

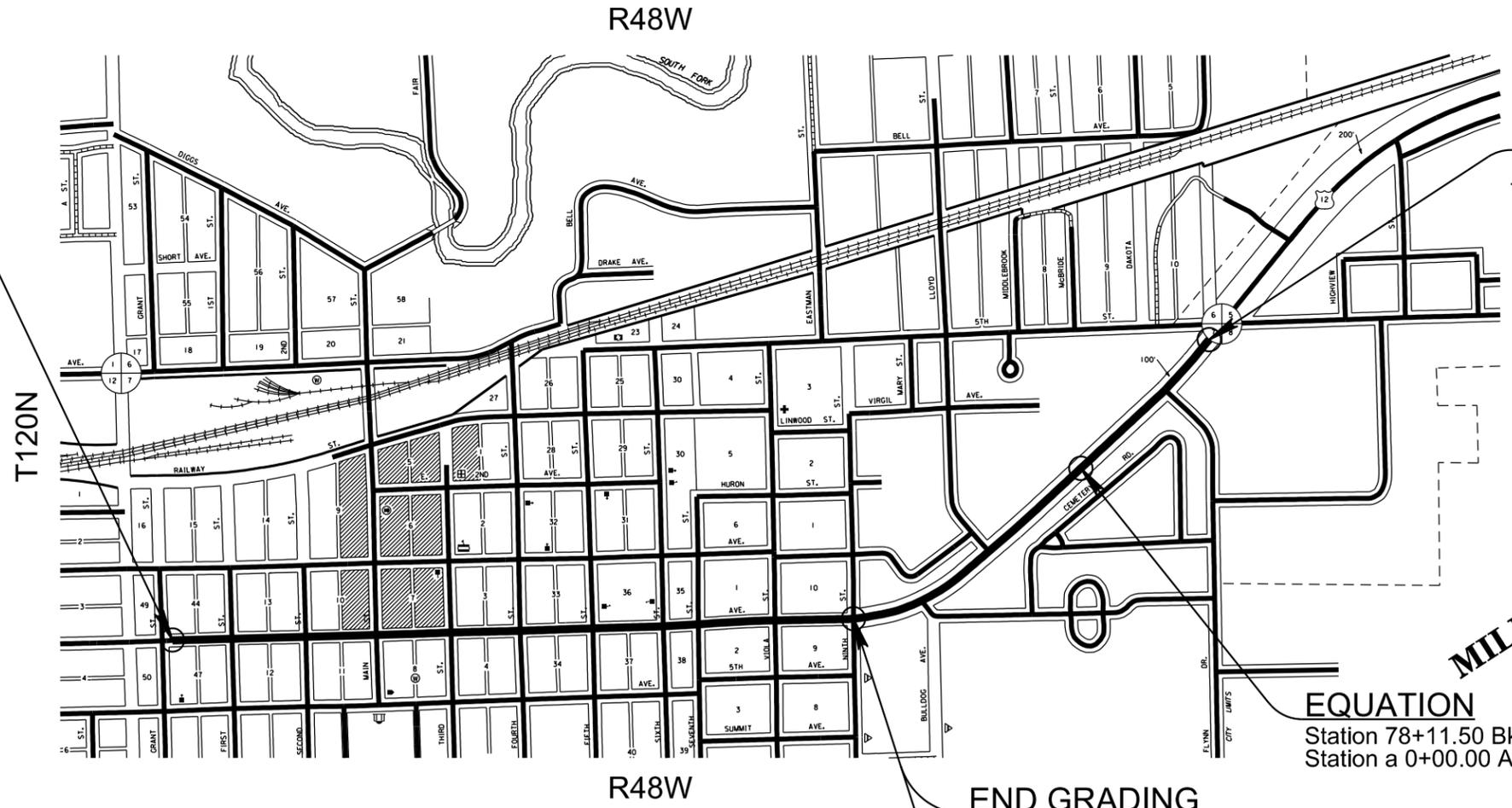
Section F: Surfacing Plans

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Plotting Date: 11/21/2014

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**BEGIN NH 0012(151)389
BEGIN GRADING**
Station 85+81.22

**END NH 0012(151)389
END RESURFACING**
Station a 8+94.50

END GRADING
Station 120+99
BEGIN RESURFACING
Station 64+07.73

EQUATION
Station 78+11.50 Bk=
Station a 0+00.00 Ah

Note:
Grading Station 120+99 =
Resurfacing Station 64+07.73

Resurfacing Section of Project
follows underlying plans stationing.

Plot Scale - 1:200

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
120E0100	Unclassified Excavation, Digouts	50	CuYd
120E6200	Water for Granular Material	126.9	MGal
* 120E6200	Water for Granular Material	2.2	MGal
260E1010	Base Course	1,727.5	Ton
* 260E2030	Gravel Cushion, Salvaged	186.5	Ton
260E2030	Gravel Cushion, Salvaged	8,857.9	Ton
* 320E0007	PG 64-28 Asphalt Binder	4.0	Ton
320E0007	PG 64-28 Asphalt Binder	91.7	Ton
320E1050	Class E Asphalt Concrete	1,518.2	Ton
* 320E1050	Class E Asphalt Concrete	67.2	Ton
320E1200	Asphalt Concrete Composite	400.0	Ton
320E3000	Compaction Sample	3	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack	2.5	Ton
* 330E0100	SS-1h or CSS-1h Asphalt for Tack	0.1	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	2.5	Ton
* 330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	0.1	Ton
330E2000	Sand for Flush Seal	41.8	Ton
332E0010	Cold Milling Asphalt Concrete	11,236	SqYd
380E0060	8.5" Nonreinforced PCC Pavement	17,445.4	SqYd
380E3020	6" PCC Driveway Pavement	22.3	SqYd
380E3040	8" PCC Driveway Pavement	176.1	SqYd
380E6000	Dowel Bar	9,857	Each
380E6110	Insert Steel Bar in PCC Pavement	39	Each
831E0300	MSE Geotextile Fabric	2,971	SqYd

* - Denotes Non-Participating

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

SAWING IN EXISTING SURFACING

Where new Portland Cement Concrete Pavement (PCCP) or new asphalt concrete is placed adjacent to existing asphalt concrete or PCCP, the existing pavement shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

UNCLASSIFIED EXCAVATION, DIGOUTS

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation-Digouts within the resurfacing portion of the project.

Included in the Estimate of Quantities are 100 tons of Base Course for backfilling the digouts within the resurfacing portion of the project.

SALVAGED MATERIAL

The Asphalt Mix and Granular Base Material salvaged from this project shall be used as Gravel Cushion, Salvaged. The quantity of Gravel Cushion, Salvaged may vary from the plans. The Contractor will use an estimated 9,044.4 tons of salvaged material for construction of this project including material for the traffic diversion as directed by the Engineer. Approximately 5,000 tons of salvaged material shall be stockpiled at the Milbank Maintenance Yard as directed by the Engineer and any remaining salvaged material will become the property of the Contractor.

GRAVEL CUSHION, SALVAGED

The Gravel Cushion, Salvaged shall be obtained from the stockpile site(s) provided by the Contractor from the material salvaged on this project and may be used without further testing except that the material shall be run over a 1 1/2 inch screen prior to placement.

It is estimated that 9,044.4 tons of material will be used on this project as Gravel Cushion, Salvaged.

All other requirements for Gravel Cushion, Salvaged shall apply.

COLD MILLING ASPHALT CONCRETE

The typical surfacing sections and AC Pavement Layout sheets show cold milling. Payment is based on plans quantity for "Cold Milling Asphalt Concrete" in the following table.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete varies from 24 to 28 percent. These value was obtained from testing during construction of the in place asphalt concrete.

Cold milling asphalt is estimated to produce 1,445.6 tons of milled asphalt concrete material. This milled asphalt concrete material shall become the property of the Contractor to be disposed of as directed by the Engineer.

COLD MILLING ASPHALT CONCRETE TABLE

Location	Cold Milling Asphalt Concrete (SqYd)
Sta. 64+07.73 to Sta. 78+11.50 Mainline	6,863
Sta. a 0+00.00 to Sta a 8+94.50 Mainline	4,373
Total:	11,236

6" & 8" PCC DRIVEWAY PAVEMENT

The concrete for the 6" & 8" PCC driveway pavement shall comply with the requirements of the specifications for Class M6 concrete unless otherwise stated in the plans. This PCC Driveway Pavement will be used as shown in the PCC Pavement Joint Layout sheets for paving driveways, entrances and parking areas. Granular material for these areas is listed in the Table of Additional Quantities.

The surface of the 6" & 8" PCC driveway pavement shall not exceed 10% and the tie ins shall match the existing and/or new adjoining PCC pavement.

Contraction joints in the 6" & 8" PCC driveway pavement 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 approach pavement.

All costs for furnishing and placing the 6" & 8" PCC driveway pavement and constructing the expansion and contraction joints including labor, equipment and materials including the earthen backfill shall be incidental to the contract unit price per square yard for "6" PCC Driveway Pavement" or "8" PCC Driveway Pavement" accordingly.

All costs for excavation required for placing the 6" & 8" PCC driveway pavement and granular price per cubic yard for "Unclassified Excavation".

All costs for furnishing and placing the granular material shall be incidental to the contract unit price per ton for "Gravel Cushion, Salvaged".

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TABLE OF 8" (BUSINESS) DRIVEWAY PCC PAVEMENT

Location		NONREINFORCED PCC PAVEMENT (SqYd)
Station	L or R	
86+90.00	R	10.0
87+35.00	L	33.1
90+51.00	L	3.1
91+09.00	L	5.6
93+66.00	L	21.6
98+79.00	R	9.3
99+21.00	L	35.7
100+73.00	L	32.1
101+30.00	R	13.5
101+77.00	L	6.8
101+77.00	R	5.3
Total:		176.1

TABLE OF 6" DRIVEWAY PCC PAVEMENT

Location		NONREINFORCED PCC PAVEMENT (SqYd)
Station	L or R	
86+83.00	L	6.3
108+92.00	R	9.0
114+69.00	L	4.6
119+29.00	R	2.4
Total:		22.3

8.5" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

Fine aggregate shall conform to Section 800.2.D Alkali Silica Reactivity (ASR) Requirements of the specifications.

The concrete used in the Portland Cement Concrete Pavement shall conform to section 380, shall contain a minimum of 600 lbs of cement and fly ash at 20%. The concrete shall contain at least 55% coarse aggregate. The use of a water reducer at manufacturers recommendations will be required. The concrete shall obtain a minimum 4,000 psi at 28 days. The contractor is responsible for the mix design used. The contractor shall submit a mix design for approval at least 2 weeks prior to use.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to trim the gravel cushion to final grade prior to placement of concrete. There will be no direct payment for trimming of the gravel cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement.

A minimum of 6 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

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8.5" NONREINFORCED PCC PAVEMENT - CONTINUED

Automatic dowel bar inserters will not be allowed on this project.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

The transverse contraction joints shall be perpendicular to the centerline as detailed in the standard plates 380.01 and 380.08. In multilane areas the transverse contraction joints shall be perpendicular to the centerline and be in a straight line across the width of the pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints that are not pre-approved shall be removed at the Contractor's expense. Any method of placement that cannot produce these requirements shall not be allowed to continue.

In addition to traditional field inspection of reinforcement, a Ground Penetrating Radar (GPR) unit may be used to verify reinforcement locations in the hardened concrete. The GPR may be used anytime prior to the Acceptance of Field Work being issued. All costs related to corrective measures, including but not limited to concrete removal or cutting of reinforcement, price deducts, and delays to the project schedule shall be the responsibility of the Contractor.

The surface of the mainline paving shall be a heavy carpet drag finish.

TABLE OF 8.5" INTERSECTING ROADS PCC PAVEMENT

Location			NONREINFORCED PCC PAVEMENT (SqYd)
Station	Description	N or S	(SqYd)
88+74.00	First Street	N	90.4
88+74.00	First Street	S	82.3
92+39.00	Second Street	N	296.1
92+39.00	Second Street	S	82.4
96+13.00	Main Street	N	152.3
96+13.00	Main Street	S	151.7
99+88.00	Third Street	N	118.1
99+85.00	Third Street	S	87.6
103+53.00	Fourth Street	N	82.1
103+53.00	Fourth Street	S	81.0
107+17.00	Fifth Street	N	85.0
107+17.00	Fifth Street	S	84.2
110+83.00	Sixth Street	N	84.8
110+83.00	Sixth Street	S	85.4
112+69.00	Seventh Street	N	83.5
112+64.00	Seventh Street	S	82.1
116+60.00	Viola Street	N	100.0
116+59.00	Viola Street	S	81.8
120+52.00	Ninth Street	N	206.7
120+47.00	Ninth Street	S	78.6
Total:			2,196.2

TABLE OF 8.5" MAINLINE PCC PAVEMENT

Location			NONREINFORCED PCC PAVEMENT (SqYd)
Sta	to	Sta.	(SqYd)
Mainline			
85+81.22	to	120+99.00	15,249.2
Total:			15,249.2

CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, Concrete Gutter and Concrete Fillet will be cured with Linseed Oil Base Emulsion Compound.

TIE BARS AND LONGITUDINAL JOINTS

The use of automatic tie bar inserters will only be allowed on the vertical edge of longitudinal construction joints. The use of automatic tie bar inserters will not be allowed on sawed longitudinal joints.

Tie bars shall be held in the specified position parallel to the slab surface and perpendicular to the centerline by a supporting device. Tie bars or tie bar baskets shall be securely staked to the roadbed and shall hold the bar at the correct spacing, alignment, and elevation.

