVEMENT REPAIR – GENERAL (CONTINUED)

At repair locations where the new working joint is not opposite the existing working joint, the Contractor shall place a ¼" 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 shall be sawed and sealed in accordance with the details shown in these plans. Refer to Saw and Seal Joints notes.

New pavement thickness shall be according to the typical sections at all locations.

Concrete 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 if required by the Engineer.

The slump requirement shall 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. The concrete mix shall contain at least 650 lbs. of Type I or II cement or 600 lbs. of Type 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 shall 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 60º F or higher throughout the cure period. If the concrete temperature falls below 60º F, 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.

Insulation blankets will be used to cover concrete at intersecting streets, driveways and areas designated by the Engineer to expedite the curing of the concrete. 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, until the 4000 psi is attained. Insulation blanket shall be overlapped on to the existing concrete by 4'. The initial contraction joint sawing shall be performed as soon as practical after placement to avoid random cracking.

Cost for performing the aforementioned work including furnishing and placing concrete, labor, tools and equipment shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

FAST TRACK CONCRETE FOR PAVEMENT REPAIR

New pavement thickness shall be according to the typical sections at all locations.

The Contractor shall saw the in place concrete of the removal area to full depth of the existing concrete pavement. The Contractor shall remove and dispose of the in place concrete, shape and recompact the remaining granular material prior to replacement of the concrete. Any additional Gravel Cushion, Modified required to prepare the area shall be furnished and placed by the Contractor, at no additional cost to the State.

Existing concrete in the replacement areas shall be removed by lift out method or by means that minimize damage to the granular base and sides of the remaining in place concrete. All removed concrete shall be removed from within the right-of-way by the end of the work day.

All joints (longitudinal and transverse) through and around repair areas shall have bars installed in accordance with the details shown in these plans.

All joints (longitudinal and transverse) through and around repair areas shall be sawed and sealed in accordance with the details shown in these plans.

Fast Track Concrete shall be used to insure that the pavement repair area can be opened to traffic within 8 hours after placement.

The slump requirement prior to use of a set accelerator or super-plasticizer shall be limited to 2 inches maximum and after addition of all admixtures the maximum slump shall be 8 inches and the concrete shall contain 4.5 to 7.5 percent entrained air. Coarse aggregate shall be crushed ledge rock, Size No. 1 or 15. The concrete mix shall contain at least 700 lbs. of type I or II cement or 650 lbs. of type 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 set accelerator and/or super-plasticizer at the manufacturer's recommended dosage shall be required. Either admixture used shall be added at the project site.

The special mix shall produce a minimum compressive strength of 3800 psi in 8 hours of curing time according to a swiss hammer.

Fast Track Concrete shall be cured with Linseed Oil Base Emulsion Curing Compound. To ensure strength is achieved, the Contractor may need to cover the concrete with suitable insulation blankets depending on temperature. The insulation blanket may be left in place, except for initial joint sawing operations, until the 3800 psi is attained. The initial contraction joint sawing shall be performed as soon as practical after placement to avoid random cracking. Contraction joints shall be initially sawed to the plans detailed depth and to a width of 1/8 inch.

The concrete repair area shall be removed, replaced, and opened to traffic in the same day. If the concrete cannot be placed within the same day the Contractor shall place and compact gravel cushion within the repair area prior to nightfall and the roadway shall be opened to normal traffic. Once fast track concrete is placed; if the concrete does not achieve 3800 psi in 8 hours the Contractor shall provide the traffic control needed until the Engineer determines the 3800 psi has been obtained. The Contractor shall be responsible for the additional costs for the traffic control and or; for providing, placing, and compacting the gravel cushion.

All costs incurred in performing the aforementioned work including concrete removal, furnishing and placing Fast Track Concrete, sawing and sealing joints, labor, tools and equipment shall be incidental to the contract unit price per square yard for Fast Track Concrete for PCC Pavement Repair.

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 shall be sealed with Hot Poured Elastic Joint Sealer.

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

ALKALI SILICA REACTIVITY

Fine aggregate with a 14 day expansion value of 0.400 and greater shall not be used.

The Department will use the running average of the last three known expansion test results or less for determining acceptability of source and the required type of cement. These expansion results are reported in the preceding table. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with acceptable test values (less than 0.250) is discovered after letting and Type V cement is required (values greater than 0.250), the Department will accept financial responsibility for the change from Type II to Type V cement.

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item. Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

TABLE OF KNOWN FINE AGGREGATE SOURCES

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
B&B ready Mix	Flandreau, SD	0.113
Birdsall S&G	Blunt, SD	0.223
Birdsall S&G	Creston, SD	0.170
Birdsall S&G	Oral, SD	0.136
Birdsall S&G	Wasta, SD	0.177
Bitterman	Delmont, SD	0.314*
Concrete Materials	Corson, SD	0.158
Emme Sand & Gravel	Oneil, NE	0.217
Fischer S&G	Fort Yates, ND	0.264*
Fischer S&G	Rapid City, SD	0.092
Fischer S&G	Spearfish, SD	0.053
Fischer S&G	Wasta, SD	0.152
Fuchs	Pickstown, SD	0.275*
Henrick & Son	Bigstone, SD	0.140
Higman	Akron, IA	0.194
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.123
L.G. Everist	Hawarden, IA	0.179
L.G. Everist	Summit, SD	0.163
McLaughlin	Watertown, SD	0.124
Mission Hills	Yankton, SD	0.261*
Morris – Richards pit	Onida, SD	0.214
Morris – Schmitgen	Onida, SD	0.158
Myrl & Roys Paving-Nelson Pit	Sioux Falls, SD	0.158
Northern Concrete Agg.	Rauville, SD	0.105
Northern Concrete Agg.	Luverne, MN	0.124
Opperman - Gunvordahl Pit	Burke, SD	0.337*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.329*
Opperman – Randall Pit	Pickstown , SD	0.211
Sisseton Ready Mix	Sisseton, SD	0.106
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Wagner, SD	0.241

* These sources will require Type V cement in the concrete mix design and Class F (Modified) fly ash as specified.

PERMENANT PAVEMENT MARKINGS

The permanent pavement markings shall be applied by the DOT.

SWEEPING OF ROADWAY

The Contractor shall use a pickup broom having integral mounted self-contained storage to clean the roadway on SD 10. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms. Cost of cleaning the roadway with a pickup broom shall be incidental to the contract unit price per hour for SWEEPING. Sweeping will be measured and paid for to the nearest 0.1 hours.

At a minimum, sweeping will be required:

1. Prior to opening any segment of roadway to traffic.

When sawing operations are underway in the inside driving lanes, the outside driving lanes and gutter may need to be swept to control dust

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

Sediment Control at Inlets with Frames and Grates are to be installed at locations located on SD 10 in Britton where concrete repair work involving concrete sawing is to be done.

