

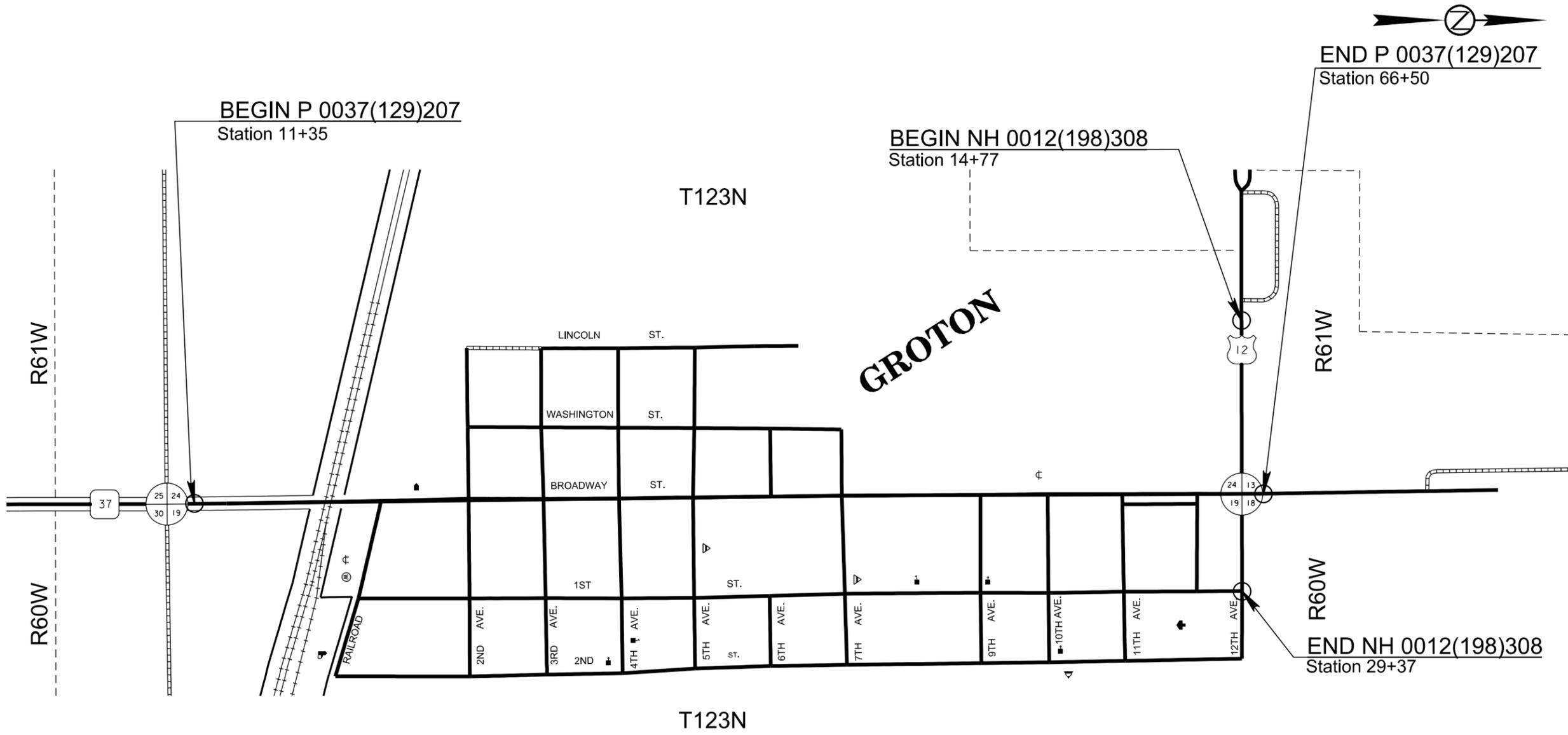
Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT P 0037(129)207 NH 0012(198)308	SHEET F1	TOTAL SHEETS F21
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Plotting Date: 07/27/2016

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PLOT SCALE - 1:200

PLOTTED FROM - IRPR15123

PLOT NAME - 1

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SECTION F ESTIMATE OF QUANTITIES – P 0037(129)207 PCN 039K

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	252.9	MGal
120E9000	Pit Run	590.0	Ton
260E1010	Base Course	247.6	Ton
260E1030	Base Course, Salvaged	20,207.4	Ton
* 260E6000	Granular Material, Furnish	2,232.4	Ton
260E6000	Granular Material, Furnish	11,961.7	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	4,464.8	Ton
270E0200	Blend, Haul, and Stockpile Granular Material	20,207.4	Ton
320E0005	PG 58-34 Asphalt Binder	351.5	Ton
320E1070	Class HR Asphalt Concrete	7,474.7	Ton
320E1200	Asphalt Concrete Composite	1,556.6	Ton
320E3000	Compaction Sample	3	Each
330E0010	MC-70 Asphalt for Prime	0.5	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	6.4	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	5.0	Ton
330E2000	Sand for Flush Seal	106.5	Ton
380E0060	8.5" Nonreinforced PCC Pavement	1,612.9	SqYd
380E3020	6" PCC Driveway Pavement	44.5	SqYd
380E6000	Dowel Bar	766	Each

* - Denotes Non-Participating

SECTION F ESTIMATE OF QUANTITIES – NH 0012(198)308 PCN 05AV

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	24.2	MGal
260E1010	Base Course	348.6	Ton
260E1030	Base Course, Salvaged	1,662.4	Ton
260E6000	Granular Material, Furnish	831.2	Ton
270E0200	Blend, Haul, and Stockpile Granular Material	1,662.4	Ton
320E1200	Asphalt Concrete Composite	363.8	Ton
380E0060	8.5" Nonreinforced PCC Pavement	4,703.8	SqYd
380E6000	Dowel Bar	2,928	Each

SURFACING THICKNESS DIMENSIONS

Plans quantity will be applied 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 quantity may be varied to achieve the required elevation.

TRAFFIC CONTROL QUANTITIES FOR DETOUR, WIDENING, AND TEMPORARY ACCESS

Included in the Estimate of Quantities for P 0037(129)207 are 590.0 Tons of Pit Run, 1,556.6 Tons of Asphalt Concrete Composite, 247.6 to of Base Course, and 10.1 Mgal of Water for Granular Material to be used for Traffic Control purposes. See Section C for locations.

Included in the Estimate of Quantities for NH 0012(198)308 are 348.6 Tons of Base Course and 4.2 Mgal of Water for Granular Material to be used for Traffic Control purposes. See Section C for locations.

GRANULAR MATERIAL, FURNISH

Granular Material shall be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project and subgrade material (See Section B).

The Granular Material shall be Base Course meeting the requirements of Section 882.

Granular Material, Furnish shall be provided to be blended with Salvaged Asphalt Mix material to be used as Base Course, Salvaged.

Granular Material, Furnish shall be provided in a separate pile to be used as Select Subgrade Topping (See Section B).

TABLE GRANULAR MATERIAL, FURNISH

	P 0037(129)207		NH 0012(198)308
	Participating	Non-participating	Participating
	Tons	Tons	Tons
To be blended with Salvaged Asphalt Mix	10,103.7	2,232.4	831.2
For use in Select Topping Subgrade	1,858.0		
TOTAL	11,961.7	2,232.4	831.2

BLEND, HAUL & STOCKPILE GRANULAR MATERIAL

Asphalt mix material (See Section B) from P 0037(129)207, estimated at 10,103.7 tons, shall be blended with 10,103.7 tons of Granular Material, Furnish and shall be used on this project as Base Course, Salvaged. Asphalt mix material (See Section B) from NH 0012(198)308, estimated at 831.2 tons, shall be blended with 831.2 tons of Granular Material, Furnish and shall be used on this project as Base Course, Salvaged.

Excess asphalt mix material (See Section B) from P 0037(129)207, estimated at 2,232.4 tons, shall be blended with 2,232.4 tons of Granular Material, Furnish and shall be stockpiled at the SDDOT Aberdeen East Maintenance Yard located in the NW1/4 of Sec 22, T123N, R64W. A computerized scale along with a scale operator shall be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

Asphalt mix material shall be blended with Granular Material, Furnished at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnished to obtain stockpile material. Prior to incorporation, salvaged asphalt material shall be processed over a 1 1/2" screen to remove large chunks. Material screened off shall be crushed and reincorporated into the process. Scalping of the salvaged material stockpile will not be allowed.