Tie bars will not require supports if inserted into the side of the pavement during slip form paving of the longitudinal construction joint operation. Failure to acquire the correct tie bar locations or position in the construction joint shall require the bars to be corrected and a change made to the operation which may include drilling and epoxy bars or other methods as approved by the Engineer.

The final position of each tie bar shall be within the following tolerances:

- Vertical Placement: $\pm \square T/6$ for any part of the tie bar (T = slab thickness)
- Transverse Placement (side shift): $\pm \square 3$ inches when measured perpendicular to the longitudinal joint line

If the tie bar does not meet the requirements and tolerances specified, corrective action shall be performed at the Contractor's expense to the satisfaction of the Engineer.

LOCATION OF CONCRETE PAVEMENT JOINTS

The location of joints, as shown on the "PCC Pavement Layout" sheets, are only approximate locations to be used as a guide in the final location of joints and to afford bidders a basis for estimating the construction costs of the joints. The final locations of the joints are to be designated by the Engineer during construction.

TRANSVERSE CONTRACTION JOINTS

See Standard Plate 380.01 for placement of Dowel Bars. See Standard Plate 380.09 for joint spacing of 8.5" Nonreinforced PCC Pavement.

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STEEL BAR INSERTION

The Contractor shall insert the Steel Bars (1-1/4" x 18" Plain Round Dowel 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 or shearing and shall be free from burring or other deformations.

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 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 of the bars by the dipping method will not be allowed.

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

Epoxy coated plain round steel bars shall be inserted 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.

TABLE OF STEEL BAR INSERTION

LOCATION	1-1/4" x 18" Plain Round Dowel Bars
Sta. 85+81.22	39
Totals:	39

TABLE OF DOWEL BARS

Location	1 1/4" Bars (Each)
Bars in Mainline	9,090
Intersecting Roads and Driveways	767
Total Dowel Bars	9,857

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ALKALI SILICA REACTIVITY

Fine aggregate shall conform to Section 800.2.D Alkali Silica Reactivity (ASR) Requirements.

Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.170
Croell	Quinn, SD	0.089
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G - Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Higman	Akron, IA	0.198
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.178
Morris	Blunt, SD	0.192
Morris - Richards Pit	Onida, SD	0.188
Myrl & Roys Paving- Nelson Pit	Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.133
Opperman - Gunvordahl Pit	Burke, SD	0.362*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.239
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.129
Pete Lien & Sons	Wasta, SD	0.192
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Pickstown (Wagner), SD	0.241
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

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

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 to require Type V cement (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.

GEOTEXTILE SPECIFICATION

The subgrade condition survey indicates that the westernmost part of the project has the poorest subgrade, both from a strength and moisture standpoint. This is in the grading section of the project, so there is an opportunity to improve the strength of the subgrade. It may be desirable to increase the depth of undercut in some sections, depending on the underground utility situation.

If, in the opinion of the Engineer, the area will not stabilize by increasing the undercut or cannot be increased due to utilities, MSE Geotextile Fabric and granular material may be used. Stabilization will be accomplished by undercutting the subgrade and placing a layer of MSE Geotextile Fabric at the bottom of the undercut. The undercut will then be backfilled with granular material and compacted. Contact the Geotechnical Engineering Activity (605-773-3725) for assistance should the use of geotextile become necessary. 2,971 sq. yds. of MSE Geotextile have been included in the materials quantities for bidding purposes. This quantity is assumed to cover 2,583 sq. yds. of subgrade. The bid quantity has been increased by 15% to account for overlaps. Additional quantities of granular material are included in the Base Course bid item for use in this application. These quantities should cover 500 feet of roadway full width, based on a 46.5 foot top subgrade width. These quantities can be adjusted or eliminated by CCO, depending on field conditions.

The geotextile will conform to specification for Geotextiles and Impermeable Plastic Membranes, MSE Geotextile Fabric (Section 831.1 of the specifications). The geotextile will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

Geotextile will be paid for at the contract unit price per sq. yd. for MSE Geotextile Fabric. 2,971 sq. yds. of MSE Geotextile have been included in the Estimate of Quantities. Payment quantities will be based on area covered plus 15%. Overlaps are accounted for by the additional 15%. Payment will be full compensation for furnishing and installing the geotextile only. Granular backfill materials will be paid for under a different bid item.

The geotextile will be placed as taut as possible with minimal wrinkles. Placement will be done so that subsequent granular cover does not shove, wrinkle, or distort the in place geotextile. The overlaps will be shingled in a manner that assures that granular material will not be forced under the geotextile during backfilling operations. The geotextile may be held in place with small piles of granular material or staples.

The top of the subgrade shall be prepared by smoothing the surface to minimize any ruts, ridges, and depressions. Any rocks or other protrusions that might damage the geotextile will be removed. The geotextile will be unrolled parallel to centerline and overlapped a minimum of 2 feet.

The granular material will be placed by back dumping onto the geotextile from the truck and dozing or pushing the granular material from the covered areas to the uncovered areas. No traffic will be allowed on the uncovered geotextile. The granular material will be placed in 8 inch lifts or as directed by the Engineer. The granular material will be compacted by the Specified Density Method.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1. (Temporary Traffic Maintenance - See Section C for more details)

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

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

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GRANULAR MATERIAL

Granular Material will conform to the specification for Aggregates for Granular Bases and Surfacing, Base Course (Section 882 of the specifications). 1627.5 tons have been included in Base Course bid item for use in this application. This quantity is based on 1 foot of coverage for 2,583 sq. yds. of geotextile. Granular Material will be paid for at the contract unit price for Base Course. Payment will be full compensation for furnishing and placing this material.

MANHOLE BOX-OUT DETAILS

The Contractor shall construct box-outs for all manholes in the 8.5" Concrete Pavement according to the Box-Out Detail. Locations of Proposed Manholes and water valve boxes are shown on the Pavement Joint Layout Sheets.

CLASS E ASPHALT CONCRETE

Mineral Aggregate for Class E Asphalt Concrete shall conform to the requirements for Class E Type 1.

All other requirements for Class E shall apply.

FLUSH SEAL

Application of Flush Seal shall be completed within 10 working days following completion of the asphalt concrete surfacing.

Application of Flush Seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer shall notify the Contractor as soon as possible that the Flush Seal is unnecessary.

SAND FOR FLUSH SEAL

The sand application shall be placed over the entire width of the mainline pavement surface.

SUMMARY OF CLASS E ASPHALT CONCRETE

Class E Asphalt Concrete Location	With Specified Density Compaction (Tons)	Without Specified Density Compaction (Tons)
Intersecting Roads	---	224.6
Driveways and Approaches	---	48.4
Right Turn Lane @ Flynn Drive	---	67.2
Resurfacing Section Sta. 64+07.73 to Sta. 78+11.50	761.8	---
Resurfacing Section Sta. a 0+00 to Sta. a 8+94.50	485.4	---
Totals:	1,247.2	340.2

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RATES OF MATERIALS

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

MAINLINE

Sta. 85+81.22 to Sta. 120+99.00

GRAVEL CUSHION, SALVAGED

Crushed Aggregate 146.83 Tons.

Water for Granular Material at the rate of 1.76 M. Gallons.

RESURFACING – 2” Lift

Sta. 64+07.73 to Sta. 78+11.50

Sta. a 0+00.00 to Sta. a 8+94.50

CLASS E ASPHALT CONCRETE – 2” lift

Crushed Aggregate	51.01 Tons
PG 64-28 Asphalt Binder	<u>3.26 Tons</u>
Total	54.27 Tons

The exact proportions of this material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 ton applied 44.0 feet wide
(Rate = 0.05 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.10 ton applied 44 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.56 ton applied 41.0 feet wide (Rate = 8.0 pounds per square yard).

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TABLE OF QUANTITIES FOR RIGHT TURN LANE AT FLYNN DRIVE

LOCATION	WATER FOR GRANULAR MATERIAL	GRAVEL CUSHION, SALVAGED	CLASS E ASPHALT CONCRETE		PG 64-28 ASPHALT BINDER		ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL
			1st Lift	Top Lift	1st Lift	Top Lift	1st Lift	Top Lift	
			(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	
Nonparticipating Bid Items	(MGal)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
Right Turn Lane @ Flynn Drive	2.2	186.5	33.6	33.6	2.0	2.0	---	0.1	0.1
Totals:	2.2	186.5	67.2		4.0		0.1		0.1

TABLE OF ADDITIONAL QUANTITIES

LOCATION			WATER FOR GRANULAR MATERIAL	GRAVEL CUSHION, SALVAGED	CLASS E ASPHALT CONCRETE		PG 64-28 ASPHALT BINDER		ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL
Station	to	Station			1st Lift	Top Lift	1st Lift	Top Lift	1st Lift	Top Lift	
					(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	
Intersecting Streets			(MGal)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
	First Street North		1.4	118.8	17.4	17.4	1.0	1.0	---	*	**
	Second Street North		2.0	162.7	6.1	6.1	0.4	0.4	---	*	**
	Main Street North		1.5	127.0	15.1	15.1	0.9	0.9	---	*	**
	Third Street North		0.9	72.3	3.9	3.9	0.2	0.2	---	*	**
	Fourth Street North		0.8	62.5	3.4	3.4	0.2	0.2	---	*	**
	Fifth Street North		0.7	60.6	2.9	2.9	0.2	0.2	---	*	**
	Sixth Street North		0.8	63.6	3.5	3.5	0.2	0.2	---	*	**
	Seventh Street North		0.7	56.8	2.4	2.4	0.1	0.1	---	*	**
	Viola Street North		0.9	74.4	5.7	5.7	0.3	0.3	---	*	**
	Ninth Street North		1.3	110.7	4.6	4.6	0.3	0.3	---	*	**
Intersecting Streets											
	First Street South		0.8	65.3	4.7	4.7	0.3	0.3	---	*	**
	Second Street South		0.7	59.5	2.8	2.8	0.2	0.2	---	*	**
	Main Street South		1.5	127.5	15.5	15.5	0.9	0.9	---	*	**
	Third Street South		0.8	68.3	4.9	4.9	0.3	0.3	---	*	**
	Fourth Street South		0.7	61.7	3.4	3.4	0.2	0.2	---	*	**
	Fifth Street South		0.8	65.7	4.7	4.7	0.3	0.3	---	*	**
	Sixth Street South		0.7	61.8	3.1	3.1	0.2	0.2	---	*	**
	Seventh Street South		0.7	59.5	2.8	2.8	0.2	0.2	---	*	**
	Viola Street South		0.7	59.2	2.8	2.8	0.2	0.2	---	*	**
	Ninth Street South		0.7	57.2	2.6	2.6	0.2	0.2	---	*	**
Gravel Cushion, Salvaged for Sidewalk			13.0	1083.9	---	---	---	---	---	---	---
Gravel Cushion, Salvaged for Unclassified Excavation under Sidewalk			1.4	116.8	---	---	---	---	---	---	---
Gravel Cushion, Salvaged for Temporary Access(See Section C)			9.0	750.0	---	---	---	---	---	---	---
Subtotals:			42.5	3,545.8	224.6		13.6		0.1		0.1

* The total quantity of Asphalt for Tack on this sheet (0.1 Ton) in the asterisk marked locations is included in the Estimate of Quantities.

* The total quantity of Asphalt for Flush Seal on this sheet (0.1 Ton) in the asterisk marked locations is included in the Estimate of Quantities.

TABLE OF ADDITIONAL QUANTITIES - CONTINUED

LOCATION Station to Station			WATER FOR GRANULAR MATERIAL (MGal)	GRAVEL CUSHION, SALVAGED (Ton)	BASE COURSE (Ton)	CLASS E ASPHALT CONCRETE		PG 64-28 ASPHALT BINDER		ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL (Ton)
						1st Lift (Ton)	Top Lift (Ton)	1st Lift (Ton)	Top Lift (Ton)	1st Lift (Ton)	Top Lift (Ton)	
Driveways, Entrances and Parking Areas												
86 +	83 L		***	2.6	---	0.4	0.4	#	#	---	*	**
86 +	90 R		***	2.1	---	---	---	---	---	---		
87 +	35 L		0.1	7.0	---	---	---	---	---	---		
89 +	39 L		0.2	14.5	---	3.8	3.8	0.2	0.2	---	*	**
90 +	46 L		***	2.7	---	0.3	0.3	#	#	---	*	**
90 +	65 R		***	3.9	---	1.1	1.1	0.1	0.1	---	*	**
91 +	09 L		***	1.2	---	---	---	---	---	---		
91 +	50 R		0.2	13.9	---	3.7	3.7	0.2	0.2	---	*	**
92 +	85 L		0.1	5.4	---	1.4	1.4	0.1	0.1	---	*	**
93 +	66 L		0.1	4.5	---	---	---	---	---	---		
94 +	25 L		***	2.4	---	0.6	0.6	#	#	---	*	**
94 +	34 R		***	4.1	---	1.1	1.1	0.1	0.1	---	*	**
95 +	00 L		0.2	15.9	---	4.2	4.2	0.3	0.3	---	*	**
98 +	01 R		***	2.0	---	0.6	0.6	#	#	---	*	**
98 +	14 L		***	2.0	---	0.6	0.6	#	#	---	*	**
98 +	36 R		***	3.0	---	1.1	1.1	0.1	0.1	---	*	**
98 +	79 R		***	2.0	---	---	---	---	---	---		
99 +	16 L		0.1	7.5	---	---	---	---	---	---		
100 +	73 L		0.1	6.7	---	---	---	---	---	---		
101 +	30 R		***	2.8	---	---	---	---	---	---		
101 +	77 L		0.1	8.9	---	3.0	3.0	0.2	0.2	---	*	**
101 +	77 R		***	2.1	---	0.3	0.3	#	#	---	*	**
105 +	41 L		***	1.9	---	---	---	---	---	---		
105 +	34 R		***	2.0	---	---	---	---	---	---		
108 +	92 R		***	3.2	---	0.3	0.3	#	#	---	*	**
113 +	77 R		***	0.8	---	---	---	---	---	---		
114 +	63 R		***	0.7	---	---	---	---	---	---		
114 +	69 L		***	1.5	---	---	---	---	---	---		
117 +	87 L		***	1.0	---	0.3	0.3	#	#	---	*	**
117 +	98 R		***	0.6	---	---	---	---	---	---		
118 +	77 L		***	0.6	---	---	---	---	---	---		
119 +	29 R		***	1.6	---	0.4	0.4	#	#	---	*	**
119 +	30L		***		---							
MSE Geotextile Fabric Cover Material			19.5	---	1,627.5	---	---	---	---	---	---	---
Unclassified Excavation Digouts Backfill			1.2	---	100.0	---	---	---	---	---	---	---
Subtotals:			22.3	131.9	1,727.5	46.4		2.6		0.1		0.1
Totals			65.0	3,692.7	1,727.5	271.0		16.7		0.2		0.2