On the project, SD 10 through Britton, there are 68 Type B Frame and Grates. Included in the Estimate of Quantities are 35 locations for Sediment Control at Inlets with Frames and Grates. The Contractor may reuse the inlet protection at a new location providing it is not damaged and approved by the Engineer. The quantity is an estimate. The actual quantity shall be determined in the field by the Engineer. Each inlet that the protection is applied to shall be measured and paid for at the contract unit price per each for Sediment Control at Inlets with Frames and Grates.

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlets with Frame and Grates shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlets with Frames and Grates" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlets with Frames and Grates shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection devices shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.

Sediment Control at Inlet with Frame and Grate Approved List:

Product	Manufacturer
InfraSafe Debris Collection Device with filter sock	Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silttrapper.com
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 www.skyviewconst.com
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
Sediment Catchers	Shaun Jensen Brookings, SD Phone: 1-605-690-4950
Grate FX, Slammer, or VertPro	Enviroscape ECM, Ltd. Oakwood, OH Phone: 1-419-594-3210 www.strawblanket.com

SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

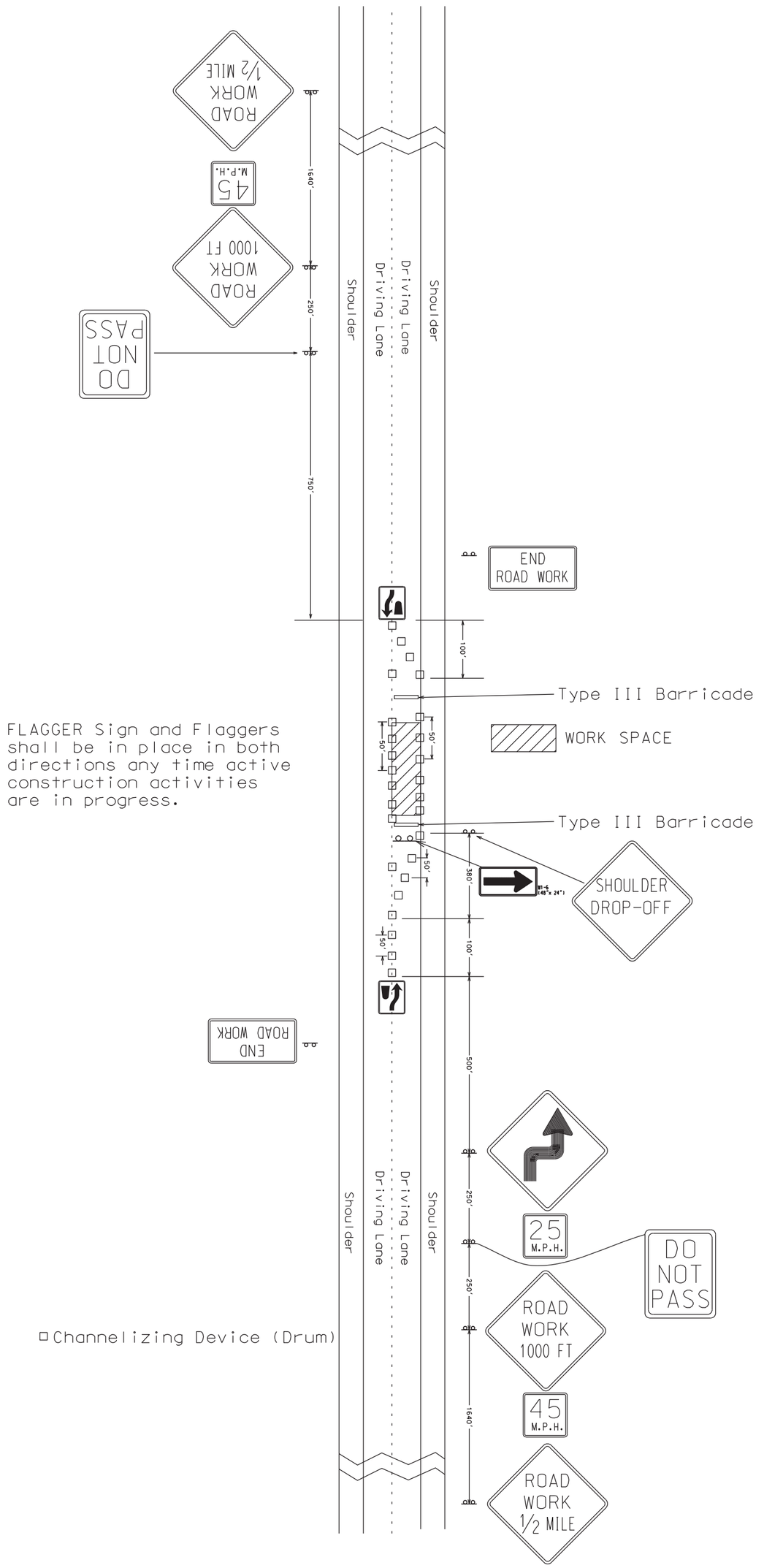
On the project, SD 10 through Britton, there are 15 Type S Reinforced Concrete Drop Inlets. Included in the Estimate of Quantities are 8 locations for Sediment Control at Type S Reinforced Concrete Drop Inlets. The Contractor may reuse the inlet protection at a new location providing it is not damaged and approved by the Engineer. The quantity is an estimate. The actual quantity shall be determined in the field by the Engineer. Each inlet that the protection is applied to shall be measured and paid for at the contract unit price per foot for Sediment Control at Type S Reinforced Concrete Drop Inlets.

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

Product	Manufacturer
Dandy Curb	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 www.acfenvironmental.com
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 www.siltsaver.com
Curb Inlet Guard	ECTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com

* Quantity shown on Standard Plate 734.11 is the minimum length required and shall be the basis of payment.

