

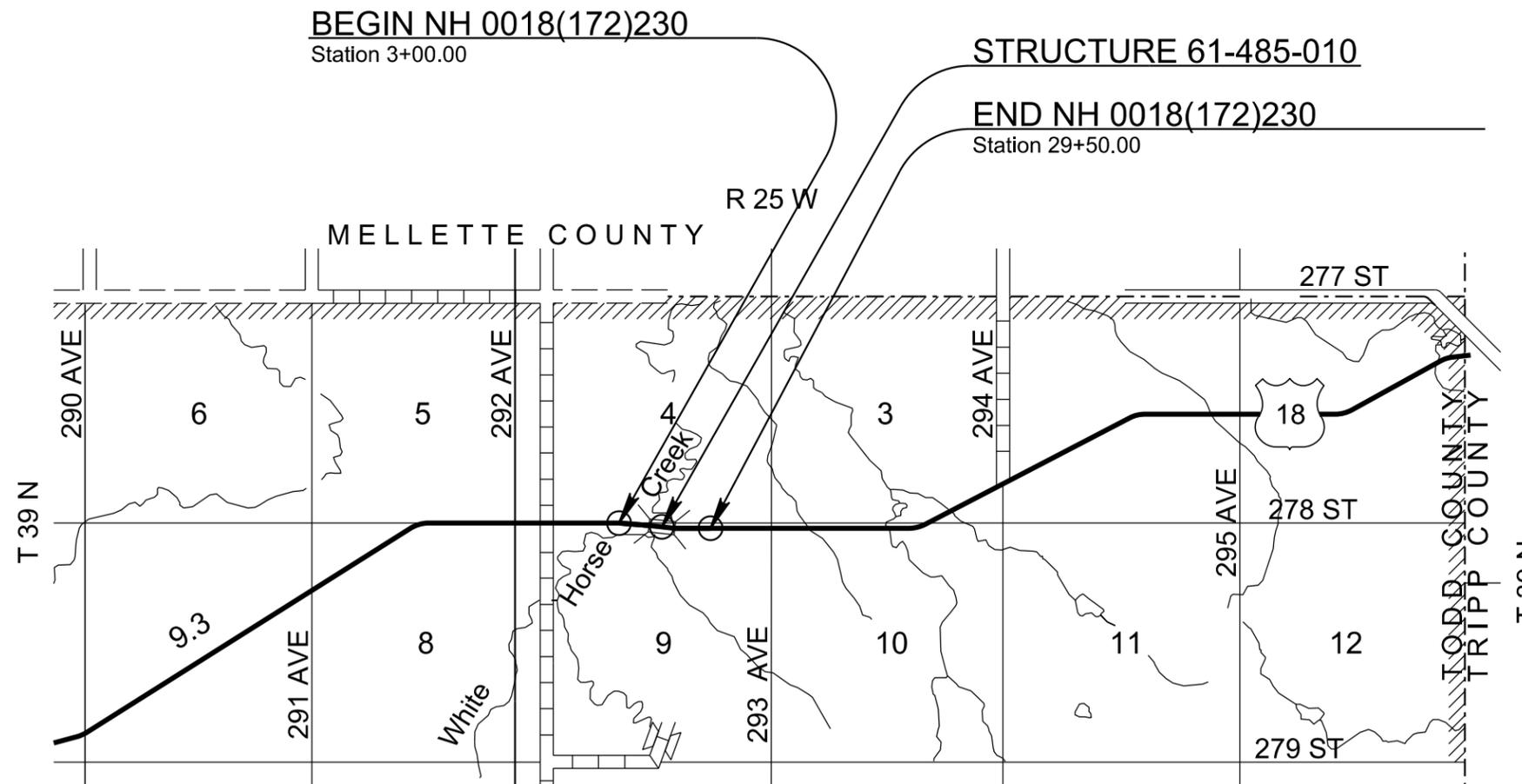
Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(172)230	F1	F13

Plotting Date: 07/18/2014

INDEX OF SHEETS

- F1 General Layout with Index
- F2 - F5 Estimate of Quantities, Notes and Tables
- F6 Typical Surfacing Sections
- F7 PCC Pavement Layouts
- F8 - F13 Standard Plates



Plot Scale - 1:200

Plotted From - tpr18387

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E3320	Checker	Lump Sum	LS
120E6200	Water for Granular Material	38.7	MGal
260E2030	Gravel Cushion, Salvaged	3,407.9	Ton
320E1200	Asphalt Concrete Composite	235.9	Ton
320E5010	Saw and Seal Shoulder Joint	5,300	Ft
380E0050	8" Nonreinforced PCC Pavement	8,057.7	SqYd
380E5010	Fast Track Concrete	186.7	SqYd
380E6000	Dowel Bar	4,224	Each
380E6110	Insert Steel Bar in PCC Pavement	56	Each

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.

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Gravel Cushion, Salvaged 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.

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 $\pm 1/2$ 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 the 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.

EXISTING PCC PAVEMENT

The existing 8" Nonreinforced P.C.C. Pavement is contains No. 5 deformed bars along the longitudinal joint, spaced 48" center to center. The transverse joints have 1 1/4" dowel bars, spaced at 12" center to center. The existing transverse contraction joints are spaced at 20 feet.

The course aggregate in the existing P.C.C. Pavement is limestone.

Locations for concrete removal are provided in the "Table of PCC Pavement" in Section B Grading Plans.

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 3,715.3 tons of salvaged material for construction of this project including material for the traffic diversion as directed by the Engineer.

GRAVEL CUSHION, SALVAGED

The Gravel Cushion, Salvaged shall be obtained from the salvaged material from this project and may be used without further quality and gradation testing. Gravel Cushion, Salvaged shall be run over a 1 1/2 inch screen prior to placement.

All other requirements of the specifications for Gravel Cushion shall apply.

8" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

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 manufacturer's 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.

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. Trimming shall be performed as required by Section 380.3 C. of the specifications.

A minimum of 1 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

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 longitudinally tined. All other areas shall be tined as directed by the Engineer.

Rumble Strips shall be placed 1.25 feet wide 3 inches from the outside edge of the pavement. Payment for forming rumble strips including labor, materials and incidentals shall be incidental to the contract unit price per square yard for "8" Nonreinforced PCC Pavement".

