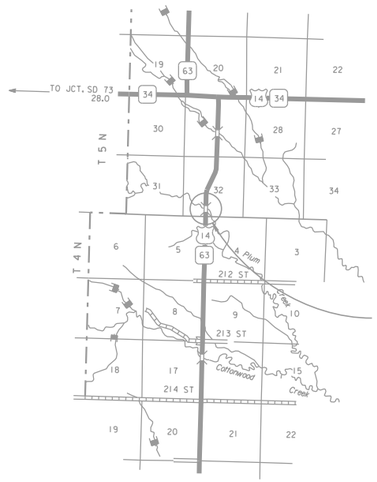
Section F: Surfacing Plans

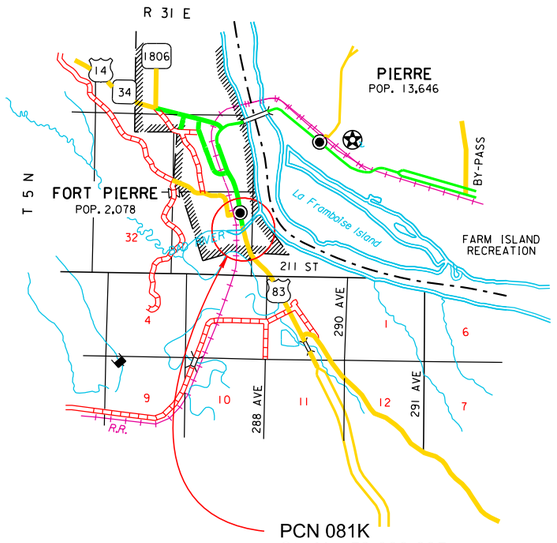
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118, NH 0014(243)131, P 1806(26)145, P0047(123)52	F1	F18

Plotting Date: 02/01/2024

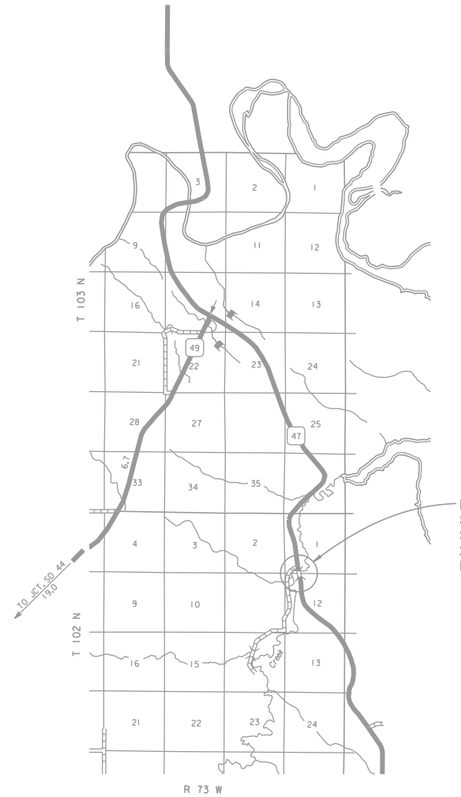
INDEX OF SHEETS



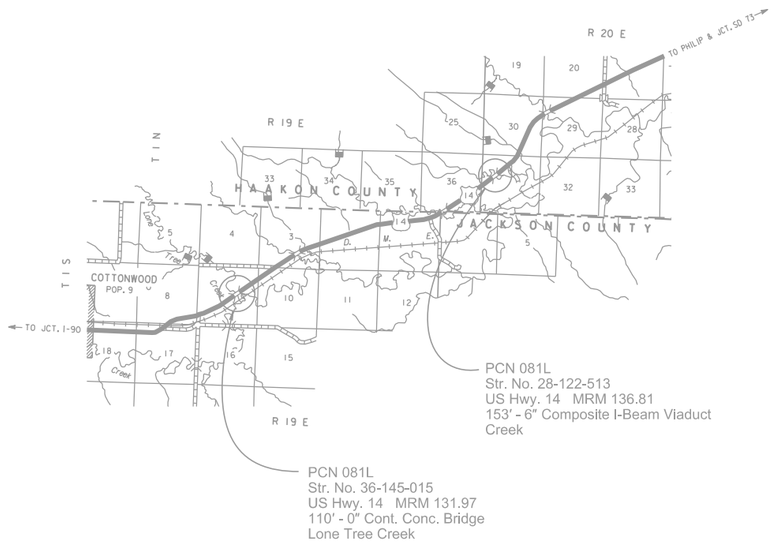
PCN 081L
Str. No. 59-023-299
US Hwy. 14 MRM 188.15
117' - 0" Cont. Conc. Bridge
Plum Creek



PCN 081K
Str. No. 59-398-295
US Hwy. 83 MRM 118.50
434' - 0" Cont. Comp. Girder Bridge
Bad River

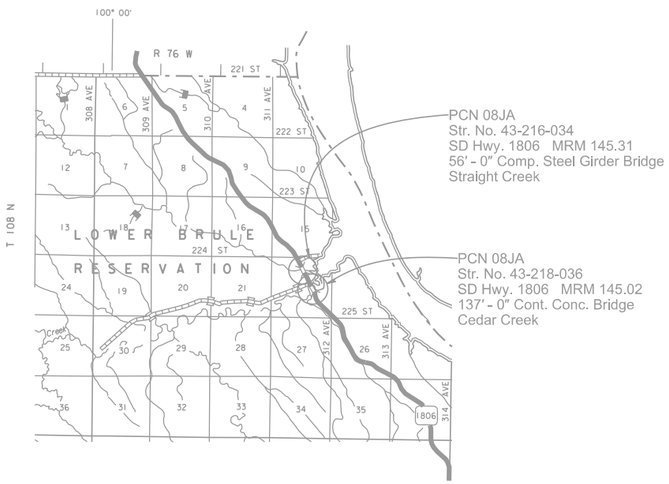


PCN 08JC
Str. No. 43-422-370
SD Hwy. 47 MRM 52.73
209' - 0" Cont. Conc. Bridge
Bull Creek



PCN 081L
Str. No. 28-122-513
US Hwy. 14 MRM 136.81
153' - 6" Composite I-Beam Viaduct
Creek

PCN 081L
Str. No. 36-145-015
US Hwy. 14 MRM 131.97
110' - 0" Cont. Conc. Bridge
Lone Tree Creek



PCN 08JA
Str. No. 43-216-034
SD Hwy. 1806 MRM 145.31
56' - 0" Comp. Steel Girder Bridge
Straight Creek

PCN 08JA
Str. No. 43-218-036
SD Hwy. 1806 MRM 145.02
137' - 0" Cont. Conc. Bridge
Cedar Creek

Plot Scale - 1:200
Plotted From - TRPR22410
Plot Name - 1
File - ...\CAD\081K_TitleSheets.dgn

SECTION F – ESTIMATE OF QUANTITIES

PCN 081K – US Hwy 83 Roadway adjoining Str. No. 59-398-295

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0300	Remove Concrete Curb and/or Gutter	60	Ft
110E1010	Remove Asphalt Concrete Pavement	160.5	SqYd
110E1100	Remove Concrete Pavement	244.6	SqYd
110E1140	Remove Concrete Sidewalk	52.4	SqYd
260E1010	Base Course	10.0	Ton
260E2010	Gravel Cushion	10.0	Ton
320E1200	Asphalt Concrete Composite	71.2	Ton
380E0070	9" Nonreinforced PCC Pavement	166.7	SqYd
380E6000	Dowel Bar	48	Each
380E6110	Insert Steel Bar in PCC Pavement	48	Each
410E2600	Membrane Sealant Expansion Joint	53.3	Ft
650E0080	Type B68 Concrete Curb and Gutter	60	Ft
650E0090	Type B69 Concrete Curb and Gutter	62	Ft
651E0040	4" Concrete Sidewalk	400	SqFt

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

SURFACING THICKNESS DIMENSIONS

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

CONCRETE SIDEWALK REMOVAL

The estimated quantity includes those portions adjacent to the roadway occurring outside the bridge and approach slab limits. Additional location information is found in the Material Quantities table on Sheet F4.

Estimate and scope of sidewalk work occurring on the bridge and approach slabs are found in Section E.

CONCRETE CURB AND GUTTER REMOVAL

A quantity of 60 lineal feet is included in the Table of Pavement Removal. This quantity covers removal of concrete curb and gutter adjoining asphalt concrete pavement to the south of the Bad River bridge. The Curb and Gutter sections that adjoin Portland Cement concrete pavement are not counted in the Concrete Curb and Gutter Removal bid item, as such sections are considered as pavement, and are measured and paid with bid item Remove Concrete Pavement.