No further testing of the blended material will be required. The use of a pugmill to blend the materials will be accepted.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F2	F21

BLEND, HAUL & STOCKPILE GRANULAR MATERIAL

The Contractor shall use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

All costs for crushing the salvaged asphalt mix material, hauling, stockpiling, and blending the materials shall be incidental to the contract unit price per ton for "Blend, Haul & Stockpile Granular Material".

BASE COURSE, SALVAGED

The Base Course, Salvaged shall be obtained from the stockpile site(s) provided by the Contractor from the blended material produced on this project and may be used without further testing.

All other requirements for Base Course, Salvaged shall apply.

CLASS HR ASPHALT CONCRETE

RAP for the Class HR Asphalt Concrete shall be obtained from the stockpiled material produced on this project.

An estimated 1,494.9 tons of RAP is needed for the Class HR mixture on P 0037(129)207.

The Class HR Asphalt Concrete shall include 20% RAP in the mixture

The RAP shall be crushed so the maximum particle size in the cold feed meets the requirements specified in Section 884.2.C.1.

Screening or scalping of the RAP stockpile(s) will not be allowed.

All other requirements for Class HR shall apply.

SUMMARY OF CLASS HR HOT MIXED ASPHALT CONCRETE – P 0037(129)207

Location	With Specified Compaction (1 st / 2 nd Lift)	Without Specified Compaction
	Ton	Ton
Mainline – SD 37		
Sta. 11+35 to 19+10	344.0 / 229.5	279.3 / 162.1
Sta. 19+30 to 44+10	1,813.0 / 1,223.2	--
Sta. 44+10 to 60+85	991.4 / 660.9	346.8 / 205.3
Sta. 60+85 to 61+07	16.3 / 10.9	--
Sta. 61+07 to 62+76.43	163 / 108.6	--
Sta. 65+13 to 66+50	60.8 / 40.6	49.4 / 32.9
Intersecting Roads – 17		384.6 / 262.1
Drives – 4		75.7
Totals	5,283.9	1,715.9

8.5" NONREINFORCED CONCRETE PAVEMENT

The fine 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 3 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity, see Section C.

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

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.

TABLE OF 8.5" NONREINFORCED PCC PAVEMENT – P 0037(129)207

Placement Locations	8.5" Nonreinforced PCC Pavment (SqYd)
SD 37 – Mainline	
Sta. 62+76.43 to 63+57.79	713.7
Sta. 64+19 to 65+13	899.2
TOTAL	1,612.9

TABLE OF 8.5" NONREINFORCED PCC PAVEMENT – NH 0012(198)308

Placement Locations	8.5" Nonreinforced PCC Pavment (SqYd)
US 12 – Mainline	
Sta. 18+64 to 25+58	4,703.8
TOTAL	4,703.8

ALKALI SILICA REACTIVITY

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

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

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

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item.

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

TABLE OF KNOWN FINE AGGREGATE SOURCES

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.170
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	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.178
Morris	Blunt, SD	0.192
Morris - Richards Pit	Onida, SD	0.188
Myrl & Roys – 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	0.362*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.239
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.129
Pete Lien & Sons	Wasta, SD	0.192
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Pickstown (Wagner), SD	0.241
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

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

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.

TABLE OF 6" DRIVEWAY PAVEMENT

Placement Locations	6" Driveway Pavement (SqYd)
P 0037(129)207	
Sta. 23+13 Lt.	26.7
Sta. 30+07 Lt.	17.8
TOTAL	44.5

TABLE OF DOWEL BARS – P 0037(129)207

Location	1 ¼" Dowel Bars (Each)
SD 37 – Mainline	
Sta. 62+76.43 to 63+57.79	396
Sta. 64+19 to 65+13	370
Total Dowel Bars	766

TABLE OF DOWEL BARS – NH 0012(198)308

Location	1 ¼" Dowel Bars (Each)
US 12 – Mainline	
Sta. 18+64 to 25+58	2,928
Total Dowel Bars	2,928

RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F4	F21

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

SD 37

Sta. 11+35 to 18+70

BASE COURSE, SALVAGED

Salvaged Material 346.50 tons.

Water for Granular Material at the rate of 4.16 M. Gallons.

CLASS HR HOT MIXED ASPHALT CONCRETE – 1st Lift

Crushed Aggregate	61.35 Tons
Salvaged Asphalt Concrete	15.34 Tons
PG 58-34 Asphalt Binder	<u>3.78 Tons</u>

Total: 80.47 Tons

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

CLASS HR HOT MIXED ASPHALT CONCRETE – 2nd Lift

Crushed Aggregate	38.55 Tons
Salvaged Asphalt Concrete	9.64 Tons
PG 58-34 Asphalt Binder	<u>2.38 Tons</u>

Total: 50.57 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.12 tons applied 43 feet wide (Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.09 tons applied 40 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.78 tons applied 40 feet wide (Rate = 8.0 lbs. per square yard).

SD 37

Sta. 19+60 to 44+10

Sta. 60+85 to 61+07

BASE COURSE, SALVAGED

Salvaged Material 331.38 tons.

Water for Granular Material at the rate of 3.98 M. Gallons.

CLASS HR HOT MIXED ASPHALT CONCRETE – 1st Lift

Crushed Aggregate	56.42 Tons
Salvaged Asphalt Concrete	14.10 Tons
PG 58-34 Asphalt Binder	<u>3.48 Tons</u>

Total: 74.00 Tons

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

CLASS HR HOT MIXED ASPHALT CONCRETE – 2nd Lift

Crushed Aggregate	37.61 Tons
Salvaged Asphalt Concrete	9.40 Tons
PG 58-34 Asphalt Binder	<u>2.32 Tons</u>

Total: 49.33 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.11 tons applied 40 feet wide (Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.09 tons applied 40 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.78 tons applied 40 feet wide (Rate = 8.0 lbs. per square yard).

SD 37

Sta. 44+10 to 55+86

BASE COURSE, SALVAGED

Salvaged Material 352.94 tons.

Water for Granular Material at the rate of 4.24 M. Gallons.

CLASS HR HOT MIXED ASPHALT CONCRETE – 1st Lift

Crushed Aggregate	61.71 Tons
Salvaged Asphalt Concrete	15.43 Tons
PG 58-34 Asphalt Binder	<u>3.80 Tons</u>

Total: 80.94 Tons

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

CLASS HR HOT MIXED ASPHALT CONCRETE – 2nd Lift

Crushed Aggregate	39.96 Tons
Salvaged Asphalt Concrete	9.99 Tons
PG 58-34 Asphalt Binder	<u>2.46 Tons</u>

Total: 52.41 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.12 tons applied 43 feet wide (Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.10 tons applied 42 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.87 tons applied 42 feet wide (Rate = 8.0 lbs. per square yard).

US 12

Sta. 18+64 to 25+58

GRAVEL CUSHION

Crushed Material 199.33 tons.

Water for Granular Material at the rate of 2.39 M. Gallons.