TABLE OF 8" MAINLINE PCC PAVEMENT

Location			NONREINFORCED PCC PAVEMENT
Sta	to	Sta.	(SqYd)
Mainline			
3+00.00	to	29+50.00	8,244.4
Total:			*8,244.4

*This quantity includes 186.7 SqYds of Fast Track Concrete.

FAST TRACK CONCRETE

At specific locations designated by the Engineer, Fast Tack 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 8" 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. 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 and 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 a double application of white pigmented membrane curing compound in accordance with the directions of the manufacturer. 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.

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 8,057.7 square yards of 8" Nonreinforced PCC Pavement and 186.7 square yards of Fast Track Concrete are to be used on this project. If more or less Fast Track Concrete is used, an equal amount shall be subtracted from or added to the total for 8" Nonreinforced PCC Pavement. All costs for Fast Track Concrete shall be incidental to the contract unit price per square yard for "Fast Track Concrete".

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: $\pm T/6$ for any part of the tie bar (T = slab thickness)
- Transverse Placement (side shift): ± 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" Nonreinforced PCC Pavement.

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. 3+00	28
Sta. 29+50	28
Totals:	56

TABLE OF DOWEL BARS

Location	1 1/4" Bars
	(Each)
Bars in Mainline	4,224
Total Dowel Bars	4,224

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0018(172)230	F4	F13

PAVEMENT SMOOTHNESS

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with Section 380.3.O.2 of the specifications.

US Highway 18 - Sta. 3+00 to Sta. 29+50

ASPHALT CONCRETE COMPOSITE

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

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.

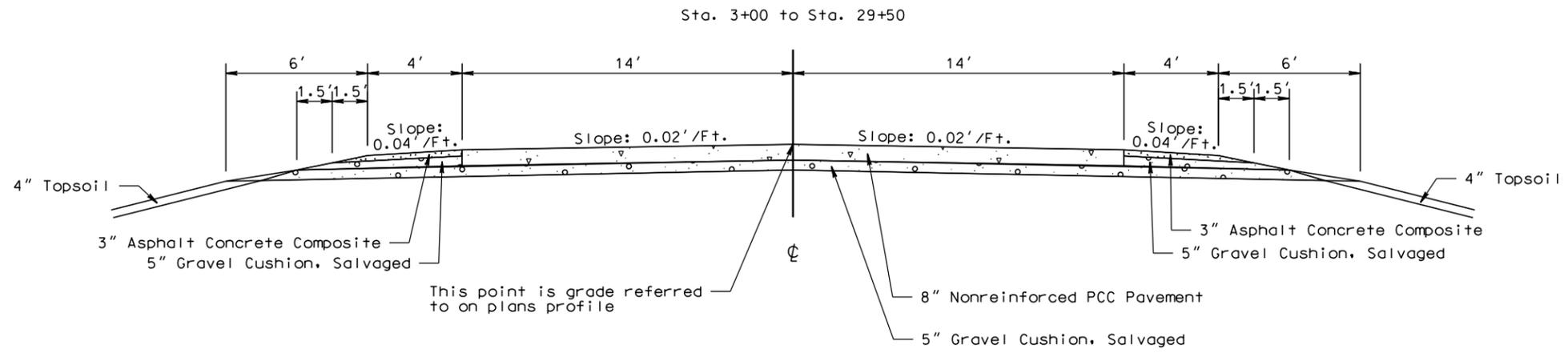
TABLE OF MATERIAL QUANTITIES

LOCATION		WATER FOR GRANULAR MATERIAL	GRAVEL CUSHION, SALVAGED	ASPHALT CONCRETE COMPOSITE
				Top Lift (Ton)
Station	to Station	(MGal)	(Ton)	(Ton)
Mainline				
3+ 00.00	to 29+50.00	21.2	1,855.0	---
Shoulders				
3+ 00.00	to 29+50.00	10.5	967.3	235.9
Approaches				
	Station 8+65 L	0.5	42.8	---
	Station 21+30 R	0.5	42.8	---
Traffic Diversion				
		6.0	500.0	---
Totals		38.7	3,407.9	235.9