REMOVAL OF EXISTING ASPHALT CONCRETE AND PCC PAVEMENT

Prior to the removal of in place asphalt concrete and PCC pavements, the existing pavement will be sawed full depth to a true line with a vertical face. See typical sections. If approved by the Engineer, the Contractor may elect to use a different method to create this vertical face. All costs to saw joint will be incidental to the contract unit price per square yard for “Remove Asphalt Concrete Pavement” and “Remove Concrete Pavement”.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

EXISTING PCC PAVEMENT

The existing pavement is 9″ nonreinforced Plain Jointed PCC Pavement. The existing transverse joints are perpendicular and are spaced at 20 feet. The aggregate in the existing Plain Jointed PCC Pavement is limestone.

CONCRETE PAVEMENT REMOVAL

The Concrete Pavement Removal quantity includes removing adjacent Concrete Curb and Gutter (Spec Book Section 110.4).

TRANSVERSE CONTRACTION JOINTS

Unless specified otherwise in the PCC Pavement Joint Layout Sheets or elsewhere in the plans, the typical joint spacing for the 9″ Nonreinforced PCC Pavement will be 15′. Joint spacing in the Concrete Curb & Gutter will match adjacent mainline pavement.

See Standard Plate 380.04 for placement of Dowel Bars.

The transverse contraction joints will be perpendicular to the centerline and be in a straight line across the entire width of pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints will be removed at the Contractor’s expense. Any method of placement that cannot produce these requirements will not be allowed.

9" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

The concrete mix used in the PCC Pavement will conform to Section 380.

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

The transverse construction joints will be handled in accordance with Standard Plate 380.15.

The location of joints, as shown and designated on the PCC Pavement Joint Layout(s) are only approximate locations to be used as a guide and to afford bidders a basis for estimating the construction cost of the joints. The final locations of the joints are to be designated by the Engineer during construction.

The entire surface of the mainline paving will be a heavy carpet drag. The surface of the mainline paving will receive a heavy carpet drag to within 2 or 3 feet of the face of the curb. All other areas will be textured as directed by the Engineer.

TABLE OF DOWEL BARS

PCN 081K Location	12 Bar Assembly Dowel Bar (Size 1 ¼”) Each
Mainline US 83	
Sta. 26+54	48
Total:	**48**

CURING OF CONCRETE

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

PROTECTION OF BRIDGE JOINTS

It may be necessary to use special methods and equipment to remove/place material as close as practical to structure appurtenances. Also, the Contractor will mask all expansion joints prior to any removal/placement of material near the joints. The joints will be protected throughout completion of the work. Once the masking has been removed any loose material contained within the joint will be cleaned from the joint. Any damage to the expansion joints along with any existing structure appurtenances will be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department. All costs related to this work will be incidental to various contract items.

STEEL BAR INSERTION

The Contractor will insert the Steel Bars (1¼″ diameter x 18″ length epoxy coated dowel bars) into drilled holes in the existing concrete pavement. Anchoring of the steel bars in the drilled holes will conform to the Specifications.

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

Epoxy coated plain round steel bars will be inserted on 12-inch centers in the transverse joint. The first steel bar will 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 will be inserted on 48-inch centers in the longitudinal joint and will be placed a minimum of 15 inches from the existing transverse contraction joint.

TABLE OF STEEL BAR INSERTION

LOCATION		QUANTITY 1¼″ Dowel Bars
Sta. 26+69	24' LT to 24' RT.	48

MAINLINE ASPHALT CONCRETE SURFACING AT BRIDGE END

Thirty (30) feet of mainline asphalt concrete surfacing (+/- as determined by the Engineer) at the south bridge end will be constructed after the approach slab reconstruction is completed and the as-built bridge deck elevation survey is submitted so that final grade adjustments can be made to provide a smooth transition from the mainline asphalt concrete to the bridge deck and back to the mainline asphalt concrete.

The completed survey will be submitted to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Senior Region Bridge Engineer.

Payment for the completed survey including labor, materials, and incidentals will be incidental to the various related contract items.

MATERIAL QUANTITIES

PCN 081K		REMOVE				INSTALL						
		Concrete Pavement	Concrete Sidewalk	Concrete Curb & Gutter	Asphalt Concrete Pavement	9″ Nonreinforced Portland Cement Concrete Pavement	4″ Concrete Sidewalk	Concrete Curb & Gutter		Asphalt Concrete Composite	Base Course	Gravel Cushion
								Type B68	Type B69			
Station to Station		SqYd	SqYd	Ft	SqYd	SqYd	SqFt	Ft	Ft	Ton	Ton	Ton
Ahead of S. Bridge Approach												
21+22 R	21+52 R		21.6	30	160.5		195	30		71.2	10	
21+24 L	21+54 L			30				30				
Beyond N. Bridge Approach												
26+39 R	26+69 R	244.6	30.8			166.7	205		30			10
26+37 L	26+69 L								32			
TOTAL :		244.6	52.4	60	160.5	166.7	400	60	62	71.2	10	10

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118	F5	F18

Plotting Date: 02/01/2024 _____

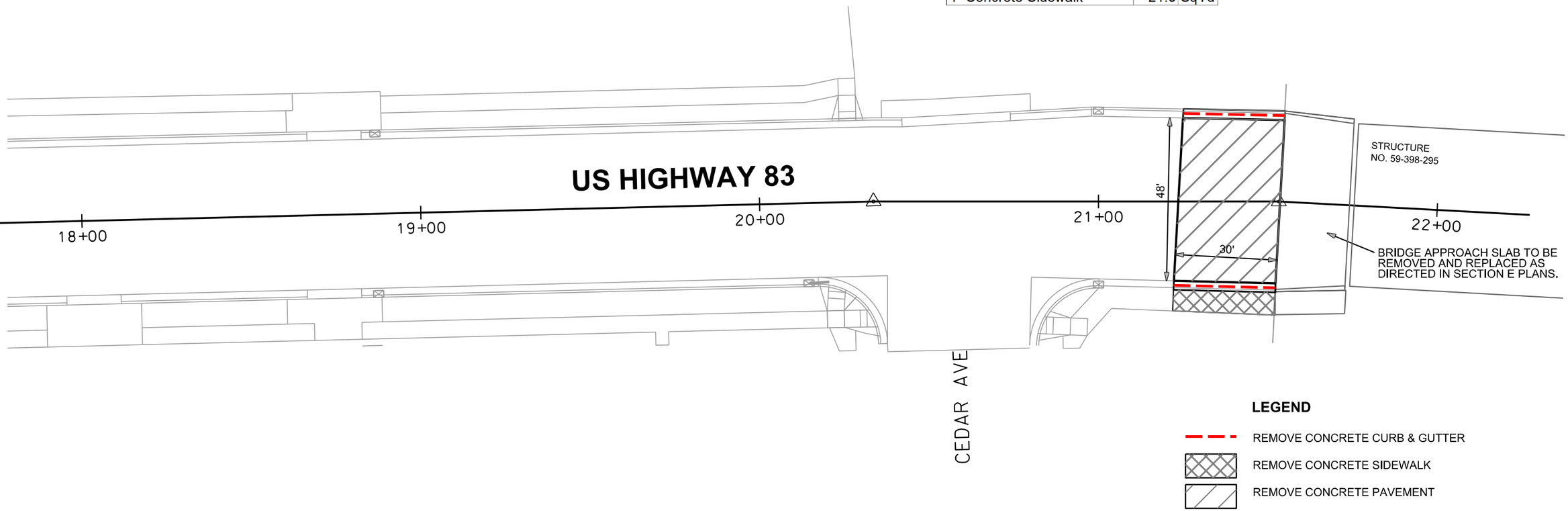
REMOVALS

STRUCTURE NO. 59-398-295
OVER THE BAD RIVER
US HIGHWAY 83, MRM 118.50

PCN 081K

SOUTHERLY APPROACH

TABLE OF REMOVALS		
Asphalt Concrete Pavement	160.5	SqYd
Concrete Curb & Gutter	60	Ft
4″ Concrete Sidewalk	21.6	SqYd



