

SECTION F ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
* 120E6200	Water for Granular Material	0.7	MGal
120E6200	Water for Granular Material	276.5	MGal
* 260E2010	Gravel Cushion	62.0	Ton
260E2010	Gravel Cushion	23,124.3	Ton
* 320E1200	Asphalt Concrete Composite	31.2	Ton
320E1200	Asphalt Concrete Composite	2,000.4	Ton
320E2000	Maintenance Patching	100.0	Ton
380E0090	10" Nonreinforced PCC Pavement	15,404.4	SqYd
380E0090	10" Nonreinforced PCC Pavement	1,548.7	SqYd
380E2574	4" Barrier Type Colored and Patterned Median PCC Pavement	227.8	SqYd
380E3040	8" PCC Driveway Pavement	755.2	SqYd
380E5010	Fast Track Concrete	2,247.1	SqYd
380E6000	Dowel Bar	9,858	Each
380E6110	Insert Steel Bar in PCC Pavement	188	Each
380E9010	Temporary Gravel Crossing	6	Each
831E0300	Reinforcement Fabric (MSE)	5,324	SqYd
900E1350	Temporary Surfacing	3,000.0	SqFt

* - 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.

RECLAIMED CONCRETE AGGREGATE

Recycled Portland cement concrete pavement (RCA) removed from within the project limits may be crushed and reused as gravel cushion provided that it meets the requirements for the granular material it is replacing. All in place rebar shall be separated and removed from the RCA.

There is an estimated 7,457.3 tons of PCC Pavement on this project that can be crushed and reused. This quantity is based on a unit weight of 118 lbs. per cubic foot for the reclaimed concrete aggregate.

The Contractor shall dispose of the material (including existing rebar) not utilized on the project at a site approved by the Engineer.

Payment for the reclaimed concrete aggregate will be at the contract unit price per ton for granular material that it is replacing.

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Gravel Cushion spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor shall compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread shall be written on each ticket as the surfacing material is delivered to the roadway.

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F2	F24

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At the end of each day's shift, the Contractor shall verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item shall be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor shall correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor shall be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor shall correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the Contractor furnished checker and performing all related duties shall be incidental to the contract lump sum price for the "Checker". No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker shall then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

TEMPORARY GRAVEL CROSSINGS

Included in the Estimate of Quantities are 6 temporary gravel crossings to be used if required and placed as directed by the Engineer.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite shall be used for intersection tie ins, driveways and other areas as directed by the Engineer. The size of these areas and the amount of asphalt needed will vary from site to site.

8" and 10" NONREINFORCED CONCRETE PAVEMENT

The aggregate may require screening as determined by the Engineer.

The concrete mix shall conform to the special provision for Contractor Furnished Mix Design for PCC Pavement.

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 19 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

1,548.7SqYd of 10' Nonreinforced Concrete Pavement will be bid by a separate line item for Phase One. This work is on the mainline and the east portion of Saint Patrick Street (See PCC Joint Layout Sheets and Section C Plans for details).

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.

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

TABLE OF 10" NONREINFORCED PCC PAVEMENT

Mainline Location			NONREINFORCED PCC PAVEMENT
Sta.	to	Sta.	(SqYd)
34+10.44	to	36+89.62	1,598.9
36+89.62	to	37+79.28	409.5
37+79.28	to	40+62.05	1,421.2
40+62.05	to	41+52.96	757.4
41+52.96	to	44+38.66	1,647.9
44+38.66	to	45+25.55	433.0
45+25.55	to	47+91.73	1,582.1
47+91.73	to	48+75.23	447.0
48+75.23	to	51+66.52	1,678.8
51+66.52	to	52+54.35	787.0
52+54.35	to	55+46.96	1,534.6
55+46.96	to	56+34.51	590.8
56+34.51	to	59+27.68	1,579.7
59+27.68	to	60+15.06	767.2
60+15.06	to	63+11.60	1,644.6
64+55.26	to	66+30.99	73.3
Total:			16,953.1

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TABLE OF 10" INTERSECTING ROADS PCC PAVEMENT

Location		NONREINFORCED PCC PAVEMENT
Station	Description	(SqYd)
37+34.45	St Anne Street - West	95.6
37+34.45	St Anne Street - East	95.6
41+07.51	St Francis Street - West	106.5
41+07.51	St Francis Street - East	93.2
44+82.11	St Patrick Street - West	100.1
44+82.11	St Patrick Street - East	437.4
48+33.48	St Andrew Street - West	78.2
48+33.48	St Andrew Street - East	45.6
52+10.44	St Charles Street - West	94.4
52+10.44	St Charles Street - East	77.8
55+90.74	Franklin Street - West	160.1
55+90.74	Franklin Street - East	160.8
59+71.37	St Cloud Street - West	77.3
59+71.37	St Cloud Street - East	78.2
Total:		1,700.7

*Table of 10" Intersecting Roads PCC Pavement quantities are for informational purposes only and are included in Mainline and Fast Track PCC quantities.

TABLE OF 8" NONREINFORCED PCC PAVEMENT FOR DRIVEWAYS

Location		NONREINFORCED PCC PAVEMENT
Station	L or R	(SqYd)
39+30.00	R	85.6
40+85.00	104' R	12.4
44+50.00	115' L	23.1
44+52.00	186' L	13.7
45+14.00	108' R	61.2
45+15.00	148' L	19.6
46+32.00	R	112.2
51+75.00	R	47.0
52+38.00	155' R	26.9
52+40.00	158' L	33.3
52+41.00	100' L	45.3
52+45.00	79' R	45.3
57+15.00	R	5.6
57+80.00	R	26.9
59+48.00	79' L	22.7
60+00.00	79' L	89.2
60+04.00	86' R	30.6
60+72.00	L	54.5
Total:		755.2

*These tables do not include any Fast Track Concrete quantities listed below. Refer to the Table of Fast Track Concrete for the quantities required for those locations.

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BLOCKOUT AREAS

It is anticipated that there will be a minimum of 19 pavement blockouts required to maintain traffic flow. These areas designated by the Engineer will not be closed for more than 24 consecutive hours with no alternate route. The Contractor may use Fast Track Concrete or any option approved by the Engineer to achieve this requirement. Failure to comply with this requirement will necessitate liquidated damages being assessed at a rate of \$500 for each calendar day per each intersection area that remains closed past the aforementioned time limit. The Contractor will need to coordinate with individual landowners at least 3 days prior to paving so landowners are aware that their access will not be usable during/1 day after paving.

Additional locations designated by the Engineer may also require Fast Track Concrete.

TABLE OF FAST TRACK BLOCKOUT AREAS

Station	L or R	Description
37+34.45	L	St Anne Street - West
37+34.45	R	St Anne Street - East
38+12.00	L	Driveway West
39+70.00	L	Driveway West
42+82.00	L	Driveway West
44+82.11	L	St Patrick Street - West
44+82.11	R	St Patrick Street - East
45+50.00	R	Driveway East
46+40.00	L	Driveway West
48+33.48	L	St Andrew Street - West
48+33.48	R	St Andrew Street - East
50+62.00	R	Driveway East
54+00.00	R	Driveway East
54+02.00	L	Driveway West
55+90.74	L	Franklin Street - West
55+90.74	R	Franklin Street - East
57+80.00	L	Driveway West
58+48.00	L	Driveway West
61+64.00	L	Driveway West
Total Blockouts:		19

In addition to the blockouts listed in the Table of Blockout Areas for Fast Track Concrete, there are various areas within the work limits which are outside the mainline through lanes that will require blockouts (16 locations shown with a hatched pattern on the PCC Pavement Joint Layout sheets) to facilitate the installation of sanitary sewer, storm sewer and water crossings. See note for Temporary AC Pavement and Interim Grade Adjustments for Sewer Manhole Removals in PCN X02P for a listing of additional blockouts. In these instances, the time restrictions for blockouts shall not apply.

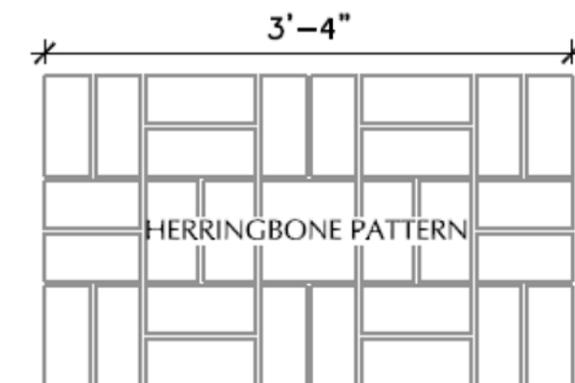
TABLE OF WATER AND SEWER BLOCKOUT AREAS

Station	L or R or Center	Description
37+26.00	Center	Blockout Phase 2A
41+17.00	Center	Blockout Phase 2A
43+30.00	Center	Blockout Phase 2A
44+71.00	128' R	Blockout Phase 1
44+88.00	Center	Blockout Phase 1
48+39.00	Center	Blockout Phase 2B
48+68.00	Center	Blockout Phase 2B
51+35.00	Center	Blockout Phase 2B
52+24.00	Center	Blockout Phase 2B
54+46.00	Center	Blockout Phase 2B
55+98.00	Center	Blockout Phase 2B
56+81.00	Center	Blockout Phase 2B
57+77.00	Center	Blockout Phase 2B
58+71.00	Center	Blockout Phase 2B
59+78.00	Center	Blockout Phase 2B
62+56.00	Center	Blockout Phase 2B
Total	Water and Sewer Blockouts:	16

4" BARRIER TYPE COLORED AND PATTERNED MEDIAN PCC PAVEMENT

The color of the Colored and Patterned Median Pavement shall match Kailua #677 by Davis Colors or equal as approved by the Engineer. The concrete shall be integrally colored per manufacturer recommendations. The concrete shall also be placed with a Herringbone Paving Pattern (See example). The surfaces shall be sealed according to the manufacturer's recommendations following the process. Joints and expansion material shall be required at regular intervals as approved by the Engineer. The cost of the coloring, patterning, sealing, jointing and expansion material shall be included the contract unit price for "4" Barrier Type Colored and Patterned Median PCC Pavement."

HERRINGBONE PAVING PATTERN EXAMPLE



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TABLE OF 4" BARRIER TYPE COLORED AND PATTERNED MEDIAN PCC PAVEMENT

Mainline Location			4" BARRIER TYPE COLORED AND PATTERNED MEDIAN PCC PAVEMENT (SQYDS)
Sta.	to	Sta.	
35+10.52	to	35+16.52	1.4
36+12.24	to	36+18.24	1.3
38+74.37	to	38+80.37	1.9
39+89.07	to	39+95.07	1.4
48+81.23	to	49+36.28	16.3
51+05.61	to	51+60.52	16.2
52+60.35	to	53+15.39	16.3
54+35.92	to	55+40.96	31.0
56+40.53	to	57+45.57	31.0
58+16.64	to	59+21.68	31.0
60+21.06	to	61+26.09	31.0
62+45.81	to	63+00.70	16.2
64+00.46	to	64+55.62	16.3
66+30.63	to	66+85.79	16.3
Total:			227.8

FAST TRACK CONCRETE

At specific locations (intersecting streets, driveways, & blockouts) designated by the Engineer, Fast Track Concrete may be used. The intent of the Fast Track Concrete is to insure the new pavement can be opened to traffic within 24 hours after placement.

Fast Track Concrete shall be constructed according to plan details and Specifications for the 10" Nonreinforced PCC Pavement except as follows:

The Fast Track Concrete shall be designed to achieve a minimum compressive strength of 3800 psi in 24 hours. If the concrete does not attain a compressive strength of 3800 psi within 24 hours after placement, that section of concrete pavement shall be paid for as 10" Nonreinforced PCC Pavement. Use of a water reducer, accelerator, or a high range water reducer may be required to achieve the desired early strength. If any of these additives are used, they shall be compatible with all other ingredients of the mix. The minimum pounds of cement shall be 600 pounds per cubic yard of Type I, II, III, or V cement. In addition to the cement a minimum of 105 pounds per cubic yard of Fly Ash will be used in the mix. The coarse aggregate shall be a minimum of 53% of total aggregate weight per cubic yard. Coarse aggregate shall be crushed ledge rock, Size No. 1 or 15. The water cement ratio shall be as low as practical to achieve the desired results. The slump requirement will be limited to 4 inches maximum and the entrained air content shall be 4.5% to 7.0% after all admixtures are added to the concrete. The Contractor is responsible for the mix design used. The Contractor shall submit a mix design and supporting documentation to the Engineer for approval at least 2 weeks prior to use. The Department of Transportation's Office of Materials & Surfacing shall review and comment on the proposed mix design prior to its use.

Fast Track Concrete shall be cured with Linseed Oil Base Emulsion Curing Compound. In addition, the concrete shall be immediately covered with a suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. The insulation blanket shall have an R-value of at least 0.5, as rated by the manufacturer. The insulation blanket shall 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.

This requirement for covering repair areas with insulation blankets may be waived during periods of hot weather upon approval of the Engineer.

The pavement may be opened to traffic, earlier than 24 hours, provided the compressive strength of 3800 psi has been attained. The final contraction joint sawing and sealing are not required at this time to open up pavement to traffic.

An estimated 16,953.1 square yards of 10" Nonreinforced PCC Pavement and 2,247.1 square yards of Fast Track Concrete are to be used on this project. There are 723.8 square yards of 8" PCC Driveway Pavement. If more or less Fast Track Concrete is used, an equal amount shall be subtracted from or added to the total for 10" Nonreinforced PCC Pavement. All costs for Fast Track Concrete shall be incidental to the contract unit price per square yard for "Fast Track Concrete". There are also 578.9 square yards of 8" Fast Track Concrete Approach Pavement for driveways. See Section B for Fast Track Concrete Approach Pavement.