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0018(172)230	F6	F13

Plotting Date: 07/17/2014



PLOT SCALE - 1+6.19298

PLOTTED FROM - TRPR18387

PLOT NAME - 2

FILE - ... \TODD02RV\TYPICAL SECTION.DGN

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(172)230	F7	F13

Plotting Date: 07/18/2014

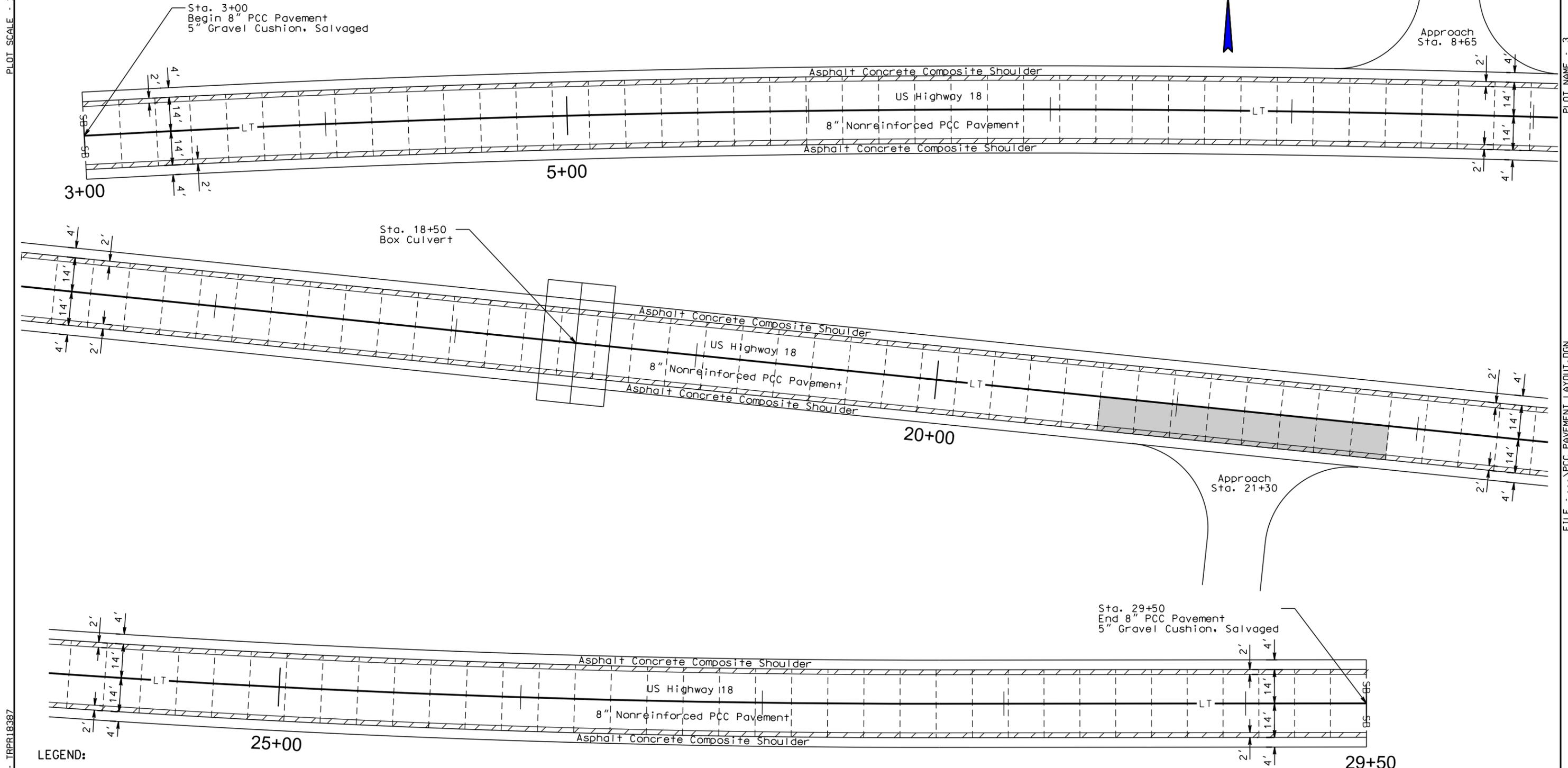
Scale 1 Inch = 40 Feet
Sheet 1 of 1 Sheets



PLOT SCALE - 1:40

PLOT NAME - 3

FILE - ... \PCC PAVEMENT LAYOUT.DGN



LEGEND:

- Longitudinal Joint With Tie Bars (Construction or Sawed) ——— LT ——— LT ———
 - Transverse Contraction Joint ——— SB ——— SB ———
 - Steel Bar Installation in Longitudinal or Transverse Joint ——— SB ——— SB ———
- Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.

Fast Track Concrete

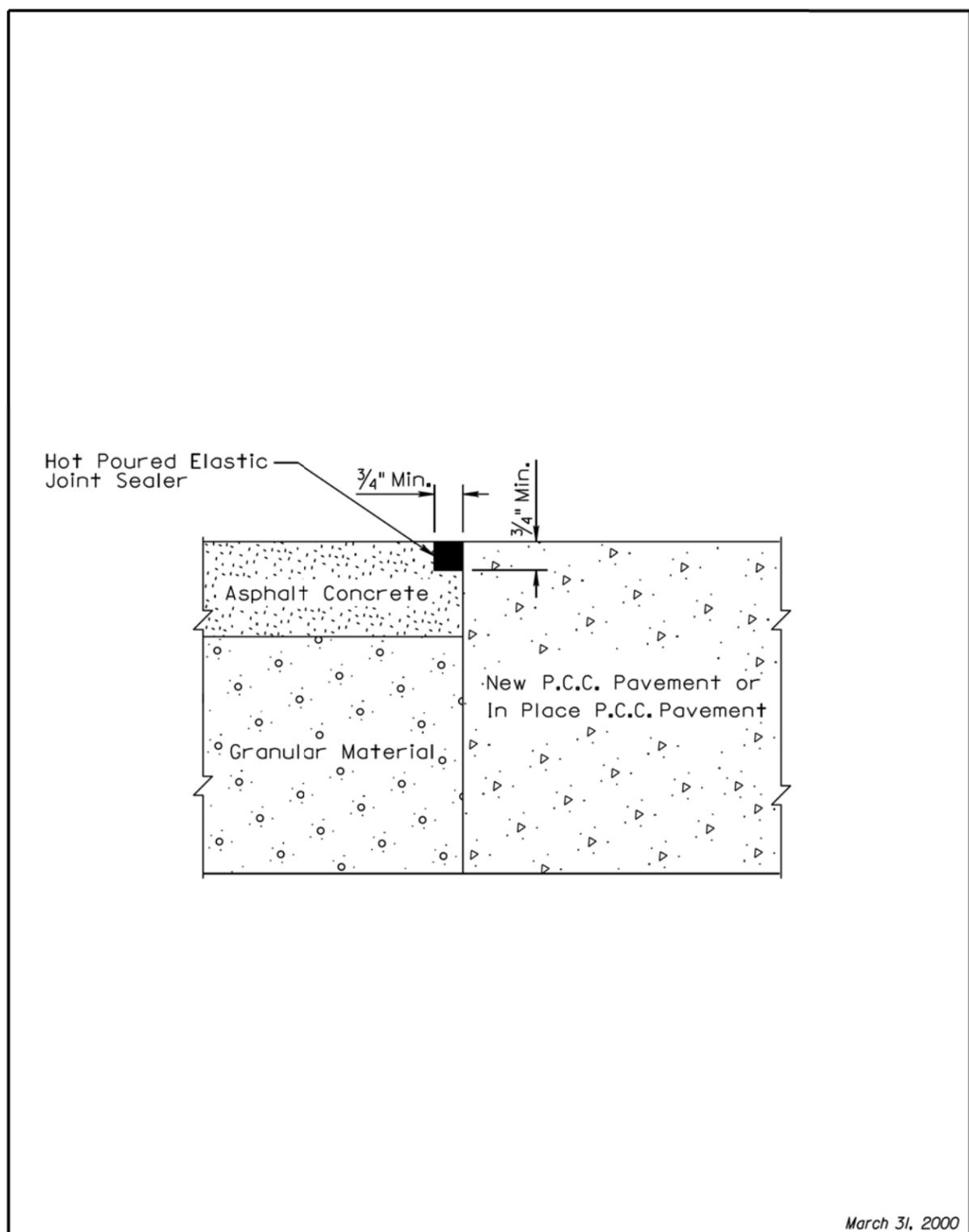
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Plotting Date: 07/17/2014