TRAFFIC CONTROL LAYOUT FOR FULL DEPTH REPAIR
US 12 (Ipswich to Mina)



STATE OF SOUTH DAKOTA

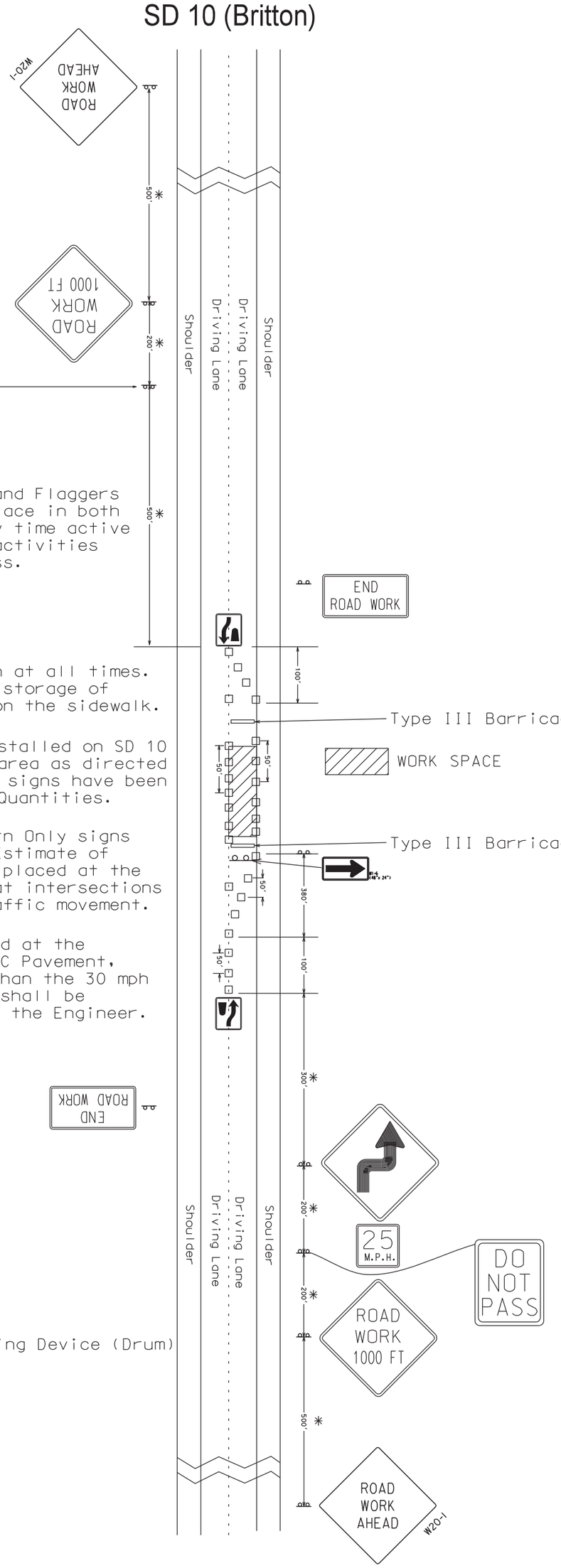
PROJECT 012-152 & 010-151

SHEET NO. 14

TOTAL SHEETS 25

Plotting Date: 05/21/2013

TRAFFIC CONTROL LAYOUT FOR FULL DEPTH REPAIR
SD 10 (Britton)



FLAGGER Sign and Flaggers shall be in place in both directions any time active construction activities are in progress.

Sidewalks shall remain open at all times. No parking of equipment or storage of materials will be allowed on the sidewalk.

No Parking signs shall be installed on SD 10 in the vicinity of the work area as directed by the Engineer. No Parking signs have been included in the Estimate of Quantities.

No Left Turns and Right Turn Only signs have been included in the Estimate of Quantities. They shall be placed at the direction of the Engineer at intersections where repairs may limit traffic movement.

* For any repair areas located at the beginning or ending of the PCC Pavement, where the speeds are higher than the 30 mph in Britton, the sign spacing shall be adjusted at the discretion of the Engineer.

□ Channelizing Device (Drum)

STATE OF SOUTH DAKOTA

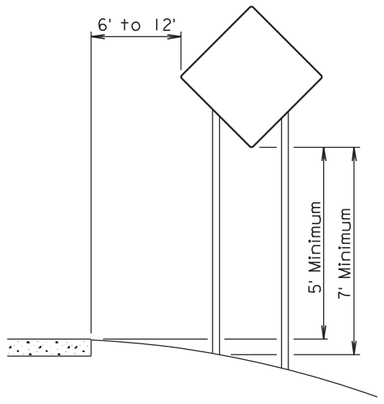
PROJECT 012-152 & 010-151

SHEET NO. 15

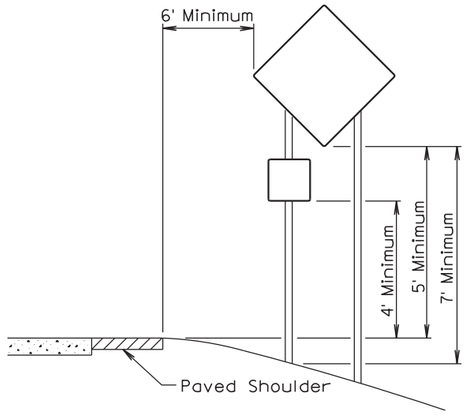
TOTAL SHEETS 25

Plotting Date: 05/21/2013

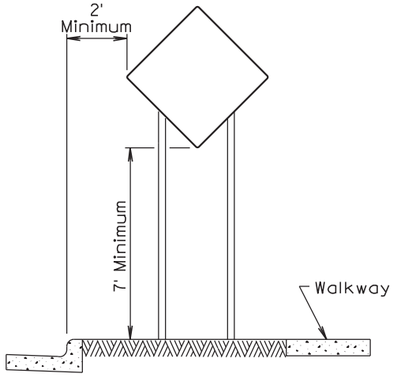
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	16	25



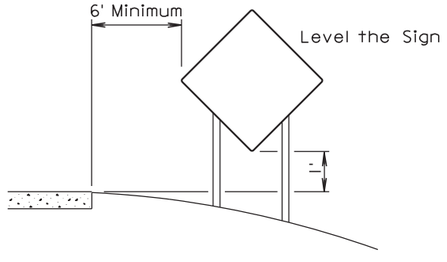
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