* The total quantity of Asphalt for Tack on this sheet (0.1 Ton) in the asterisk marked locations is included in the Estimate of Quantities.
 ** The total quantity of Asphalt for Flush Seal on this sheet (0.1 Ton) in the asterisk marked locations is included in the Estimate of Quantities.
 *** The total quantity of Water for Granular Material on this sheet (0.4 Ton) in the asterisk marked locations is included in the Estimate of Quantities.
 # The total quantity of PG 64-28 Asphalt Binder on this sheet (0.5 Ton) in the asterisk marked locations is included in the Estimate of Quantities.

 1:200
 Plotted From: -
 tpr18387

File - ...:\p1\gm1028\NotesSectionF.dgn

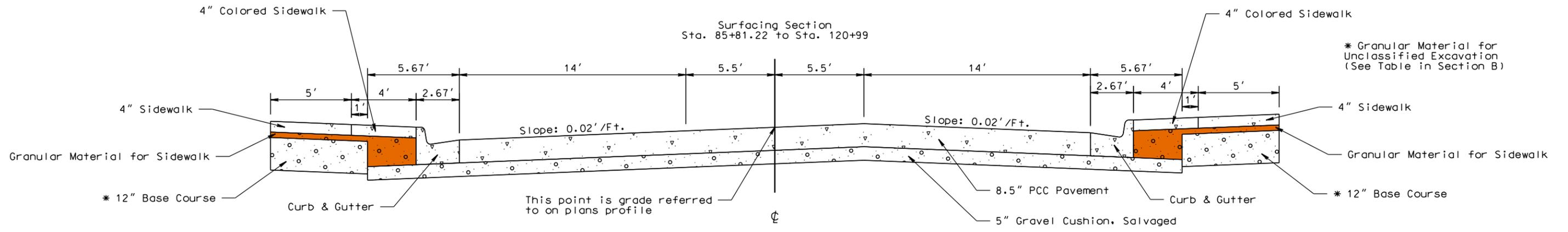
TYPICAL SURFACING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0012(151)389	F8	F26

Plotting Date: 11/21/2014

U.S. Highway 12

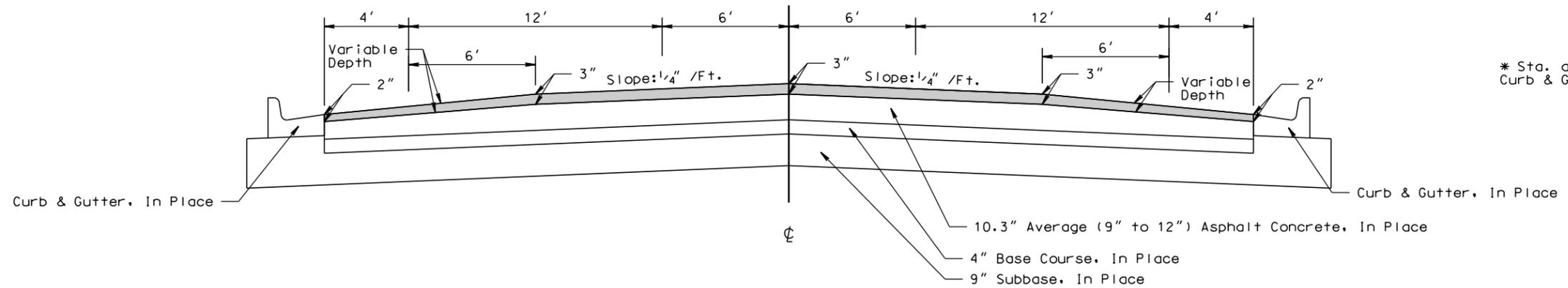
 Gravel Cushion, Salvaged for placement beneath 4" colored sidewalk and 4" sidewalk.



 Cold Mill Variable to 3" Asphalt Concrete

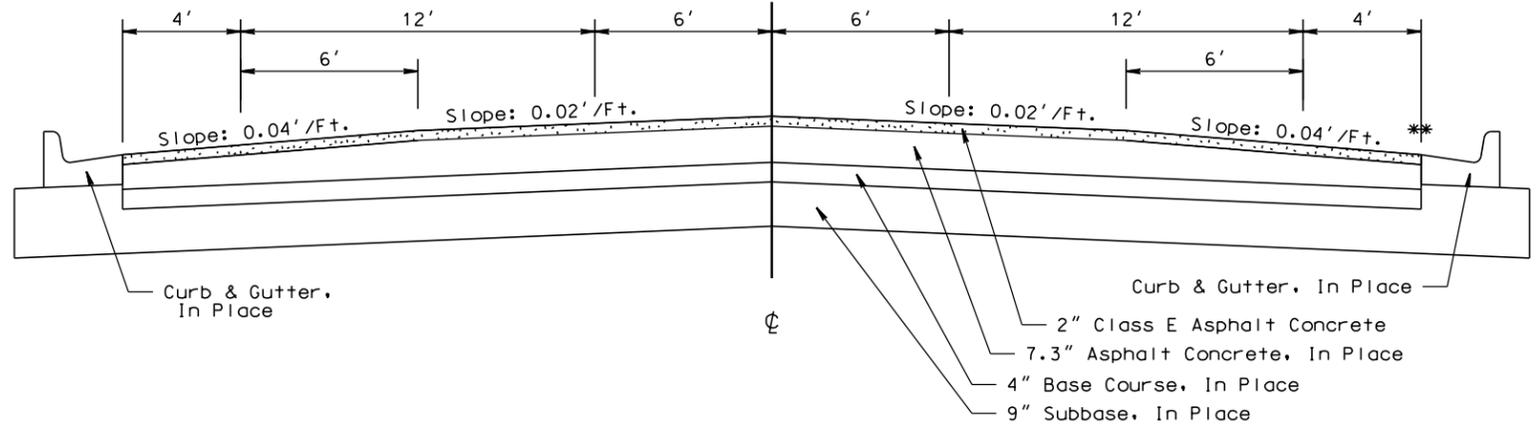
Cold Mill Section

Sta. 64+07.73 to Sta. 78+11.50
* Sta. a 0+00 to Sta. a 8+94.50

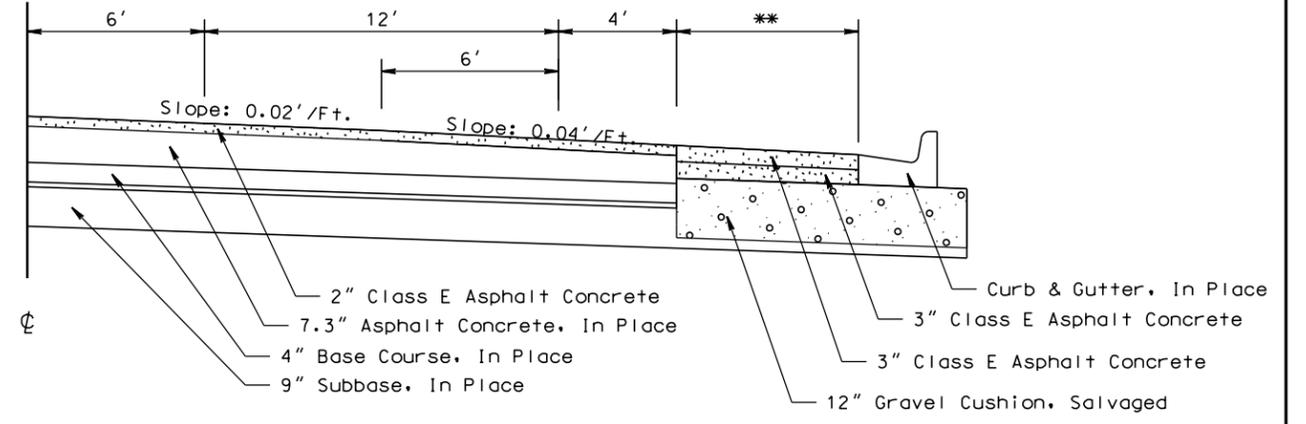


Resurfacing Section

Sta. 64+07.73 to Sta. 78+11.50
* Sta. a 0+00 to Sta. a 8+94.50



** Sta. a3+60.71 to Sta. a5+45.08 Rt Construct Right Turn Lane to Flynn Drive (See Layout Sheet for more details)



PLOT SCALE - 1+6.19298

PLOTTED FROM - TRPR18387

PLOT NAME - 8

FILE - ... \GRNT0281\TYPICAL SECTION.DGN

PCC PAVEMENT JOINT LAYOUT

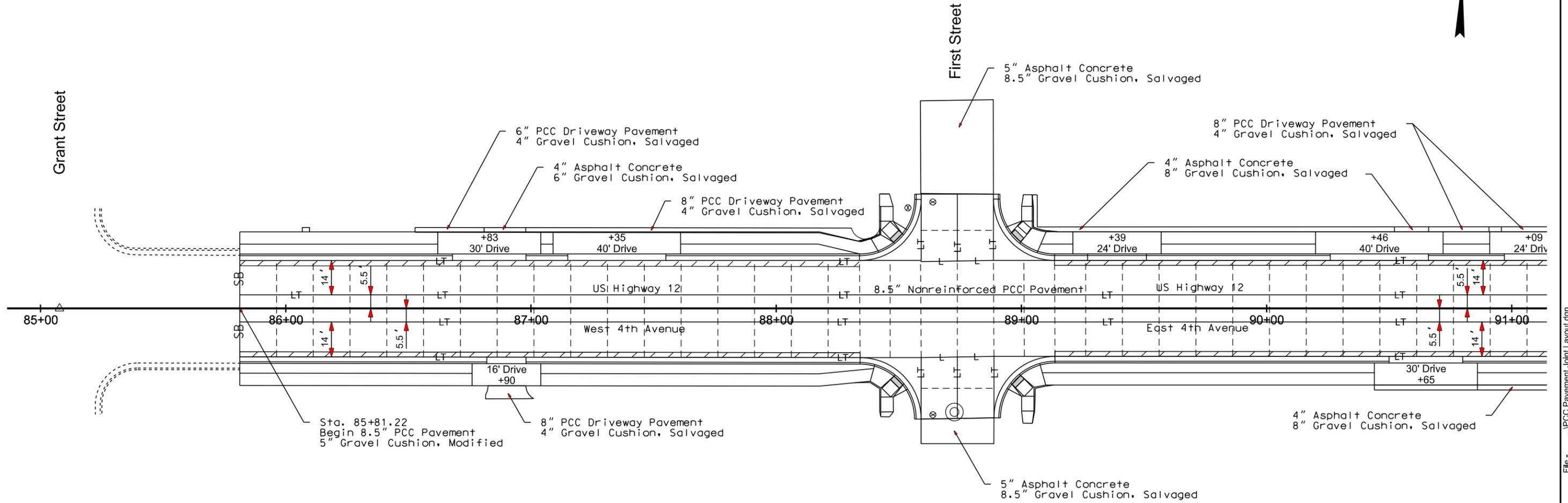
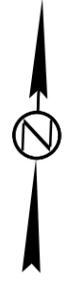
STATE OF SOUTH DAKOTA	PROJECT NH 0012(151)389	SHEET F9	TOTAL SHEETS F26
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Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 1 of 11 Sheets

Plot Scale - 1:40

Plotted From - tpr18387

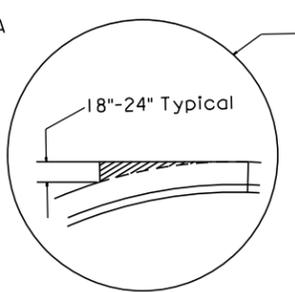
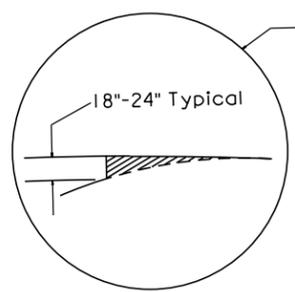


LEGEND:

- Longitudinal Joint Without Tie Bars (Construction or Sawed) ——— L ——— L ———
- Longitudinal Joint With Tie Bars (Construction or Sawed) ——— LT ——— LT ———
- Transverse Contraction Joint ——— - - - - -
- Steel Bar Installation in Longitudinal or Transverse Joint ——— SB ——— SB ———
- Areas to be poured monolithically with adjacent slab (See Detail A)
- Areas to be poured monolithically with adjacent curb and gutter (See Detail B)

Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.