TABLE OF FAST TRACK CONCRETE AREAS

Location	Description	Fast Track PCC Pavement (SqYd)
37+34.45	St Anne Street - West	164.2
37+34.45	St Anne Street - East	165.4
38+12.00	Driveway West	88.0
39+70.00	Driveway West	91.1
42+82.00	Driveway West	98.0
44+82.11	St Patrick Street - West	150.1
44+82.11	St Patrick Street - East	150.1
45+50.00	Driveway East	93.1
46+40.00	Driveway West	98.5
48+33.48	St Andrew Street - West	147.4
48+33.48	St Andrew Street - East	147.3
50+62.00	Driveway East	97.6
54+00.00	Driveway East	97.7
54+02.00	Driveway West	81.3
55+90.74	Franklin Street - West	141.0
55+90.74	Franklin Street - East	140.2
57+80.00	Driveway West	107.4
58+48.00	Driveway West	90.2
61+64.00	Driveway West	98.6
Total:		2,247.1

This table does not include approach pavement, See Section B.

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CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, Concrete Gutter and Concrete Fillet will be cured with Linseed Oil Base Emulsion Compound. All costs for Curing of Concrete shall be incidental to the contract unit price per various Portland cement concrete bid items.

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.

PAVEMENT SMOOTHNESS

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with the Special Provision for PI PCC Pavement Smoothness with 0.2" Blanking Band:

US16 - Sta. 34+10.44 to Sta. 63+11.60 - Driving and Passing Lanes

Turning lanes including center turn lane and side streets shall be tested using the 10' straight edge as per Specifications 380.3 O.1

Due to the large number of block-outs, profilograph testing may be completed the next day or when the entire phase can be run.

ALKALI SILICA REACTIVITY

Delete Section 800.2 D and replace with the following:

Alkali-Silica Reactivity (ASR) Requirements: Fine aggregates from sources that have not been tested by the Department shall be submitted to the Department's Materials and Surfacing Central Materials Laboratory for ASR testing 30 days prior to performing the concrete mix design.

ASR testing shall be performed in accordance with ASTM C1260, except that the gradation of the material used for testing shall be as produced from the source. The fine aggregate shall only be sampled at the source by a Department representative or in the presence of a Department representative.

Fine aggregate with a 14 day expansion value below 0.250 shall require Type II cement with a fly ash content of 20 to 25% in the concrete mix. Fine aggregate with a 14 day expansion value of 0.250 or greater shall require Type II cement with a fly ash content of 25% in the concrete mix. Fine aggregate with a 14 day expansion value of 0.400 or greater shall not be used.

When a fine aggregate supplier changes locations within the pit, the fine aggregate from the new location in the pit shall be submitted for testing.

When more than one source of fine aggregate is blended to meet the gradation specifications, the expansion value of the blended sands will be used for determining acceptability and type of cement required.

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ALKALI SILICA REACTIVITY - CONTINUED

Blended sources will be treated as a new source and it shall be the responsibility of the Contractor to submit the blended samples for testing 30 days prior to performing the concrete mix design. The expansion value of the blended sources will be used to determine the type of cement required.

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	0.146
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G - Mickelson Pit	E of Nisland, SD	0.129
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	0.203
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.267*
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
Morris - Shawn's Pit	E of Sturgis, SD	0.186
Myrl & Roys - Ode Pit	E Sioux Falls, SD	0.214
Myrl & Roys - Nelson Pit	NE Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.133
Opperman - Gunvordahl Pit	Burke, SD	0.363
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 II cement with a fly ash content of 25% in the concrete mix.

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 a test value less than 0.250 is discovered after letting to be 0.250 or greater, then the Department will accept financial responsibility if higher costs are incurred due to higher % of fly ash requirement.

STEEL BAR INSERTION

The Contractor shall insert the Steel Bars (1¼ inch x 18 inch epoxy coated plain round dowel bars or No. 5 x 24 inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement.

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

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.

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.

TABLE OF STEEL BAR INSERTION

LOCATION	1-1/4" x 18" Plain Round Dowel Bars	No. 5 x 24" Deformed Tie Bars
Sta. 34+10.44	55	---
Sta. 63+11.60	63	---
Sta. 64+55 to Sta. 66+31	22	48
Total:	140	48

TABLE OF DOWEL BARS

Location	1 1/4" Bars (Each)
Bars in Mainline	9,205
Intersecting Roads and Driveways	628
Bars from Sta. 64+55 to Sta. 66+31	25
Total Dowel Bars	9,858

MANHOLE BOX-OUT DETAILS

The Contractor shall construct box-outs for all manholes in the 10" Concrete Pavement according to the Box-Out Detail. Locations of Proposed Manholes and water valve boxes are shown on the Pavement Joint Layout Sheets.

REINFORCEMENT FABRIC (MSE)

The fabric will conform to the specification for Reinforcement Fabric (MSE). 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.

Fabric will be paid for at the contract unit price per square yard for Reinforcement Fabric (MSE). 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 Reinforcement Fabric (MSE).

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GRANULAR MATERIAL

Granular Material will conform to the specification for Gravel Cushion. 2,917 tons have been included in Gravel Cushion bid item for areas of unstable subgrades. This quantity is based on 1 foot of coverage for 4,630 sq. yds. of subgrade. Granular Material will be paid for at the contract unit price for Gravel Cushion. Payment will be full compensation for furnishing and placing this material.

EXISTING PCC PAVEMENT

The existing pavement for US 16, Flormann Street to Fairview Street is 9" Nonreinforced PCC Pavement with crushed ledge rock course aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" to 48" center to center. The transverse joints are spaced at 20' apart. Transverse joints are reinforced with 1 ¼" steel dowel bars spaced 12" center to center. This information is from Underlying Plans and actual pavement thicknesses may vary.

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TABLE OF QUANTITIES

LOCATION				WATER FOR GRANULAR MATERIAL (MGal)	GRAVEL CUSHION (Ton)	ASPHALT CONCRETE COMPOSITE		
Station	to	Station	1st Lift (Ton)			2nd Lift (Ton)	Top Lift (Ton)	
Mainline								
34 +	10.44 to	36 +	89.62	18.1	1,508.1	---	---	---
36 +	89.62 to	37 +	79.28	2.5	212.0	---	---	---
37 +	79.28 to	40 +	62.05	18.7	1,547.0	---	---	---
40 +	32.05 to	41 +	52.96	3.5	291.4	---	---	---
41 +	52.96 to	44 +	38.66	18.9	1,579.3	---	---	---
44 +	38.66 to	45 +	25.55	2.4	201.3	---	---	---
45 +	25.55 to	47 +	91.73	17.8	1,497.0	---	---	---
47 +	91.73 to	48 +	75.23	2.3	196.5	---	---	---
48 +	75.23 to	51 +	66.52	23.3	1,941.2	---	---	---
51 +	66.52 to	52 +	54.35	2.6	219.0	---	---	---
52 +	54.35 to	55 +	46.96	22.5	1,880.9	---	---	---
55 +	46.96 to	56 +	34.51	2.7	222.6	---	---	---
56 +	34.51 to	59 +	27.68	22.6	1,887.7	---	---	---
59 +	27.68 to	60 +	15.06	2.5	212.6	---	---	---
60 +	15.06 to	63 +	11.60	22.8	1,906.8	---	---	---
64 +	55.26 to	66 +	30.99	0.2	19.3	---	---	---
Intersecting Roads								
St. Anne Street West				3.7	306.8	79.8	---	79.8
St. Anne Street East				2.3	194.8	50.7	---	50.7
St. Francis Street West				2.9	245.2	65.7	---	65.7
St. Francis Street East				1.9	156.2	40.7	---	40.7
St. Patrick Street West				4.7	389.3	103.4	---	103.4
St. Patrick Street East				1.9	162.2	---	---	---
St. Andrew Street West				2.3	189.4	47.5	---	47.5
St. Andrew Street East				3.4	283.4	71.1	---	71.1
St. Charles Street West				2.4	202.1	59.2	---	59.2
St. Charles Street East				2.7	227.8	57.1	---	57.1
Franklin Street West				1.3	105.2	23.3	---	23.3
Franklin Street East				1.1	89.4	19.3	---	19.3
St. Cloud Street West				1.2	103.8	26.0	---	26.0
St. Cloud Street East				1.1	89.9	22.2	---	22.2

LOCATION	WATER FOR GRANULAR MATERIAL (MGal)	GRAVEL CUSHION (Ton)	ASPHALT CONCRETE COMPOSITE		
			1st Lift (Ton)	2nd Lift (Ton)	Top Lift (Ton)
Driveways					
Sta. 35+40 L	0.9	73.5	12.9	---	12.9
Sta. 35+40 R	0.5	42.9	8.9	---	8.9
Sta. 36+97 L - 172'	0.1	11.7	3.1	---	3.1
Sta. 37+48 L - 172'	0.1	9.8	2.5	---	2.5
Sta. 38+10 L	1.0	80.4	18.9	---	18.9
Sta. 38+85 L	0.9	74.6	17.7	---	17.7
Sta. 39+30 R	0.9	78.6	---	---	---
Sta. 39+70 L	0.4	35.0	26.2	---	26.2
Sta. 40+70 - 131' L	0.2	17.5	3.7	---	3.7
Sta. 40+85 - 104' R	0.5	37.6	---	---	---
Sta. 41+35 - 100' L	0.8	66.2	11.3	---	11.3
Sta. 42+89	0.8	66.2	15.1	---	15.1
Sta. 44+50 - 115' L	0.2	17.3	---	---	---
Sta. 44+52 - 186' L	0.2	19.5	---	---	---
Sta. 45+14 - 108' R	0.5	39.9	---	---	---
Sta. 45+15 - 148' L	0.2	18.9	---	---	---
Sta. 45+50 R	0.4	36.0	---	---	---
Sta. 46+32 R	0.8	65.0	---	---	---
Sta. 46+42 L	0.8	65.0	12.1	---	12.1
Sta. 46+54 R	0.2	18.8	5.0	---	5.0
Sta. 48+05 - 120' R	0.2	16.6	3.3	---	3.3
* Sta. 48+58 - 110' L	0.7	62.0	15.6	---	15.6
Sta. 48+58 - 160' R	0.4	35.9	8.0	---	8.0
Sta. 49+04 R	0.4	33.2	3.7	---	3.7
Sta. 49+80 R	0.3	27.3	3.1	---	3.1
Sta. 50+22 R	0.3	24.2	2.1	---	2.1
Sta. 50+60 R	0.6	53.3	9.0	---	9.0
Sta. 51+75 - 80' R	0.3	28.2	---	---	---
Sta. 51+85 - 120' L	1.8	153.9	28.8	---	28.8
Sta. 52+38 - 155' R	0.1	12.2	---	---	---
Sta. 52+40 - 158' L	0.4	29.8	3.6	---	3.6
Sta. 52+41 - 100' L	0.4	35.7	5.6	---	5.6
Sta. 52+45 - 79' R	0.4	31.2	4.2	---	4.2
Sta. 53+22 L	1.3	112.4	24.6	---	24.6
Sta. 54+00 L	1.2	101.8	22.5	---	22.5
Sta. 54+00 R	0.2	20.5	1.3	---	1.3
Sta. 55+20 L	0.4	30.8	4.6	---	4.6
Sta. 55+68 - 173' L	0.3	28.0	4.6	---	4.6
Sta. 56+85 L	0.9	74.2	14.8	---	14.8
Sta. 57+15 R	0.1	10.6	---	---	---
Sta. 57+80 R	0.3	21.6	---	---	---
Sta. 57+83 L	0.9	77.5	16.5	---	16.5
Sta. 58+48 L	0.5	42.3	6.5	---	6.5
Sta. 59+48 - 79' L	0.1	11.3	---	---	---
Sta. 60+00 - 79' L	0.4	33.1	---	---	---
Sta. 60+04 - 86' R	0.3	24.8	2.2	---	2.2
Sta. 60+72 L	0.4	31.1	---	---	---
Sta. 61+60 L	0.9	74.6	14.5	---	14.5
Sta. 61+60 R	0.7	60.2	9.4	---	9.4
Sta. 62+12 R	0.3	28.4	3.9	---	3.9
Granular Material cover over Geotextile					
Totals	277.2	23,186.3		2,031.6	

*Denotes Non-Participating

TYPICAL SURFACING SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F7	F24

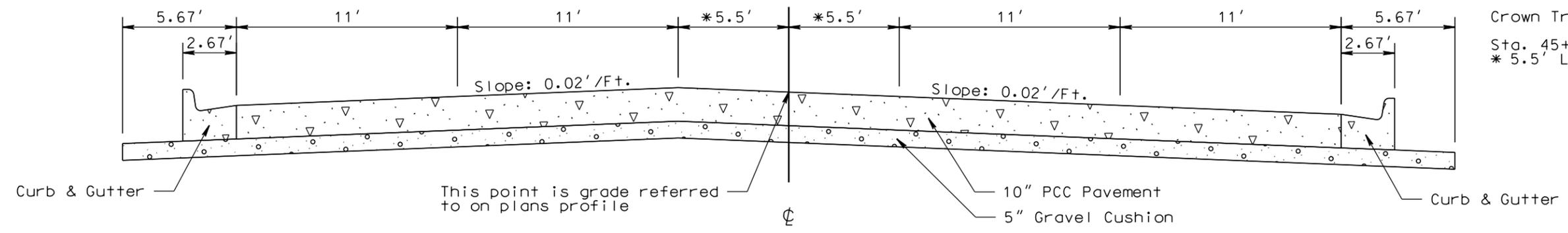
Plotting Date: 08/31/2016

PLOT SCALE - 1+6.00001

PLOT NAME - 7

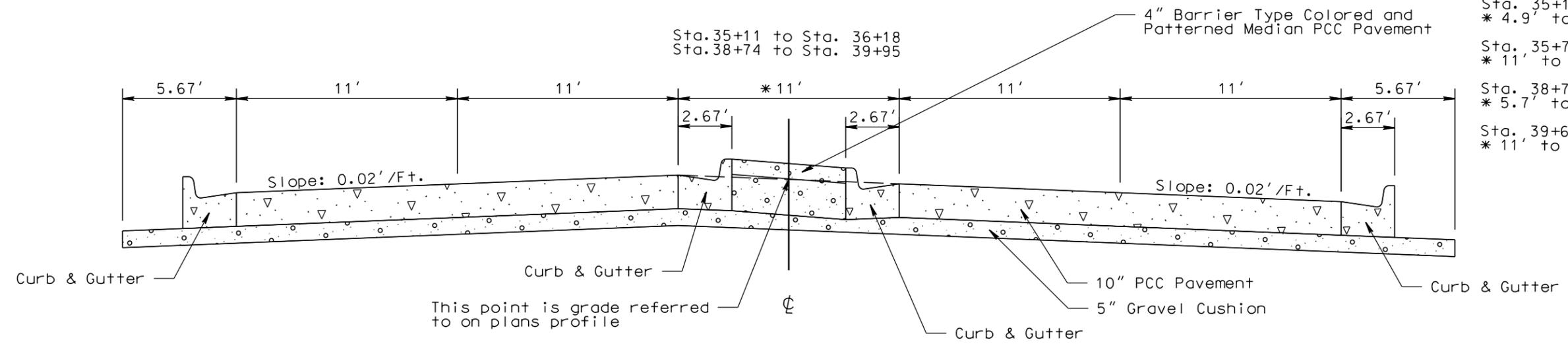
Sta. 34+10 to Sta. 35+11
 Sta. 36+18 to Sta. 38+74
 Sta. 39+95 to Sta. 44+64
 Sta. 45+00 to Sta. 47+50

Transitions:
 Sta. 45+00 to Sta. 47+50
 * 5.5' to 9.5'
 Crown Transitions:
 Sta. 45+00 to Sta. 45+92
 * 5.5' Lt. to 9.5' Rt.