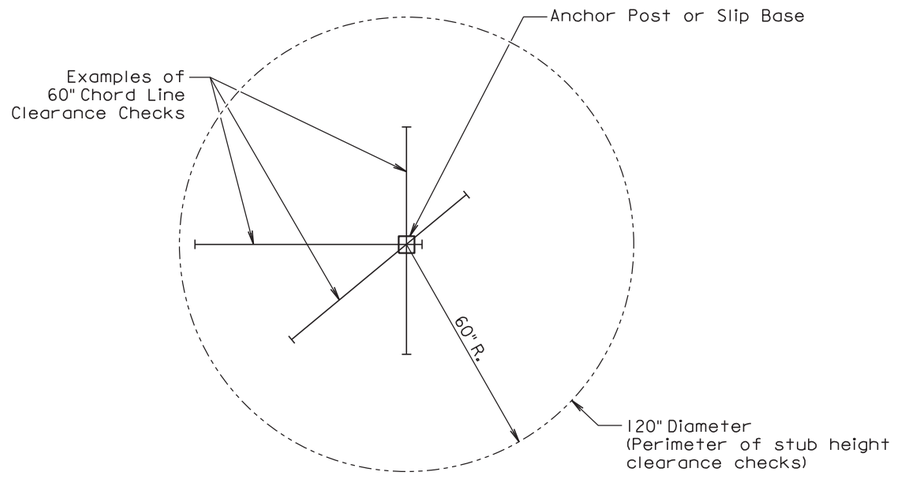
URBAN DISTRICT



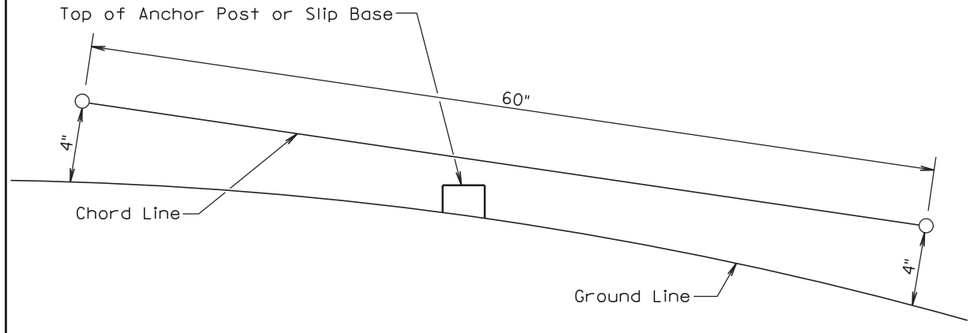
RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

Published Date: 2nd Qtr. 2013	SDDOT	CRASHWORTHY 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: 2nd Qtr. 2013	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	17	25

ITEMIZED LIST FOR TRAFFIC CONTROL - CONVENTIONAL ROADS

US 12

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R4-1	24" x 30"	DO NOT PASS	2	18	36
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	2	18	36
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)	1	34	34
W1-6	60" x 30"	ONE DIRECTION LARGE ARROW	1	30	30
W8-9a	48" x 48"	SHOULDER DROP-OFF	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	3	21	63
W21-4E	48" x 48"	ROAD WORK 1/2 MILE	2	34	68
W21-4C	48" x 48"	ROAD WORK 1000 FEET	2	34	68
*****		TYPE III BARRICADE - 8 FT. DOUBLE SIDED	2	56	112
				TOTAL UNITS	**515**

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:
Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL - CONVENTIONAL ROADS

SD 10

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R1-1	30" x 30"	STOP	2	21	42
R3-1	24" x 24"	NO RIGHT TURN (SYMBOL)	5	16	80
R3-2	24" x 24"	NO LEFT TURN (SYMBOL)	5	16	80
R4-1	24" x 30"	DO NOT PASS	2	18	36
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	2	18	36
R8-3	24" x 24"	NO PARKING (SYMBOL)	5	16	80
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)	1	34	34
W1-6	60" x 30"	ONE DIRECTION LARGE ARROW	1	30	30
W13-1P	30" x 30"	ADVISORY SPEED PLATE	1	21	21
W20-1	48" x 48"	ROAD WORK AHEAD	2	34	68
W21-4C	48" x 48"	ROAD WORK 1000 FEET	2	34	68
*****		TYPE III BARRICADE - 8 FT. DOUBLE SIDED	16	56	896
				TOTAL UNITS	**1505**

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:
Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

PLOT SCALE - 1:10

PLOT NAME - 2

PLOTTED FROM - TRAB12245

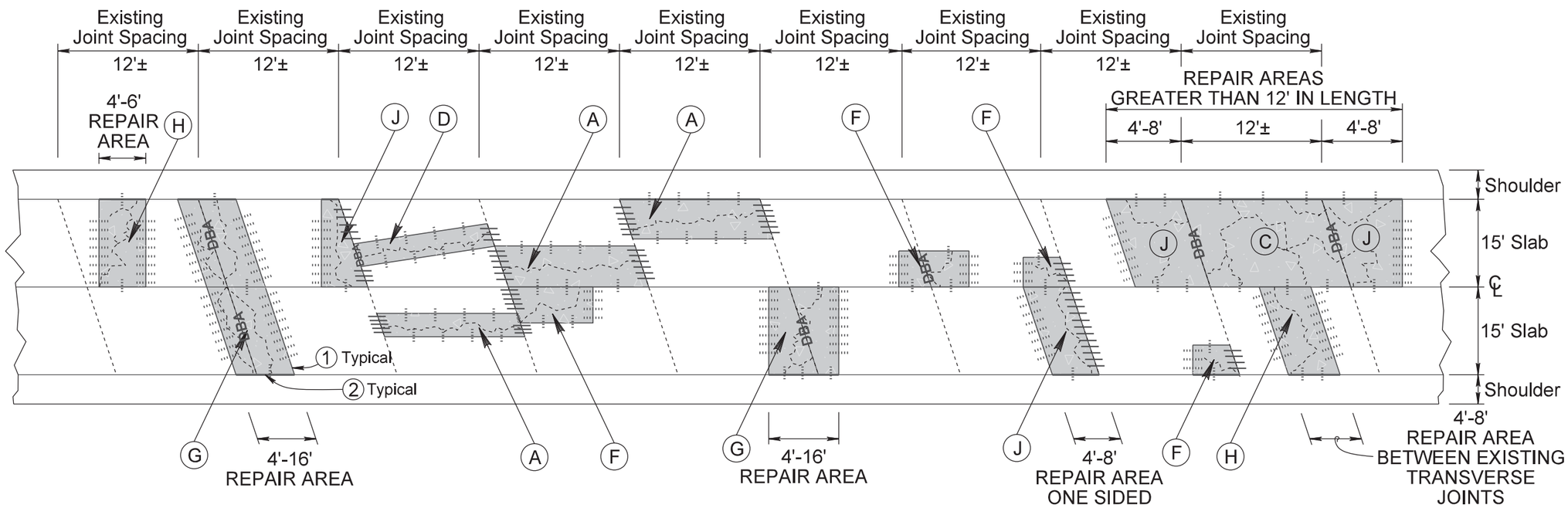
FILE - ...\PATCH2.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-152 & 010-151	18	25

Plotting Date: 05/14/2013

NONREINFORCED PCC PAVEMENT REPAIR

TWO LANE ROADWAY WITH SHOULDERS
TYPICAL REPAIR AREAS IN SKEWED PAVEMENT



KEY:

PCC Pavement Repair Area

PCC PAVEMENT REPAIR AREA TYPES

(A) (C) (D) - Full panel length

(F) - Partial width and length

(C) (G) (H) (J) - Half or full width

Where possible, PCC Pavement Repair Areas should be located such that the newly created longitudinal joints are not in the wheelpaths.

Random Cracks meeting these criteria will be full depth repaired:

1. Is primarily in wheelpaths or
2. Within a sunken or uneven area or
3. Abnormally wide, as determined by the Engineer.

Random Cracks not meeting these criteria will be resealed .

The Table of PCC Pavement Repair is based on the above requirements.