TABLE OF ADDITIONAL QUANTITIES – P 0037(129)207

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F5	F21

Location – Description	Water for Granular Material	Base Course, Salvaged	Class HR Asphalt Concrete	PG 58-34 Asphalt Binder	MC-70 Asphalt for Prime	SS-1h or CSS-1h Asphalt for Tack	SS-1h or CSS-1h Asphalt for Flush Seal	Sand for Flush Seal
	Mgal	Ton	Ton	Ton	Ton	Ton	Ton	Ton
Mainline – SD 37								
Sta. 18+70 to 19+00	1.2	102.9	23.9 / 15.0	1.1 / 0.7		--	--	0.5
Sta. 19+00 to 19+10	0.4	34.0	7.9 / 4.9	0.4 / 0.2		--	--	0.2
Sta. 19+30 to 19+60	1.2	98.4	21.9 / 14.6	1.0 / 0.7		--	--	0.5
Sta. 55+86 to 56+33	2.0	162.6	37.2 / 24.1	1.7 / 1.1		0.1	--	0.9
Sta. 56+33 to 60+85	18.4	1,532.0	349.1 / 225.8	16.4 / 10.6		0.5	0.4	8.0
Sta. 61+07 to 62+76.43	7.6	632.6	144.2 / 96.1	6.8 / 4.5		0.2	0.2	3.5
Sta. 62+76.43 to 63+57.79	2.3	192.2						
Sta. 64+19 to 65+13	2.9	242.2						
Sta. 65+13 to 66+50	6.5	538.0	127.0 / 80.4	6.0 / 3.8		0.2	0.1	2.4
Intersecting Streets								
Sta. 18+10 Lt. – Commerce Ave	1.6	128.8	25.1 / 22.7	1.2 / 1.1		0.1	--	0.8
Sta. 21+40 Rt. – East Railroad Ave	2.1	177.7	47.0 / 31.3	2.2 / 1.5		0.1	0.1	1.1
Sta. 25+79 Lt. – West Second Ave	0.9	73.2	19.3 / 12.9	0.9 / 0.6		--	--	0.5
Sta. 25+79 Rt. – East Second Ave	0.9	72.8	19.3 / 12.8	0.9 / 0.6		--	--	0.5
Sta. 29+44 Lt. – West Third Ave	0.9	75.6	20.0 / 13.3	0.9 / 0.6		--	--	0.5
Sta. 29+44 Rt. – East Third Ave	0.9	74.0	19.6 / 13.0	0.9 / 0.6		--	--	0.5
Sta. 33+08 Lt. – West Fourth Ave	0.9	78.1	20.7 / 13.8	1.0 / 0.7		--	--	0.5
Sta. 33+01 Rt. – East Fourth Ave	0.8	69.5	18.4 / 12.2	0.9 / 0.6		--	--	0.4
Sta. 36+73 Lt. – West Fifth Ave	0.9	72.2	19.9 / 13.3	0.9 / 0.6		--	--	0.5
Sta. 36+76 Rt. – East Fifth Ave	0.9	78.5	20.7 / 13.8	1.0 / 0.7		--	--	0.5
Sta. 40+53 Lt. – West Sixth Ave	0.9	77.8	20.6 / 13.7	1.0 / 0.6		--	--	0.5
Sta. 44+06 Lt. – West Seventh Ave	0.7	60.7	16.0 / 10.7	0.8 / 0.5		--	--	0.4
Sta. 44+11 Rt. – East Seventh Ave	1.0	79.0	20.9 / 13.9	1.0 / 0.7		--	--	0.5
Sta. 50+76 Lt. – West Ninth Ave	1.6	129.1	34.1 / 22.7	1.6 / 1.1		0.1	--	0.8
Sta. 50+77 Rt. – East Ninth Ave	0.9	75.8	20.0 / 13.4	0.9 / 0.6		--	--	0.5
Sta. 54+25 Rt. – East Tenth Ave	0.9	76.3	20.2 / 13.4	1.0 / 0.6		--	--	0.5
Sta. 57+81 Rt. – East Eleventh Ave	1.0	86.3	22.8 / 15.2	1.1 / 0.7		--	--	0.6
Gravel Drives – 20								
Asphalt Drives – 4	1.2	95.4	75.7	3.6	0.5	0.1	0.1	1.8
Concrete Drives – 2	0.1	9.3						
TOTAL	63.9	5,315.2	1,894.5	125.5	0.5	1.4	0.9	27.4

TABLE OF ADDITIONAL QUANTITIES – NH 0012(198)308

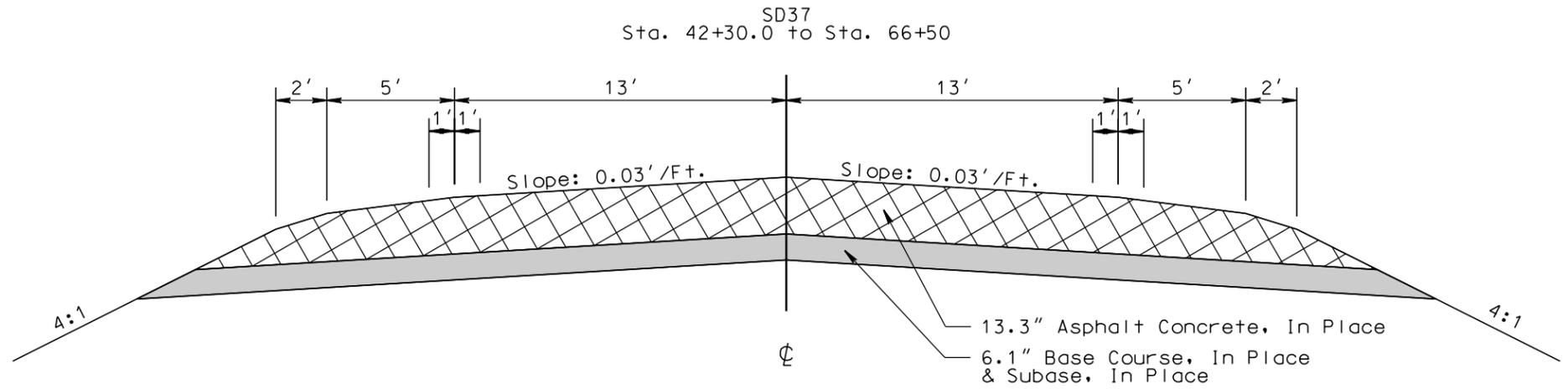
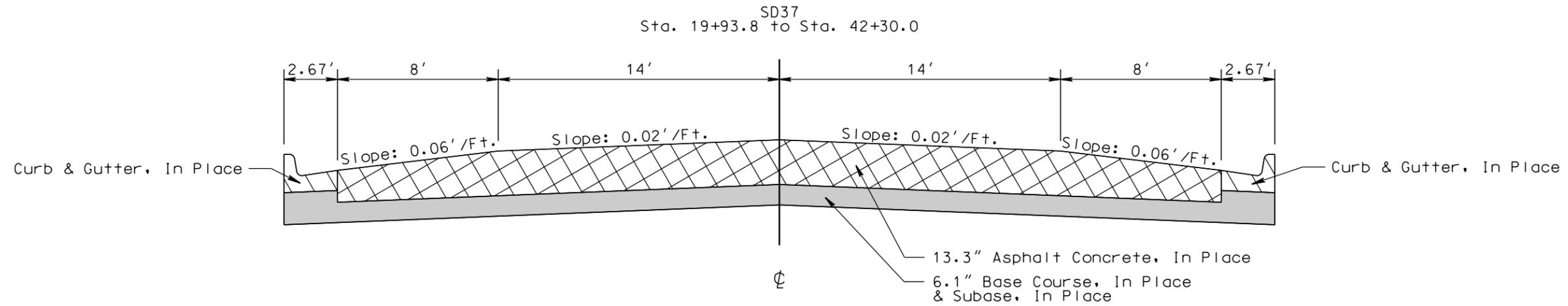
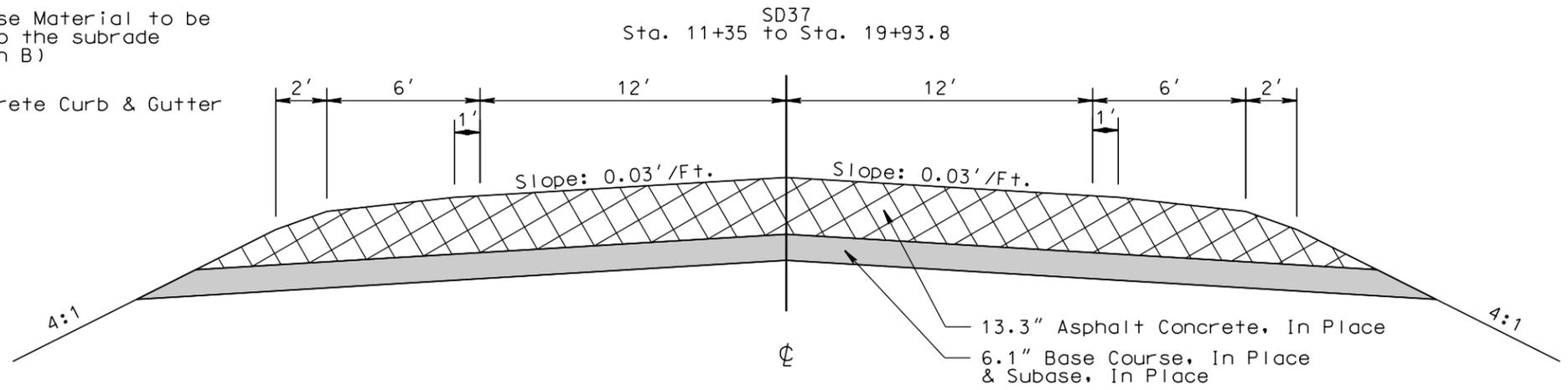
Location – Description	Water for Granular Material	Gravel Cushion	Base Course, Salvaged	Asphalt Concrete Composite
	Mgal	Ton	Ton	Ton
Mainline – US 12				
Sta. 14+77 to 18+50	1.1		90.1	57.1 / 57.1 / 47.6
Sta. 25+64 to 29+37	1.1		89.4	56.7 / 56.7 / 47.3
Gravel Drives – 1				
Asphalt Drives – 6	0.6	24.1	28.0	41.3
TOTAL	2.9	24.1	215.0	363.8