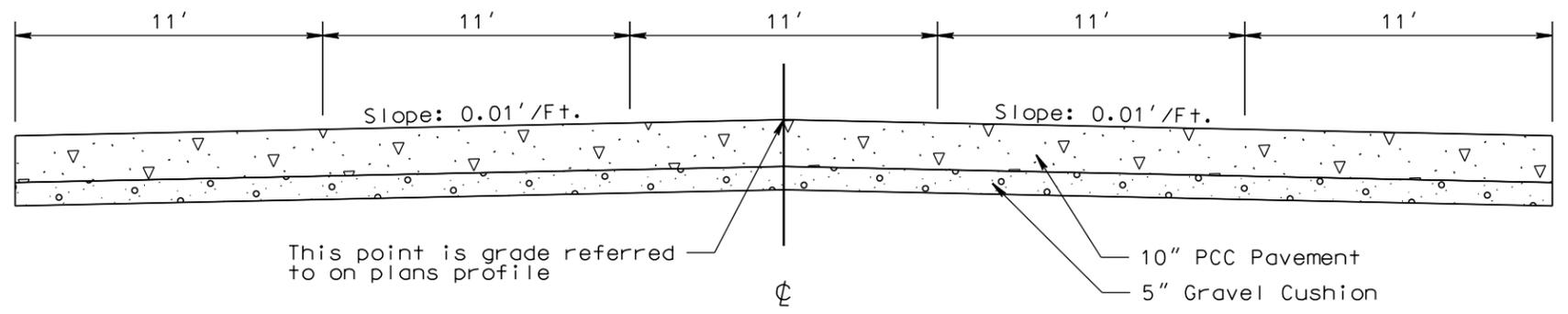


Sta. 35+11 to Sta. 36+18
 Sta. 38+74 to Sta. 39+95

Transitions:
 Sta. 35+11 to Sta. 35+44
 * 4.9' to 11'
 Sta. 35+79 to Sta. 36+18
 * 11' to 4.9'
 Sta. 38+74 to Sta. 39+03
 * 5.7' to 11'
 Sta. 39+62 to Sta. 39+95
 * 11' to 4.9'



Sta. 44+64 to Sta. 45+00
 (Saint Patrick Street Intersection)



PLOTTED FROM - TRPR18387

FILE - ... \PENND49F\TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

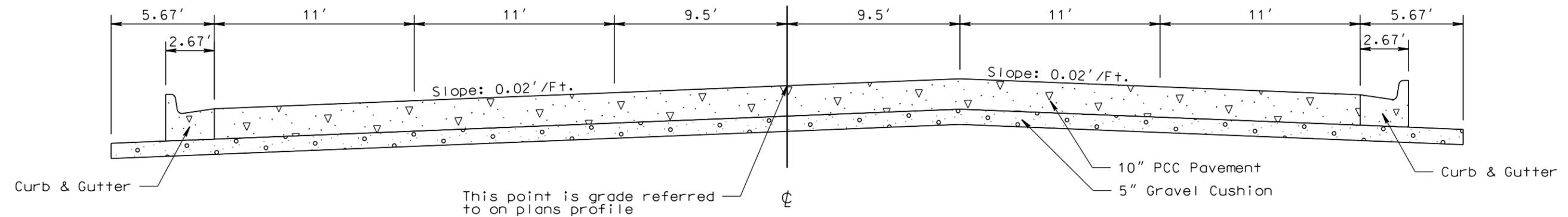
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F8	F24
Plotting Date: 08/31/2016			

FOR BIDDING PURPOSES ONLY

PLOT SCALE - 1/4" = 1'-0"

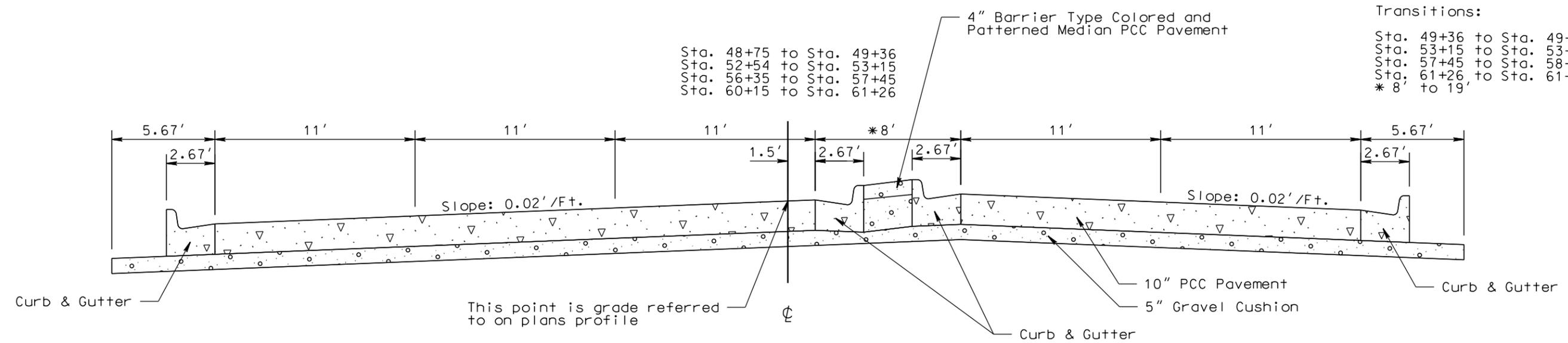
PLOT NAME - 8

Sta. 47+50 to Sta. 48+75
 Sta. 51+67 to Sta. 52+54
 Sta. 55+47 to Sta. 56+35
 Sta. 59+28 to Sta. 60+15
 Sta. 63+07 to Sta. 63+12



Sta. 48+75 to Sta. 49+36
 Sta. 52+54 to Sta. 53+15
 Sta. 56+35 to Sta. 57+45
 Sta. 60+15 to Sta. 61+26

Transitions:
 Sta. 49+36 to Sta. 49+96
 Sta. 53+15 to Sta. 53+75
 Sta. 57+45 to Sta. 58+05
 Sta. 61+26 to Sta. 61+86
 * 8' to 19'



PLOTTED FROM - TRPR18387

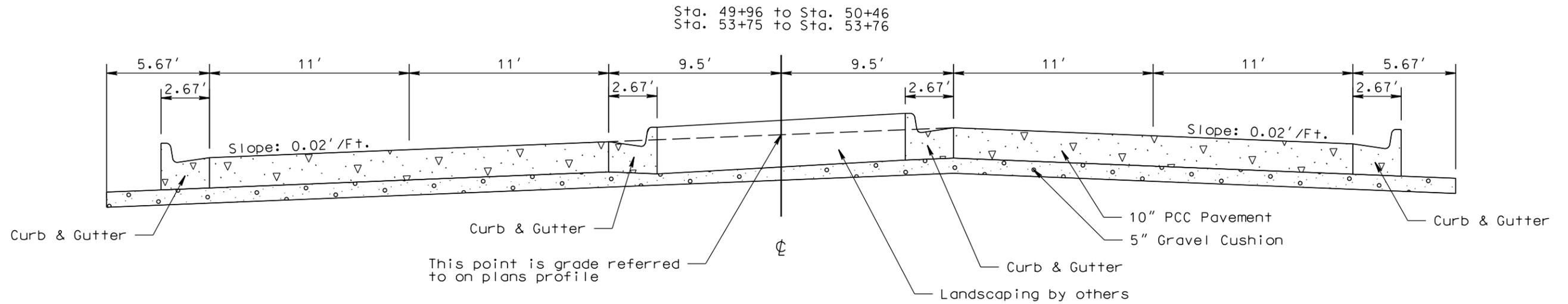
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TYPICAL SURFACING SECTIONS

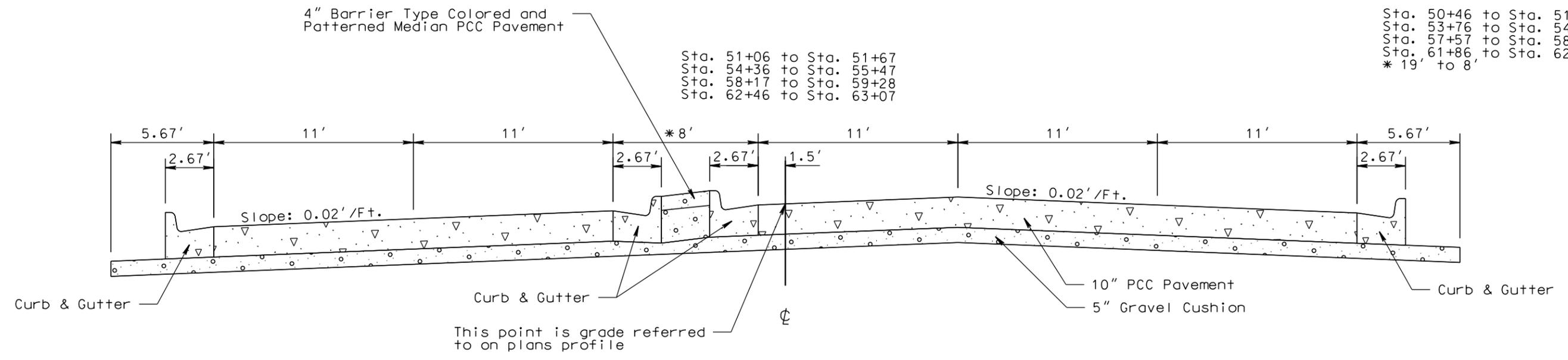
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F9	F24
Plotting Date: 08/31/2016			

PLOT SCALE - 1+6.00001

PLOT NAME - 9



- Transitions:
- Sta. 50+46 to Sta. 51+06
 - Sta. 53+76 to Sta. 54+36
 - Sta. 57+57 to Sta. 58+17
 - Sta. 61+86 to Sta. 62+46
 - * 19' to 8'



PLOTTED FROM - TRPR18387

FILE - ... \PENND49F\TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

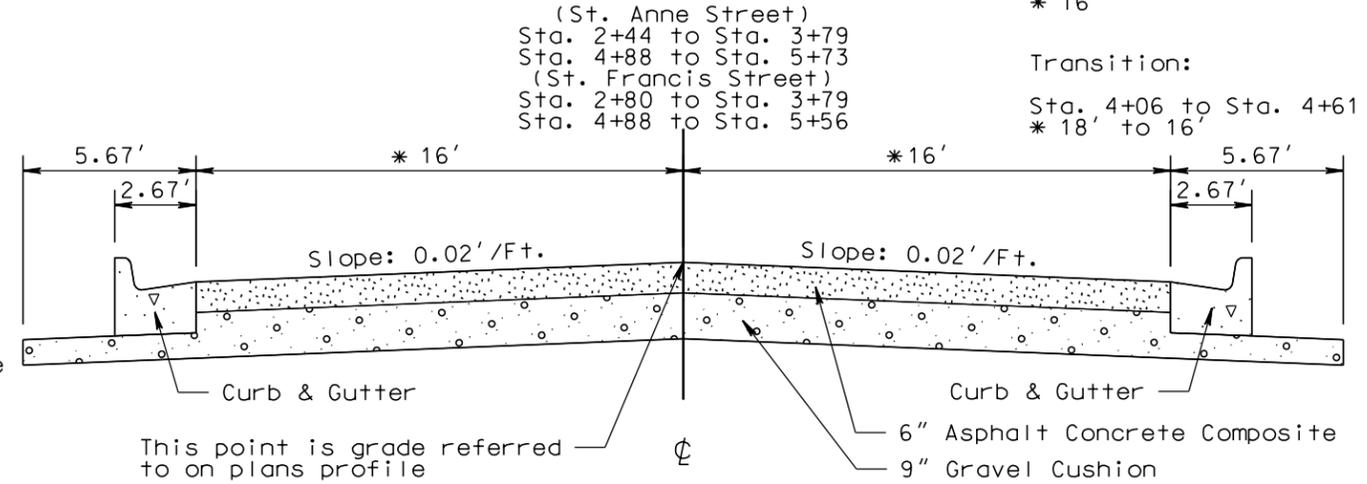
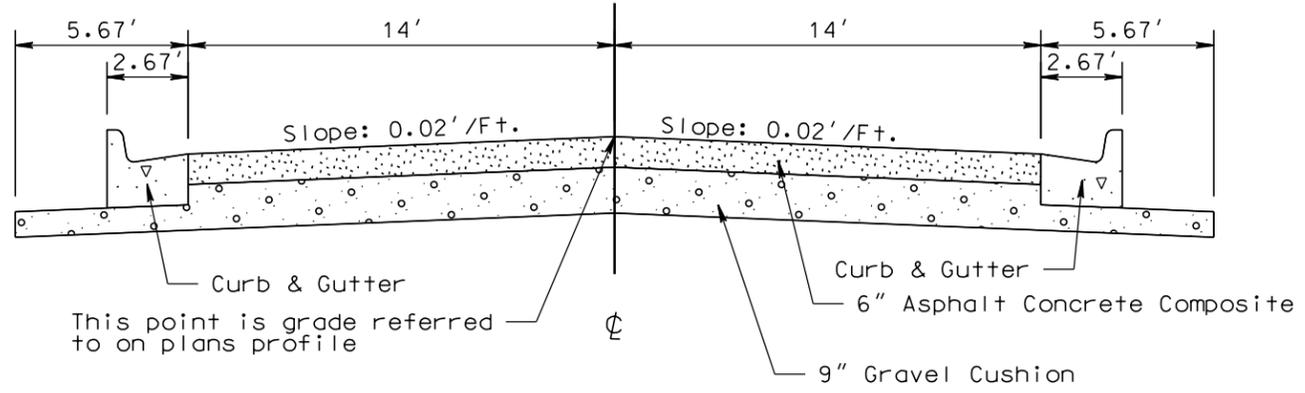
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0016(84)67	SHEET F10	TOTAL SHEETS F24
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Plotting Date: 08/31/2016