Steel Bars for Transverse Joints

Pavement Thickness >= 8.5"

— Drilled in 1¼" x 18" epoxy coated plain round dowel bars spaced 12" center to center.

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

Pavement Thickness < 8.5"

— Drilled in 1" x 18" epoxy coated plain round dowel bars spaced 12" center to center.

..... Drilled in No. 8 x 18" epoxy coated deformed tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

Steel Bars for Longitudinal Joints

⋮ 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.

NOTES:

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

(2) Edges of repair areas shall be formed to match the width of the existing concrete pavement.

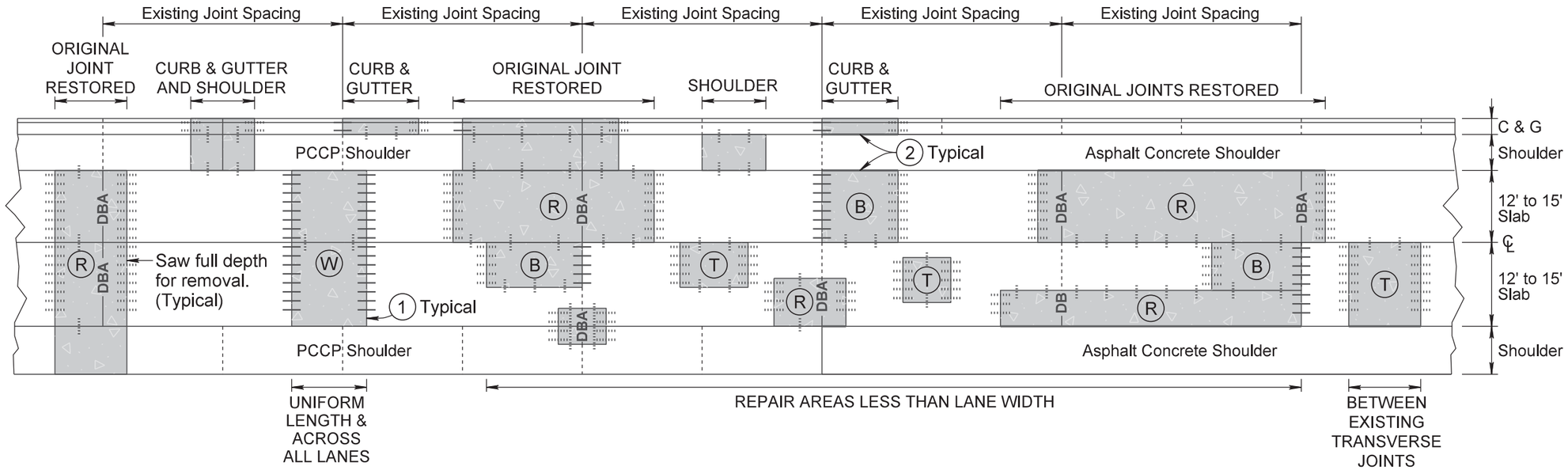
Saw around repair areas full depth for removal.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-152 & 010-151	19	25

Plotting Date: 05/14/2013

NONREINFORCED PCC PAVEMENT REPAIR

UP TO TWO LANE ROADWAY OR UP TO FOUR LANE DIVIDED ROADWAY
TYPICAL REPAIR AREAS



KEY:

PCC Pavement Repair Area

PCC PAVEMENT REPAIR AREA TYPES:

(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

Steel Bars for Transverse Joints

Pavement Thickness >= 8.5"

— Drilled in 1¼" x 18" epoxy coated plain round dowel bars spaced 12" center to center.

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

Pavement Thickness < 8.5"

— Drilled in 1" x 18" epoxy coated plain round dowel bars spaced 12" center to center.

..... Drilled in No. 8 x 18" epoxy coated deformed tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

Steel Bars for Longitudinal Joints

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.

NOTES: Saw around repair areas full depth for removal.

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

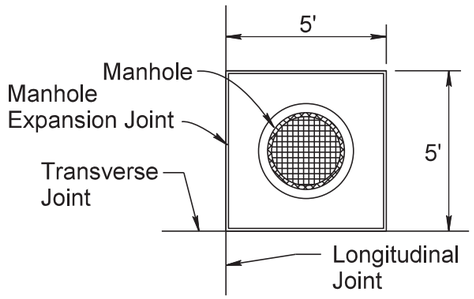
(2) Edges of repair areas shall be formed to match the width of the existing concrete pavement.

(3) Need for bars in small repair areas on/near the shoulder to be determined on a case-by-case basis, on construction by the Engineer.

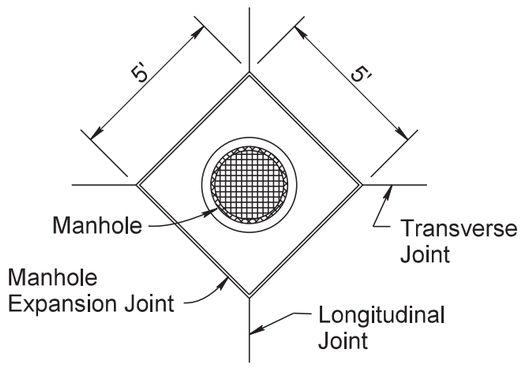
STATE OF SOUTH DAKOTA | PROJECT 012-152 & 010-151 | SHEET 20 | TOTAL SHEETS 25
Plotting Date: 05/13/2013

TYPICAL PCC PAVEMENT REPAIR AROUND MANHOLES

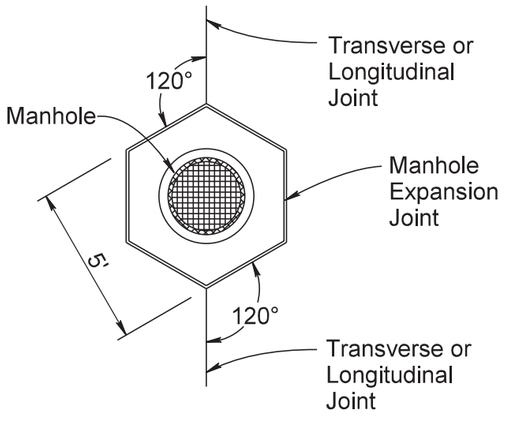
BOX-OUT DETAIL IN PCC PAVEMENT



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

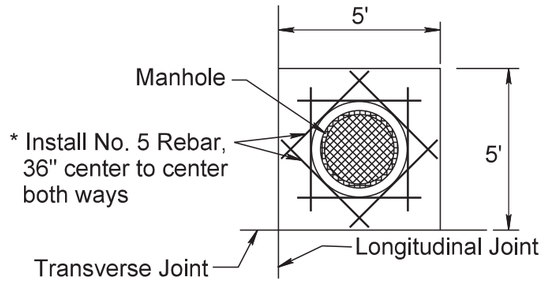


Where the utility access is intersected by the longitudinal and transverse joints