TYPICAL INPLACE SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F6	F21

Plotting Date: 07/27/2016

-  Salvage and Stockpile Asphalt Mix
-  Granular Base Material to be Blended into the subgrade (See Section B)
-  Remove Concrete Curb & Gutter



PLOT SCALE - 1+6.00001

PLOTTED FROM - TRPR15123

PLOT NAME - 2

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TYPICAL INPLACE SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F7	F21

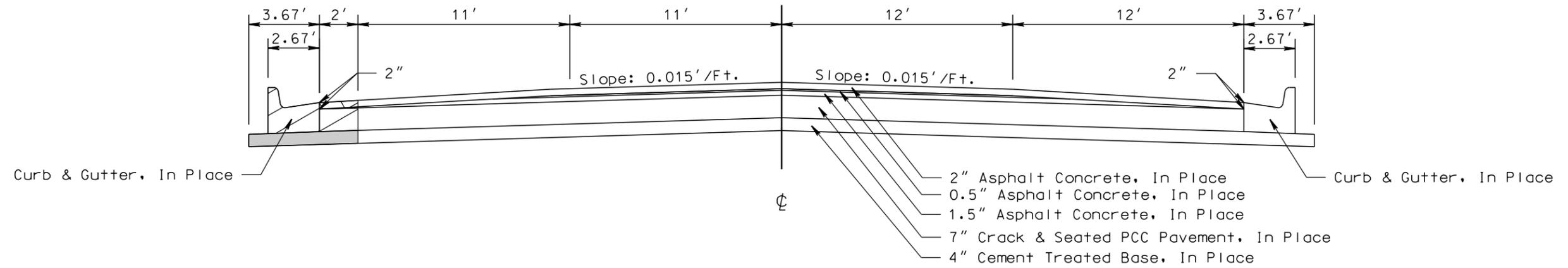
Plotting Date: 07/27/2016

PLOT SCALE - 1+6.00001

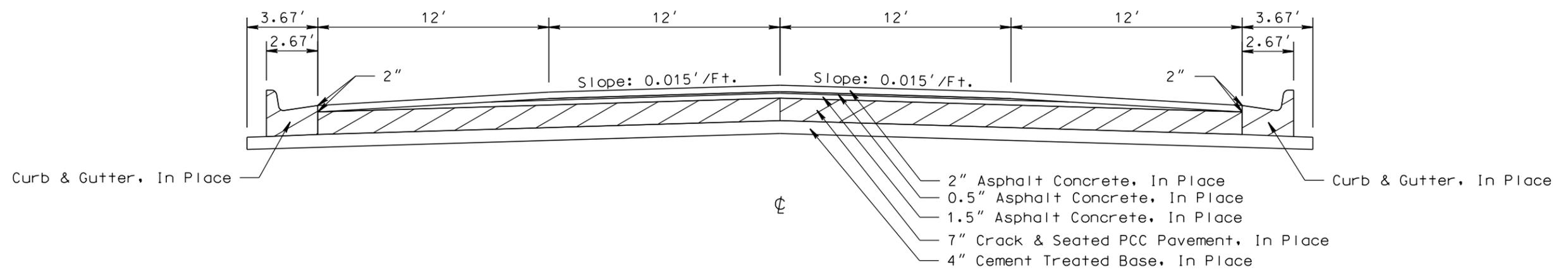
PLOT NAME - 3

-  Salvage and Stockpile Asphalt Mix
-  Remove Concrete Pavement
-  Unclassified Excavation (Waste Material)

US12
Sta. 14+77 to Sta. 18+50
Sta. 25+64 to Sta. 29+37



US12
Sta. 18+50 to Sta. 25+64



PLOTTED FROM - TRPR15123

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TYPICAL SURFACING SECTIONS

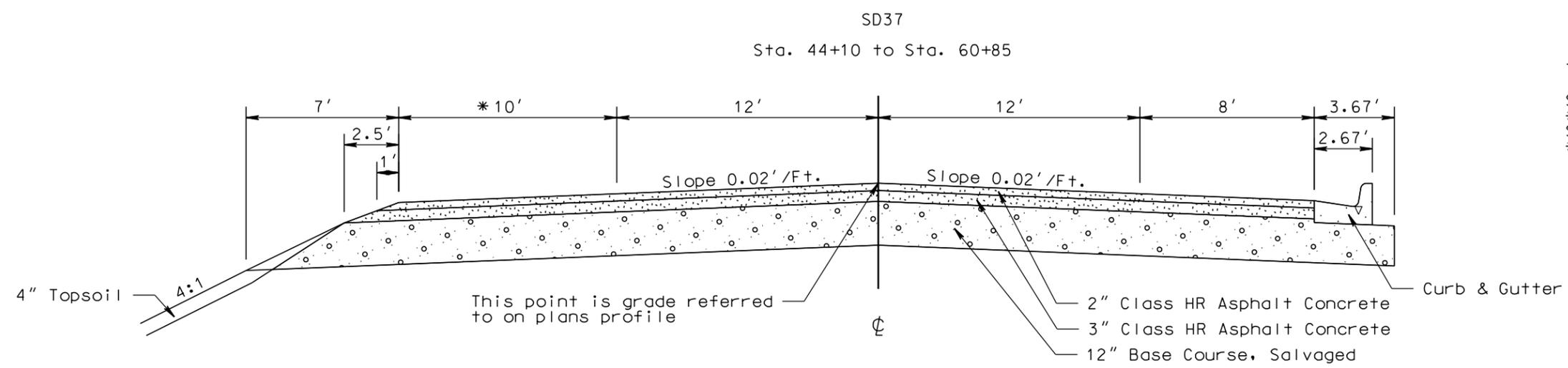
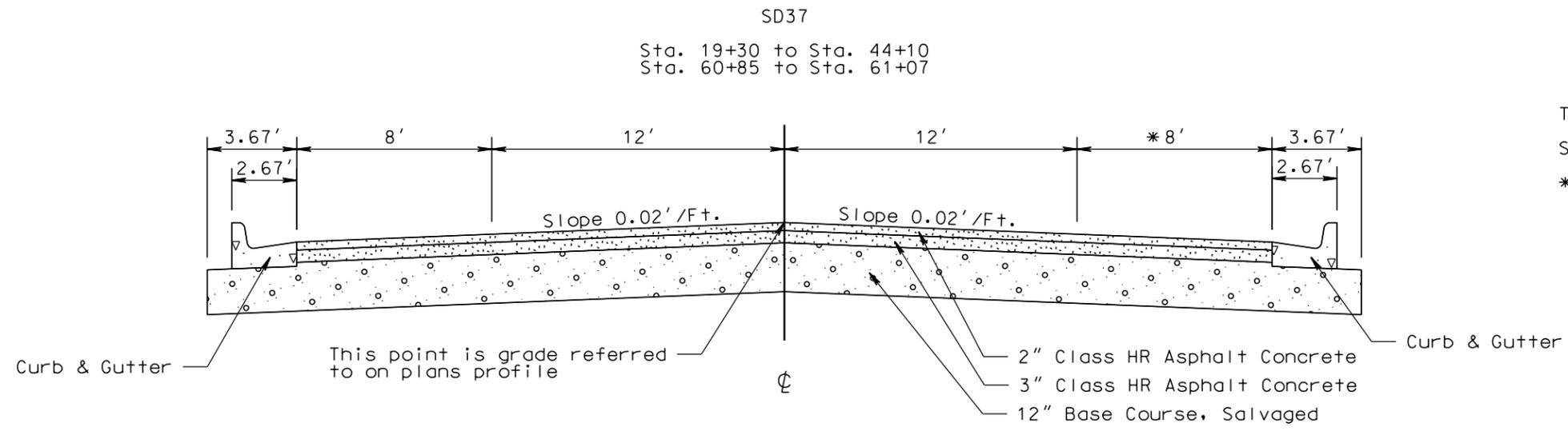
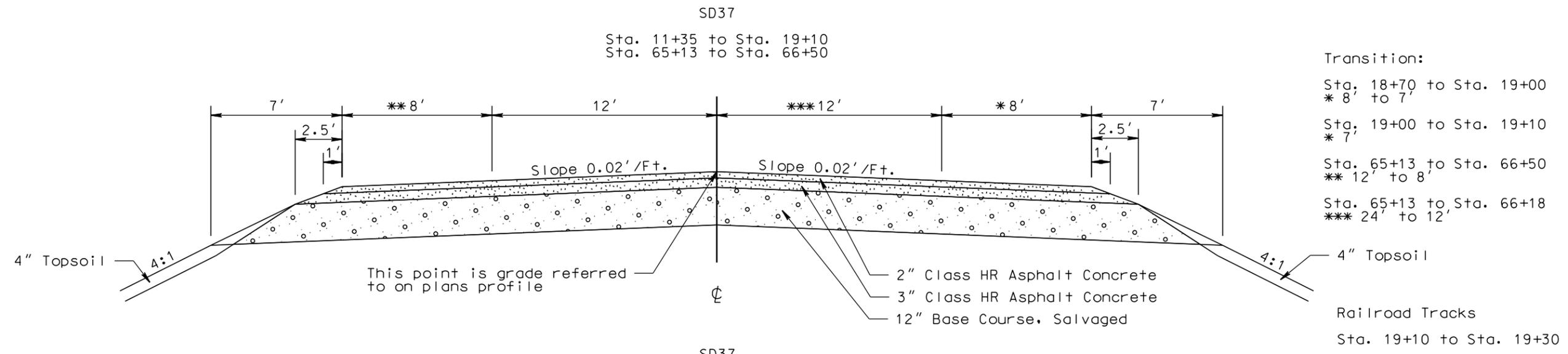
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F8	F21