PLOT SCALE - 1:200

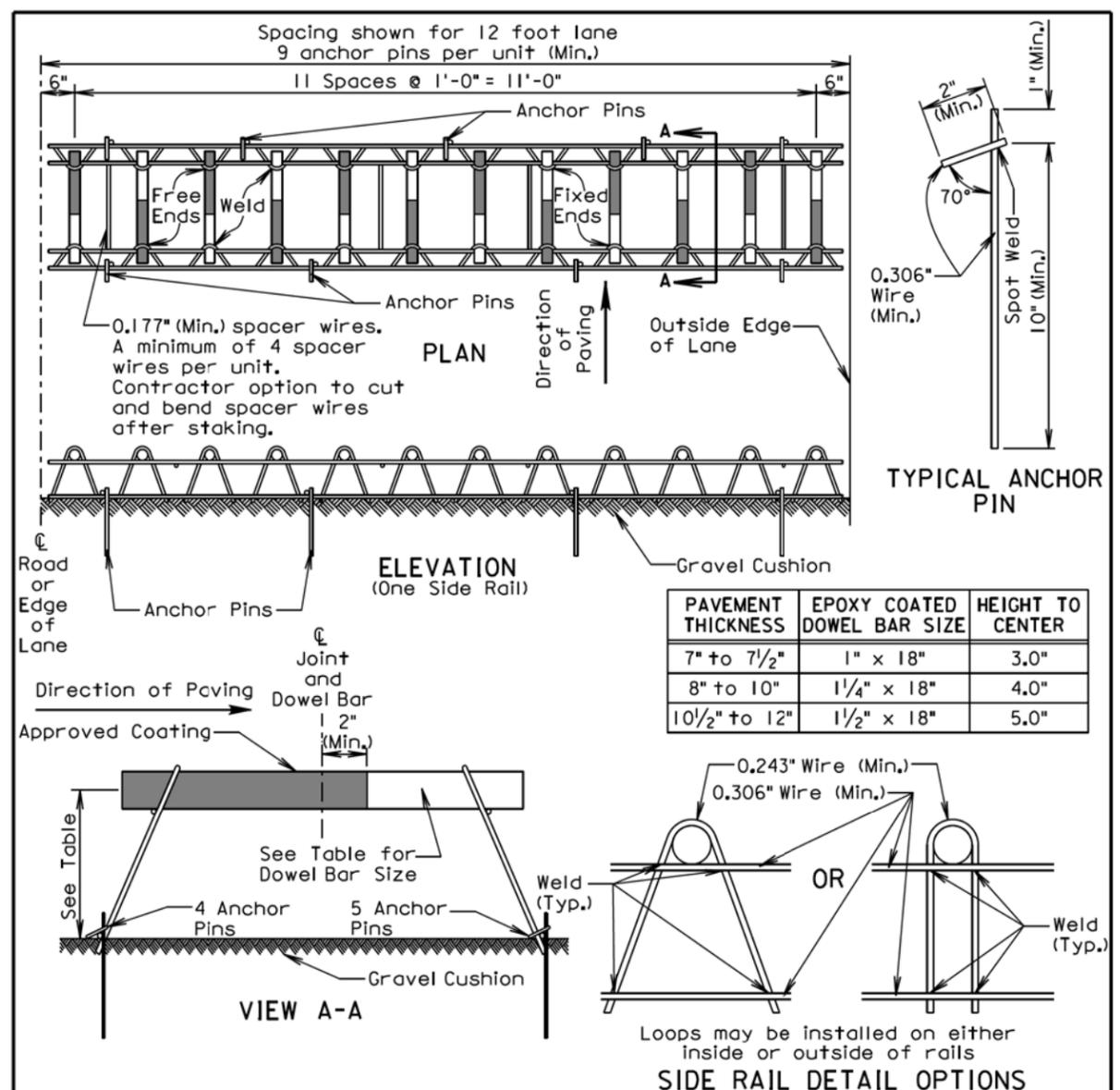
PLOT NAME - 5

FILE - ... \STANDARD PLATES\SPI.DGN



S D D O T	ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT	March 31, 2000
	PLATE NUMBER 320.15	Sheet 1 of 1

Published Date: 2nd Qtr. 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.

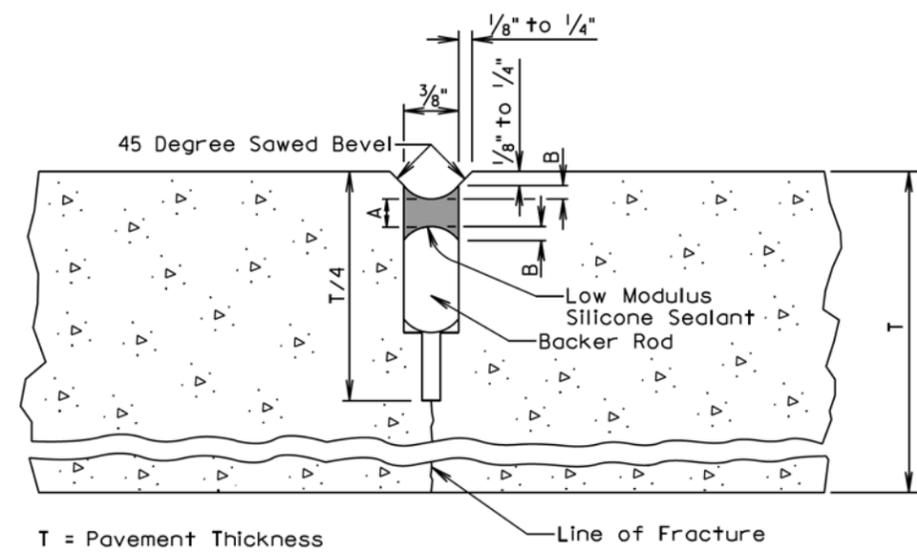
Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

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.