- Water Valve
- Sanitary Sewer Manhole



File - ...IPCC Pavement Joint Layout.dgn

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT NH 0012(151)389	SHEET F10	TOTAL SHEETS F26
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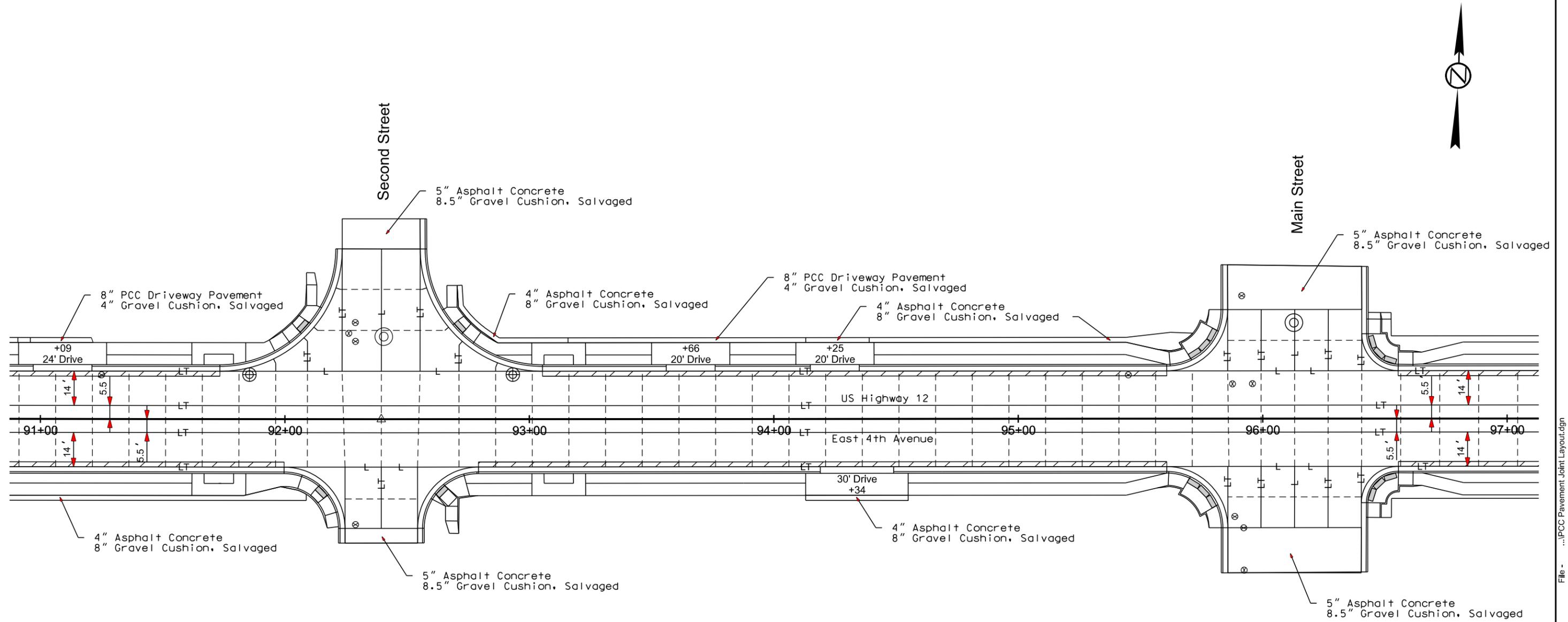
Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 2 of 11 Sheets

Plot Scale - 1:40

Plotted From - trpr18387

Plotted From -



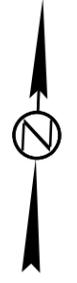
File - ...IPCC Pavement Joint Layout.dgn

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F11	F26

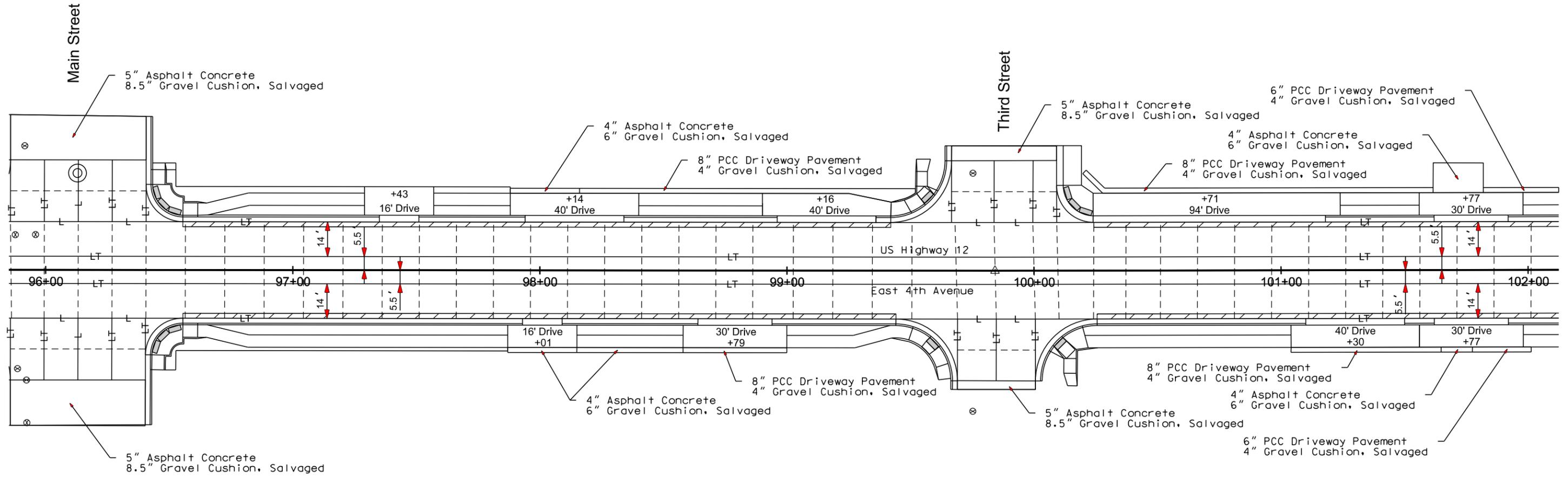
Plotting Date: 12/10/2014

Scale 1 Inch = 40 Feet
Sheet 3 of 11 Sheets



Plot Scale - 1:40

Plotted From - tpr18387



File - ...IPCC Pavement Joint Layout.dgn

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT NH 0012(151)389	SHEET F12	TOTAL SHEETS F26
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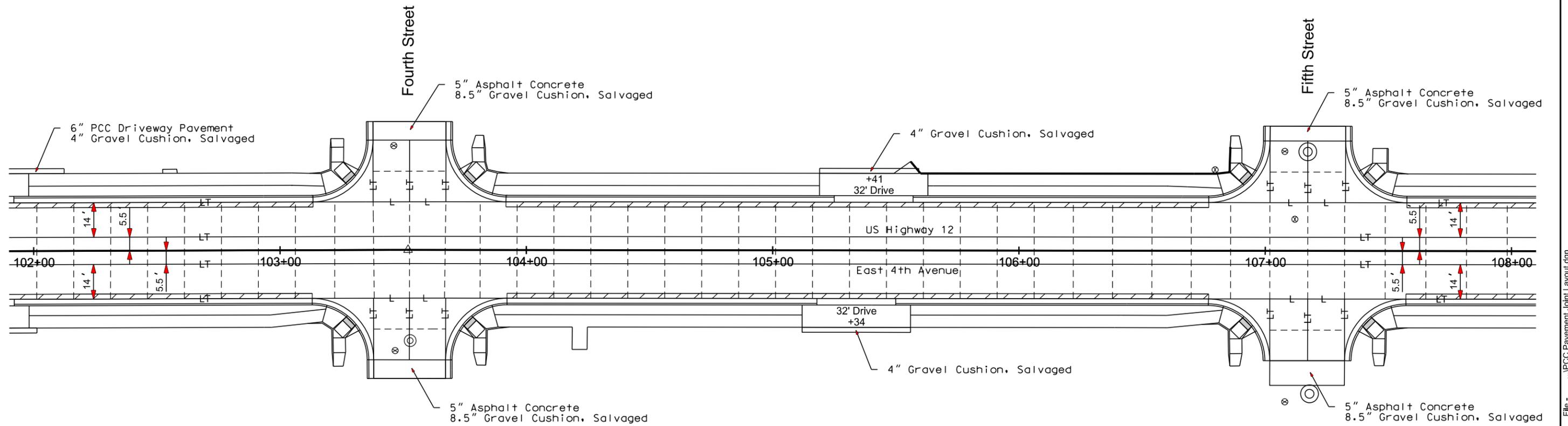
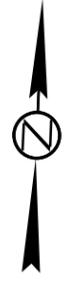
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Scale 1 Inch = 40 Feet
Sheet 4 of 11 Sheets

Plot Scale - 1:40

Plotted From - tpr18387

File - ...IPCC Pavement Joint Layout.dgn



PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F13	F26

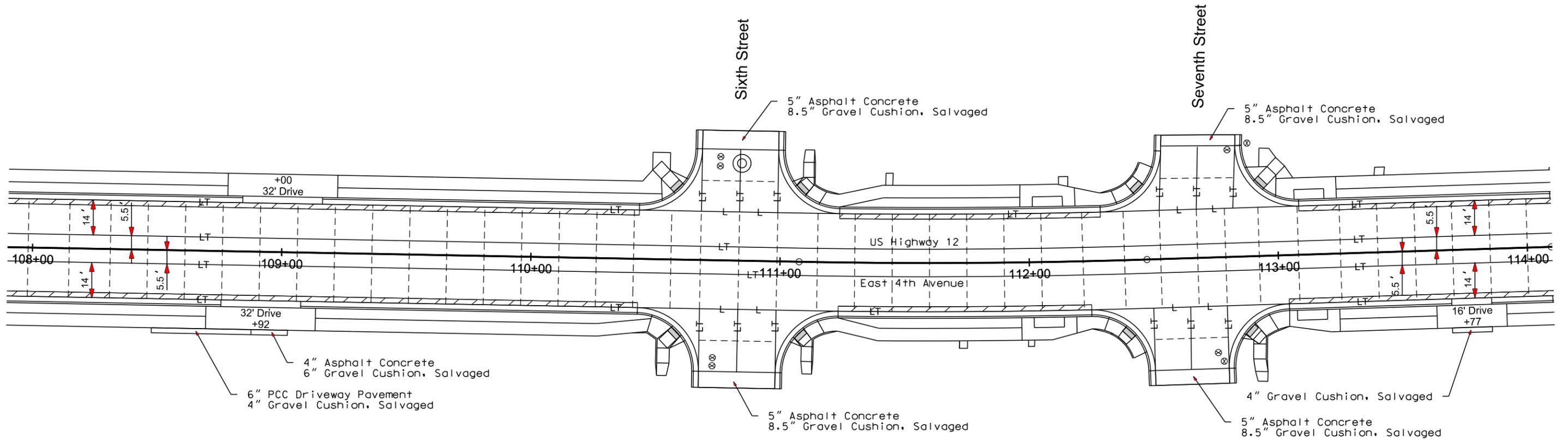
Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 5 of 11 Sheets



Plot Scale - 1:40

Plotted From - trpr18387



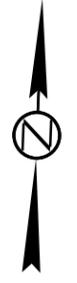
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PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F14	F26

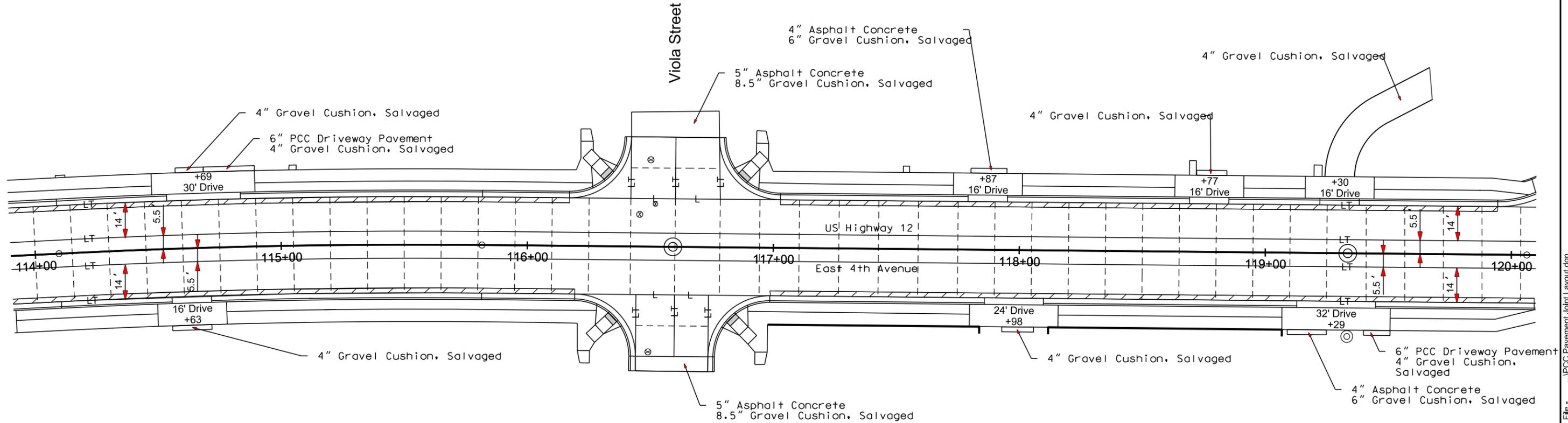
Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 6 of 11 Sheets