Plotting Date: 07/27/2016

PLOT SCALE - 1+6.00001

PLOT NAME - 4

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PLOTTED FROM - TRP15123

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F9	F21

Plotting Date: 07/27/2016

PLOT SCALE - 1+6.00001

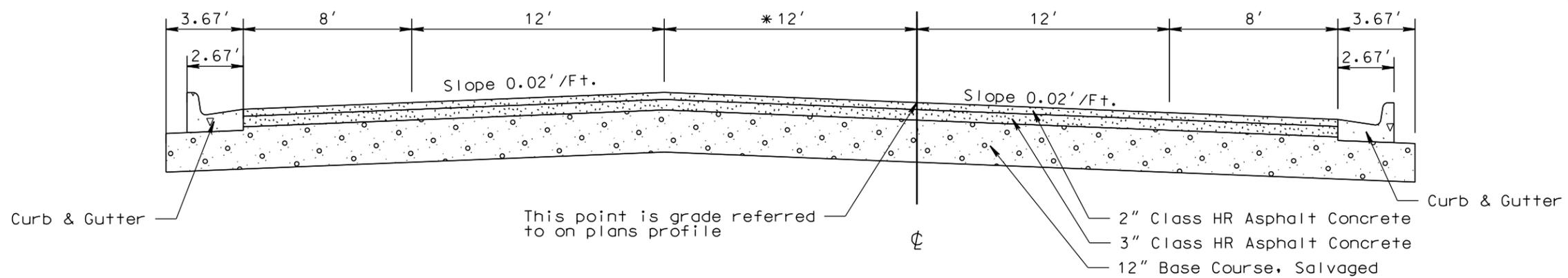
PLOT NAME - 5

FILE - ... \039K_TYPICAL SECTIONS.DGN

SD37

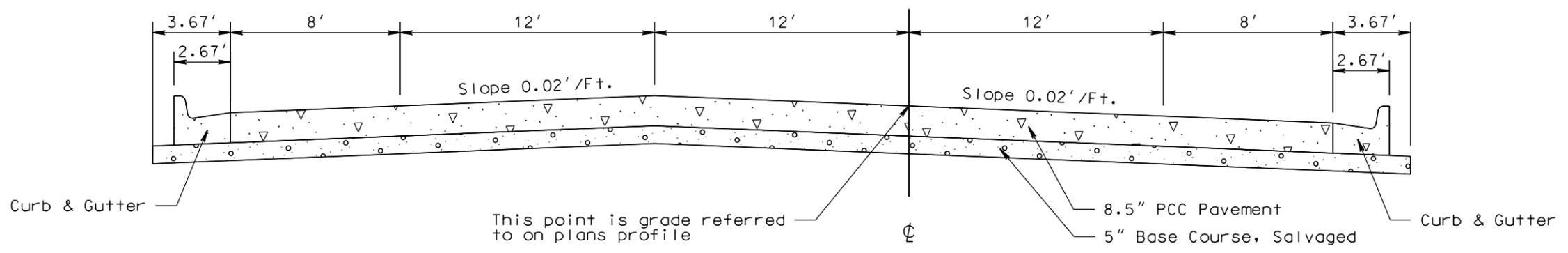
Sta. 61+07 to Sta. 62+76.43

Transition:
Sta. 61+07 to Sta. 62+76.43
* 0' to 12'



SD37

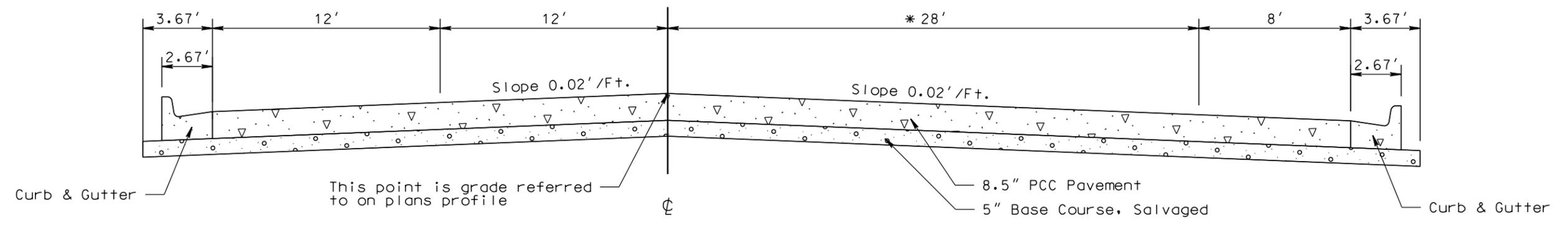
Sta. 62+76.43 to Sta. 63+57.72



Transition:
Sta. 64+66 to Sta. 65+13
* 28' to 24'

SD37

Sta. 64+19.02 to Sta. 65+13



PLOTTED FROM - TRPR15123

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F10	F21

Plotting Date: 07/27/2016

Transitions:

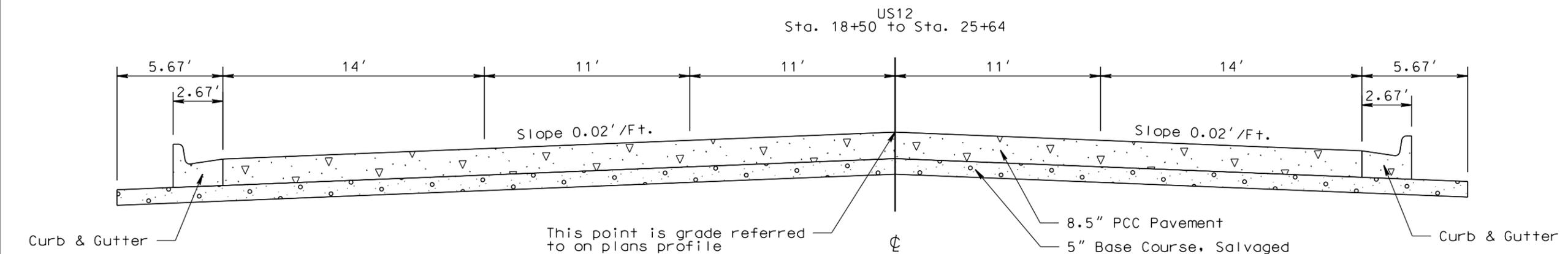
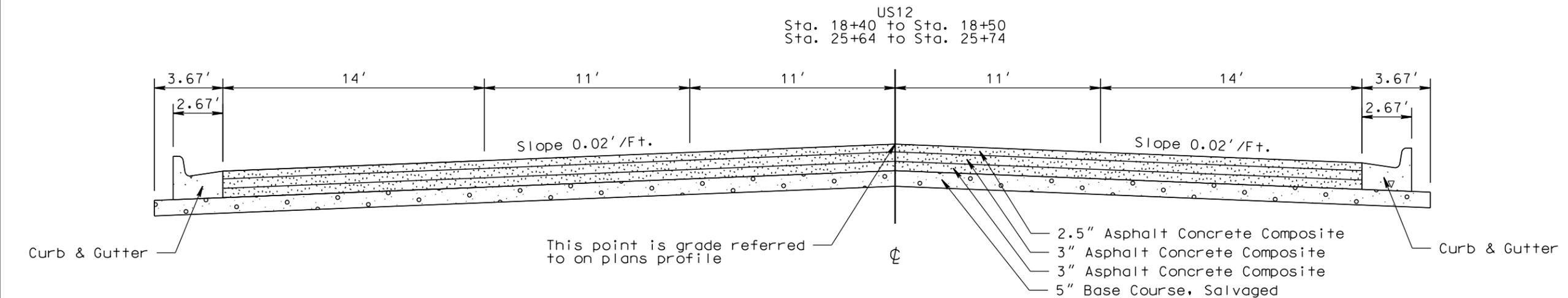
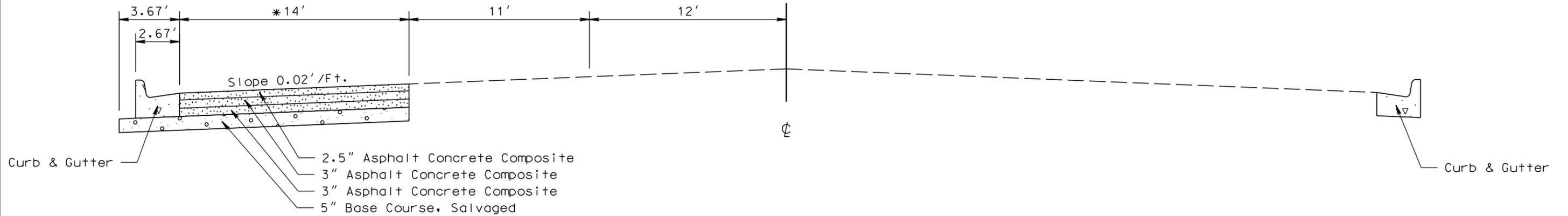
Sta. 14+77 to Sta. 15+34.46
* 2'

Sta. 15+34.46 to Sta. 18+40
* 2' to 14'

Sta. 25+74 to Sta. 28+79.53
* 14' to 2'

Sta. 28+79.53 to Sta. 29+37
* 2'

US12
Sta. 14+77 to Sta. 18+40
Sta. 25+74 to Sta. 29+37



PLOT SCALE - 1+6.00001

PLOT NAME - 6

FILE - ... \039K_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRP15123

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT P 0037(129)207 NH 0012(198)308	SHEET F11	TOTAL SHEETS F21
-----------------------	--	--------------	---------------------

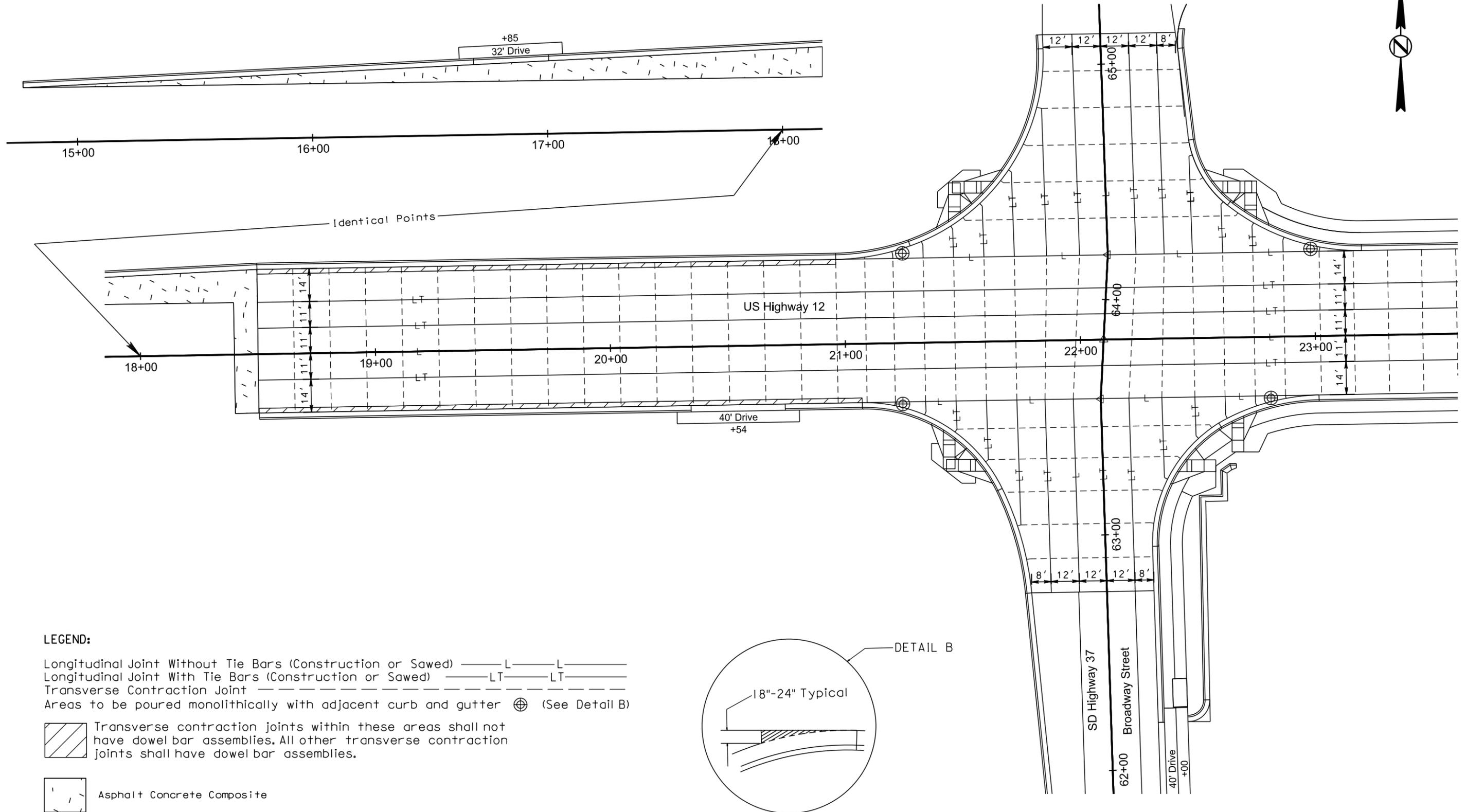
Plotting Date: 07/27/2016
Revised: 27 Jul 16, LLR

Scale 1 Inch = 40 Feet
Sheet 1 of 2 Sheets

PLOT SCALE - 1:40

PLOT NAME - 7

FILE - ... \PRJ\BRW\039K\JOINT LAYOUT.DGN

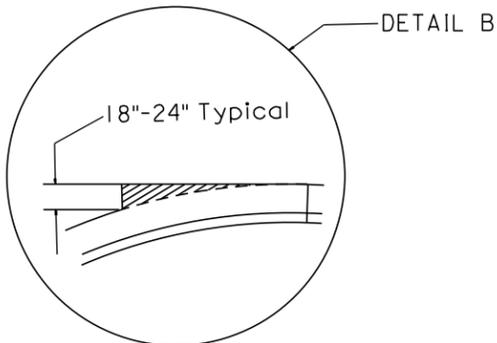


LEGEND:

- Longitudinal Joint Without Tie Bars (Construction or Sawed) ——— L ——— L ———
- Longitudinal Joint With Tie Bars (Construction or Sawed) ——— LT ——— LT ———
- Transverse Contraction Joint ——— - - - - -
- Areas to be poured monolithically with adjacent curb and gutter ⊕ (See Detail B)