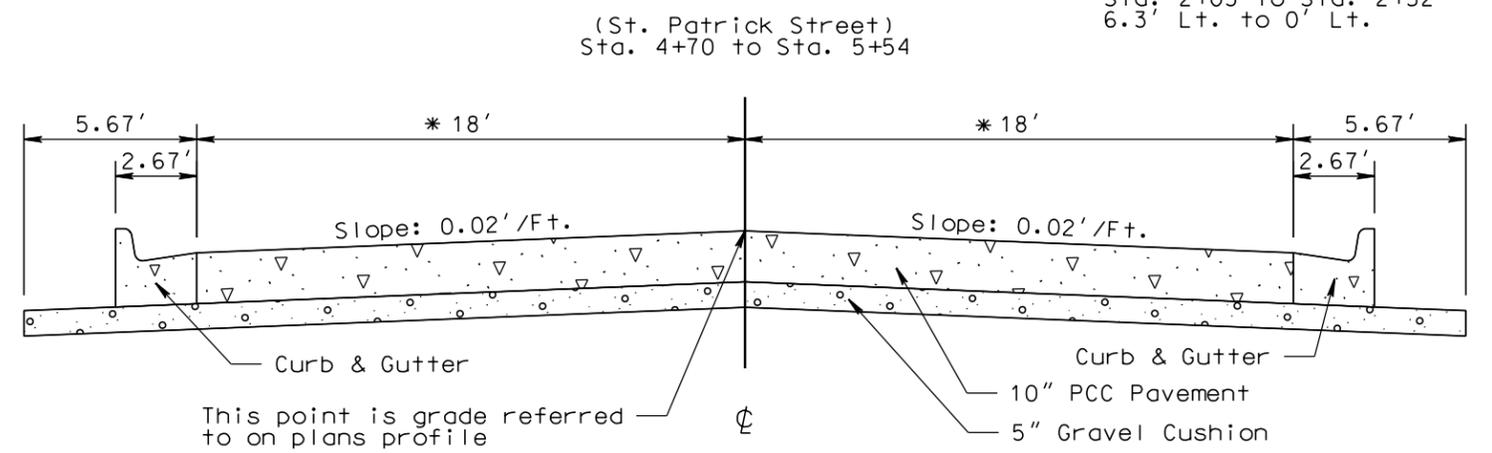
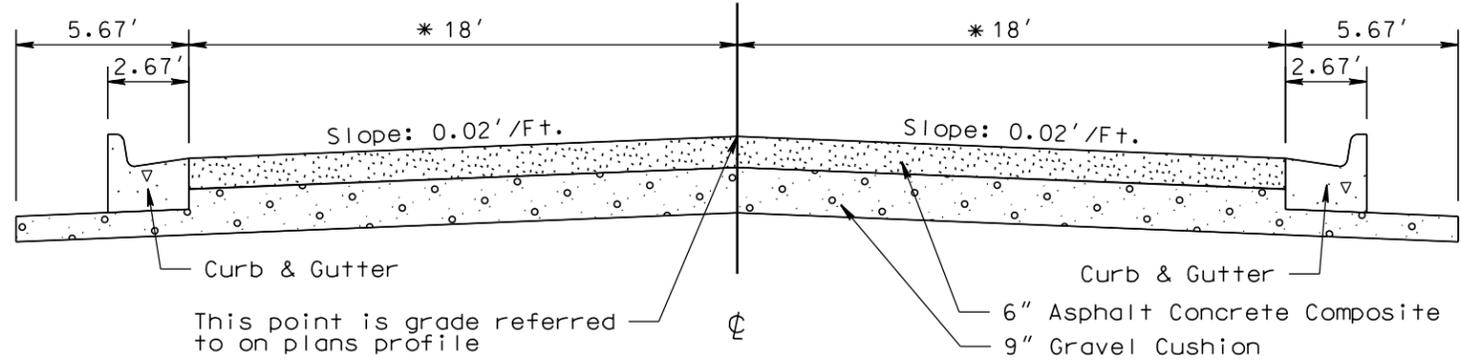
(St. Andrew Street)
Sta. 3+52 to Sta. 4+43
Sta. 5+57 to Sta. 6+94
(St. Charles Street)
Sta. 3+24 to Sta. 4+38
Sta. 5+57 to Sta. 6+67
(Franklin Street)
Sta. 3+93 to Sta. 4+38
Sta. 5+63 to Sta. 6+00
(St. Cloud Street)
Sta. 3+93 to Sta. 4+44
Sta. 5+57 to Sta. 5+99

St. Francis Street
Sta. 2+80 to Sta. 4+06
* 18'
Sta. 4+60 to Sta. 5+56
* 16'
Transition:
Sta. 4+06 to Sta. 4+61
* 18' to 16'



(St. Patrick Street)
Sta. 2+03 to Sta. 3+64

St. Patrick Street
Sta. 2+03
* 14'
Sta. 2+52 to Sta. 5+54
* 18'
Transition:
Sta. 2+03 to Sta. 2+56
* 14' to 18'
Crown Transition:
Sta. 2+03 to Sta. 2+52
6.3' Lt. to 0' Lt.



PLOT SCALE - 1/4" = 1'-0"

PLOTTED FROM - TRPR18387

PLOT NAME - 10

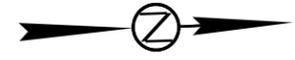
FILE - ... \PENND049F \TYPICAL SECTIONS.DGN

PCC PAVEMENT JOINT LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0016(84)67	SHEET F11	TOTAL SHEETS F24
Plotting Date: 08/31/2016			

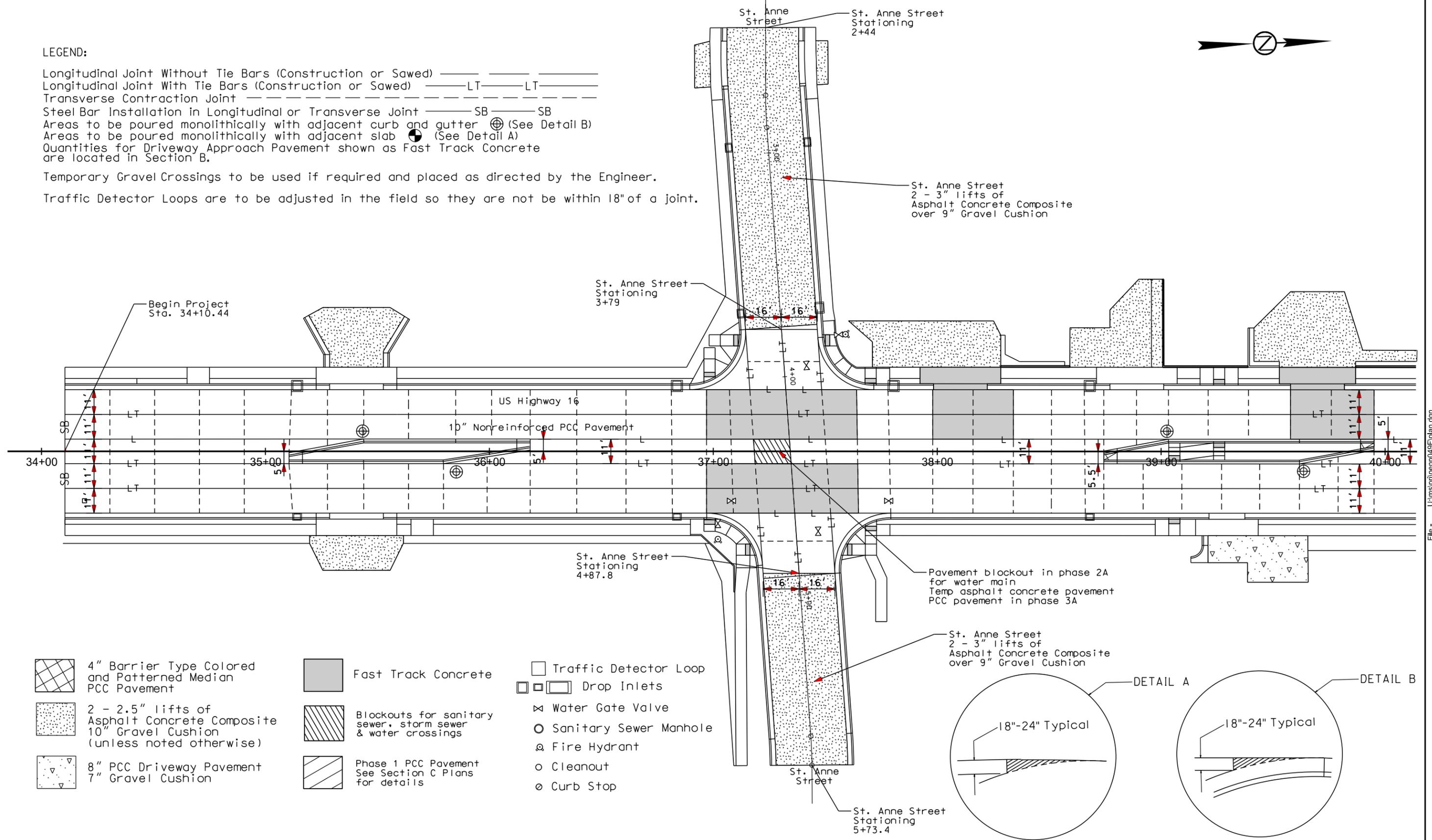
Scale 1 Inch = 40 Feet
Sheet 1 of 6 Sheets



LEGEND:

- Longitudinal Joint Without Tie Bars (Construction or Sawed) ———
- 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 curb and gutter ⊕ (See Detail B)
- Areas to be poured monolithically with adjacent slab ⊙ (See Detail A)
- Quantities for Driveway Approach Pavement shown as Fast Track Concrete are located in Section B.

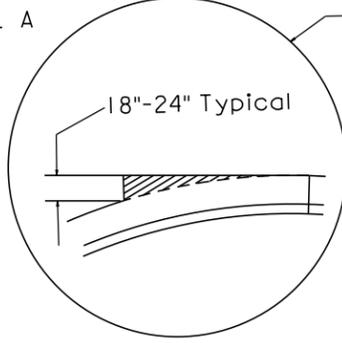
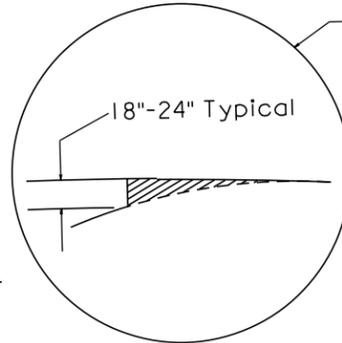
Temporary Gravel Crossings to be used if required and placed as directed by the Engineer.
Traffic Detector Loops are to be adjusted in the field so they are not be within 18" of a joint.