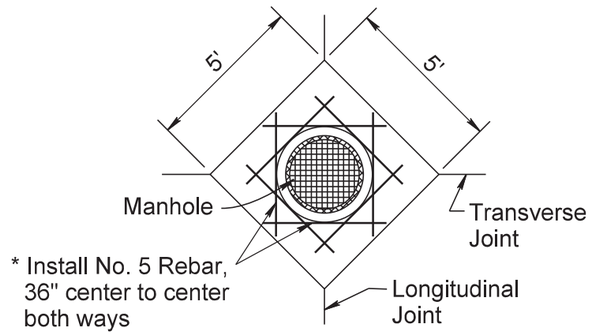


Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

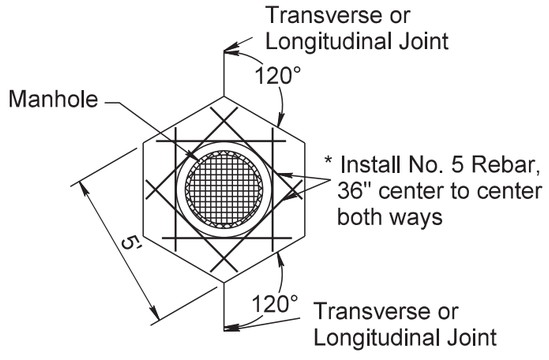
REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUT



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

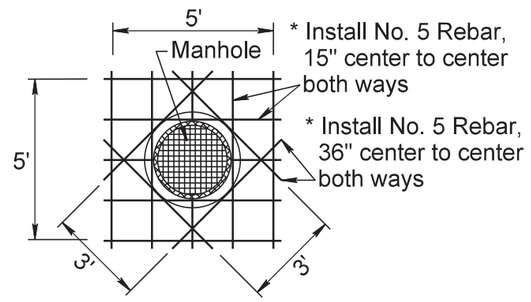


Where the utility access is intersected by the longitudinal and transverse joints



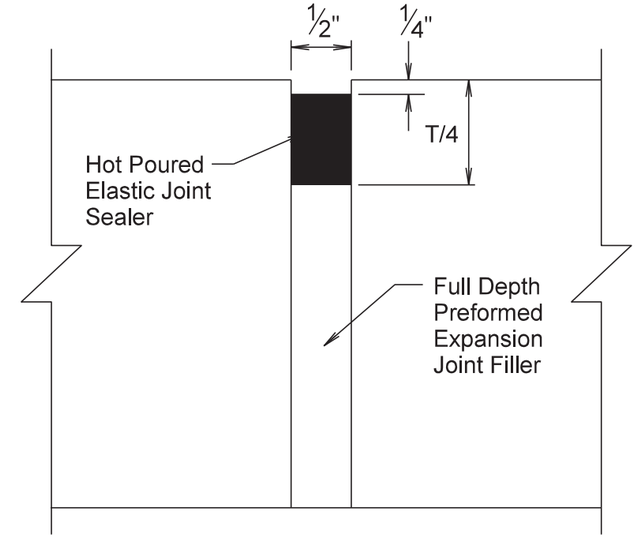
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

REBAR LAYOUT IN PCC PAVEMENT WITHOUT BOX-OUT



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



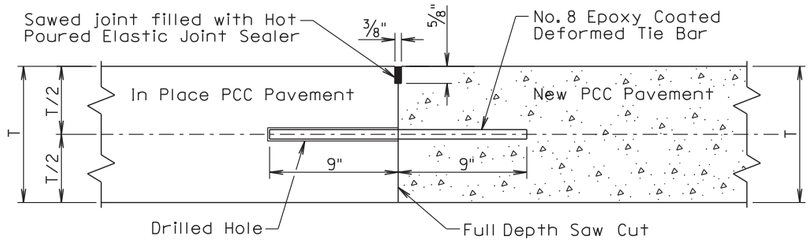
* Rebar will be placed at the midpoint depth of the PCC Pavement. Cost for furnishing & installing rebar and constructing box-outs shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair and/or Fast Track Concrete for PCC Pavement Repair.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	21	25

SPECIAL DETAIL

PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS

TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

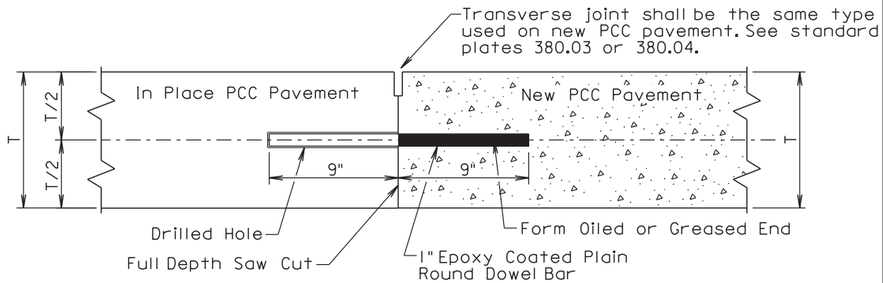
This detail shall be used when the transverse joint is less than 15 feet from the existing transverse contraction joint.

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. 8 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

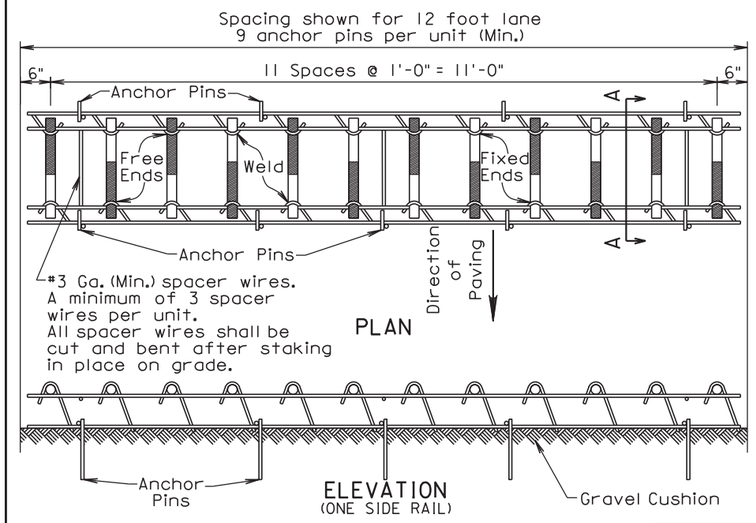
GENERAL NOTES:

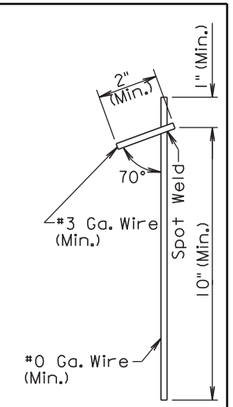
This detail shall be used when the transverse joint is 15 feet or greater from the existing transverse contraction joint.