Plot Scale - 1:30

Plotted From - TRPR22410

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118	F6	F18

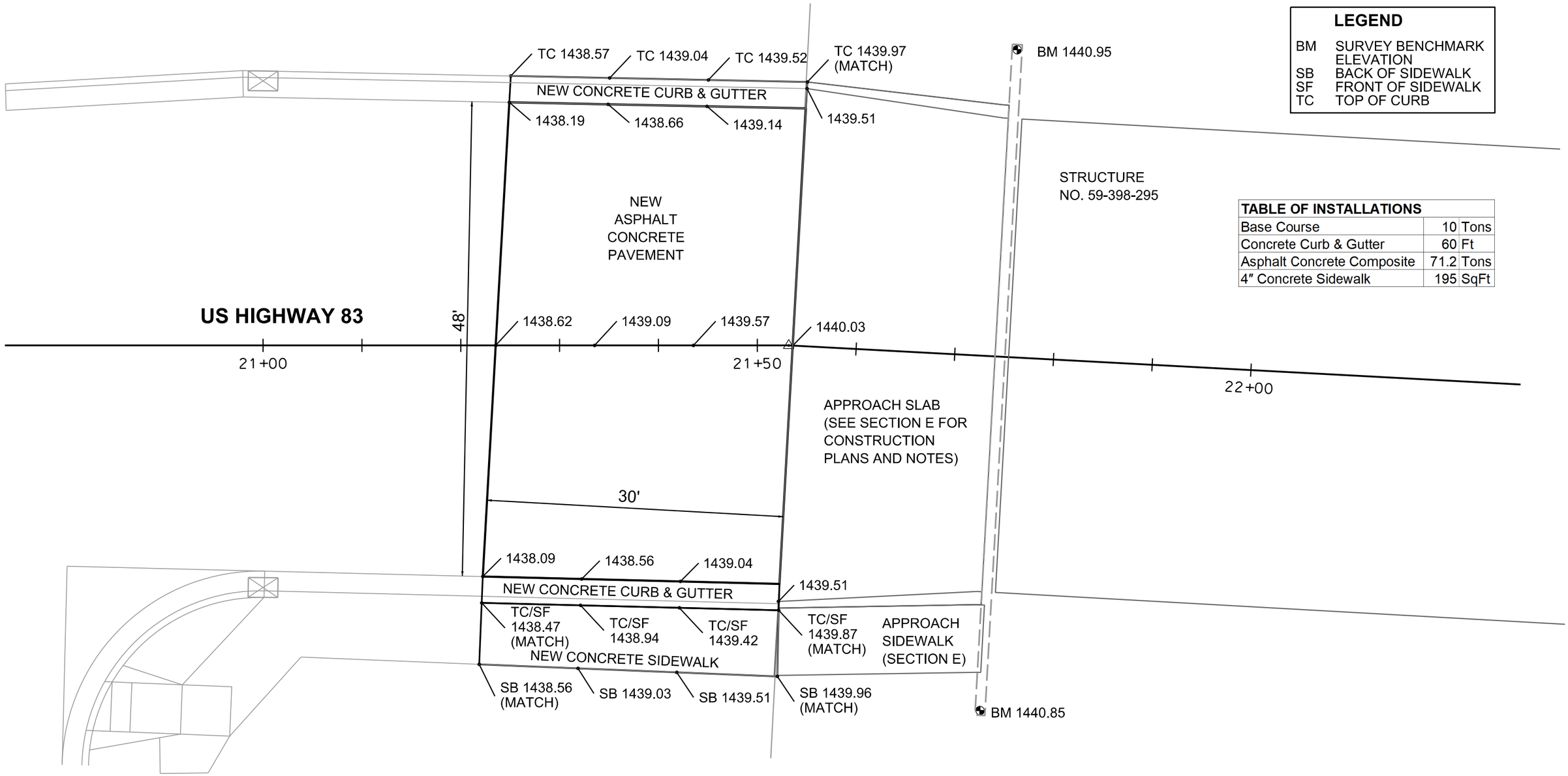
Plotting Date: 02/01/2024 _____

GRADING DETAILS

STRUCTURE NO. 59-398-295
OVER THE BAD RIVER
US HIGHWAY 83, MRM 118.50

PCN 081K

SOUTHERLY APPROACH



LEGEND

BM	SURVEY BENCHMARK ELEVATION
SB	BACK OF SIDEWALK
SF	FRONT OF SIDEWALK
TC	TOP OF CURB

TABLE OF INSTALLATIONS

Base Course	10	Tons
Concrete Curb & Gutter	60	Ft
Asphalt Concrete Composite	71.2	Tons
4″ Concrete Sidewalk	195	SqFt

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118	F7	F18

Plotting Date: 02/01/2024 _____

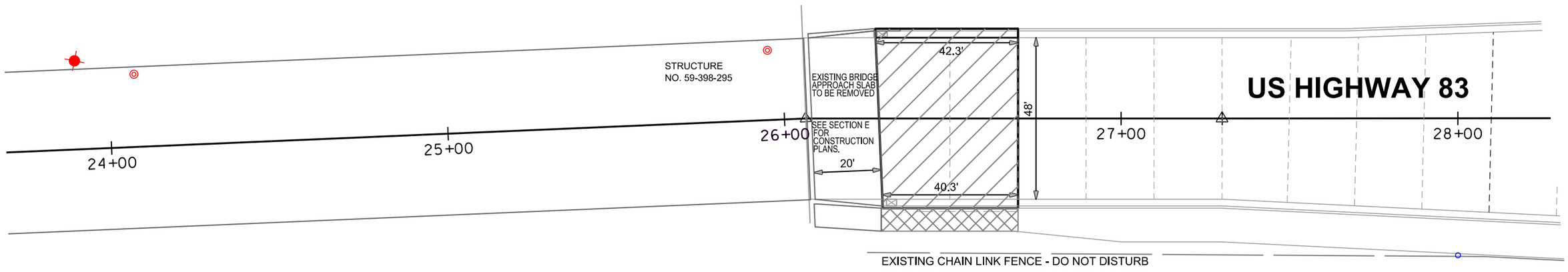
REMOVALS

STRUCTURE NO. 59-398-295
OVER THE BAD RIVER
US HIGHWAY 83, MRM 118.50

PCN 081K

NORTHERLY APPROACH

TABLE OF REMOVALS		
Concrete Pavement	244.6	SqYd
Concrete Sidewalk	30.8	SqYd



LEGEND

REMOVE CONCRETE SIDEWALK

REMOVE CONCRETE PAVEMENT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118	F8	F18

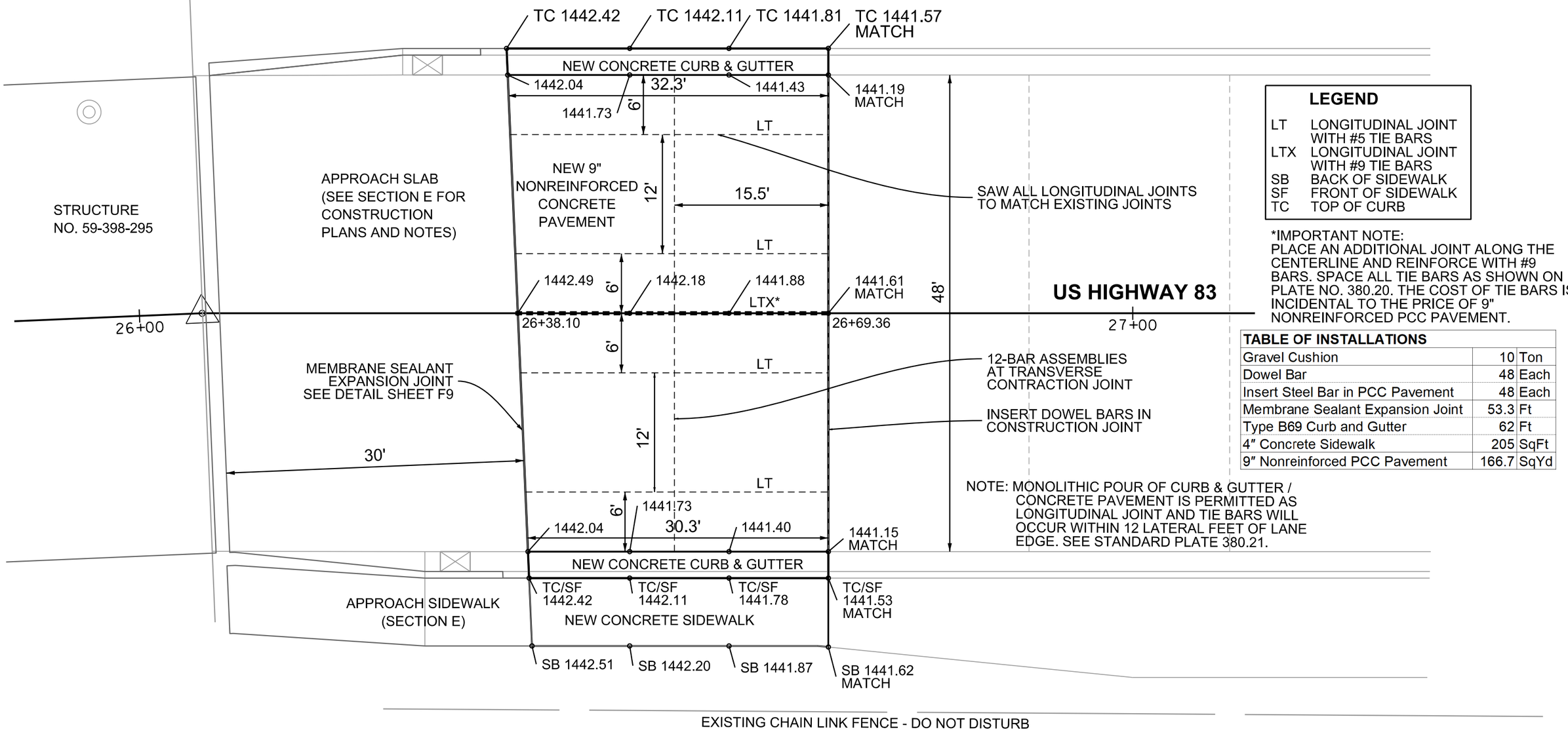
Revised 03/12/2024 JPJ

GRADING DETAILS

STRUCTURE NO. 59-398-295
OVER THE BAD RIVER
US HIGHWAY 83, MRM 118.50

PCN 081K

NORTHERLY APPROACH



LEGEND

LT	LONGITUDINAL JOINT WITH #5 TIE BARS
LTX	LONGITUDINAL JOINT WITH #9 TIE BARS
SB	BACK OF SIDEWALK
SF	FRONT OF SIDEWALK
TC	TOP OF CURB