- 4" Barrier Type Colored and Patterned Median PCC Pavement
- 2 - 2.5" lifts of Asphalt Concrete Composite 10" Gravel Cushion (unless noted otherwise)
- 8" PCC Driveway Pavement 7" Gravel Cushion

- Fast Track Concrete
- Blockouts for sanitary sewer, storm sewer & water crossings
- Phase 1 PCC Pavement See Section C Plans for details

- Traffic Detector Loop
- Drop Inlets
- Water Gate Valve
- Sanitary Sewer Manhole
- Fire Hydrant
- Cleanout
- Curb Stop



Plot Scale - 1:40

Plotted From - tpr18387

File - U:\ms\p\penn049F\plan.dgn

PCC PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

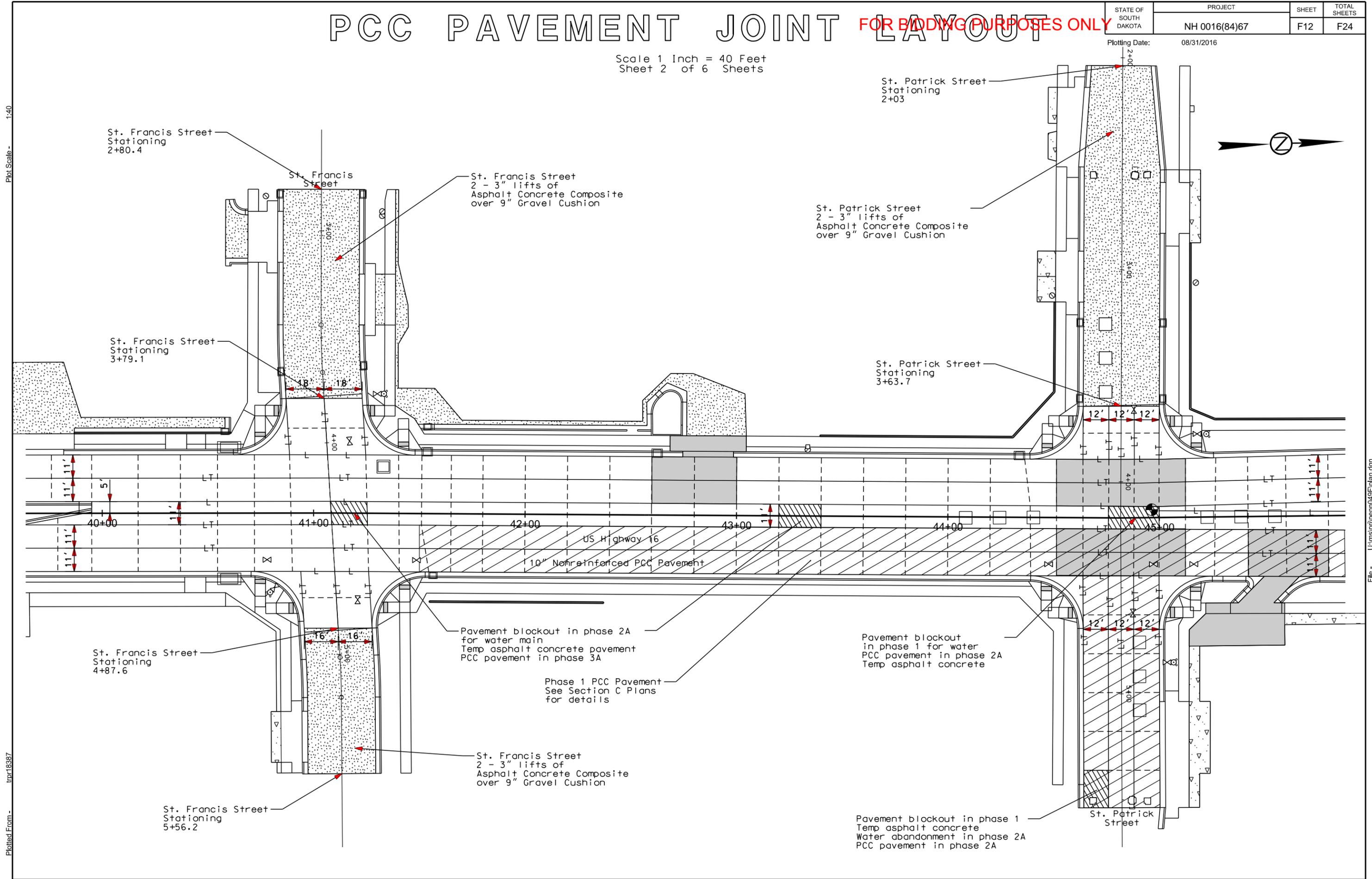
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F12	F24

Scale 1 Inch = 40 Feet
Sheet 2 of 6 Sheets

Plotting Date: 08/31/2016

Plot Scale - 1:40

Plotted From - trpr18387



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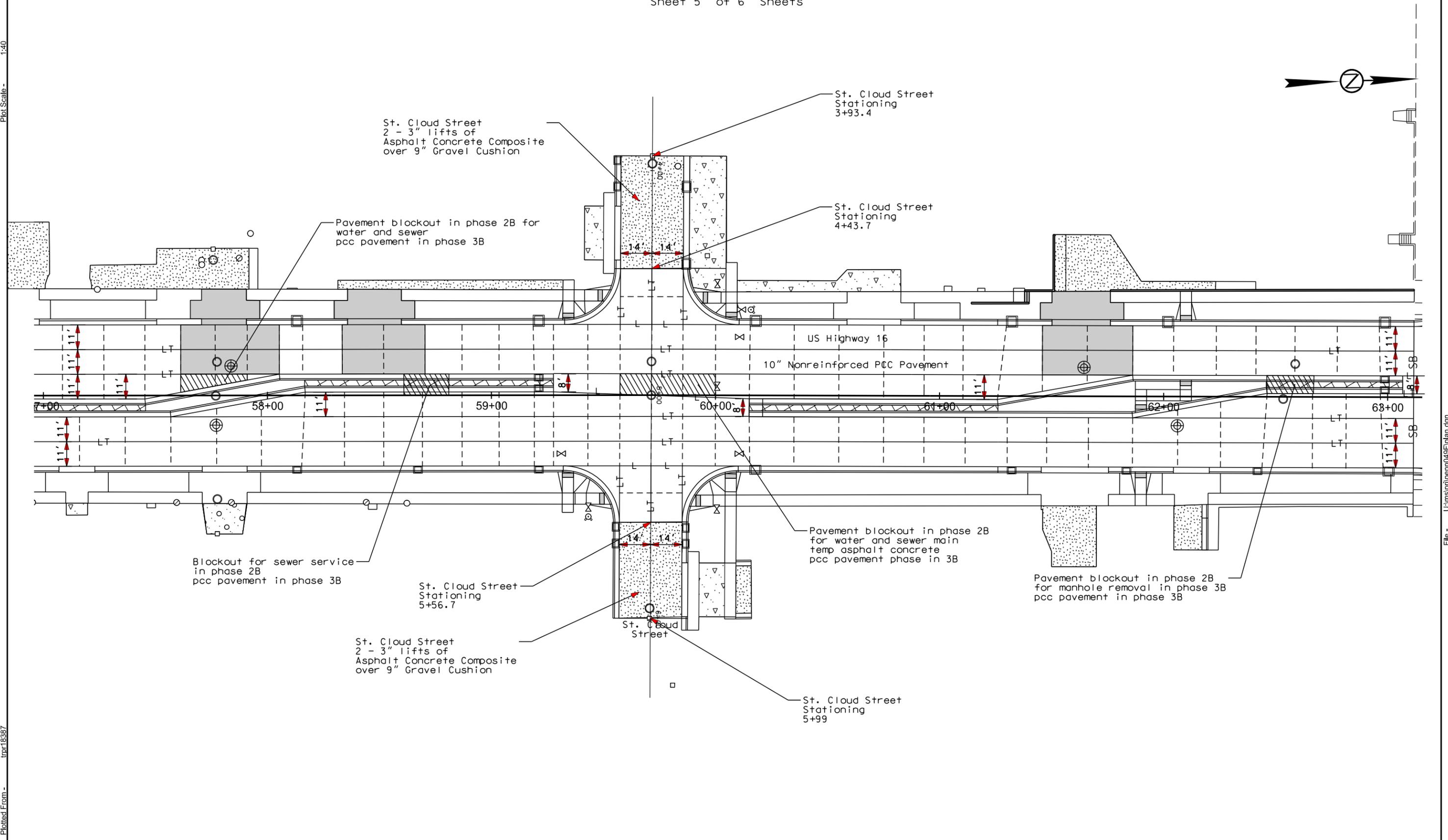
PCC PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F15	F24
Plotting Date: 08/31/2016			

Scale 1 Inch = 40 Feet
Sheet 5 of 6 Sheets

Plot Scale - 1:40

Plotted From - trpr18387



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PCC PAVEMENT JOINT LAYOUT

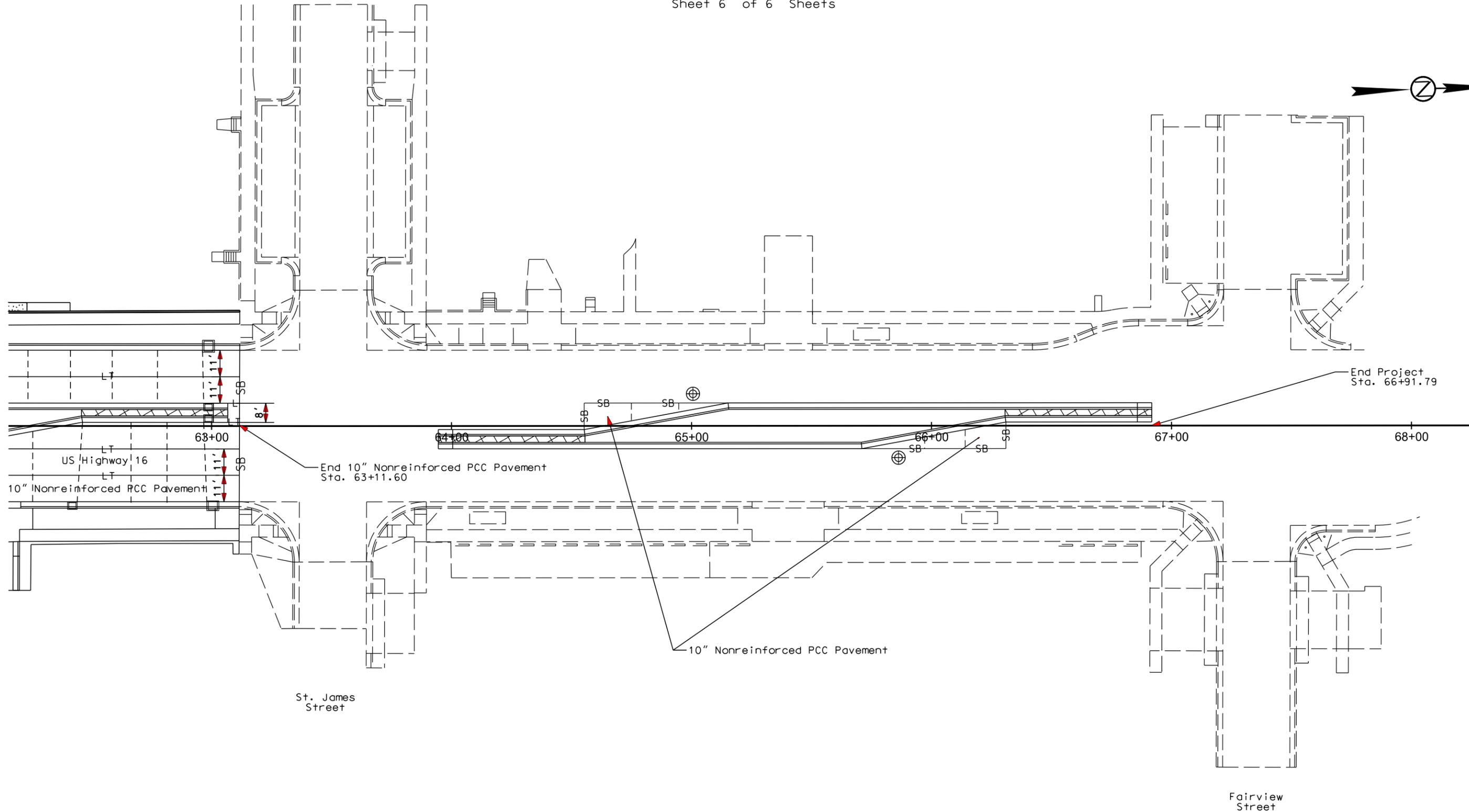
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F16	F24

Plotting Date: 08/31/2016

Scale 1 Inch = 40 Feet
Sheet 6 of 6 Sheets

Plot Scale - 1:40



Plotted From - trpr18387

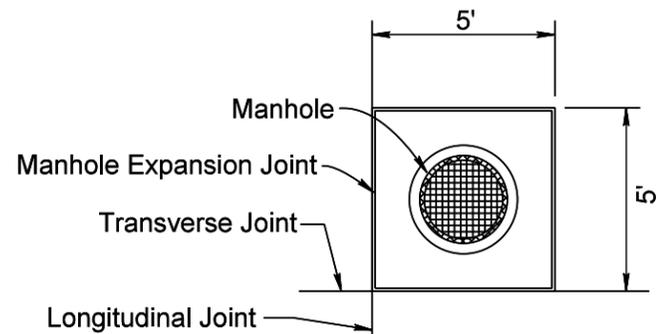
File - U:\ms\p\penn049\Fplan.dgn

TYPICAL MANHOLE BOX-OUT DETAILS FOR PCC PAVEMENT

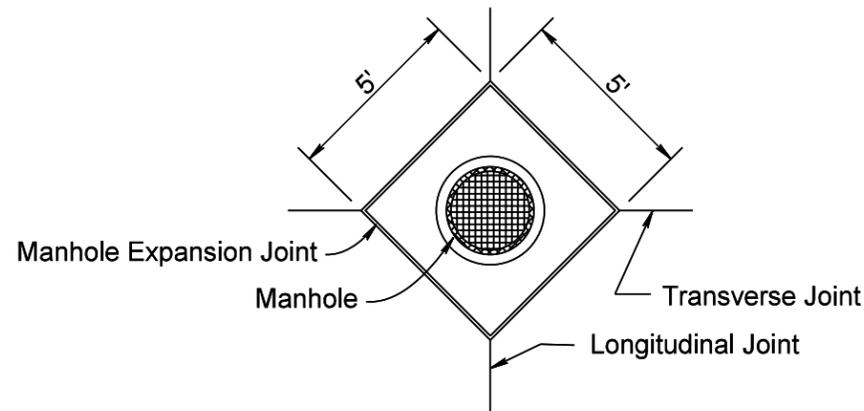
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0016(84)67	F17	F24
Plotting Date: 08/31/2016			

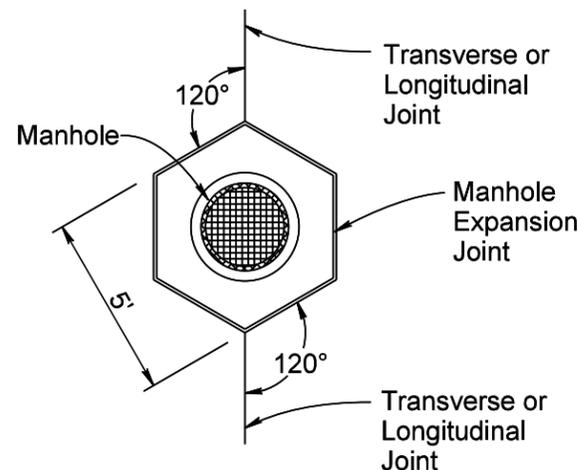
BOX-OUT DETAIL IN PCC PAVEMENT



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

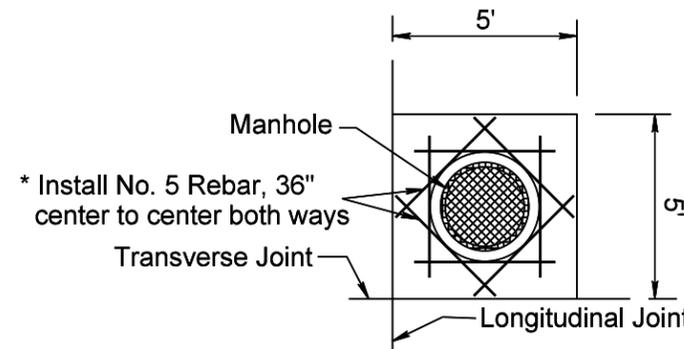


Where the utility access is intersected by the longitudinal and transverse joints