S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material	August 30, 2013
	PLATE NUMBER 380.01	Sheet 1 of 1

Published Date: 2nd Qtr. 2014



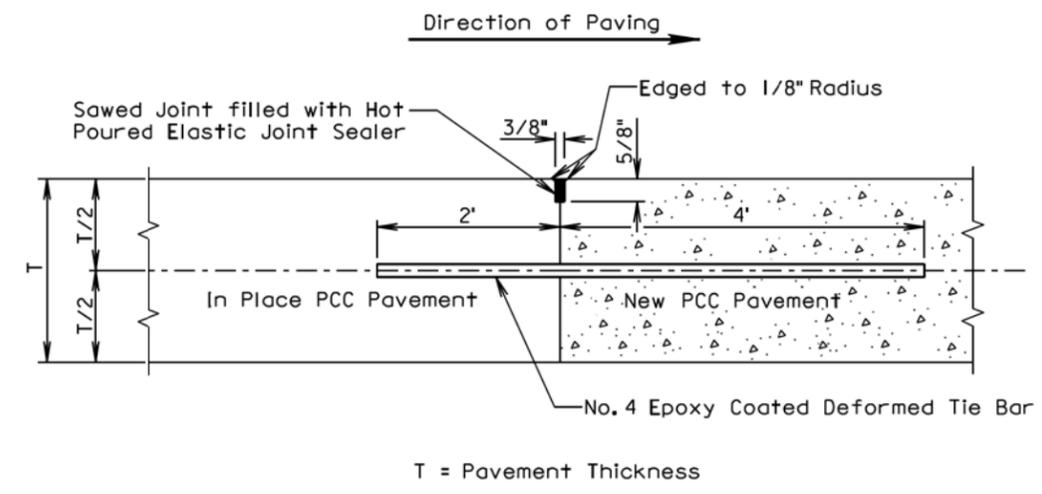
LOW MODULUS SILICONE SEALANT ALLOWABLE CONSTRUCTION TOLERANCES			
A (Min.) (In.)	A (Max.) (In.)	B (Min.) (In.)	B (Max.) (In.)
3/16	5/16	1/8	1/4

GENERAL NOTES:
 The first saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the low modulus silicone joint sealant will be necessary.
 The backer rod shall be a nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

June 26, 2013

S D D O T	PCC PAVEMENT BEVELED TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.06
		Sheet 1 of 1

Published Date: 2nd Qtr. 2014



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: 2nd Qtr. 2014

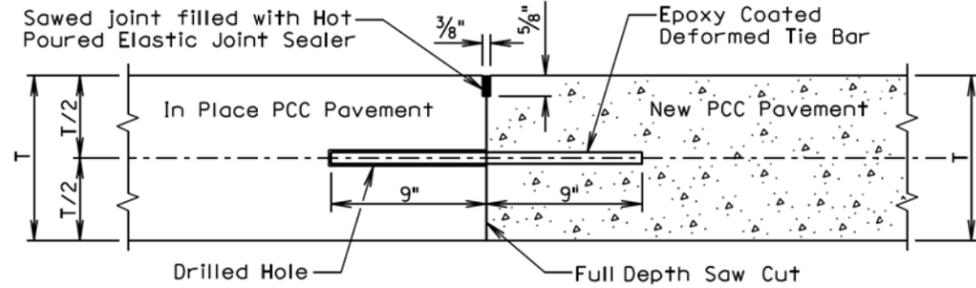
PLOT SCALE - 1:200

-PLOTTED FROM - TRPR18387

PLOT NAME - 6

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

DETAIL A TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS

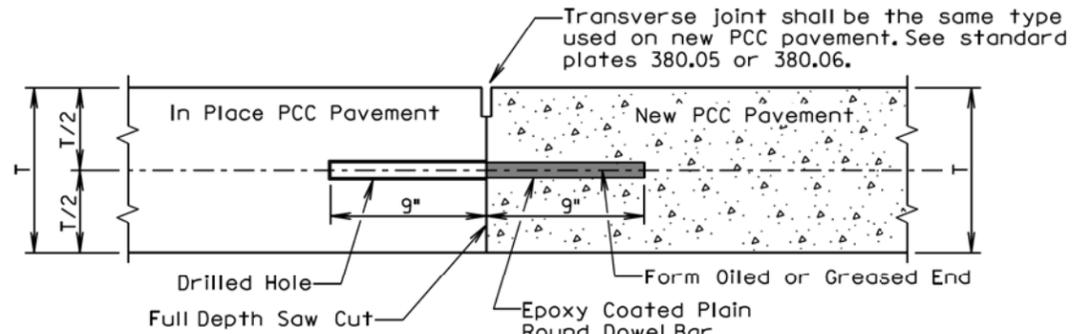


T = In Place PCC Pavement and New PCC Pavement Thickness

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



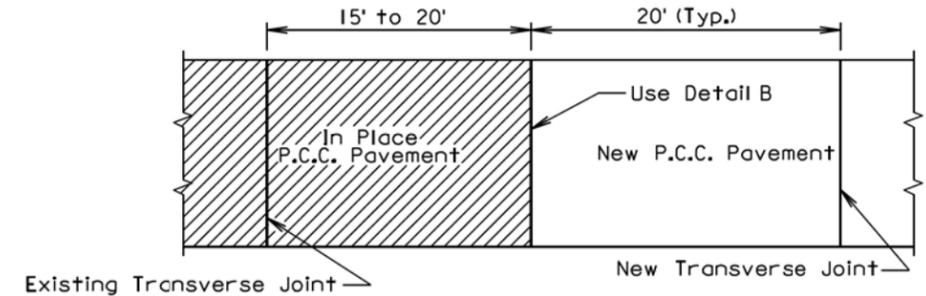
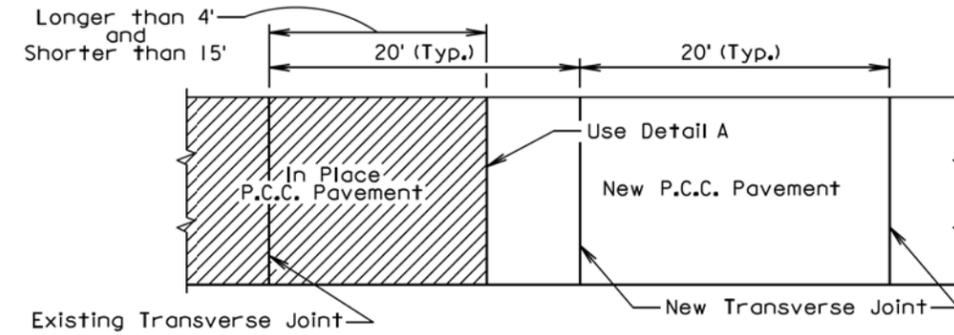
T = In Place PCC Pavement and New PCC Pavement Thickness

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.