Plot Scale - 1:40

Plotted From - tpr18387



File - ...IPCC Pavement Joint Layout.dgn

PCC PAVEMENT JOINT LAYOUT/ COLD MILL & RESURFACING LAYOUT

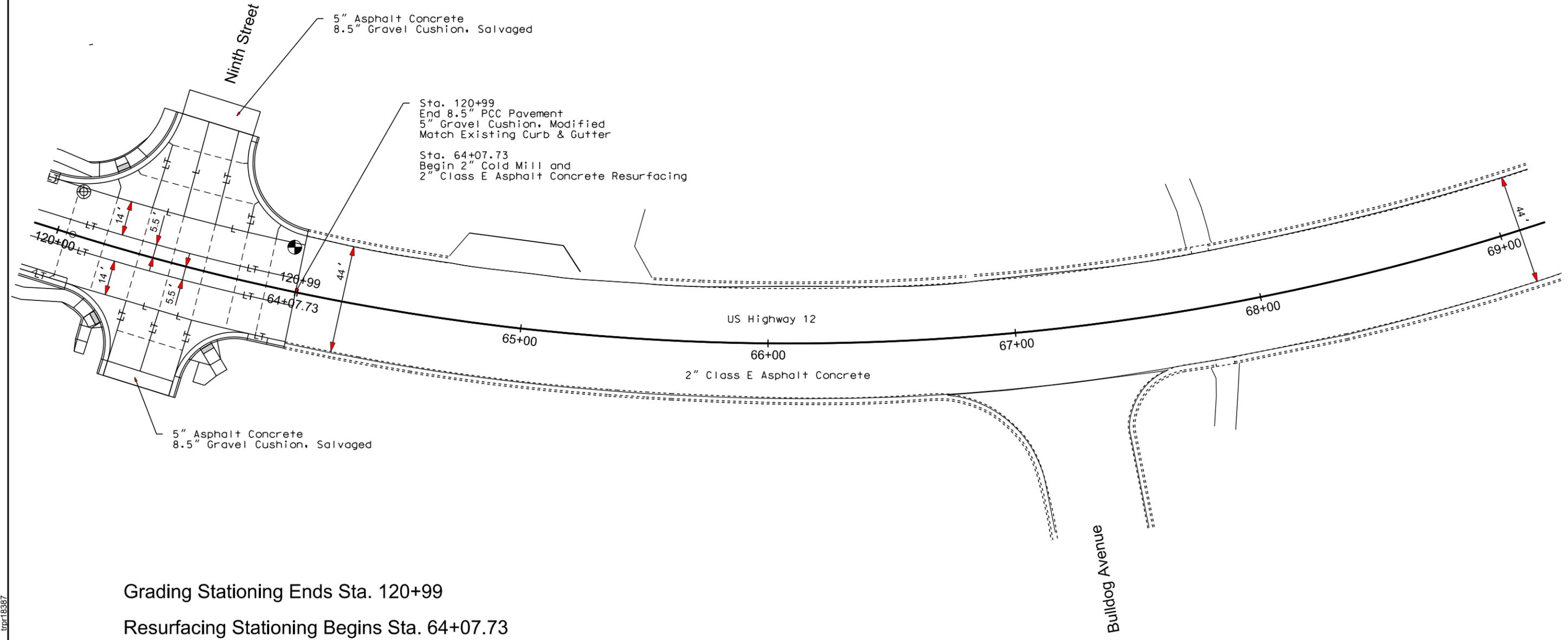
STATE OF SOUTH DAKOTA	PROJECT NH 0012(151)389	SHEET F15	TOTAL SHEETS F26
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Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 7 of 11 Sheets



Plot Scale - 1:40



Grading Stationing Ends Sta. 120+99
Resurfacing Stationing Begins Sta. 64+07.73

Plotted From - trpr18387

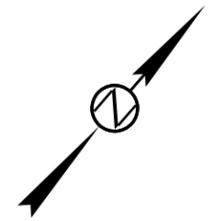
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COLD MILL & RESURFACING LAYOUT

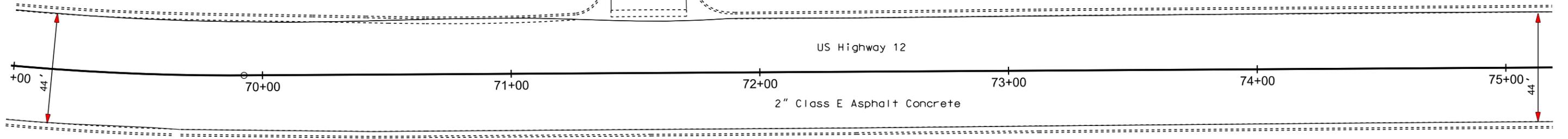
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F16	F26

Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 8 of 11 Sheets



Lloyd Street



Plot Scale - 1:40

Plotted From - trpr18387

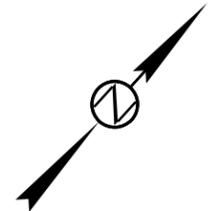
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COLD MILL & RESURFACING LAYOUT

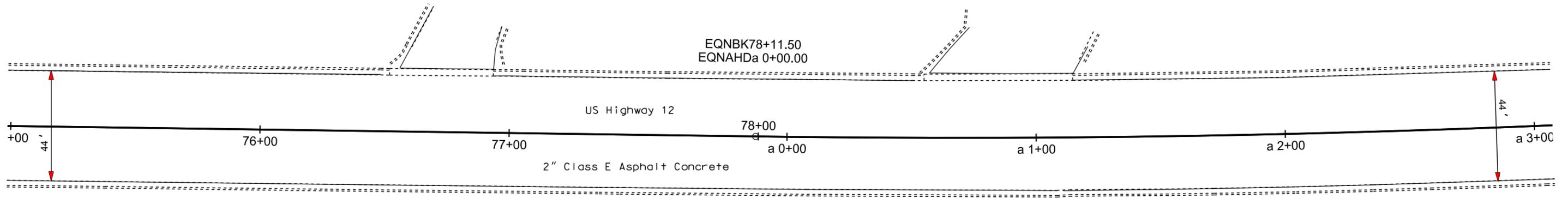
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F17	F26

Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 9 of 11 Sheets



Plot Scale - 1:40



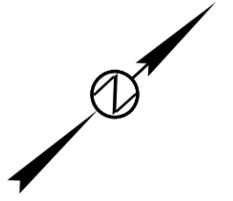
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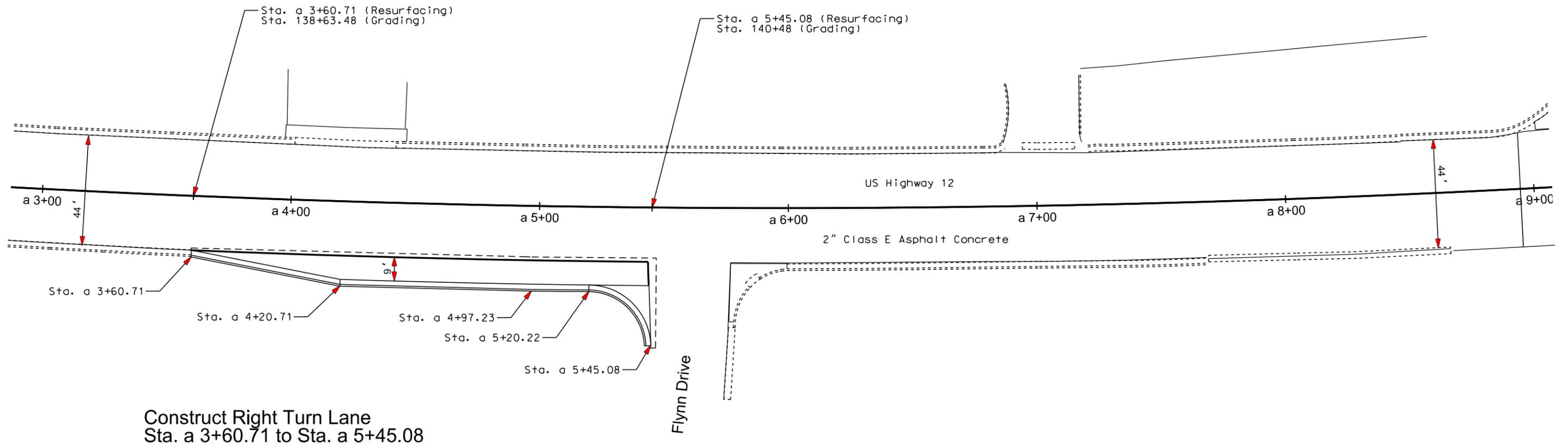
COLD MILL & RESURFACING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F18	F26
Plotting Date:		11/21/2014	

Scale 1 Inch = 40 Feet
Sheet 10 of 11 Sheets



Plot Scale - 1:40



Plotted From - trpr18387

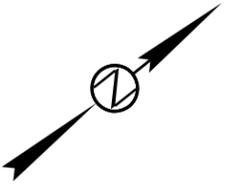
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COLD MILL & RESURFACING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F19	F26

Plotting Date: 11/21/2014

Scale 1 Inch = 40 Feet
Sheet 11 of 11 Sheets



Plot Scale - 1:40

Plotted From - trpr18387

East Milbank Avenue

Sta. a 8+94.5
End 2" Cold Mill and
2" Class E Asphalt Concrete Resurfacing

US Highway 12

44'

a 9+00

a 10+00

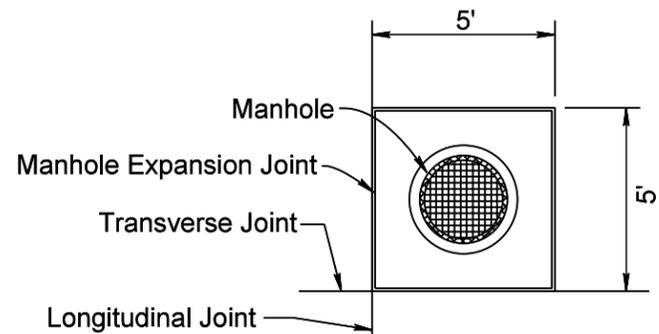
a 10+48

File - ...IPCC Pavement Joint Layout.dgn

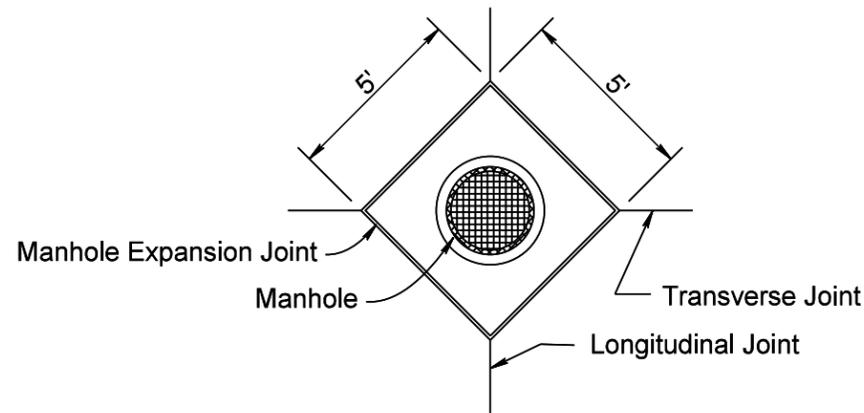
TYPICAL MANHOLE BOX-OUT DETAILS FOR PCC PAVEMENT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F20	F26
Plotting Date:		11/21/2014	

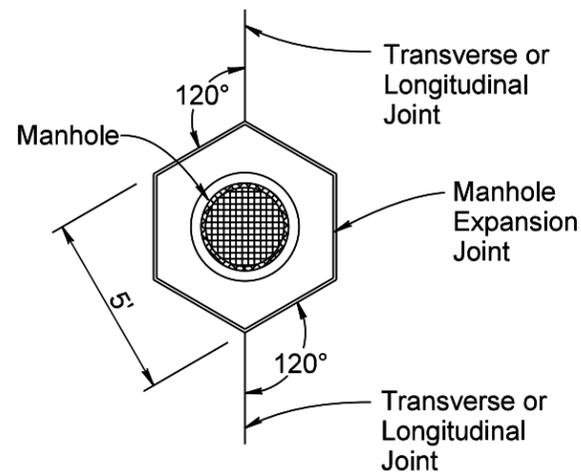
BOX-OUT DETAIL IN PCC PAVEMENT



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

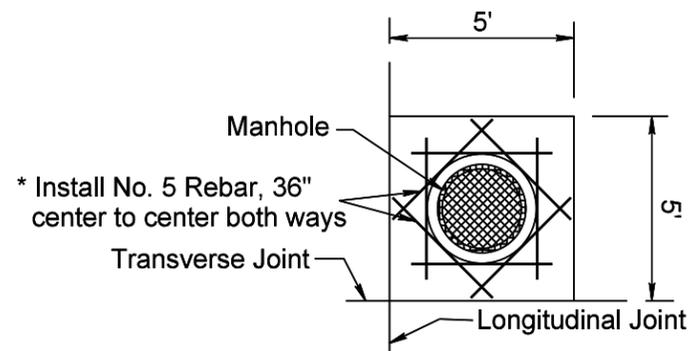


Where the utility access is intersected by the longitudinal and transverse joints