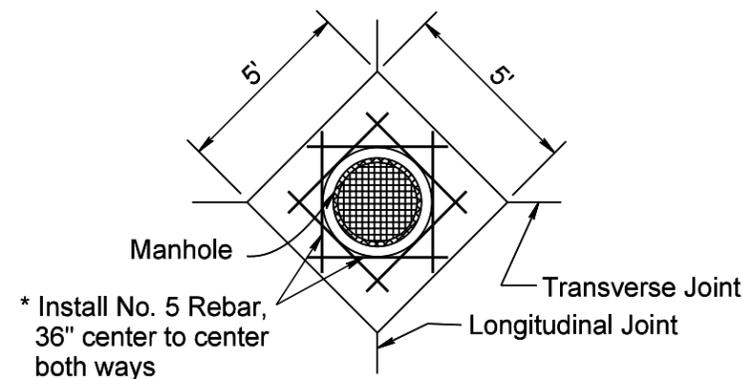
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



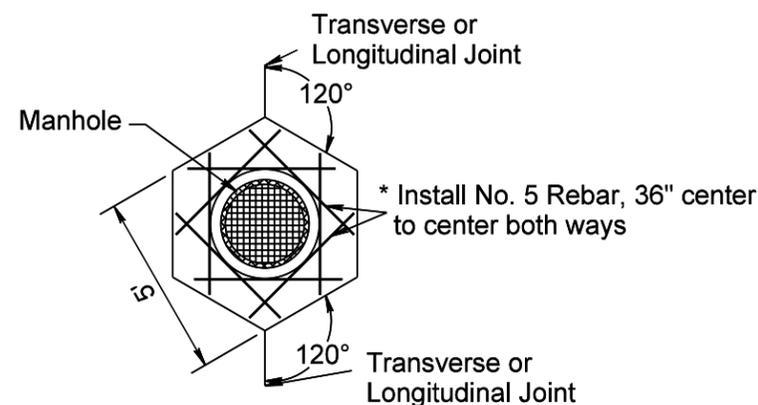
* Install No. 5 Rebar, 36" center to center both ways

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



* Install No. 5 Rebar, 36" center to center both ways

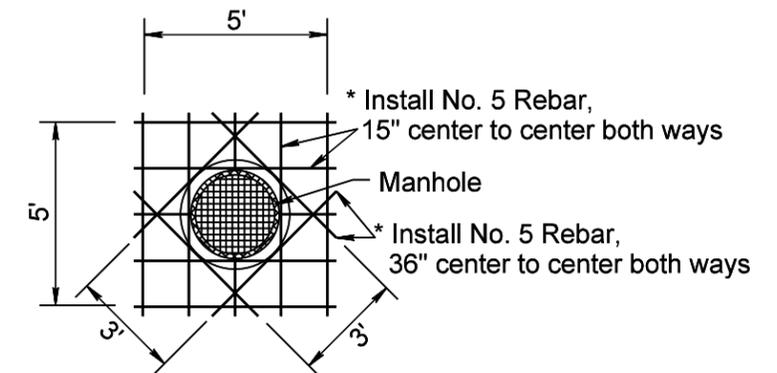
Where the utility access is intersected by the longitudinal and transverse joints



* Install No. 5 Rebar, 36" center to center both ways

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

REBAR LAYOUT IN PCC PAVEMENT WITHOUT BOX-OUT

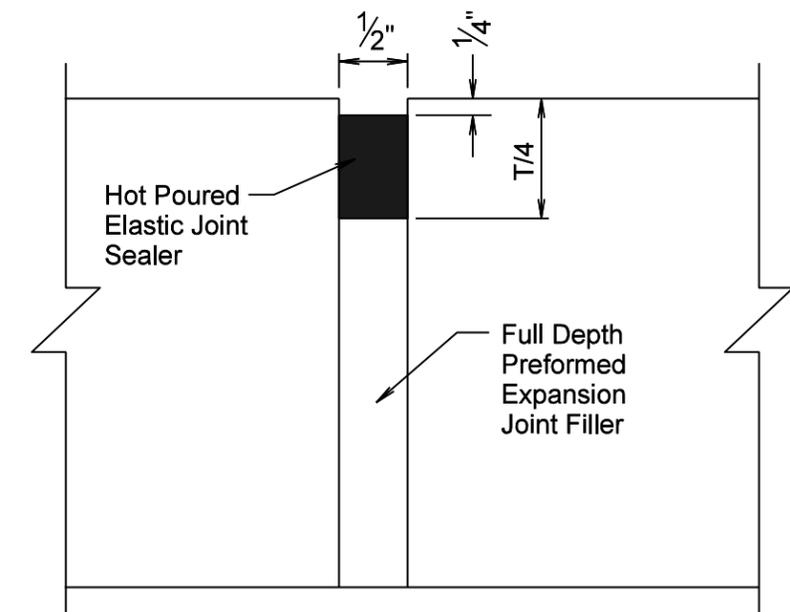


* Install No. 5 Rebar, 15" center to center both ways

* Install No. 5 Rebar, 36" center to center both ways

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.

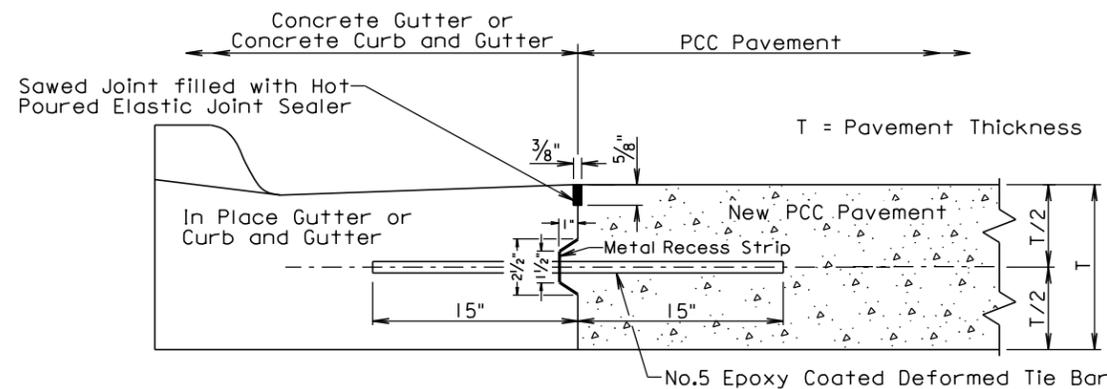
MANHOLE EXPANSION JOINT DETAIL



* 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.

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.

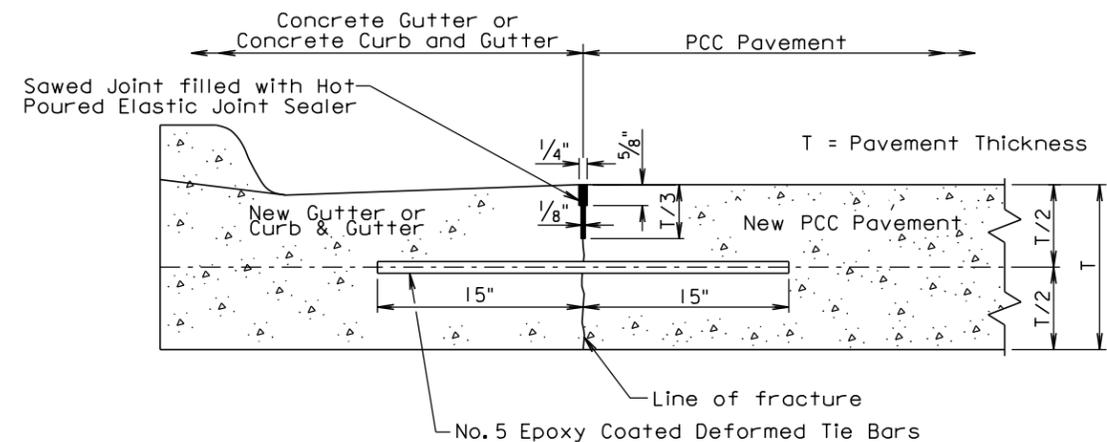
The transverse contraction joints in the concrete gutter or concrete curb and gutter shall be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter shall be 1/2" deep if formed in fresh concrete using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

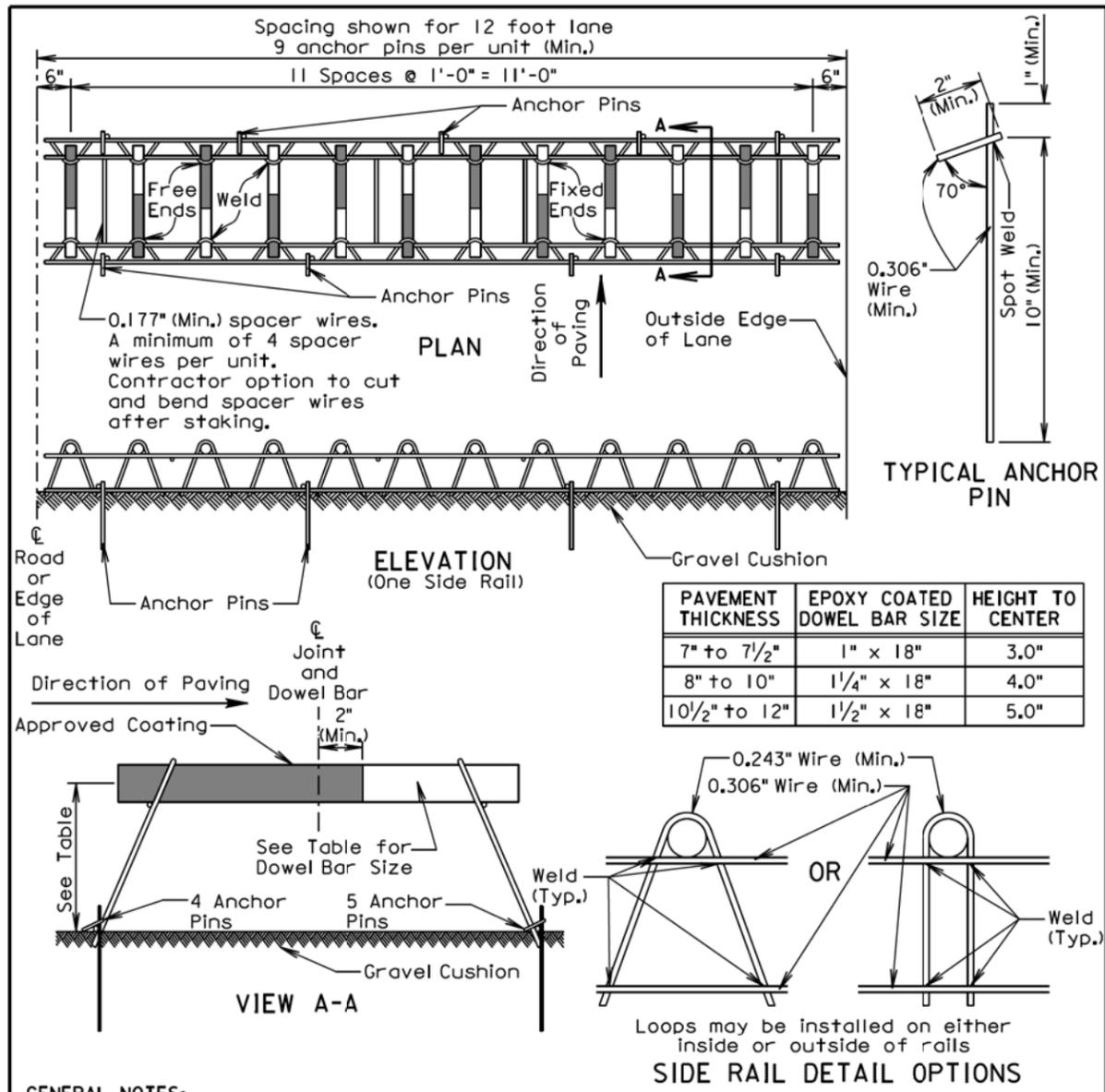
The slope of the gutter shall be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter shall be constructed at the same slope as the mainline concrete pavement.

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



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.