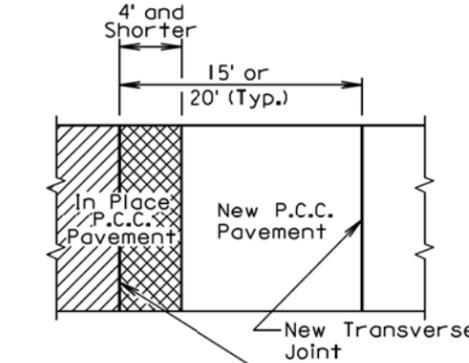
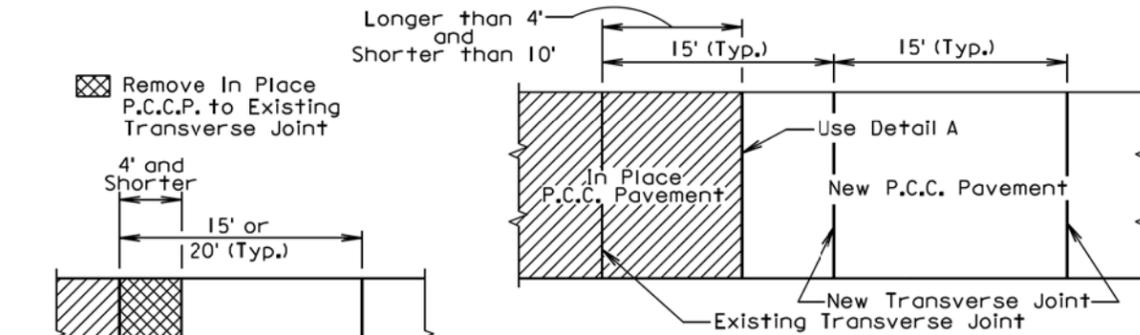
September 6, 2013

S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
	Published Date: 2nd Qtr. 2014	Sheet 1 of 2



PLAN VIEW

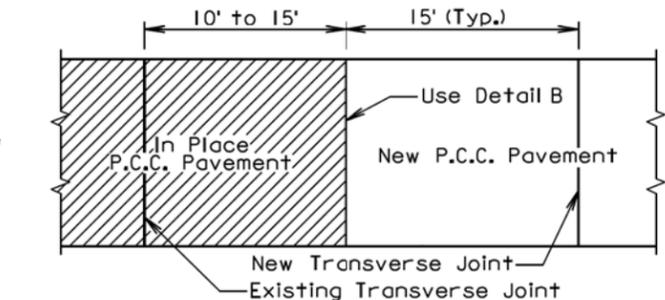
(For typical transverse joint spacing of 20' on the current project)



Existing Transverse Joint and Use Detail B for This Joint

PLAN VIEW

(For typical transverse joint spacing of 15' or 20' on the current project)

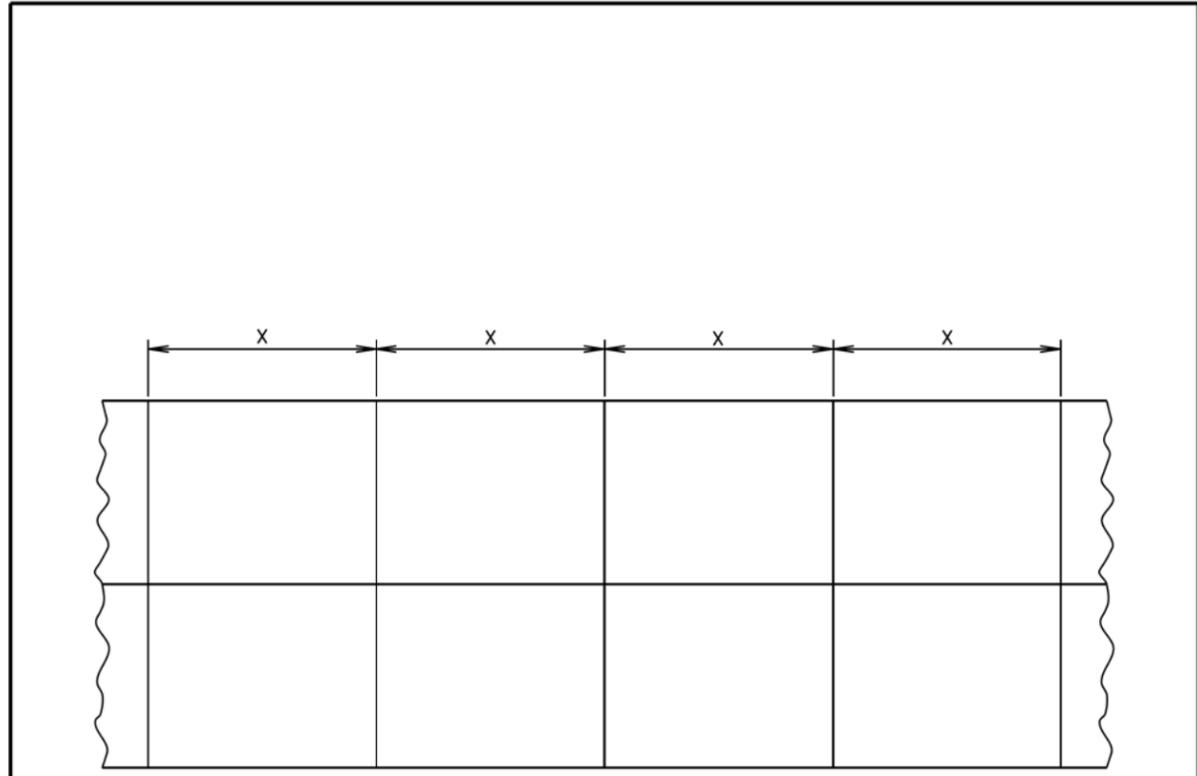


PLAN VIEW
(For typical transverse joint spacing of 15' on the current project)

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: 2nd Qtr. 2014	Sheet 2 of 2