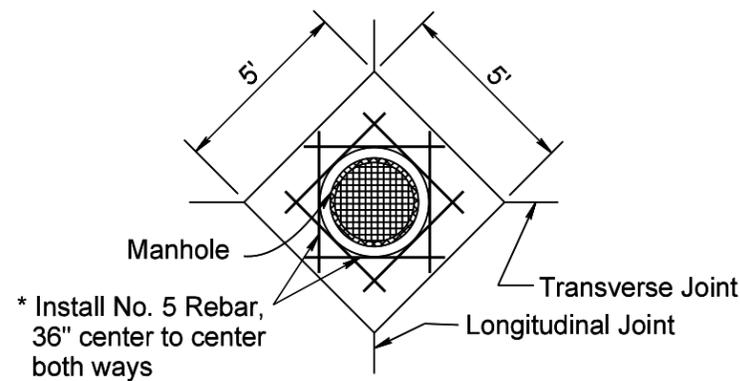


Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

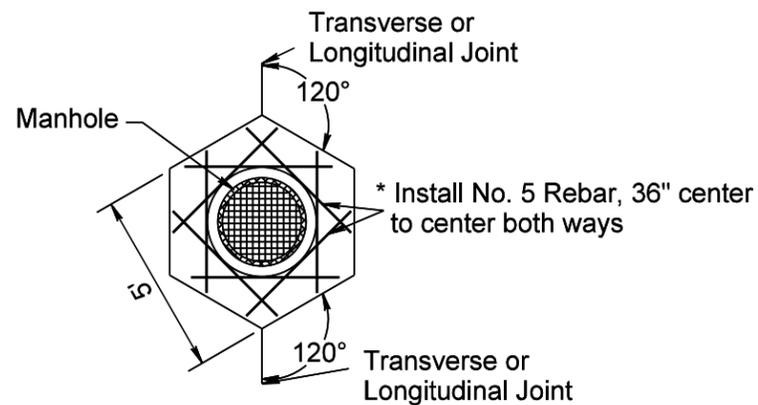
REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



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

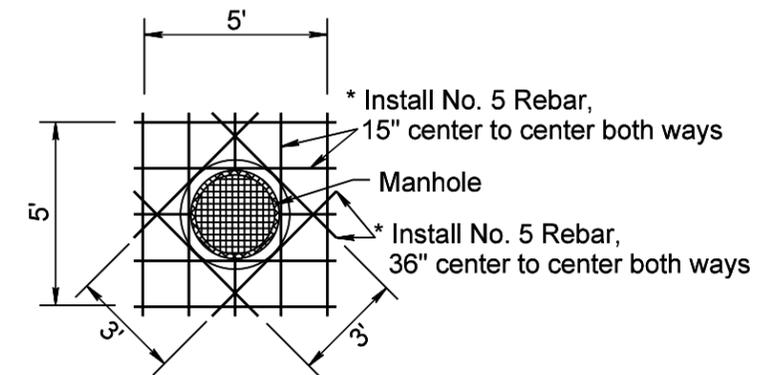


Where the utility access is intersected by the longitudinal and transverse joints



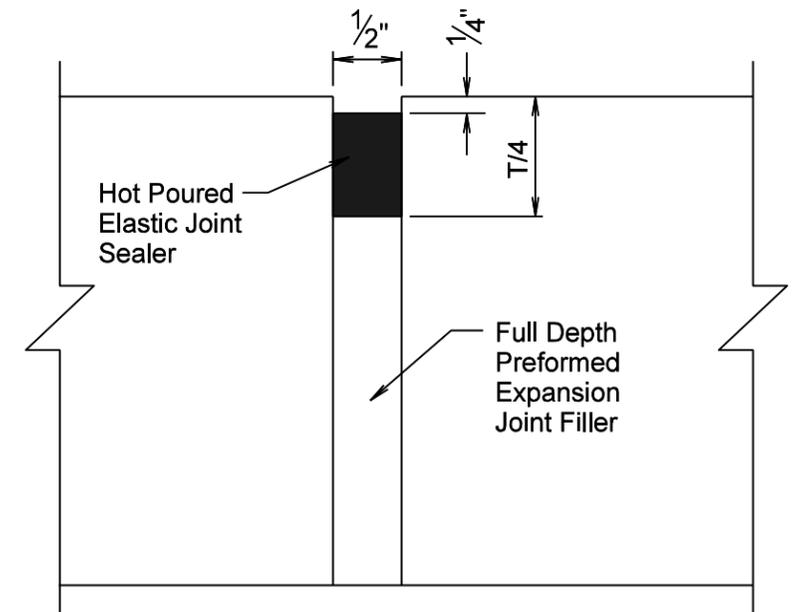
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

REBAR LAYOUT IN PCC PAVEMENT WITHOUT BOX-OUT



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

MANHOLE EXPANSION JOINT DETAIL



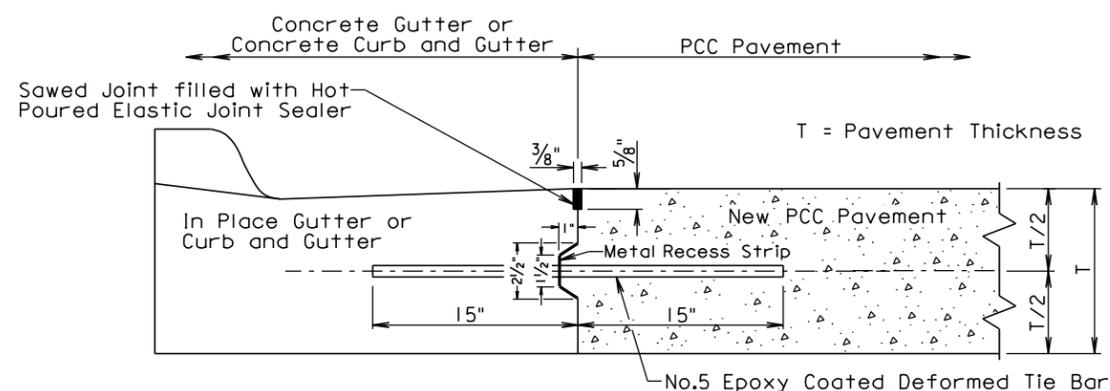
* Rebar will be placed at the midpoint depth of the PCC Pavement. Cost for furnishing & installing rebar and constructing box-outs shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(151)389	F21	F26

Plotting Date: 11/21/2014

SPECIAL DETAIL

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.

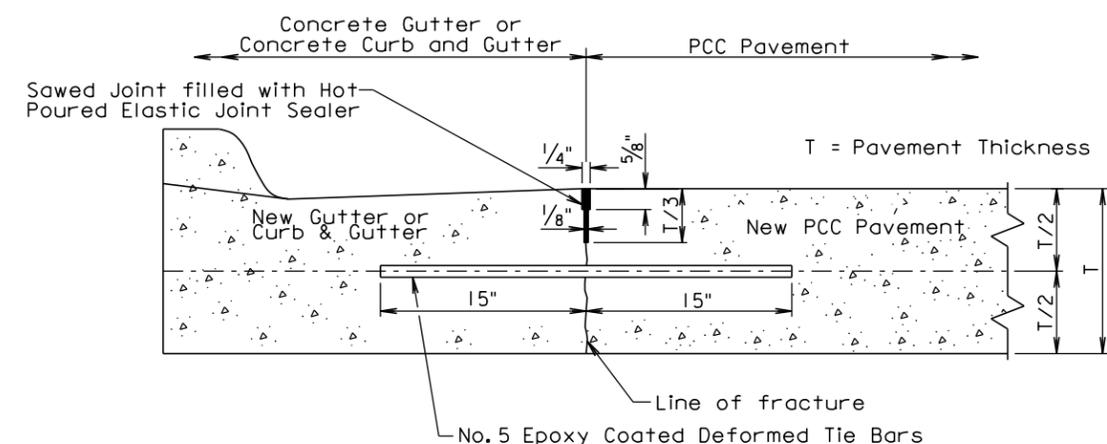
The transverse contraction joints in the concrete gutter or concrete curb and gutter shall be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter shall be 1/2" deep if formed in fresh concrete using 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.

PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER

SPECIAL DETAIL

POURED MONOLITHICALLY



GENERAL NOTES:

The mainline curb and gutter may be placed monolithically with the PCC pavement.

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.

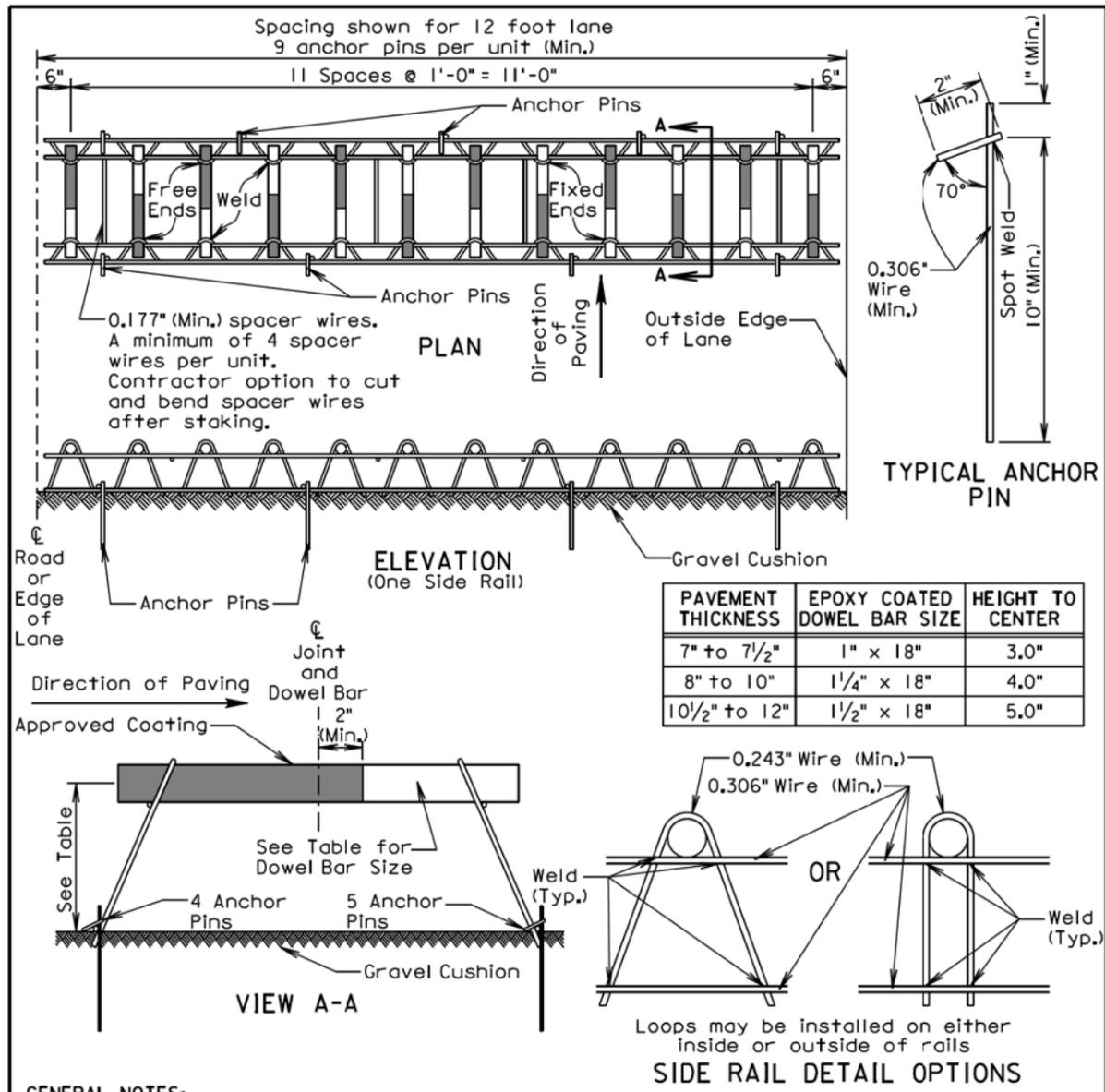
No. 5 epoxy coated deformed tie bars shall be spaced 48 inches center to center.

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.

PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER

Plotting Date: 11/21/2014



GENERAL NOTES:

Longitudinal 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 $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

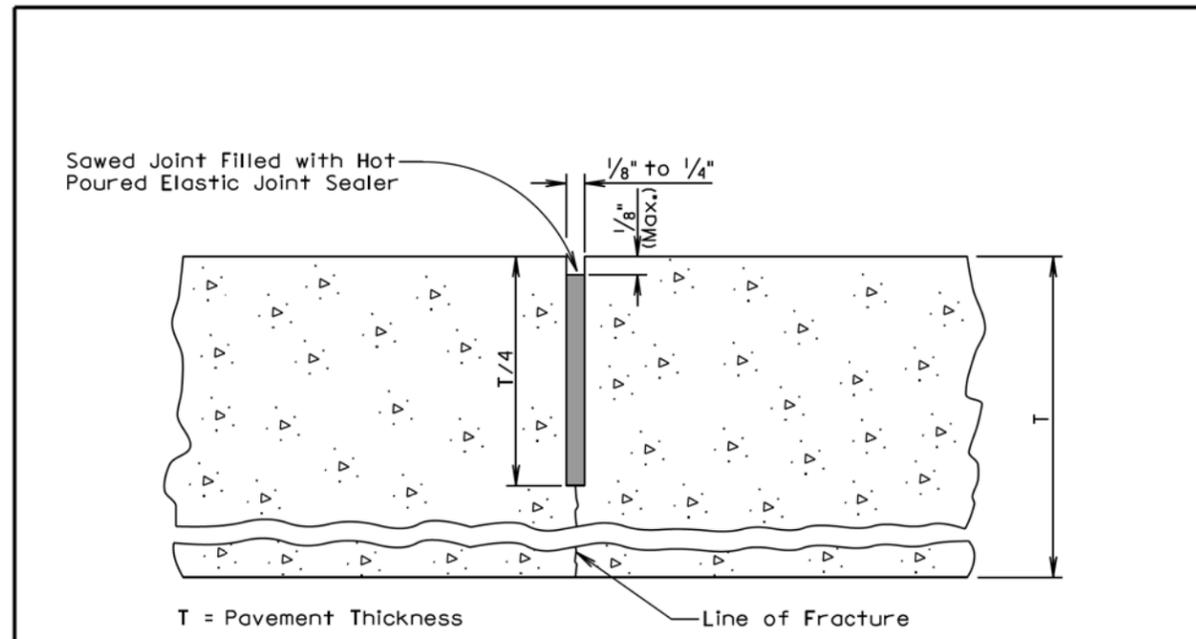
Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

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 as 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.

August 30, 2013

Published Date: 4th Qtr. 2014	S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material	PLATE NUMBER 380.01
			Sheet 1 of 1



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.

June 26, 2013

Published Date: 4th Qtr. 2014	S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.05
			Sheet 1 of 1

PLOT SCALE - 1:200

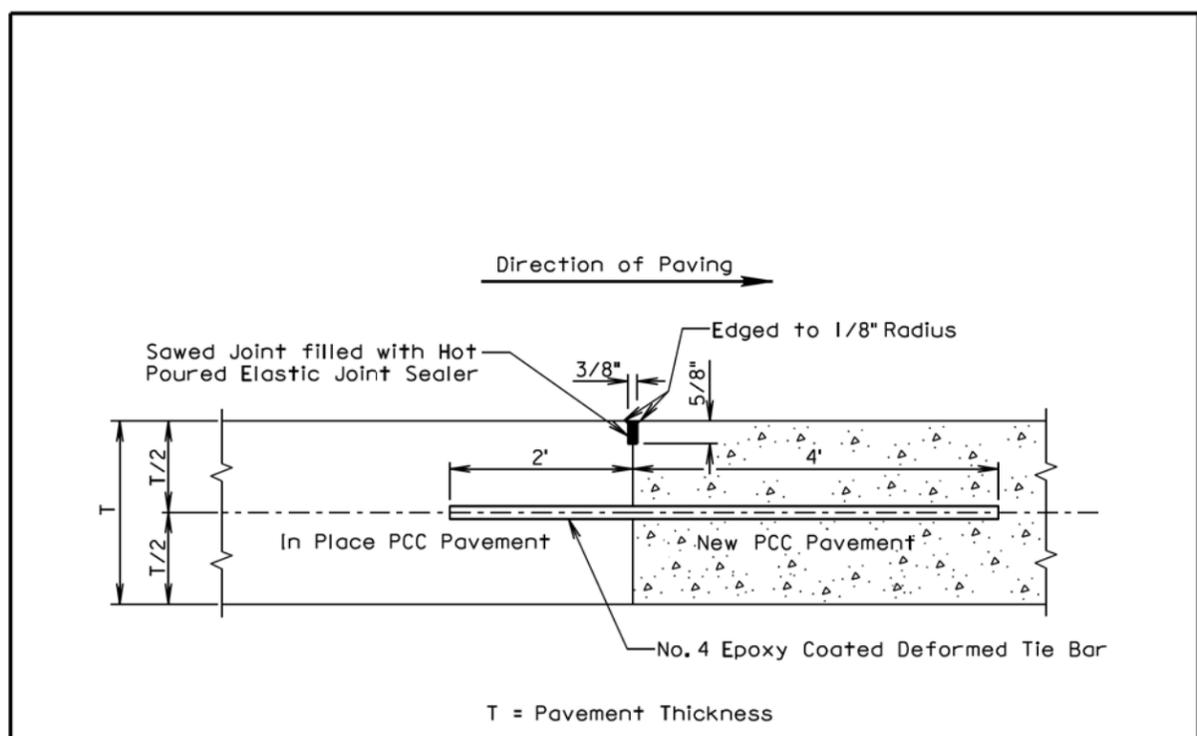
-PLOTTED FROM - TRPR18387

PLOT NAME - 22

FILE - ... \STANDARD PLATES\SP1.DGN

PLOT SCALE - 1:200

PLOT NAME - 23



GENERAL NOTES:

No. 4 epoxy coated deformed tie 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 minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint shall be 5 feet.

When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

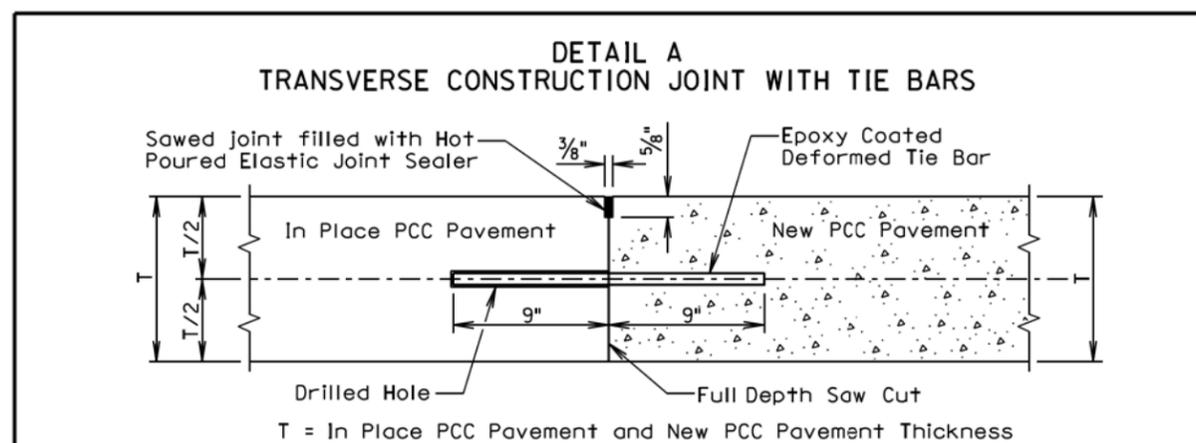
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

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

June 26, 2013

S D D O T	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.07
		Sheet 1 of 1

Published Date: 4th Qtr. 2014



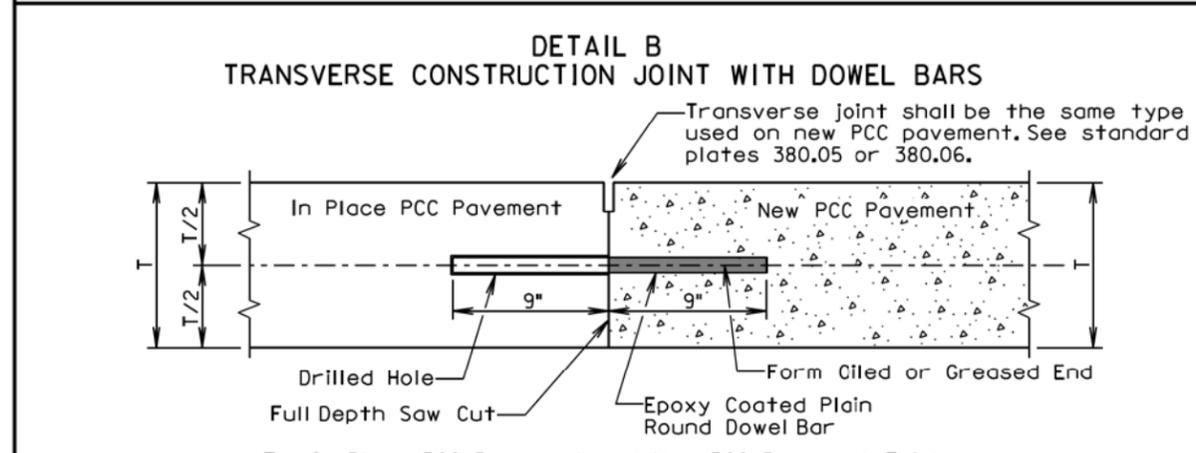
GENERAL NOTES:

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

See sheet 2 of 2 of this standard plate to determine if Detail A shall be used.

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 used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars shall be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing shall be 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.



GENERAL NOTES:

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.

See sheet 2 of 2 of this standard plate to determine if Detail B shall be used.

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 epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

September 6, 2013

S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
		Sheet 1 of 2

Published Date: 4th Qtr. 2014

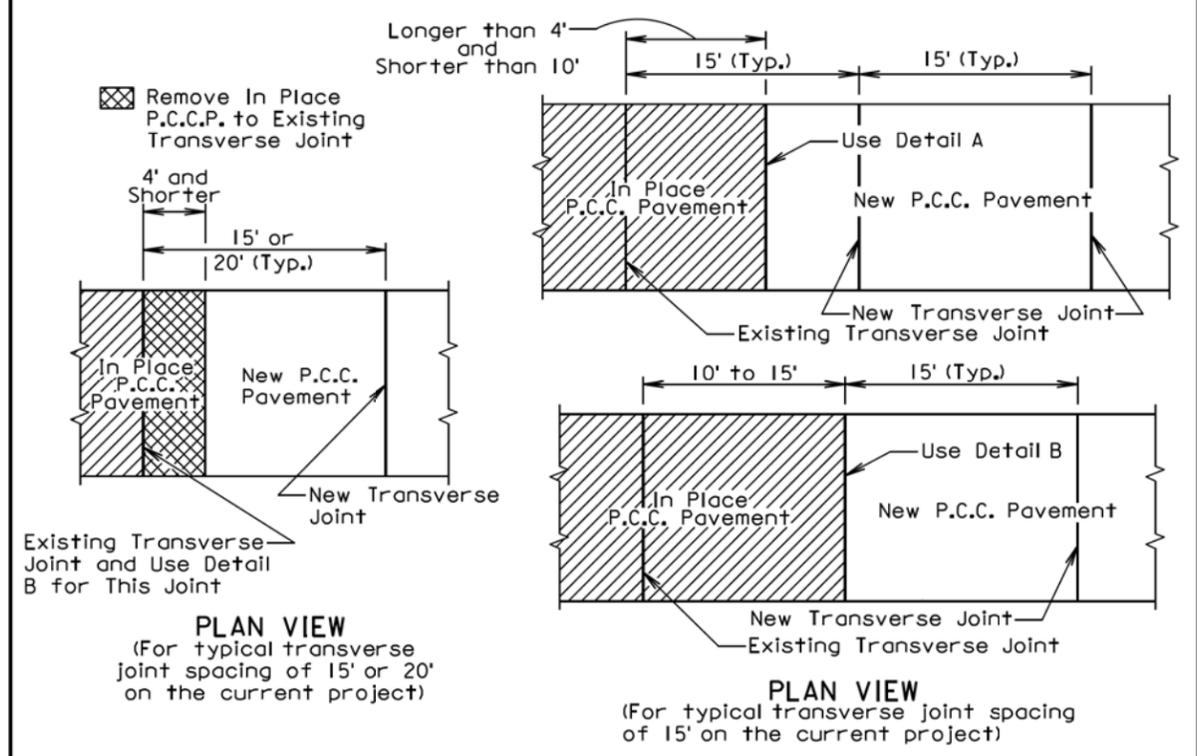
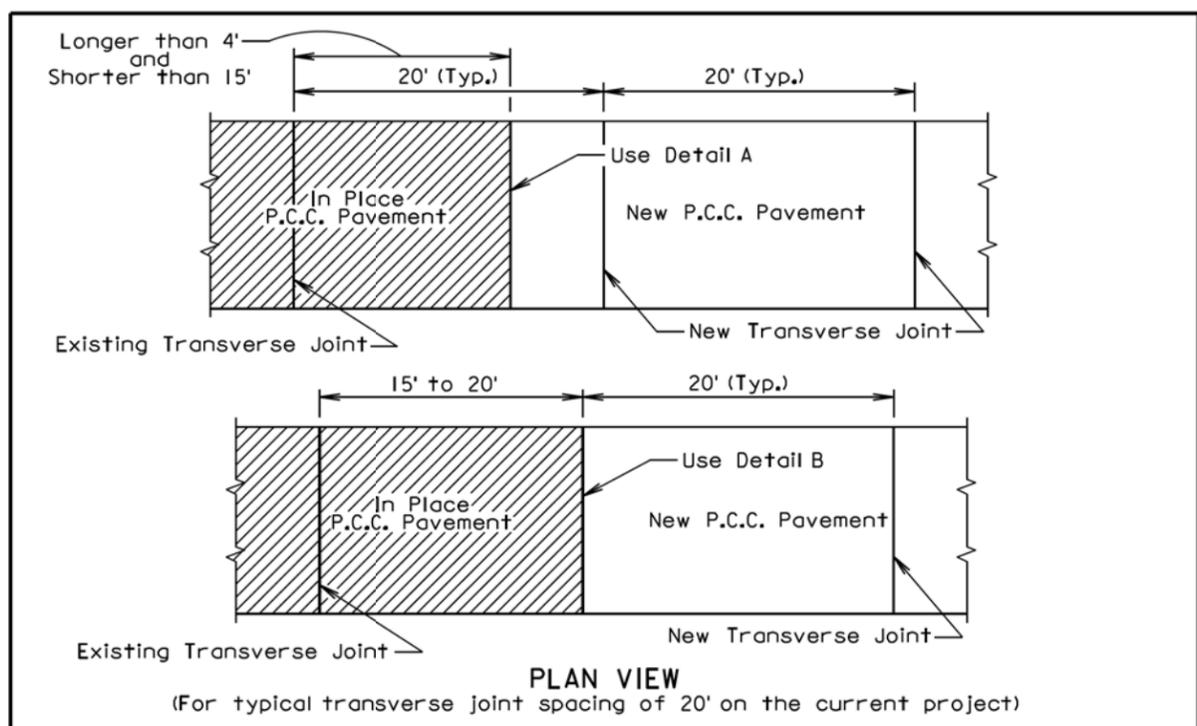
-PLOTTED FROM - TRPR18387