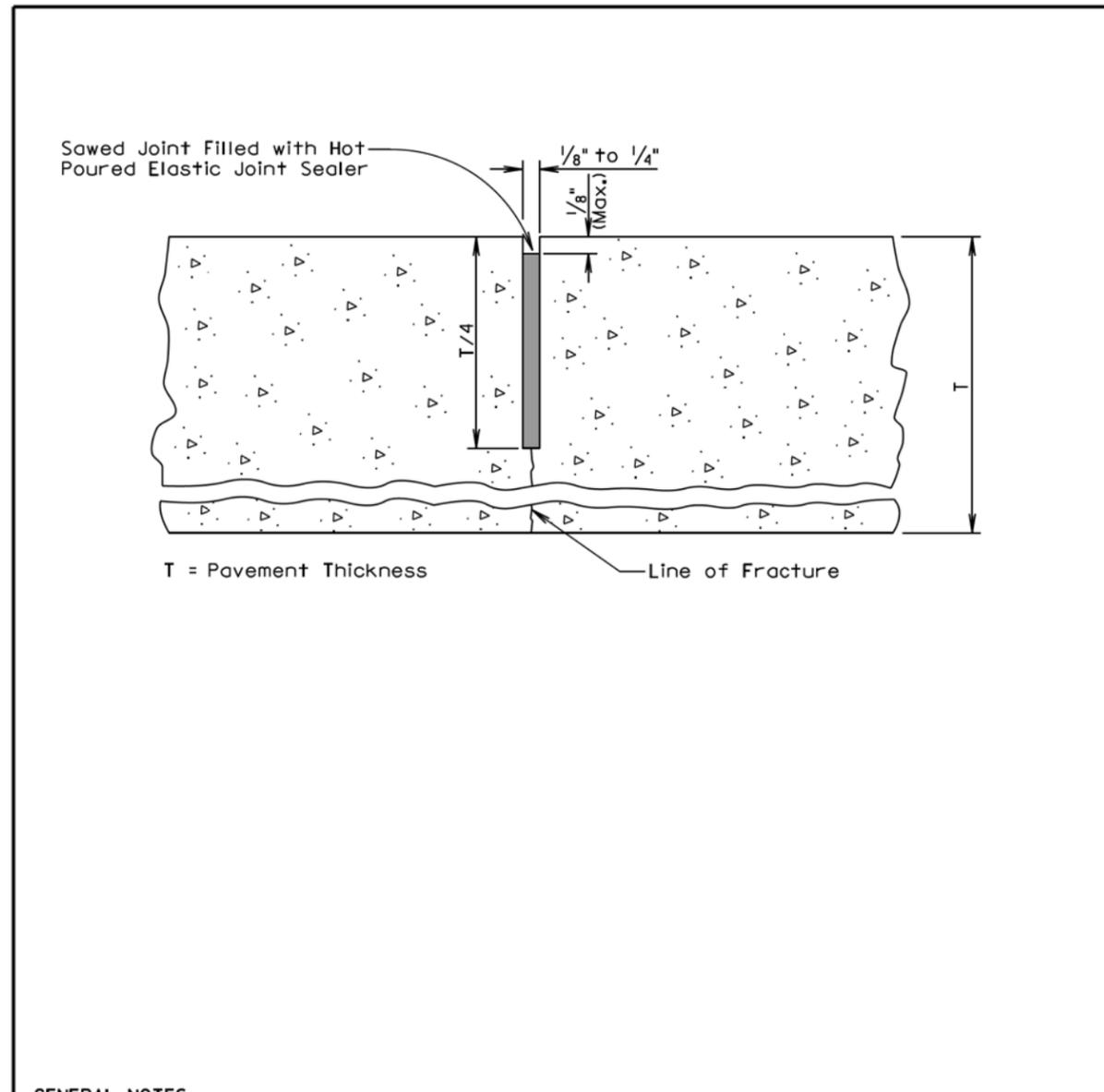
Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

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

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
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1



GENERAL NOTES:

If an early entrance sawcut does not develop the full transverse crack, then 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, 2015

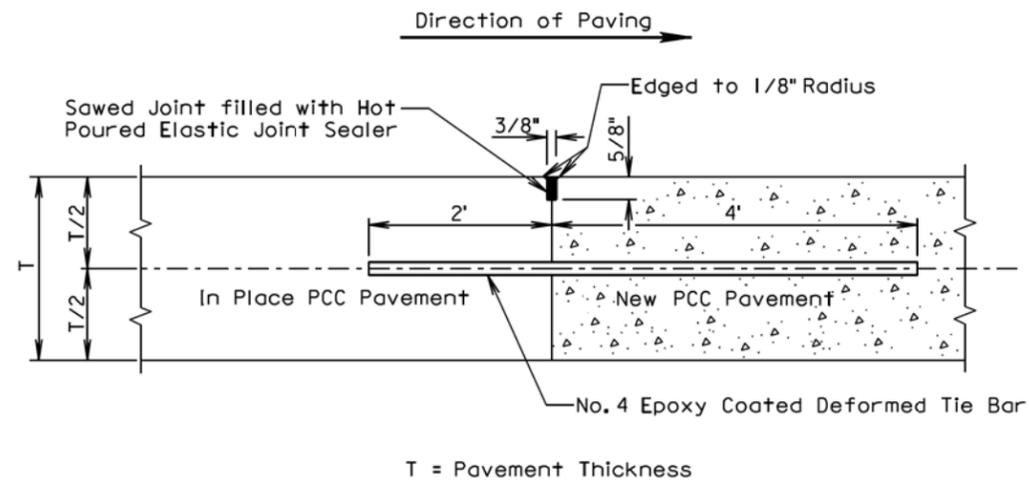
S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.05
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

PLOT SCALE - 1:200

-PLOTTED FROM - TRPR18387

PLOT NAME - 19

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



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.

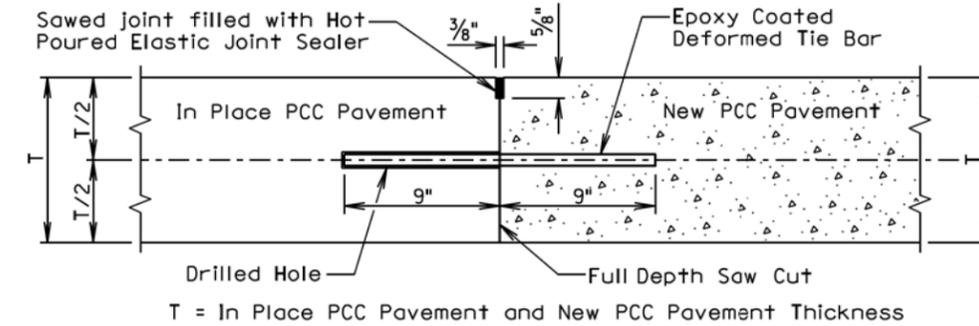
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

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
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

**DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS**



GENERAL NOTES:

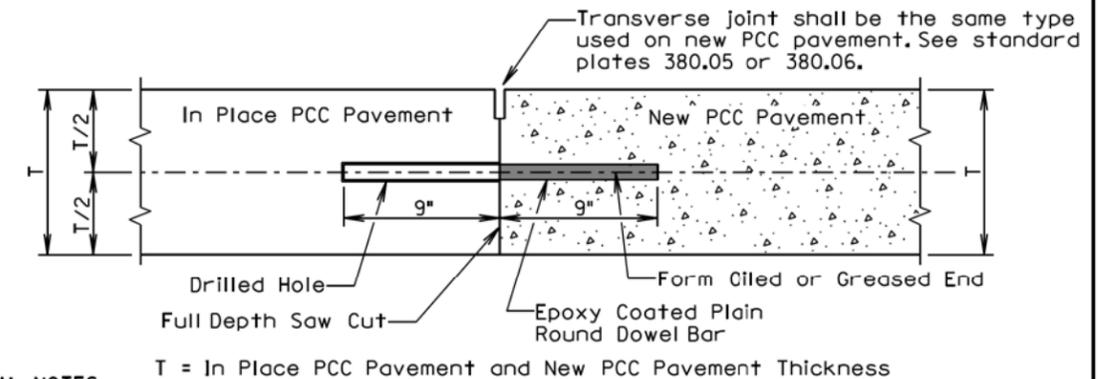
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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.

**DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS**



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.

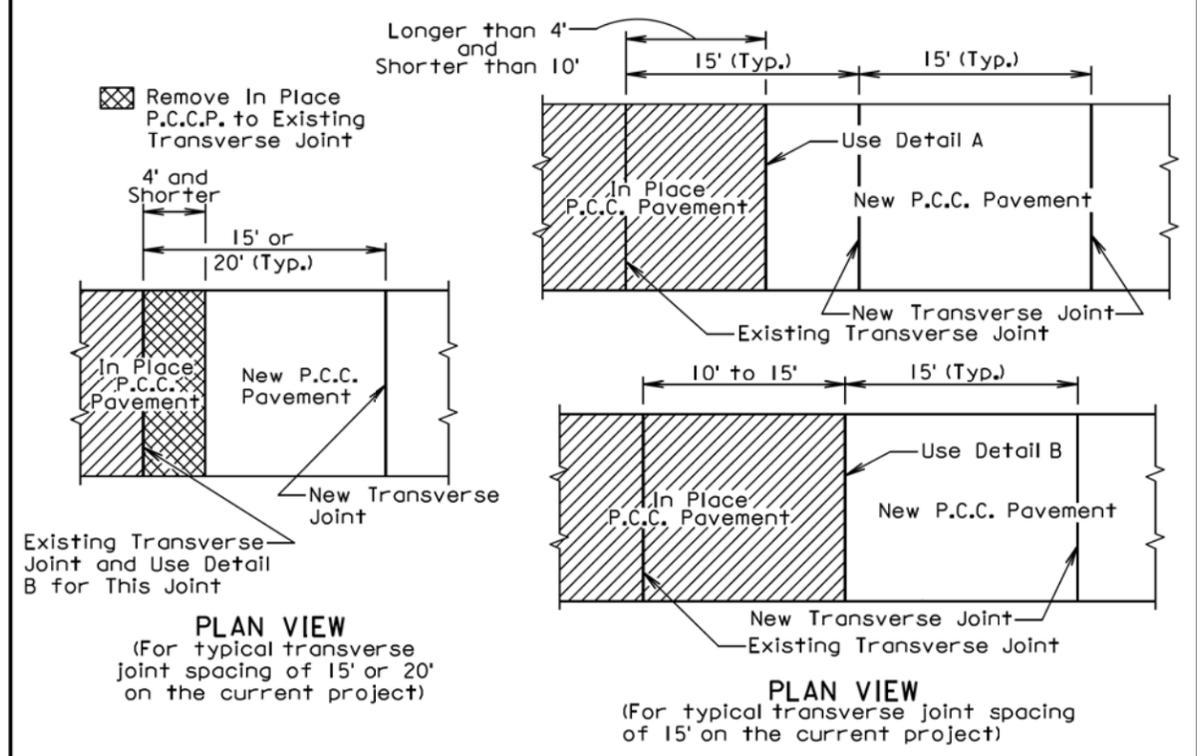
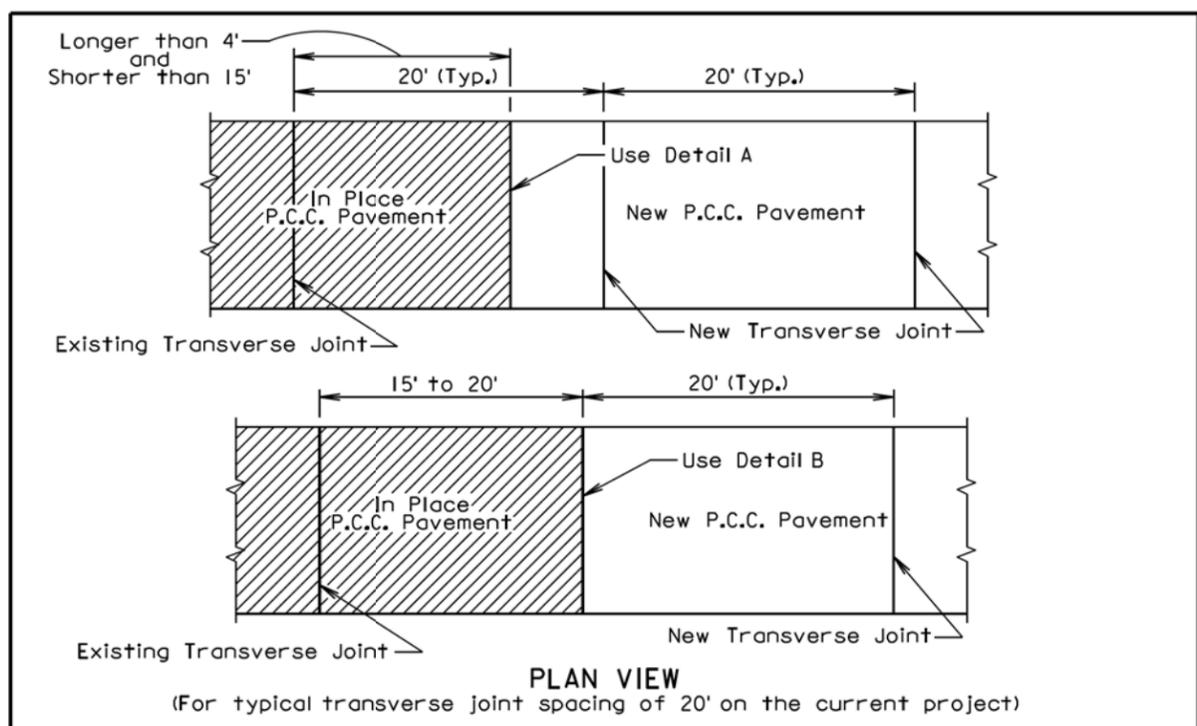
The epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement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

September 6, 2013

S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
	Published Date: 3rd Qtr. 2016	Sheet 1 of 2