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 1" 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.

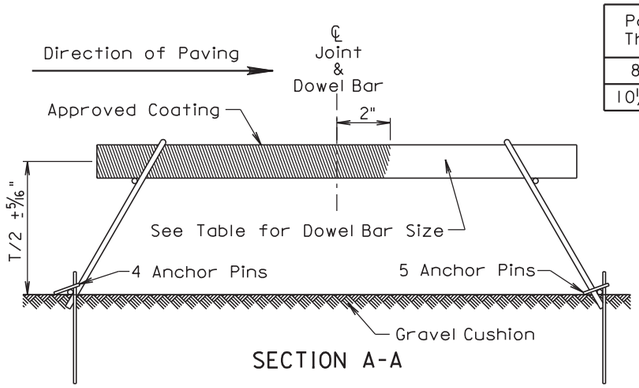
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

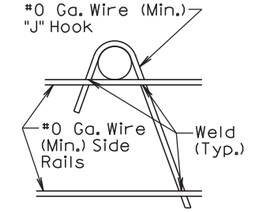




TYPICAL ANCHOR PIN

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.

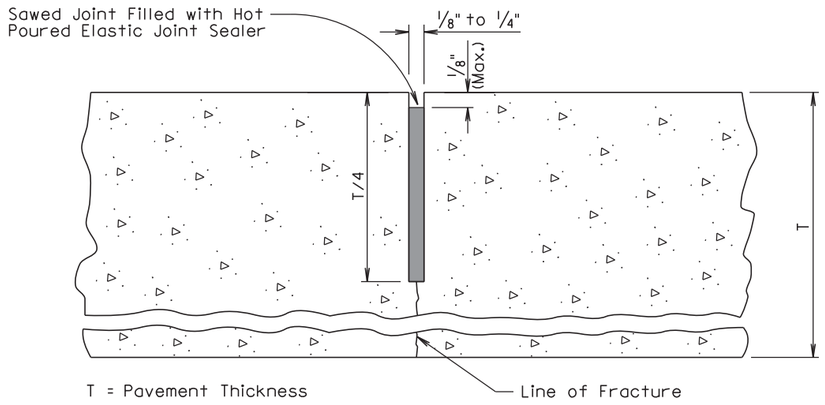
Supporting devices of the type shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

December 23, 2007

Published Date: 2nd Qtr. 2013	SDDOT	*PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS*	*PLATE NUMBER 380.01*
			Sheet 1 of 1

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	22	25



GENERAL NOTES:

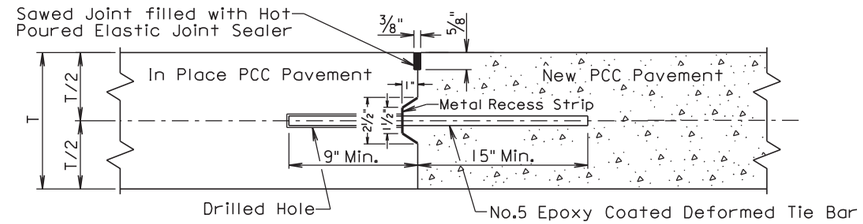
The saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

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: 2nd Qtr. 2013	SDDOT	*PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY*	*PLATE NUMBER* 380.03
			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.

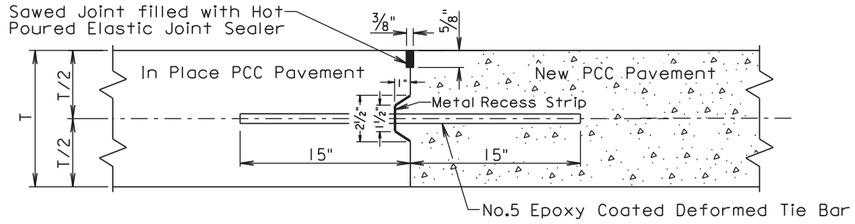
No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

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

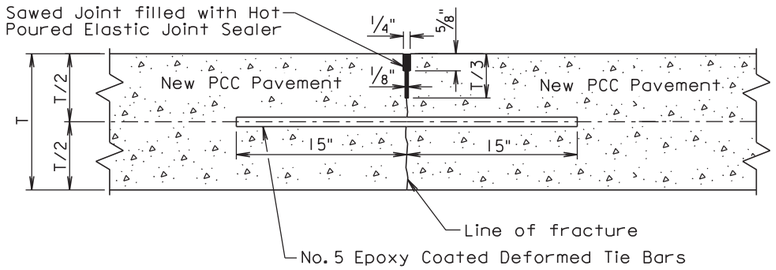
Published Date: 2nd Qtr. 2013	SDDOT	*PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS*	*PLATE NUMBER* 380.10
			Sheet 1 of 2

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	23	25

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.

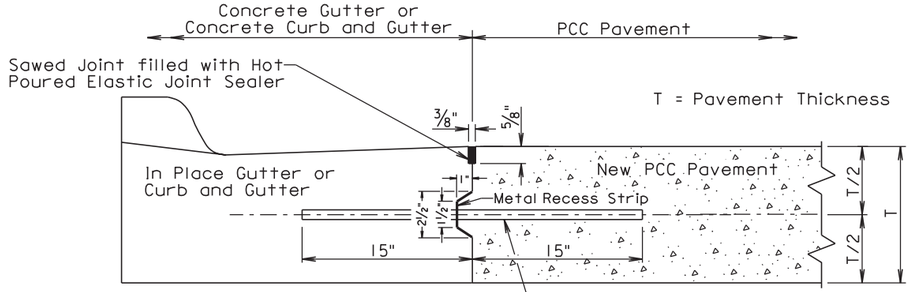
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

Published Date: 2nd Qtr. 2013	SDDOT	***PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS***	***PLATE NUMBER*** 380.10 *Sheet 2 of 2*

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(INDIVIDUALLY FORMED)



GENERAL NOTES:

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center. The keyway shown above is a female keyway.