FILE - ... \STANDARD PLATES\SP2.DGN

Plotting Date: 11/21/2014

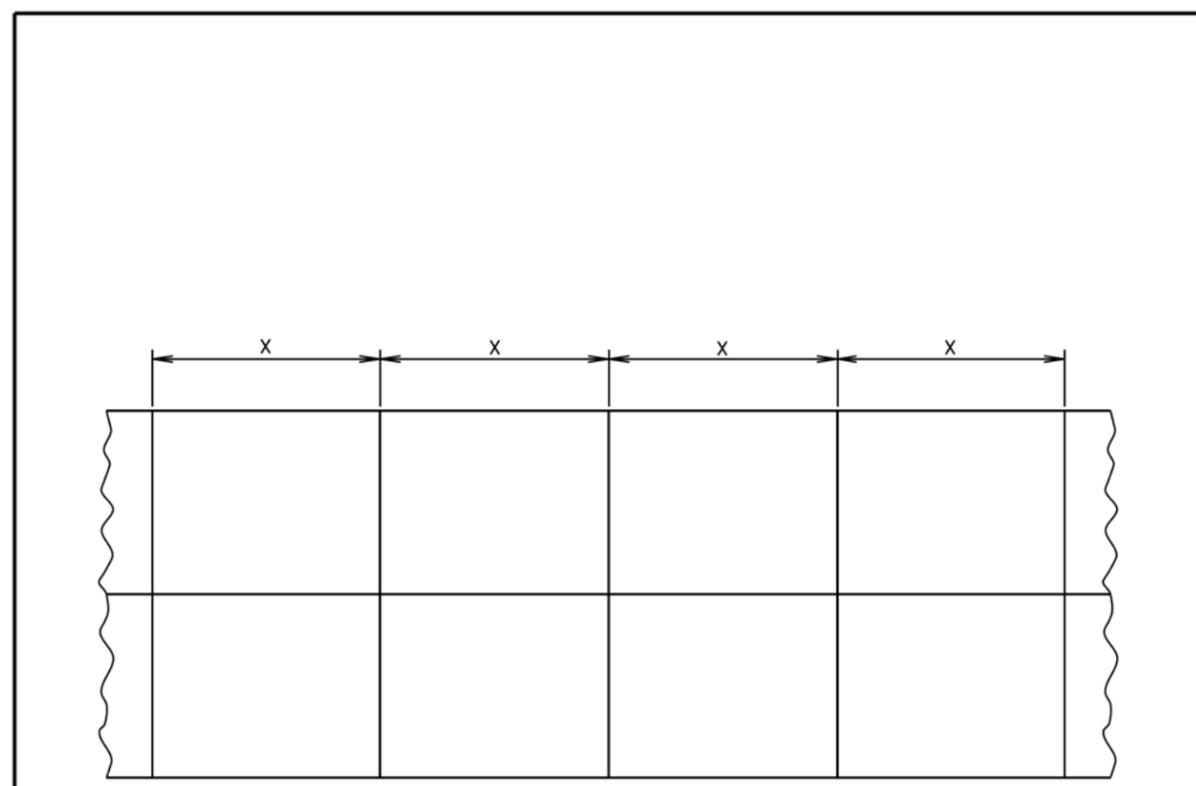
PLOT SCALE - 1:200

PLOT NAME - 24



September 6, 2013

Published Date: 4th Qtr. 2014	S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
			Sheet 2 of 2



PCCP Thickness	Transverse Contraction Joint Spacing (X)
8" to 9.5"	15'
10" and Thicker	20'

August 31, 2013

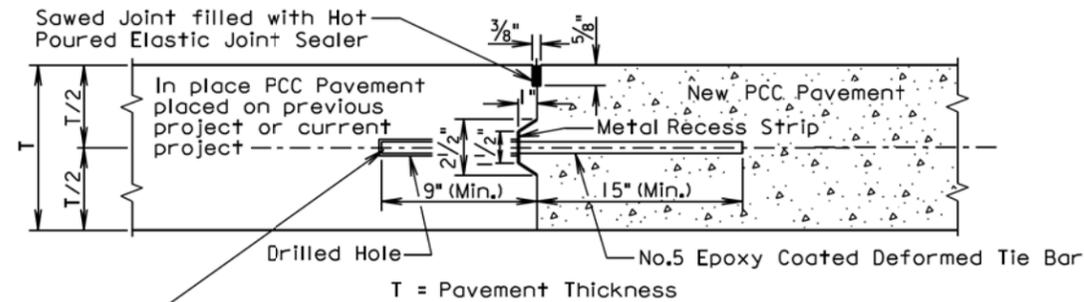
Published Date: 4th Qtr. 2014	S D D O T	PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING	PLATE NUMBER 380.09
			Sheet 1 of 1

PLOTTED FROM - TRPR18387

FILE - ... \STANDARD PLATES\SP3.DGN

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

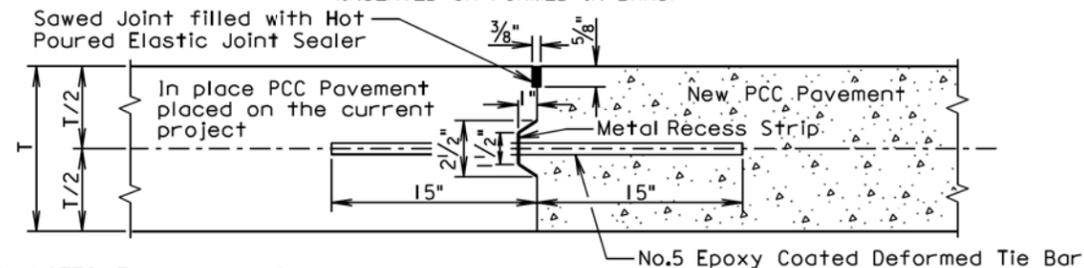
(DRILLED IN BARS)



T = Pavement Thickness
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.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(INSERTED OR FORMED IN BARS)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following tables:

Tie Bar Spacing 48" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

Tie Bar Spacing 30" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

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

The required number of tie bars as shown in the table shall be uniformly spaced within each panel. The uniformly spaced tie bars shall be spaced a maximum of 48 inches center to center for a female keyway and shall be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing shall apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

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.

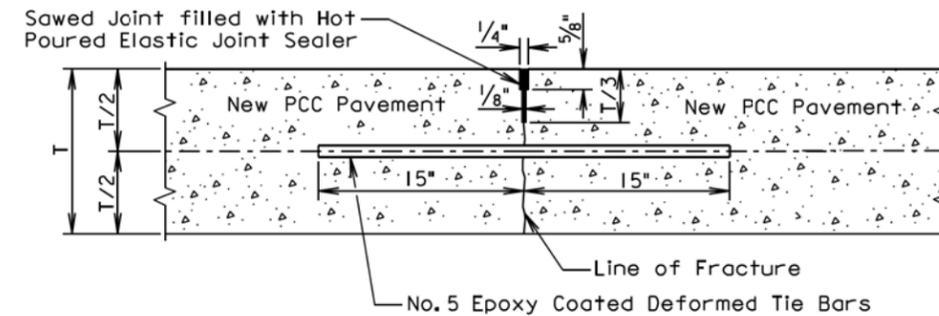
August 31, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
		Published Date: 4th Qtr. 2014

Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS

(POURED MONOLITHICALLY)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following table:

Tie Bar Spacing 48" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

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

The required number of tie bars as shown in the table shall be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing shall apply to tie bars within each panel.

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 is necessary.

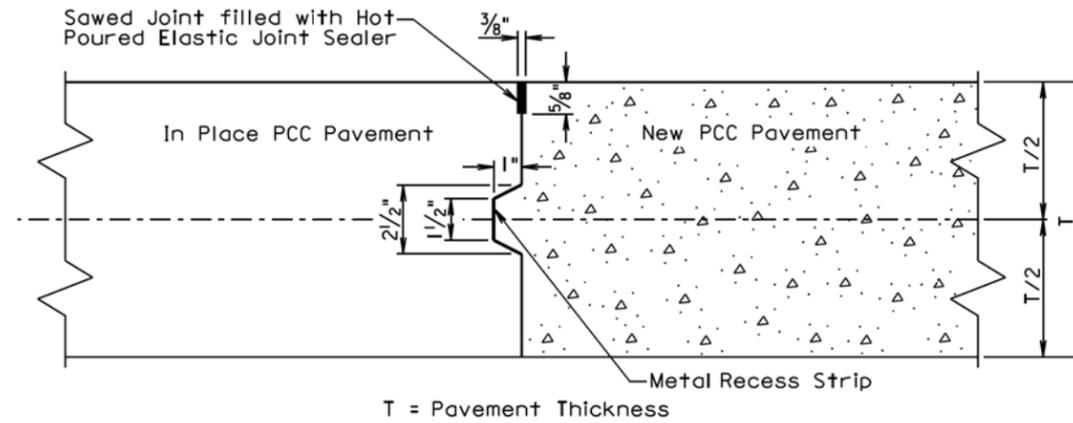
August 31, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
		Published Date: 4th Qtr. 2014

Sheet 2 of 2

Plotting Date: 11/21/2014

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS

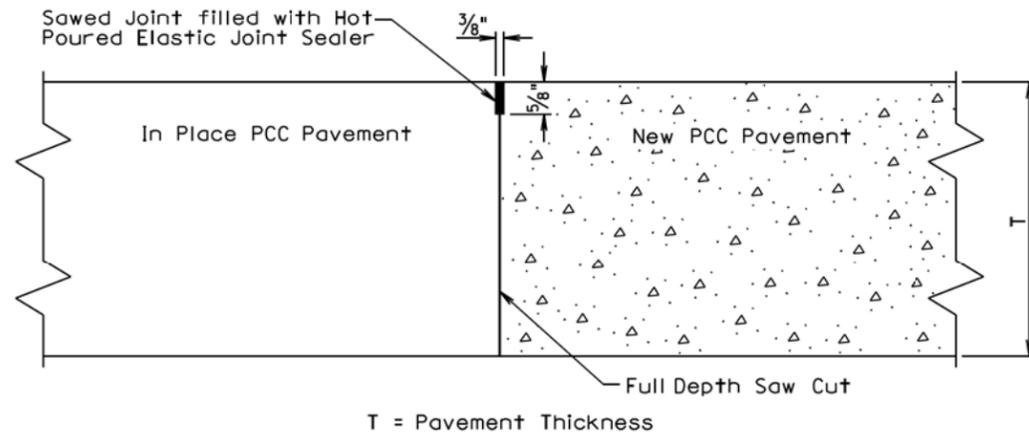


GENERAL NOTES:

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.

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



GENERAL NOTE:

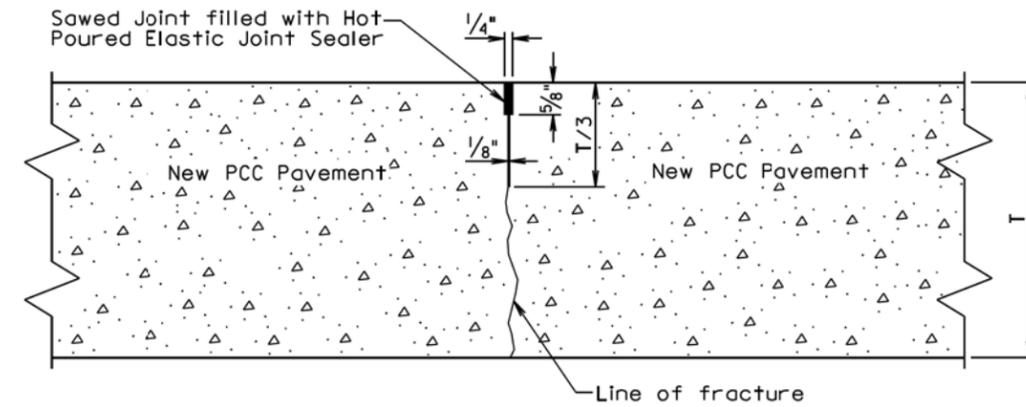
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

September 14, 2001

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.12
		Sheet 1 of 2

Published Date: 4th Qtr. 2014

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



T = Pavement Thickness

GENERAL NOTE:

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

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.12
		Sheet 2 of 2

Published Date: 4th Qtr. 2014

PLOT SCALE - 1:200

PLOT NAME - 26

FILE - ... \STANDARD PLATES\SP5.DGN

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