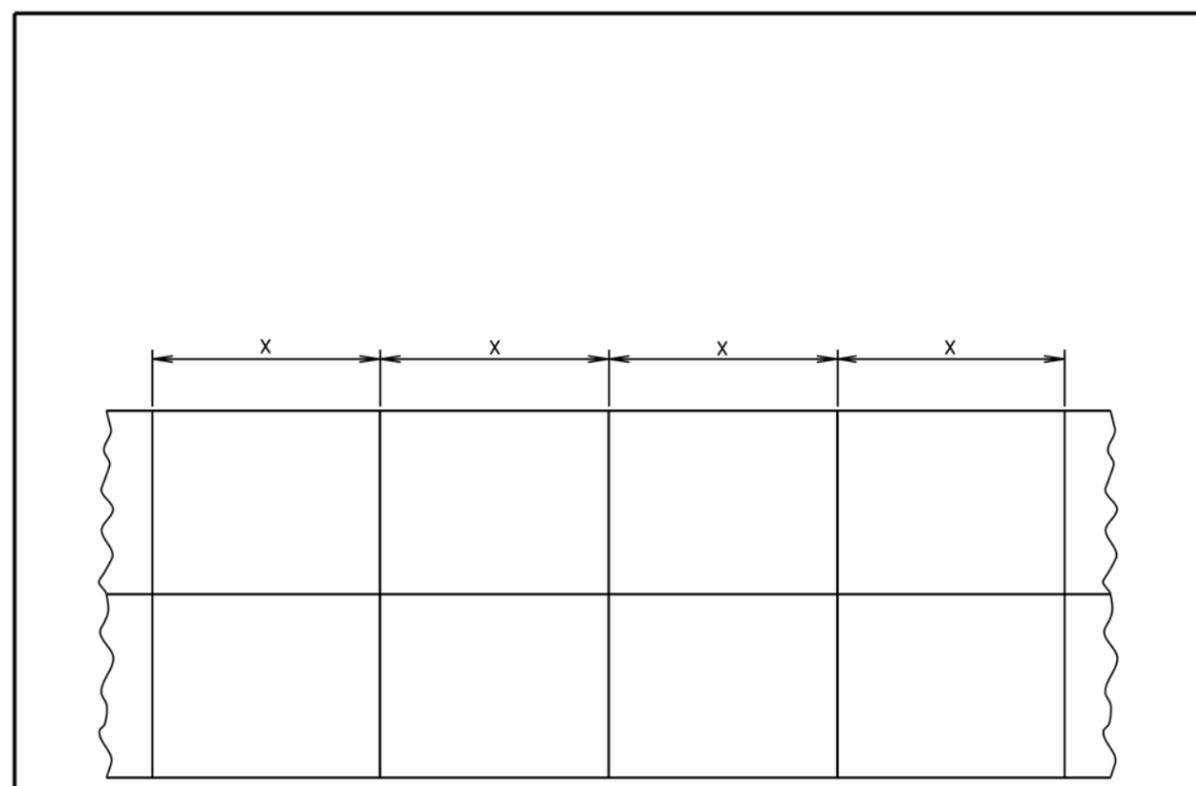
PLOT SCALE - 1:200

PLOT NAME - 21



September 6, 2013

Published Date: 3rd Qtr. 2016	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

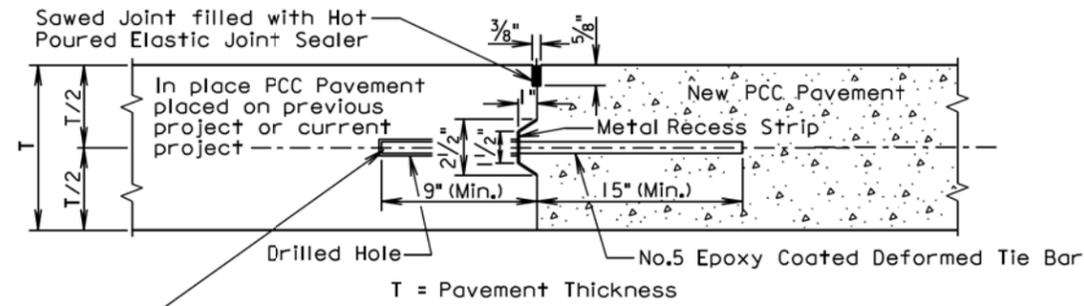
Published Date: 3rd Qtr. 2016	S D D O T	PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING	PLATE NUMBER 380.09
			Sheet 1 of 1

PLOTTED FROM - TRPR18387

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

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

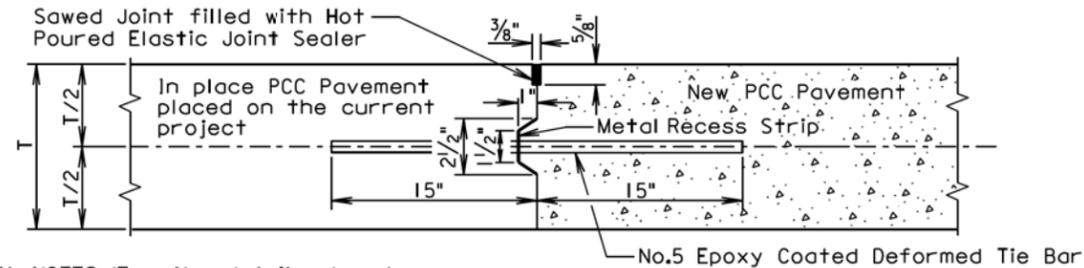
(DRILLED IN BARS)



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.

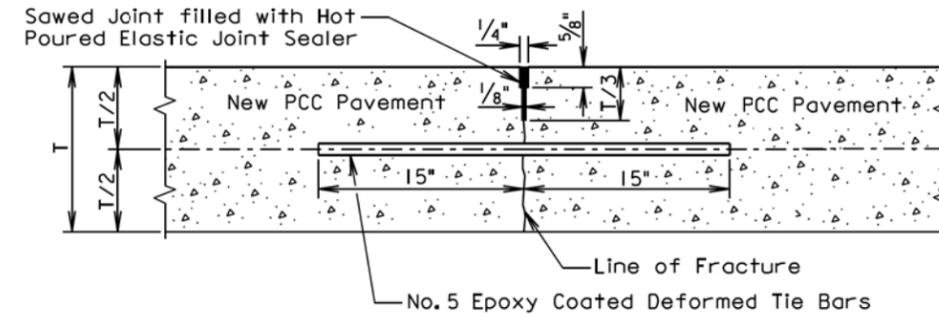
August 31, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
		Sheet 1 of 2

Published Date: 3rd Qtr. 2016

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.

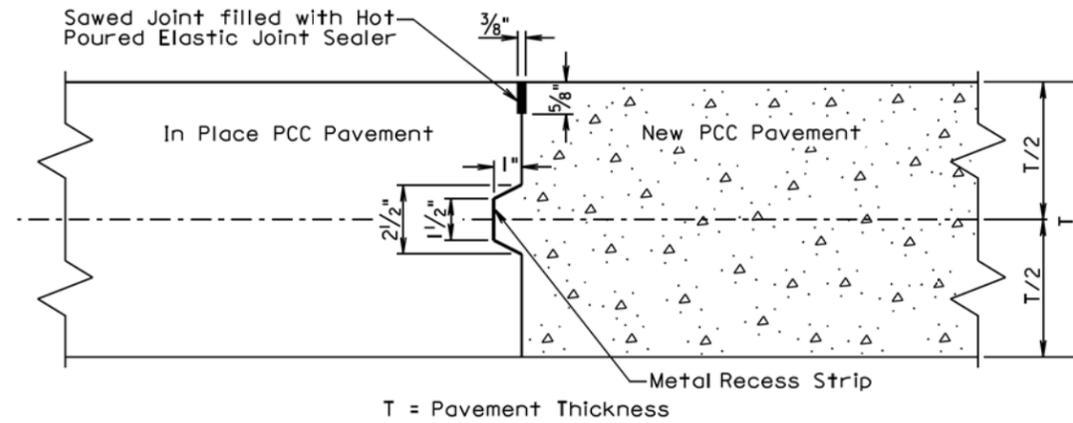
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

August 31, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
		Sheet 2 of 2

Published Date: 3rd Qtr. 2016

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS

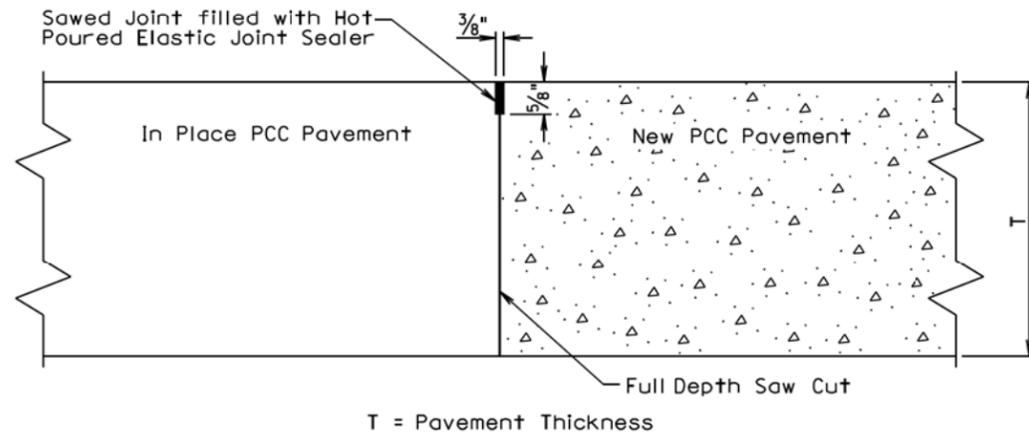


GENERAL NOTES:

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



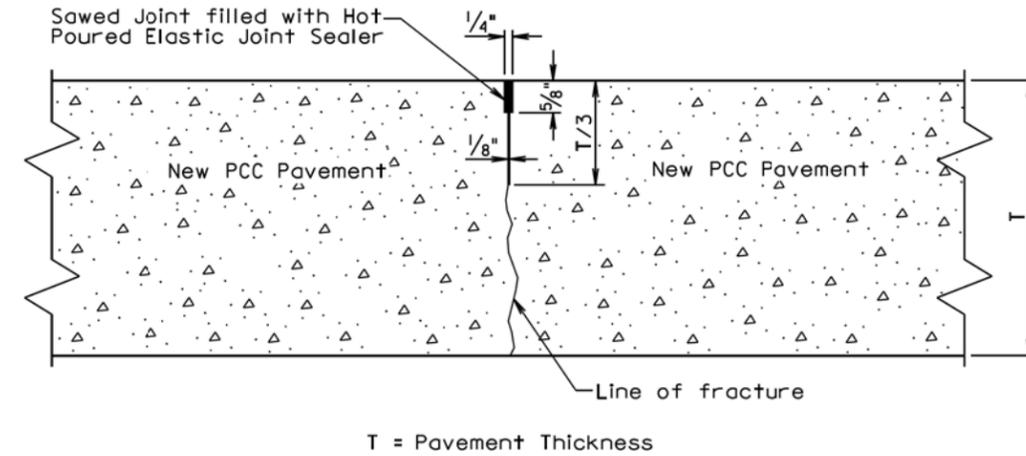
GENERAL NOTE:

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

Published Date: 3rd Qtr. 2016	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.12
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



GENERAL NOTE:

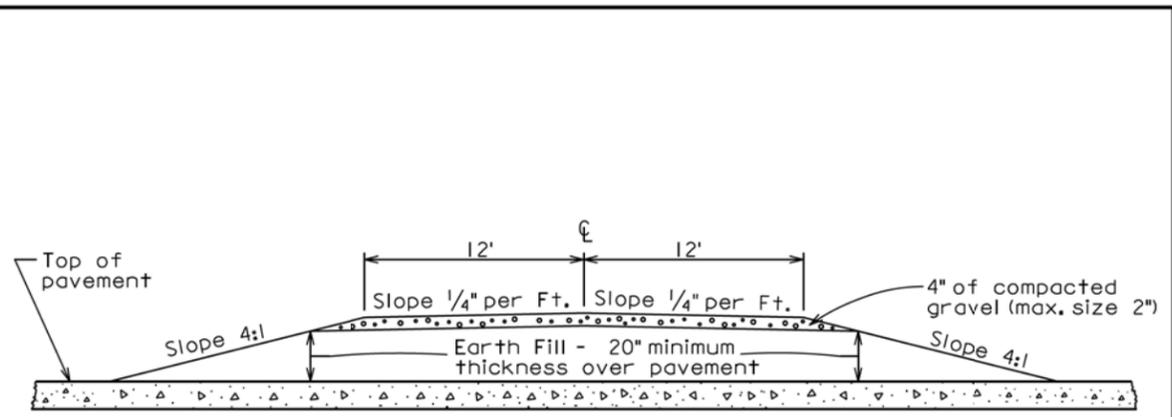
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

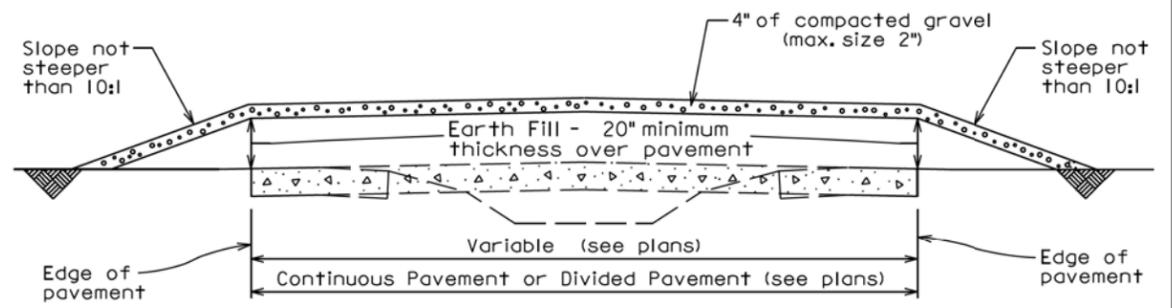
Published Date: 3rd Qtr. 2016	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.12
			Sheet 2 of 2

PLOT SCALE - 1:200

PLOT NAME - 24



TRANSVERSE SECTION OF CROSSING



LONGITUDINAL SECTION ALONG CENTERLINE OF CROSSING

GENERAL NOTES:

Temporary Earth Crossing shall be constructed and satisfactorily maintained in accordance with the details shown above. When the need for the crossing no longer exists the contractor shall, at the direction of the Engineer, remove the crossing and dispose of the materials therein to the satisfaction of the Engineer.

All costs for furnishing and placing all materials, labor, and equipment necessary for constructing and removing the Temporary Earth Crossing shall be incidental to the contract unit price per Each for "Temporary Earth Crossing."

When the plans specify that the fill over the pavement be entirely of gravel, instead of earth and gravel as shown by the details above, all except the upper 4 inches of the gravel may be pit run material. In these cases the item becomes "Temporary Gravel Crossing" instead of "Temporary Earth Crossing", but otherwise the requirements stated above for "Temporary Earth Crossing" shall apply.

March 31, 2000

<i>Published Date: 3rd Qtr. 2016</i>	S D D O T	TEMPORARY EARTH OR GRAVEL CROSSING	PLATE NUMBER 380.30
			Sheet 1 of 1

-PLOTTED FROM - TRPR18387

FILE - ... \STANDARD PLATES\SP6.DGN