*IMPORTANT NOTE:
PLACE AN ADDITIONAL JOINT ALONG THE CENTERLINE AND REINFORCE WITH #9 BARS. SPACE ALL TIE BARS AS SHOWN ON PLATE NO. 380.20. THE COST OF TIE BARS IS INCIDENTAL TO THE PRICE OF 9" NONREINFORCED PCC PAVEMENT.

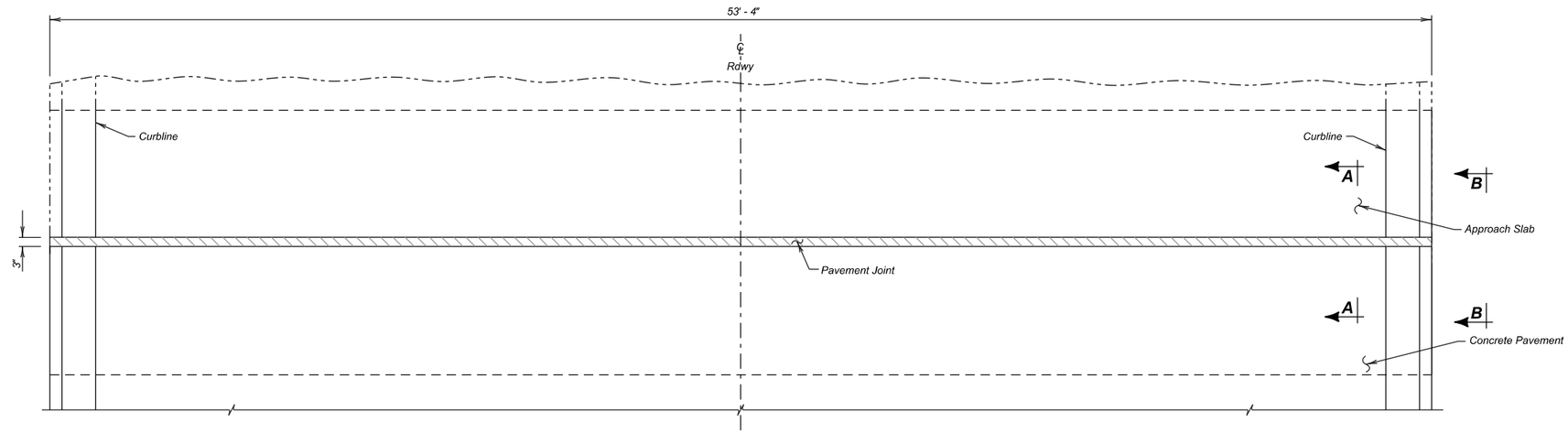
TABLE OF INSTALLATIONS

Gravel Cushion	10	Ton
Dowel Bar	48	Each
Insert Steel Bar in PCC Pavement	48	Each
Membrane Sealant Expansion Joint	53.3	Ft
Type B69 Curb and Gutter	62	Ft
4″ Concrete Sidewalk	205	SqFt
9″ Nonreinforced PCC Pavement	166.7	SqYd

NOTE: MONOLITHIC POUR OF CURB & GUTTER / CONCRETE PAVEMENT IS PERMITTED AS LONGITUDINAL JOINT AND TIE BARS WILL OCCUR WITHIN 12 LATERAL FEET OF LANE EDGE. SEE STANDARD PLATE 380.21.

MEMBRANE SEALANT EXPANSION JOINT

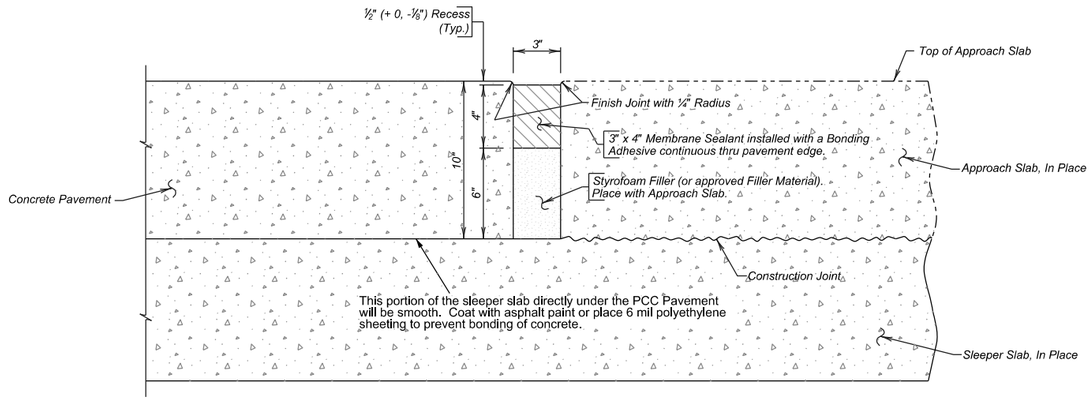
PCN 081K: STRUCTURE NO. 59-398-295 - SOUTHERLY APPROACH



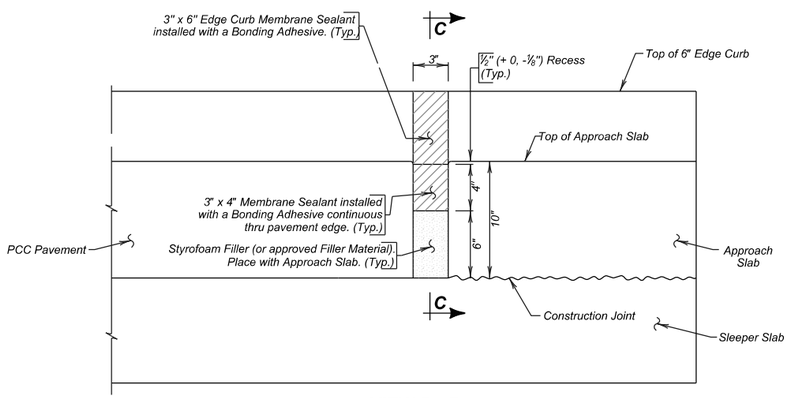
PLAN

GENERAL NOTES

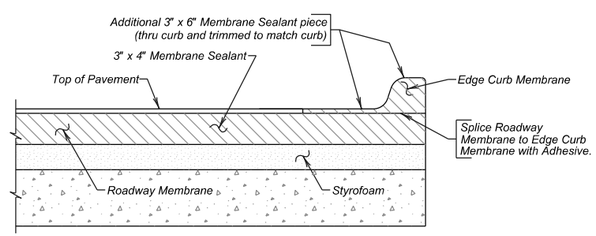
1. The Membrane Sealant will be on the approved product list for Membrane Sealant Expansion Joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer, however, in no case shall the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension.
4. The membrane sealant will be supplied in pieces a minimum of 5 feet in length. The foam sealant will be ultra-violet and ozone resistant.
5. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
6. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
7. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
8. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
9. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to ensure the Contractor installs the joint to the manufacturers' recommendations.
10. Surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the surface. At a minimum, two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the surface will be required. Cleaning of the surfaces with solvents, wire brushing, or grinding will not be permitted.
11. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
12. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
13. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
14. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
15. The Membrane Sealant Expansion Joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The Membrane Sealant Expansion Joint will be paid for at the contract unit price per foot complete in place. Payment for this item shall be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.