PLOT SCALE - 1:200



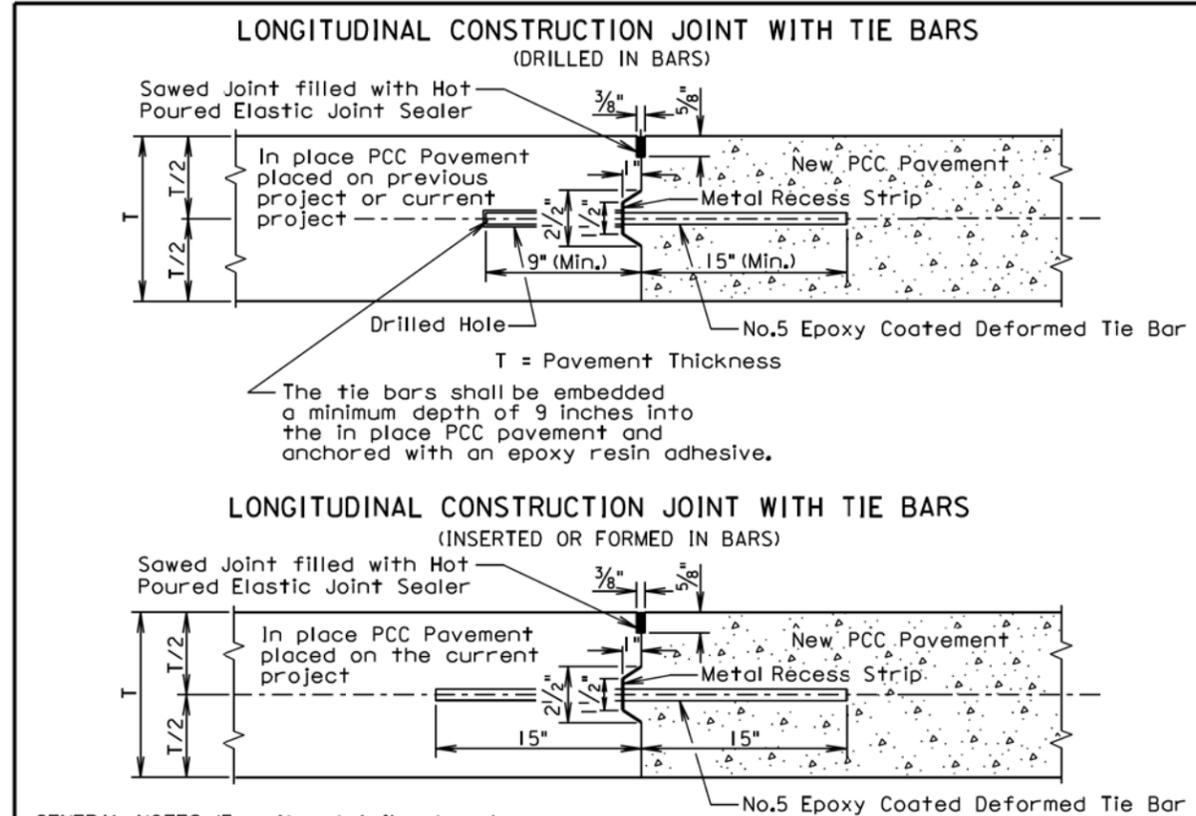
PCCP Thickness	Transverse Contraction Joint Spacing (X)
8" to 9.5"	15'
10" and Thicker	20'

August 31, 2013

S D D O T	PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING	PLATE NUMBER 380.09
		Sheet 1 of 1

Published Date: 2nd Qtr. 2014

PLOT NAME - 8



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

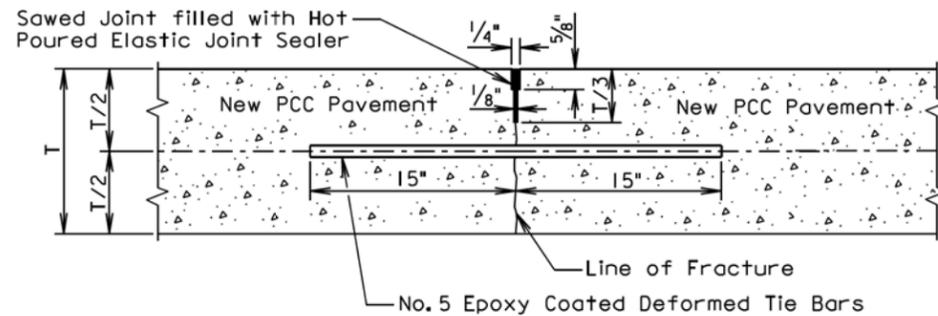
Published Date: 2nd Qtr. 2014

PLOTTED FROM - TRPR18387

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Plotting Date: 07/17/2014

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

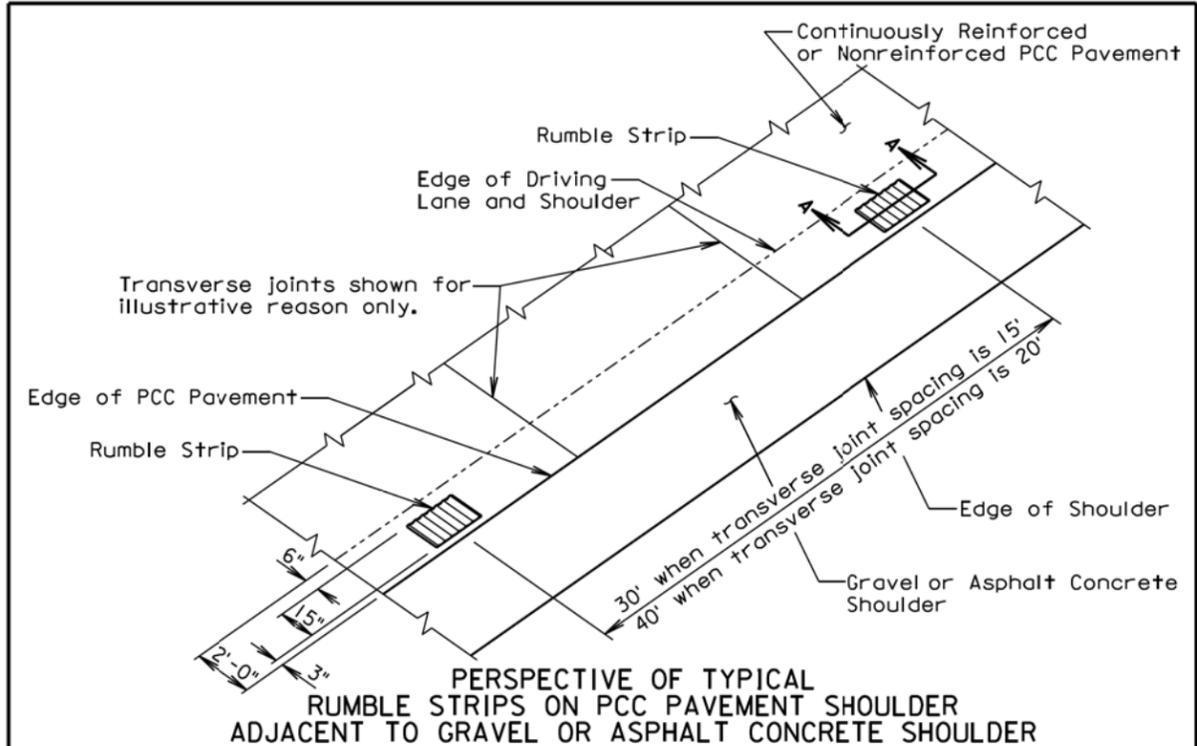
The tie bars shall be placed a minimum of 15 inches from the transverse contraction joints.