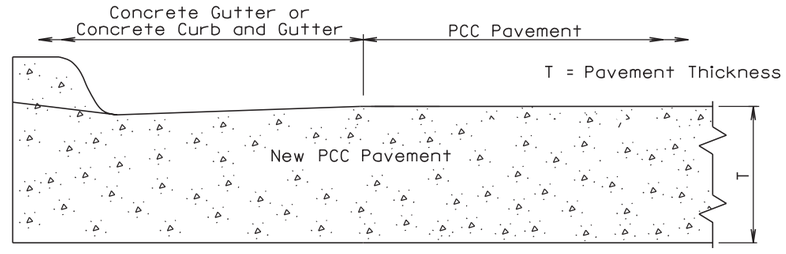
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

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 transverse contraction joints in the concrete gutter or concrete curb and gutter shall be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter shall be 1 1/2" deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY



GENERAL NOTES:

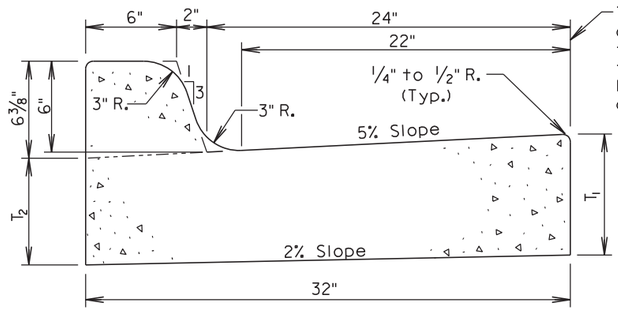
The mainline curb and gutter may be placed monolithically with the PCC pavement. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement shall be eliminated.

The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

The slope of the gutter shall be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter shall be constructed at the same slope as the mainline concrete pavement.

September 14, 2005

Published Date: 2nd Qtr. 2013	SDDOT	***PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER***	***PLATE NUMBER*** 380.11 *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.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

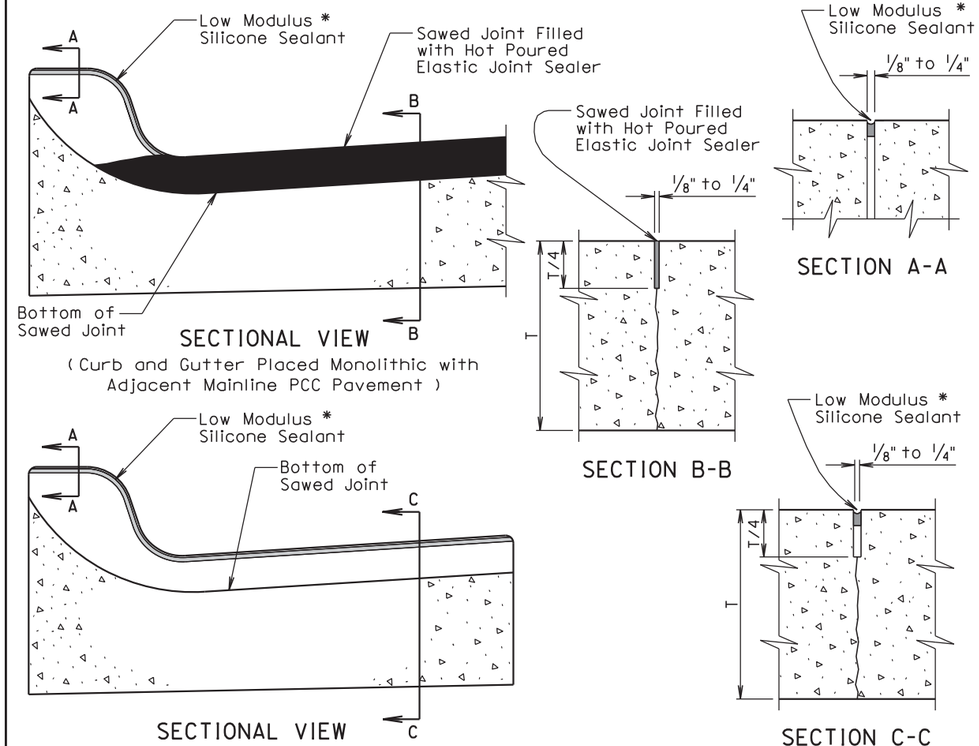
GENERAL NOTES:

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: 2nd Qtr. 2013	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1



(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)

* 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.

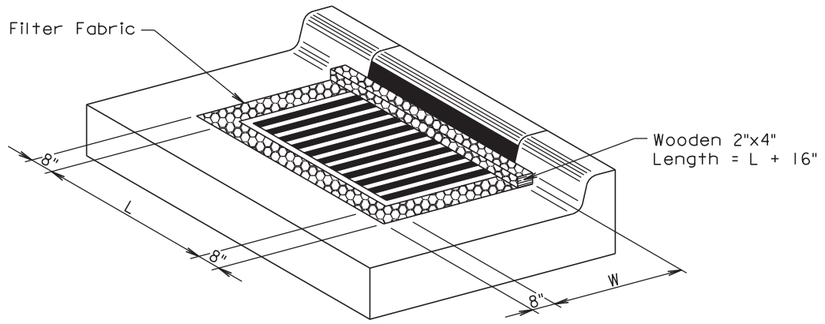
When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving 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: 2nd Qtr. 2013	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-152 & 010-151	25	25

L = Length of Grate
W = Width of Grate



ISOMETRIC VIEW

GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric shall be the type specified in the plans.

The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

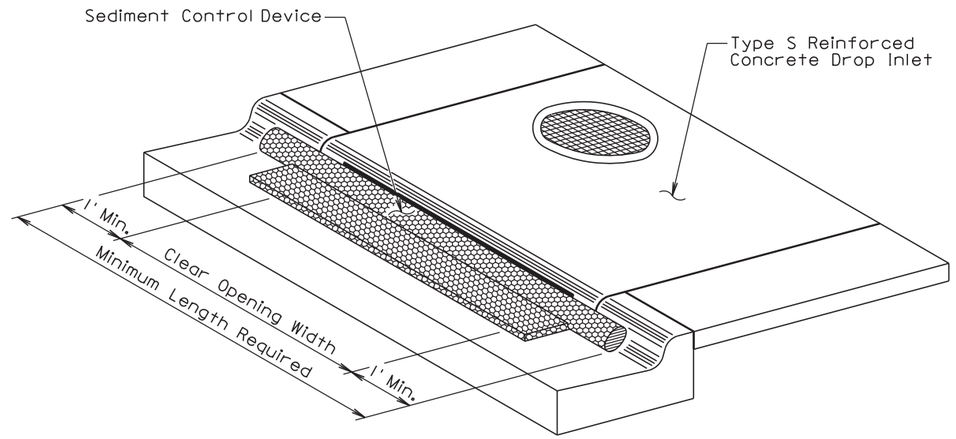
The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

Published Date: 2nd Qtr. 2013	SDDOT	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10
			Sheet 1 of 1



ISOMETRIC VIEW

GENERAL NOTES:

The type of sediment control device shown is for illustrative purposes only.

The type of sediment control device used shall be one of the types as specified in the plans.

The sediment control device shall be placed at the drop inlets according to the manufacturers' installation instructions.

The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.

All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

September 14, 2005

Published Date: 2nd Qtr. 2013	SDDOT	SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS	PLATE NUMBER 734.11
			Sheet 1 of 1