SEC. A - A



VIEW B - B



SEC. C - C

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118	F10	F18

TYPICAL SURFACING SECTIONS

STRUCTURE NO. 59-398-295
OVER THE BAD RIVER
US HIGHWAY 83, MRM 118.50

PCN 081K

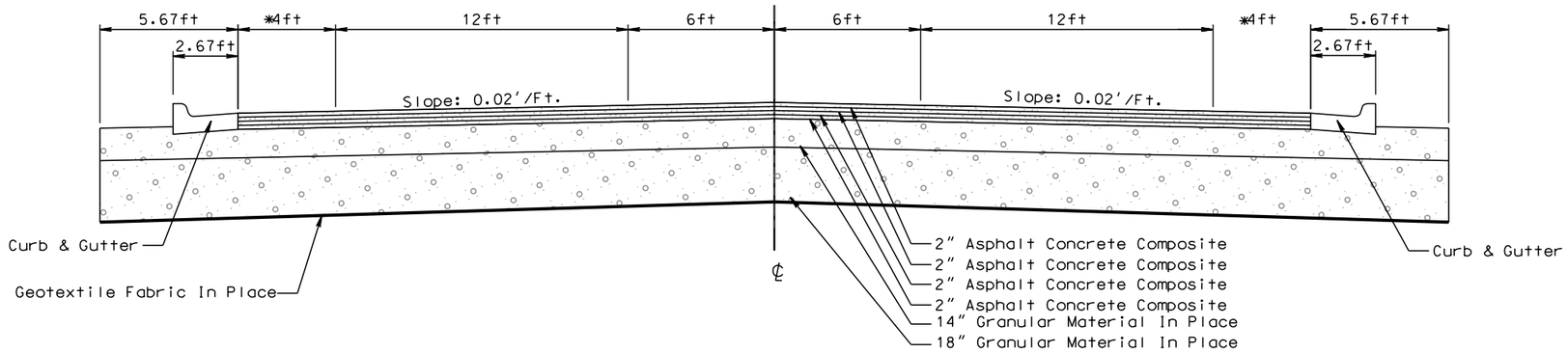
SOUTHERLY APPROACH

Surfacing Section

Sta. 21+23.54 to Sta. 21+53.57

Transitions:

* Varies from 4' Lt & Rt at Sta. 20+42 to 6.06' Lt & 6.14' Rt at Sta. 21+53.57

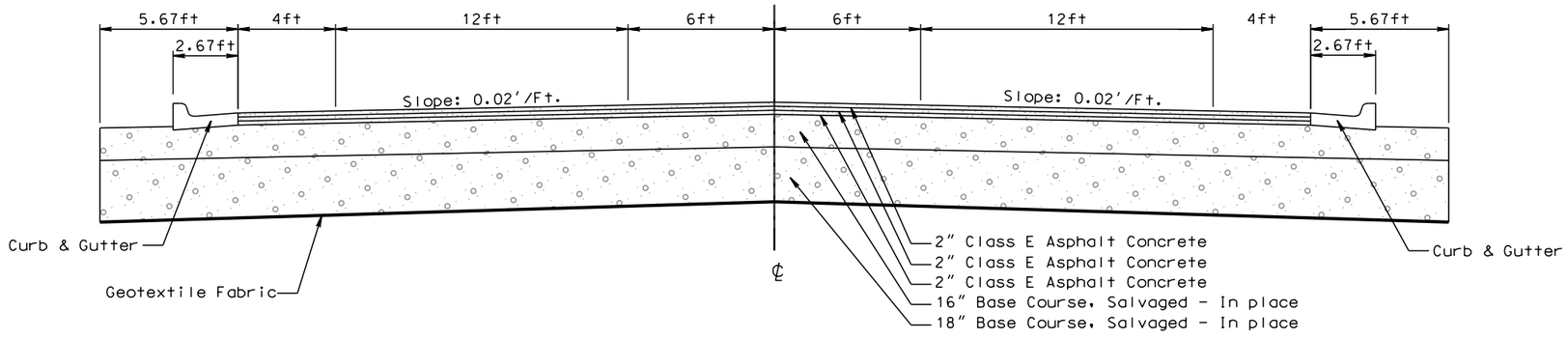


In-Place Section

Sta. 10+00 to Sta. 21+53.57

Transitions:

* Varies from 4' Lt & Rt at Sta. 20+42 to 6.06' Lt & 6.14' Rt at Sta. 21+53.57



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(91)118	F11	F18

TYPICAL SURFACING SECTIONS

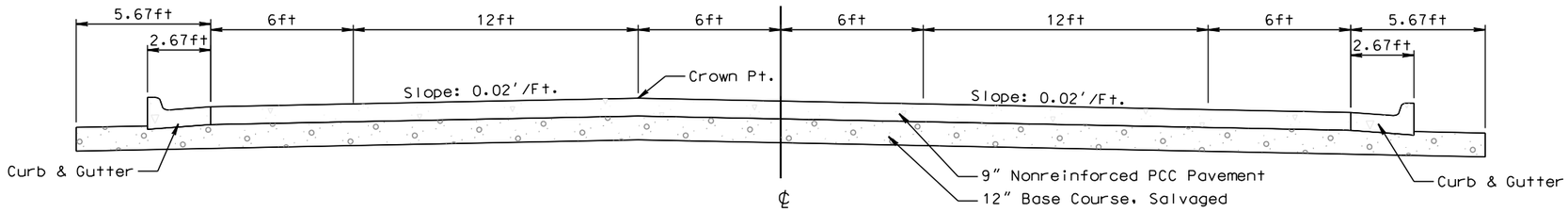
STRUCTURE NO. 59-398-295
OVER THE BAD RIVER
US HIGHWAY 83, MRM 118.50

PCN 081K

NORTHERLY APPROACH

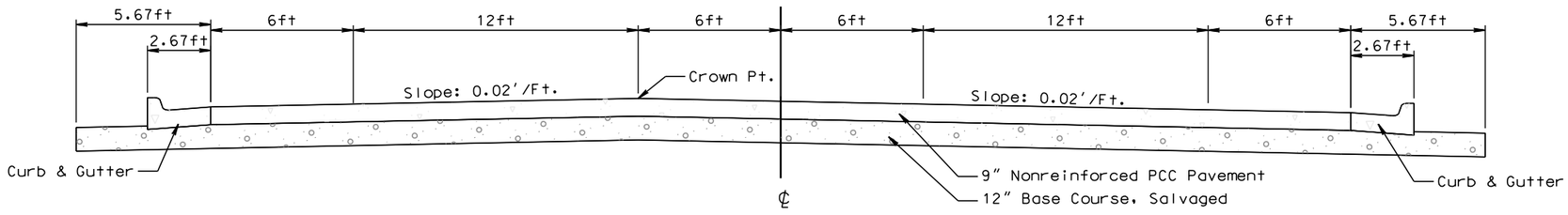
Surfacing Section

Sta. 26+36.5 to Sta. 26+69



In-Place Section

Sta. 26+36.5 to Sta. 26+69

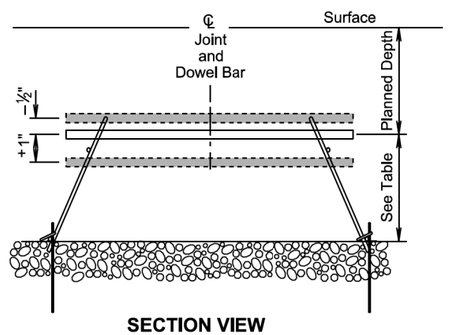


PLOT SCALE - 1:6

PLOT NAME - 1

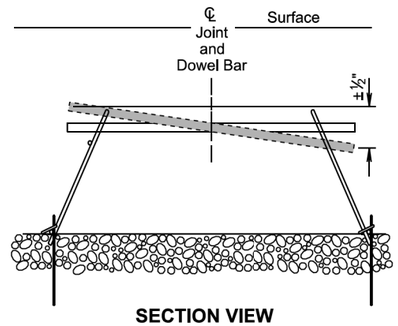
FILE - ...\CADD\081K_TYPICALSECTIONS.DGN