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.

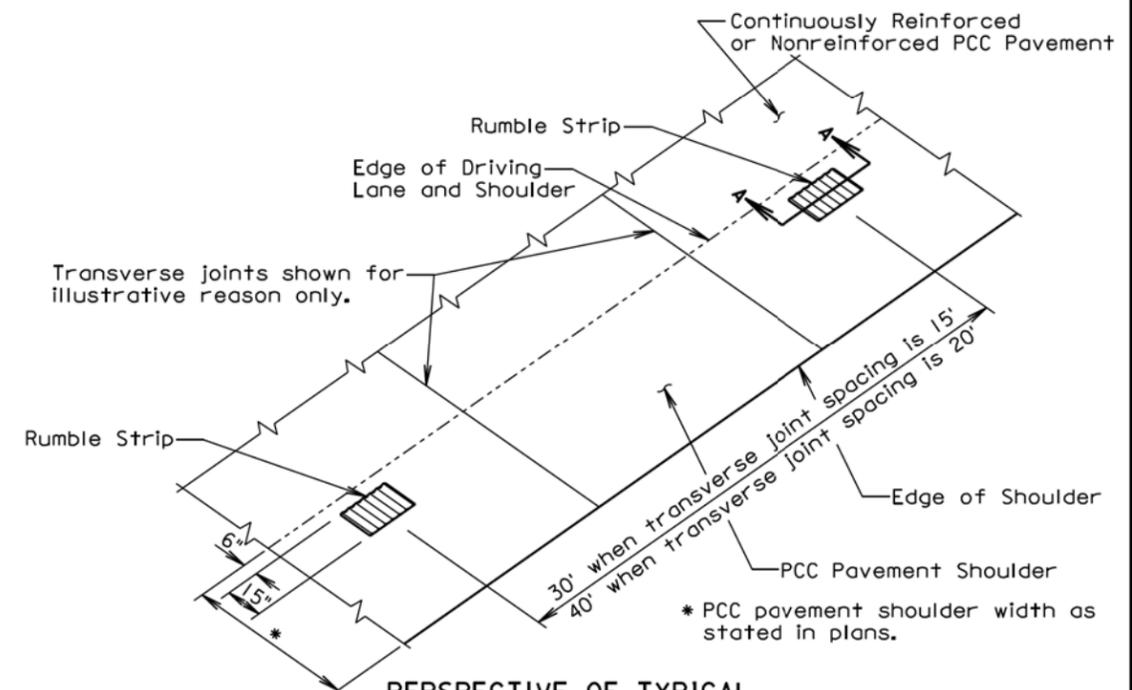
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

August 31, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
	Published Date: 2nd Qtr. 2014	Sheet 2 of 2



PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER ADJACENT TO GRAVEL OR ASPHALT CONCRETE SHOULDER



PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER

August 31, 2013

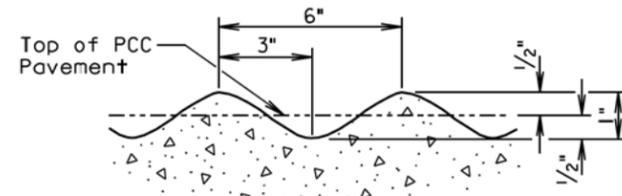
S D D O T	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.15
	Published Date: 2nd Qtr. 2014	Sheet 1 of 2

PLOT SCALE - 1:200

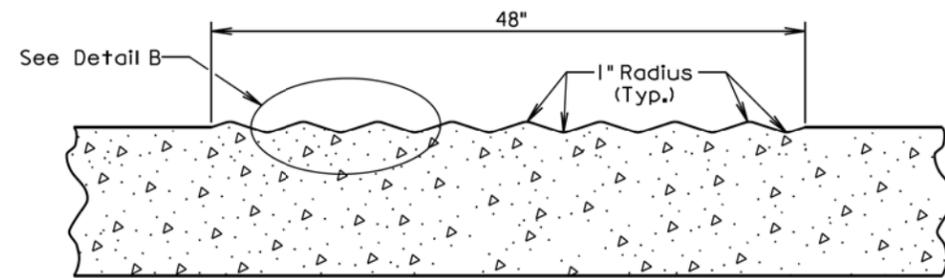
PLOTTED FROM - TRPR18387

PLOT NAME - 9

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



DETAIL B



SECTION A-A

GENERAL NOTES:

The rumble strips shall be evenly spaced and shall not coincide with any transverse contraction joints.

The rumble strips shall NOT be placed along areas adjacent to entrance ramps, exit ramps, and gore areas.

Payment for constructing the PCC Pavement Rumble Strips shall be incidental to the contract unit price per square yard for the corresponding PCC Pavement bid item.

August 31, 2013

S D D O T	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.15
	<i>Published Date: 2nd Qtr. 2014</i>	Sheet 2 of 2