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

 Asphalt Concrete Composite



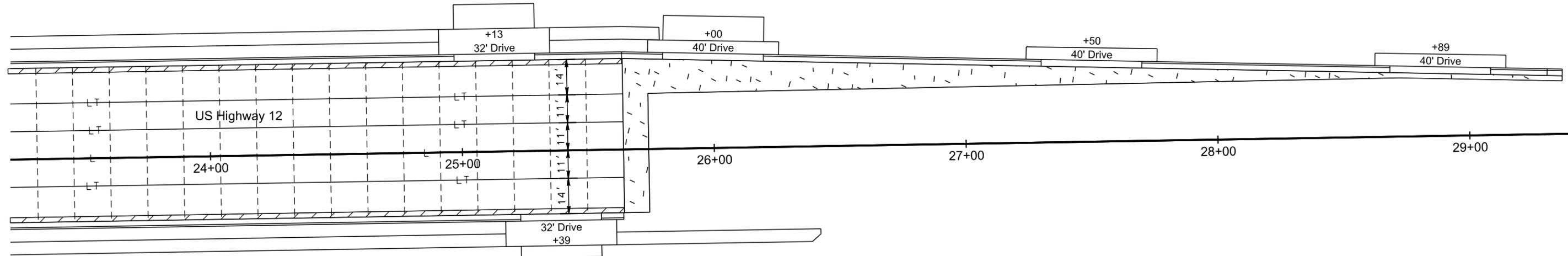
PLOTTED FROM - TRPR15123

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F12	F21

Plotting Date: 07/27/2016

Scale 1 Inch = 40 Feet
Sheet 2 of 2 Sheets



PLOT SCALE - 1:40

PLOT NAME - 8

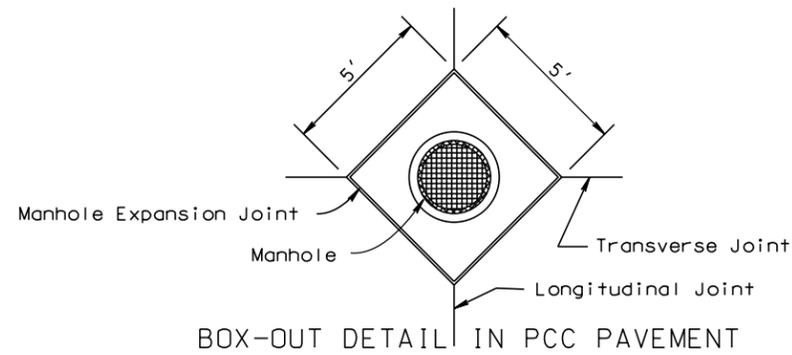
FILE - ... \PRJ\BRW\039K\JOINT LAYOUT.DGN

PLOTTED FROM - ITRP15123

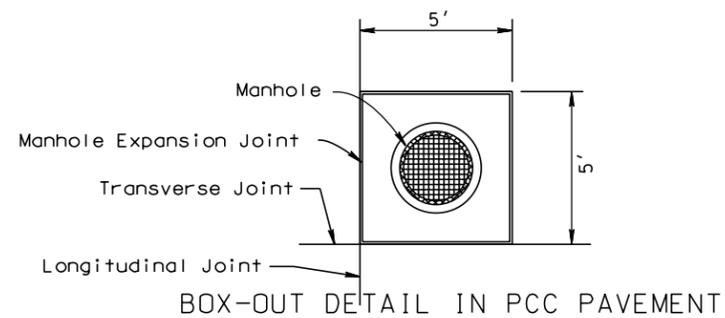
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F13	F21

Plotting Date: 07/27/2016

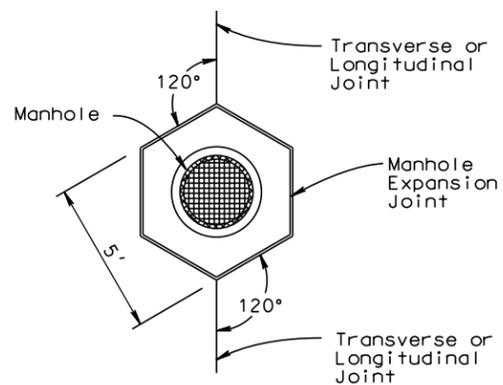
MANHOLE BOX - OUT DETAILS



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

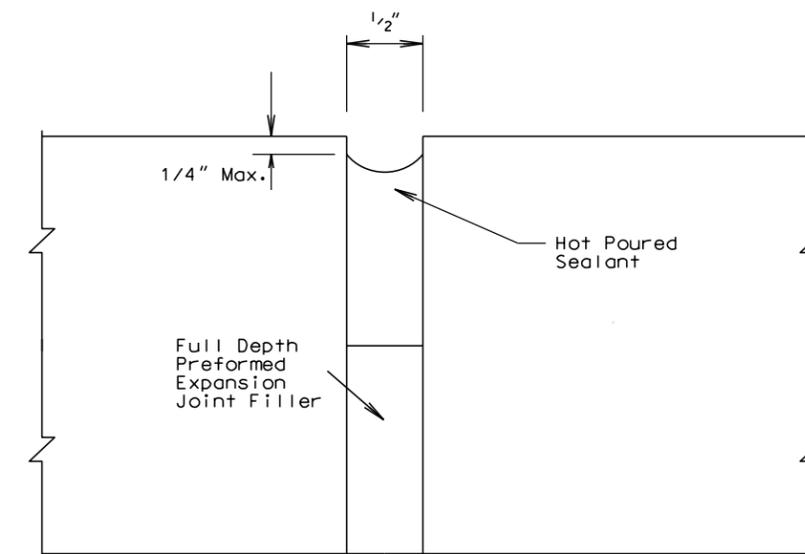


Where the utility access is offset from the longitudinal and transverse joints



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

MANHOLE EXPANSION JOINT DETAIL

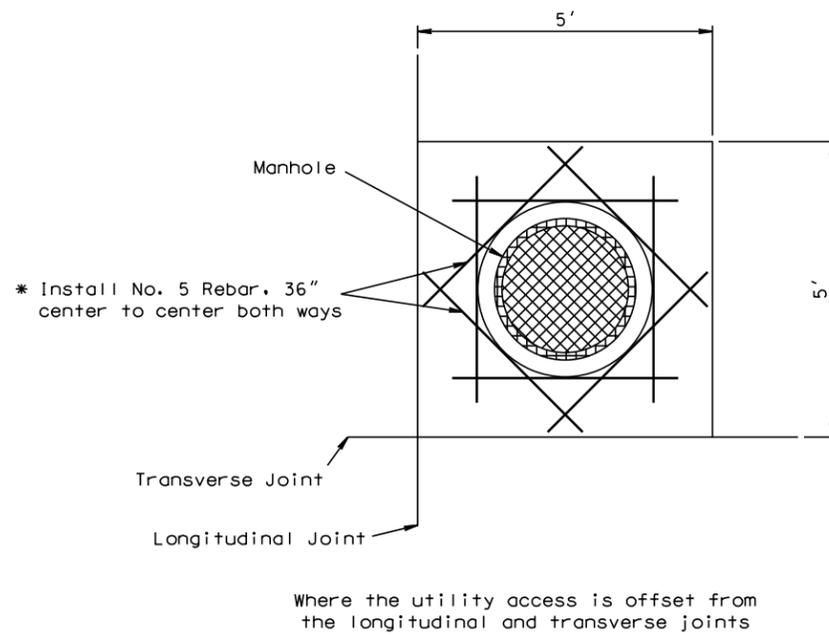
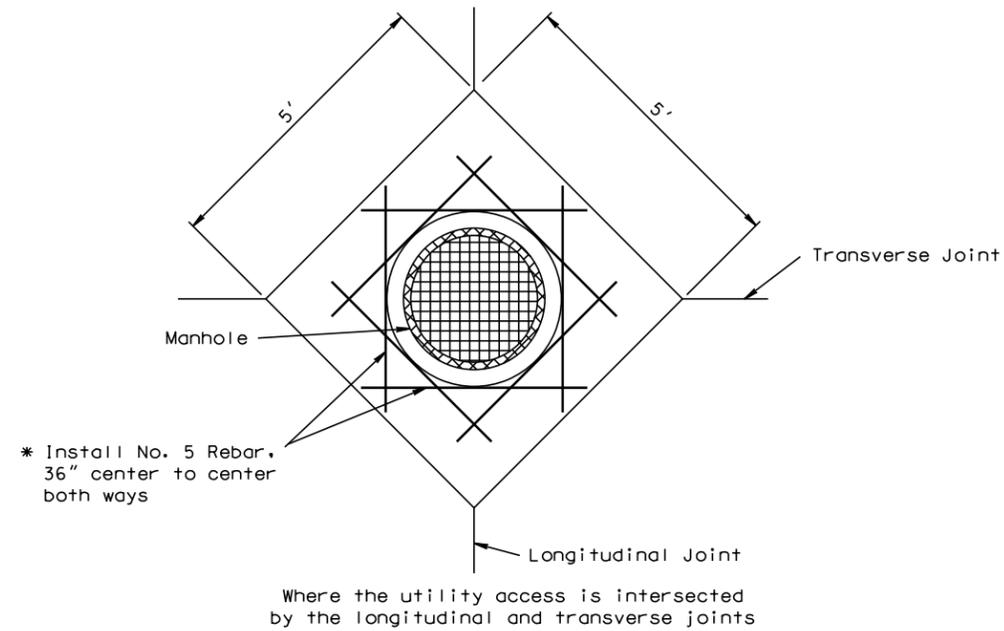