PLOTTED FROM - TRPR22410



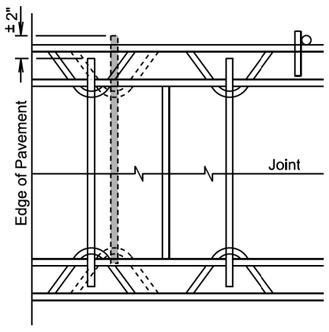
SECTION VIEW
VERTICAL TRANSLATION

Depth: mid-depth + 1 inch or − ½ inch



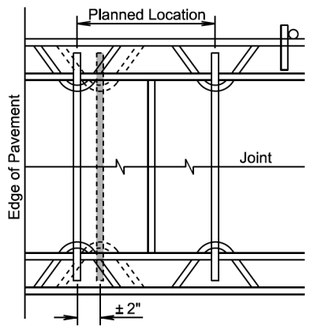
SECTION VIEW
VERTICAL TILT

Vertical rotational alignment: ½ inch over 18 inch



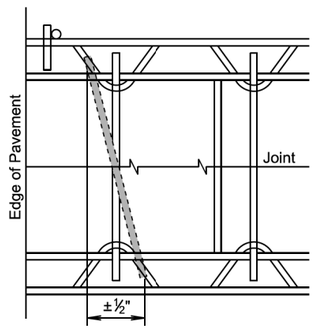
PLAN VIEW
LONGITUDINAL TRANSLATION

Longitudinal side shift: ± 2 inch for 18 inch bars



PLAN VIEW
HORIZONTAL TRANSLATION

Side shift ± 2 inch



PLAN VIEW
HORIZONTAL SKEW

Horizontal rotational alignment: ½ inch over 18 inch

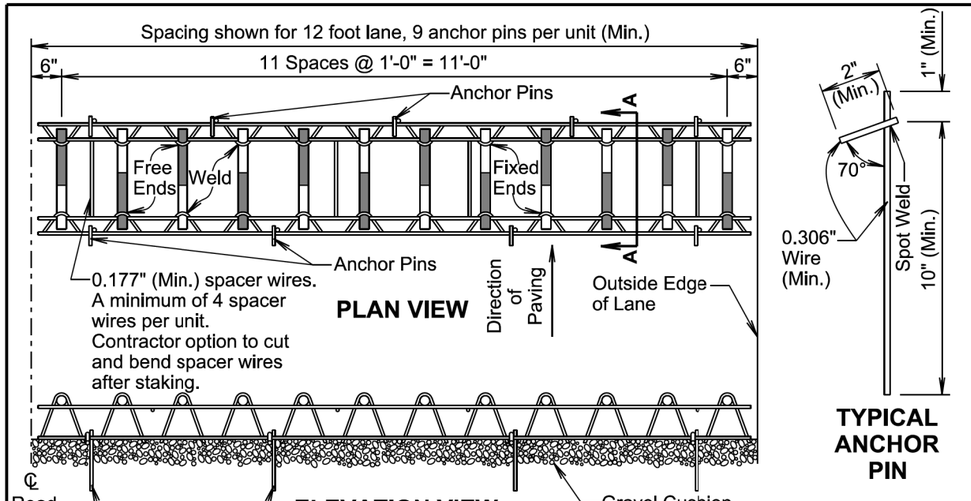
PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 13"	1½" x 18"	5.0"

GENERAL NOTE:

The tolerances shown above represent the maximum deviation for acceptance of dowel bar placement.

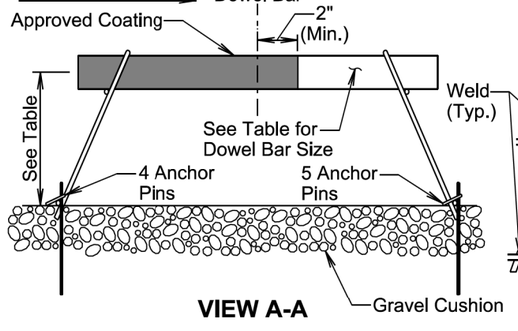
November 19, 2022

Published Date: 2024	SDDOT	**PCC PAVEMENT DOWEL BAR ALIGNMENT TOLERANCES**	PLATE NUMBER 380.01 Sheet 1 of 1

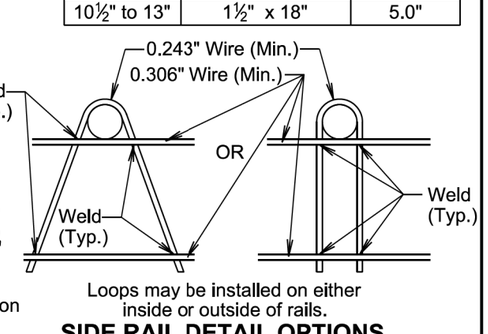


TYPICAL ANCHOR PIN

PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 13"	1½" x 18"	5.0"



VIEW A-A



Loops may be installed on either inside or outside of rails.

SIDE RAIL DETAIL OPTIONS

GENERAL NOTES:

Longitudinal joint tie bars will be placed a minimum of 15 inches from the transverse contraction joint.

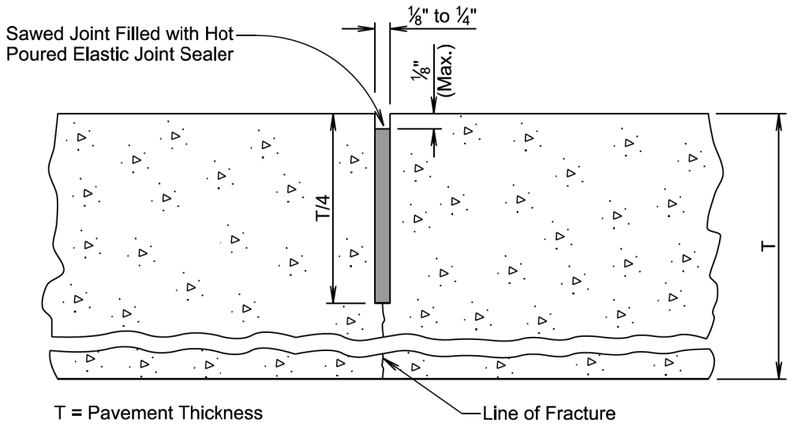
The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.

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

All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

November 19, 2022

Published Date: 2024	SDDOT	**PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material**	PLATE NUMBER 380.04 Sheet 1 of 1



GENERAL NOTES:

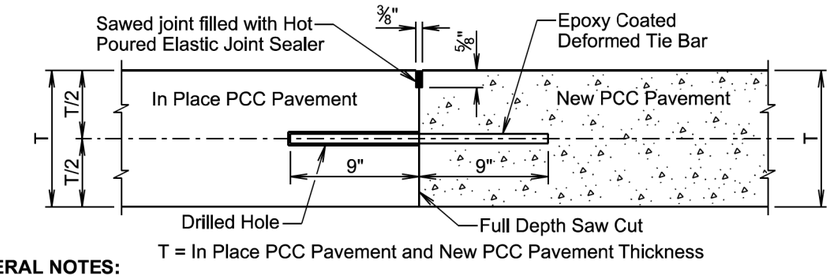
If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum ¼ of the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement will be removed as soon as the material has cooled. The extent of removal of material will be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material will be borne by the Contractor.

November 19, 2022

Published Date: 2024	SDDOT	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.12
			Sheet 1 of 1

DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

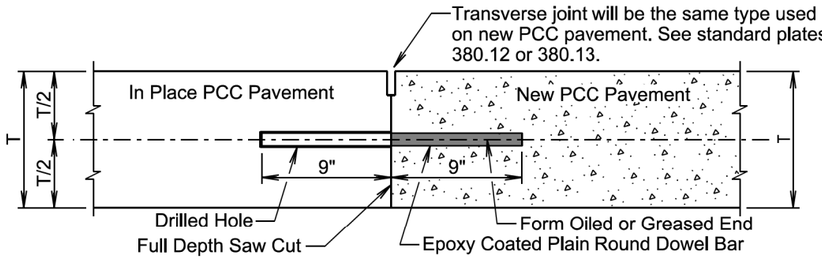
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

No. 9 epoxy coated deformed tie bars will be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars will be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing will be 18 inches center to center and will 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: T = In Place PCC Pavement and New PCC Pavement Thickness

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.

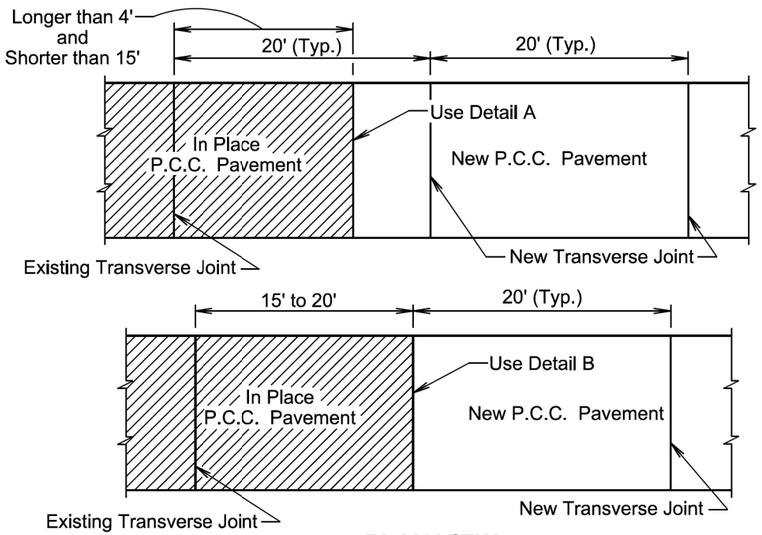
See sheet 2 of 2 of this standard plate to determine if Detail B will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

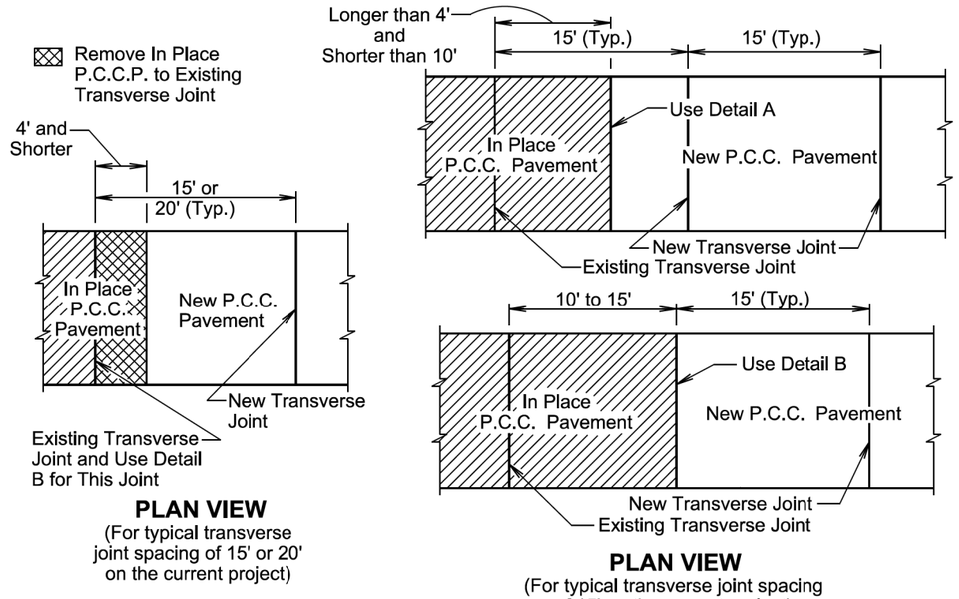
The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.04, 380.05, 380.06, or 380.07). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

January 22, 2023

Published Date: 2024	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 1 of 2



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



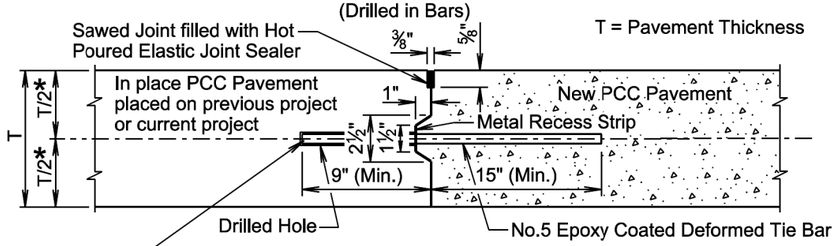
PLAN VIEW
(For typical transverse joint spacing of 15' or 20' on the current project)

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

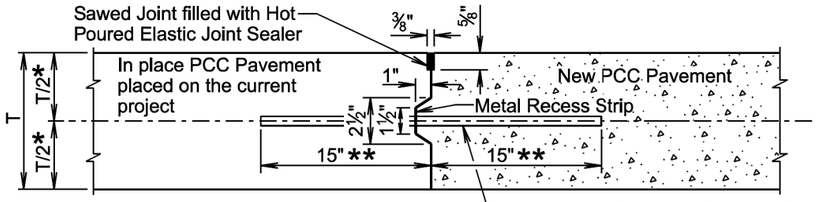
January 22, 2023

Published Date: 2024	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Drilled in Bars)



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will 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 will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will 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 will be used. When concrete pavement is slip formed, a metal recess strip is not required.

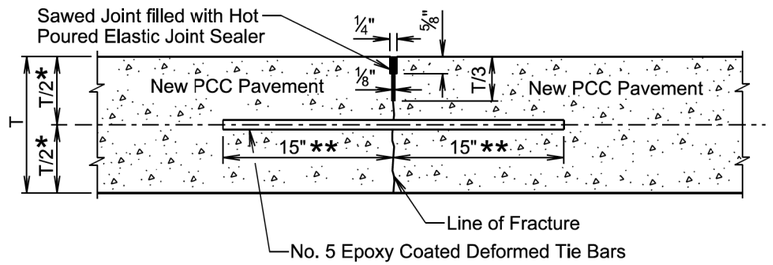
* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2024	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			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 will 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 will be placed a minimum of 15 inches from the transverse contraction joints.

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

The first saw cut to control cracking will 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.

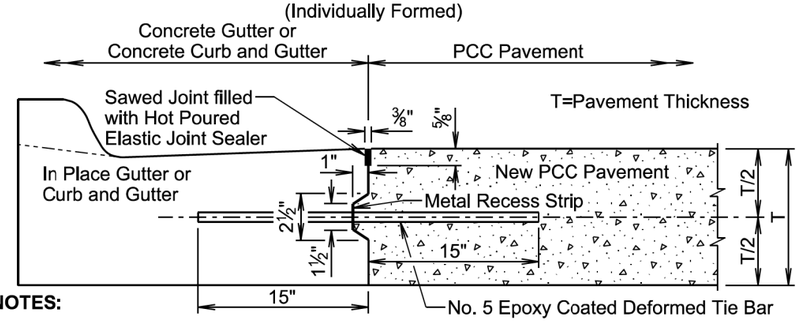
* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2024	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Individually Formed)



GENERAL NOTES:

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

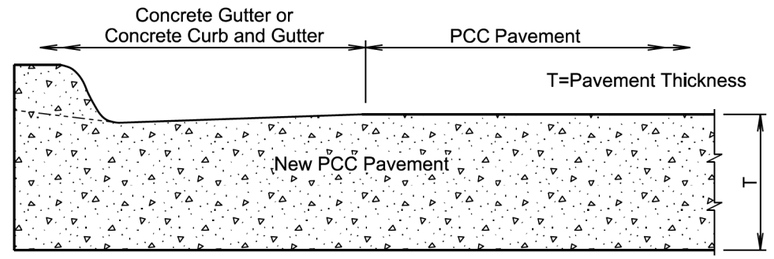
The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will 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 will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1½ inches 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 will be at least ¼ the thickness of the concrete gutter or concrete curb and gutter.

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

POURED MONOLITHICALLY



GENERAL NOTES:

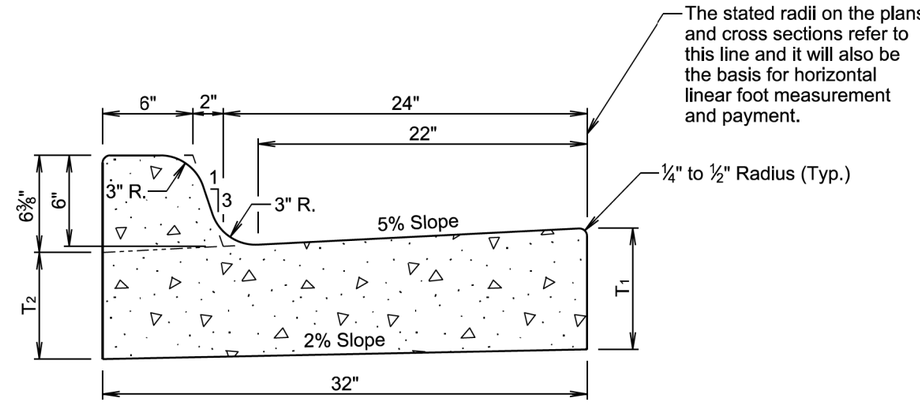
The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement will be eliminated.

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

The slope of the gutter will 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 will be constructed at the same slope as the mainline concrete pavement.

November 19, 2022

Published Date: 2024	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.21
			Sheet 1 of 1



TYPE B CONCRETE CURB AND GUTTER

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

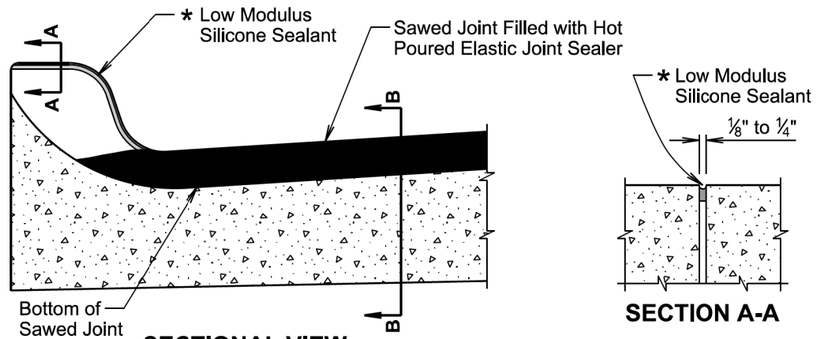
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

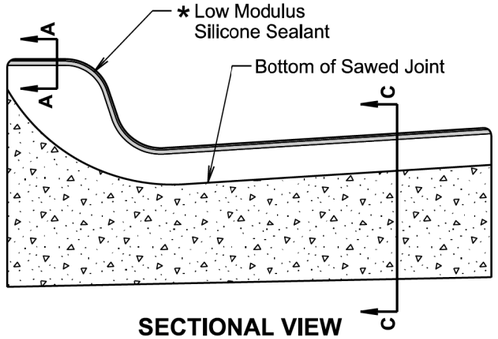
January 22, 2023

Published Date: 2024	SDDOT	*TYPE B CONCRETE CURB AND GUTTER*	*PLATE NUMBER* 650.01
			Sheet 1 of 1

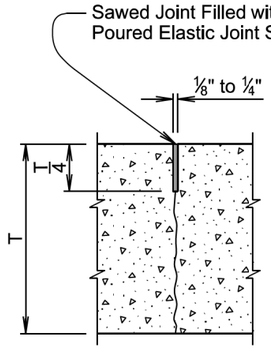


SECTIONAL VIEW
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

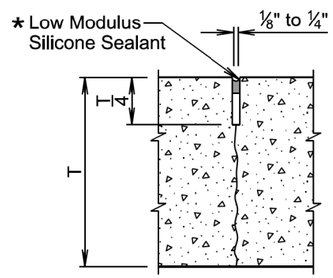
SECTION A-A



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



SECTION B-B

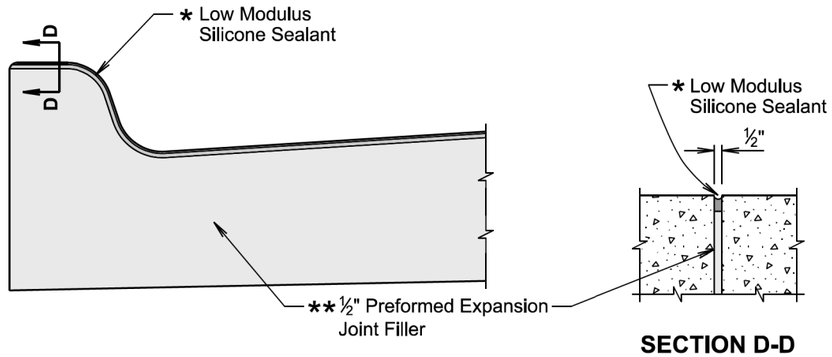


SECTION C-C

* The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

December 23, 2019

Published Date: 2024	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 2



SECTIONAL VIEW
(Curb and Gutter at ½" Preformed Expansion Joint Filler Location)

SECTION D-D

* The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

** A ½-inch preformed expansion joint filler will be placed transversely in the curb and gutter at the following locations:

At each junction between the radius return of curb and gutter, and curb and gutter which is parallel to the project centerline.

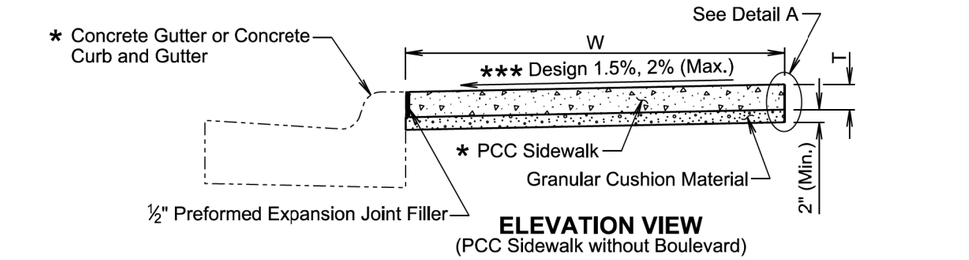
At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints will be constructed at 10 foot intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint will be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

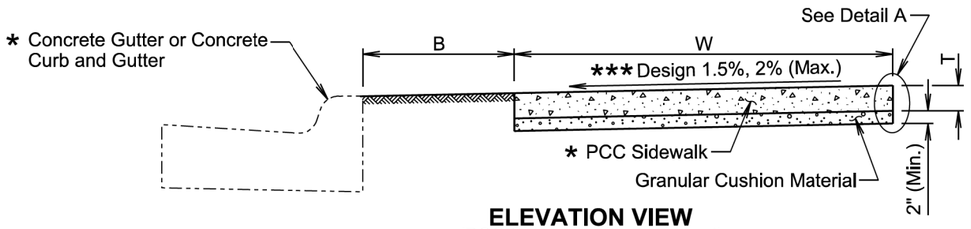
When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete and the joint will be sealed in accordance with the details shown above.

December 23, 2019

Published Date: 2024	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



ELEVATION VIEW
(PCC Sidewalk without Boulevard)



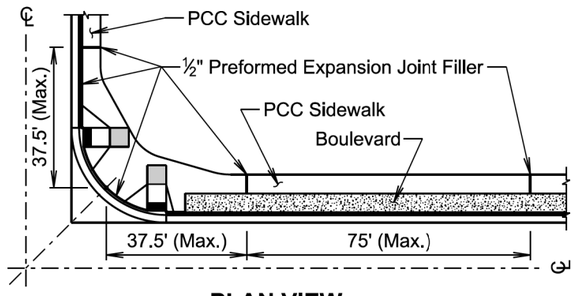
ELEVATION VIEW
(PCC Sidewalk with Boulevard)

B Width of boulevard as specified in the plans.

T Thickness of PCC sidewalk as specified in the plans.

W Width of PCC sidewalk as specified in the plans.

* Type as specified in the plans.



PLAN VIEW

GENERAL NOTES:

The PCC sidewalk will be constructed in accordance with Section 651 of the Specifications.

*** The cross slope of the sidewalk is designed at 1.5% and the maximum slope allowed is 2% unless specified otherwise in the plans.

The maximum length between expansion joints in the PCC sidewalk is 75 feet.

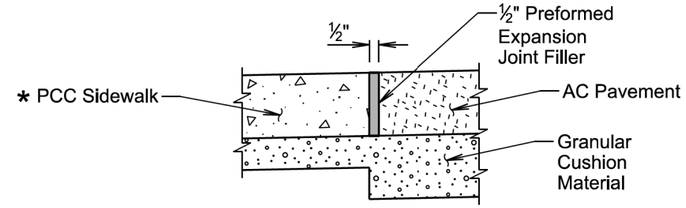
PCC sidewalk placed adjacent to intersection of roadways will have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See Plan View.

An expansion joint in the PCC sidewalk will consist of a ½ -inch thick preformed expansion joint filler material placed full depth and width of the PCC sidewalk.

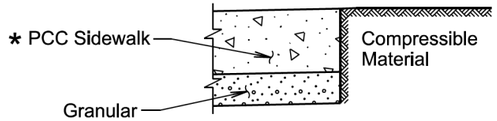
** Large areas of PCC pavement adjacent to the PCC sidewalk may require a different joint treatment than shown in the detail. If a different joint detail is necessary, plans will contain the joint detail and the Contractor will construct the joint treatment in accordance with the plans.

February 14, 2020

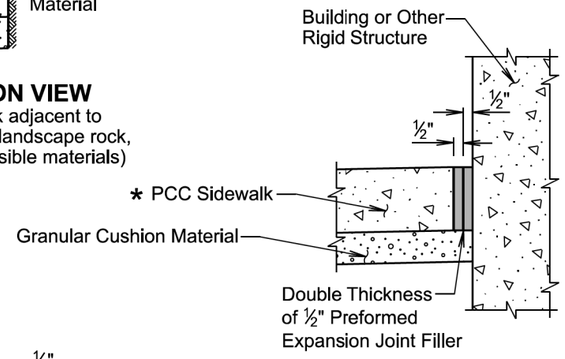
Published Date: 2024	SDDOT	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 1 of 2



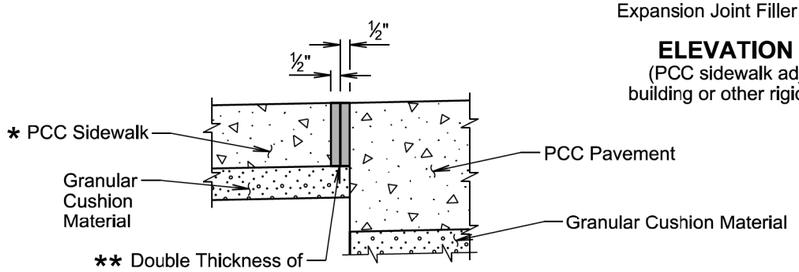
ELEVATION VIEW
(PCC sidewalk adjacent to asphalt concrete pavement)



ELEVATION VIEW
(PCC sidewalk adjacent to earthen material, landscape rock, or other compressible materials)



ELEVATION VIEW
(PCC sidewalk adjacent to building or other rigid structure)



ELEVATION VIEW
(PCC sidewalk adjacent to PCC pavement)

DETAIL A
(Use Appropriate Detail(s))

February 14, 2020

Published Date: 2024	SDDOT	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 2 of 2