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	F14	F21

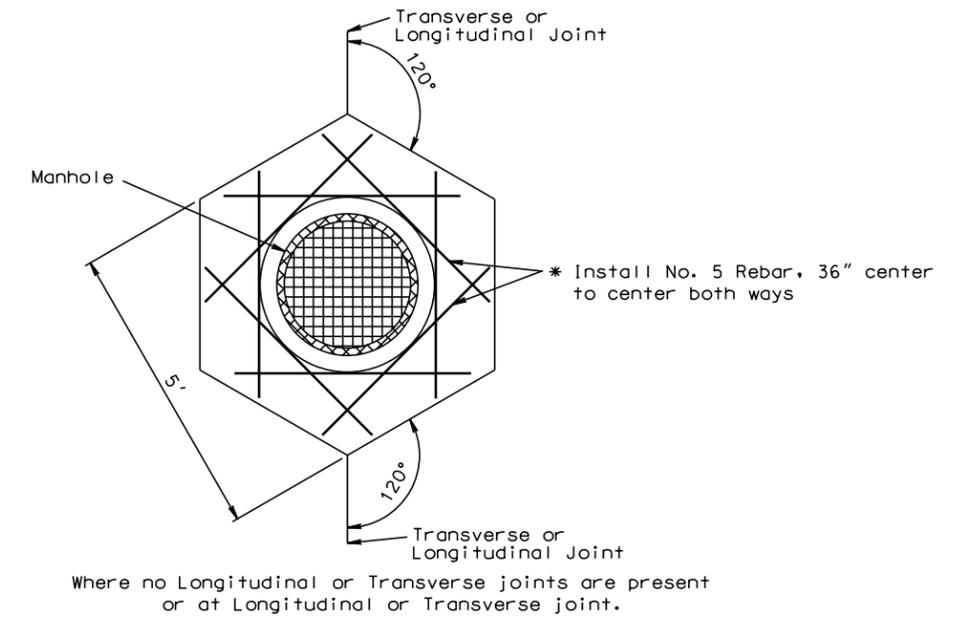
Plotting Date: 07/27/2016

MANHOLE BOX - OUT DETAILS

REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



REBAR LAYOUT IN PCC PAVEMENT WITH BOX-OUTS



* All rebar will be placed at the midpoint depth of the PCC Pavement. All cost associated with the installation of the rebar will be incidental to the contract unit price per square yard for the Nonreinforced PCC Pavement. When Box-Outs are used, the cost to construct them shall be incidental to the contract unit price per square yard for the Nonreinforced PCC Pavement

PLOT SCALE - 1:3.1

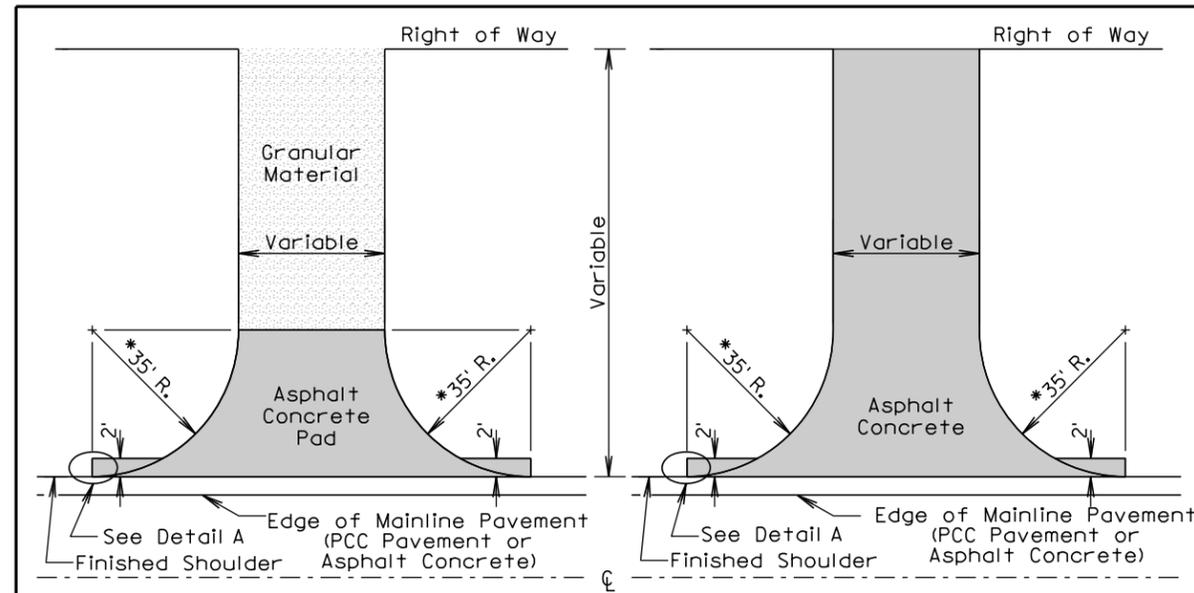
PLOTTED FROM - TRPR15123

PLOT NAME - 10

FILE - ... \MANHOLE DETAIL.DGN

PLOT SCALE - 1:200

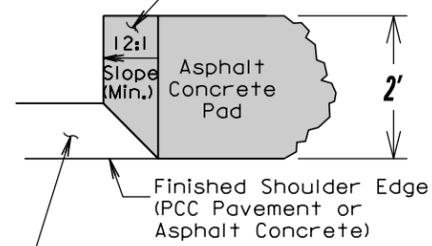
PLOT NAME - 11



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND RIGHT OF WAY

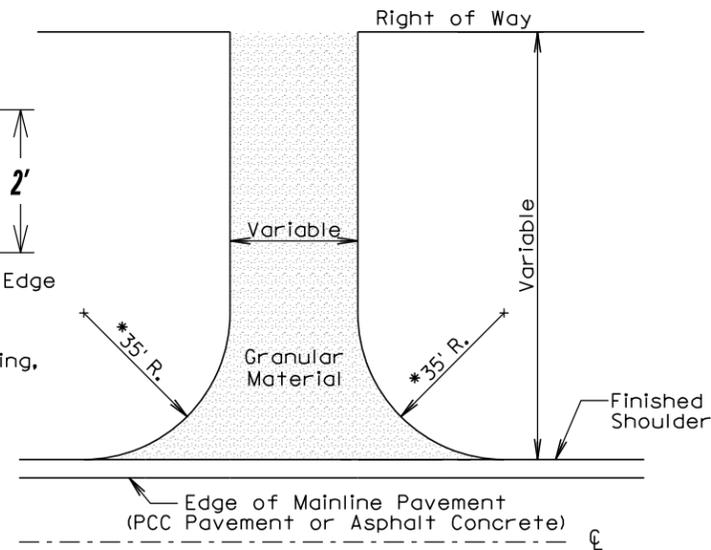
INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND RIGHT OF WAY

Provide bevel on ends
of asphalt concrete
pad as shown



DETAIL A

Bevel on shoulder surfacing,
Asphalt Concrete only.



ENTRANCE

GENERAL NOTES:

The details shown are provided as a guide for surfacing. The precise construction limits for situations other than the standards shown will be determined by the Engineer during construction.

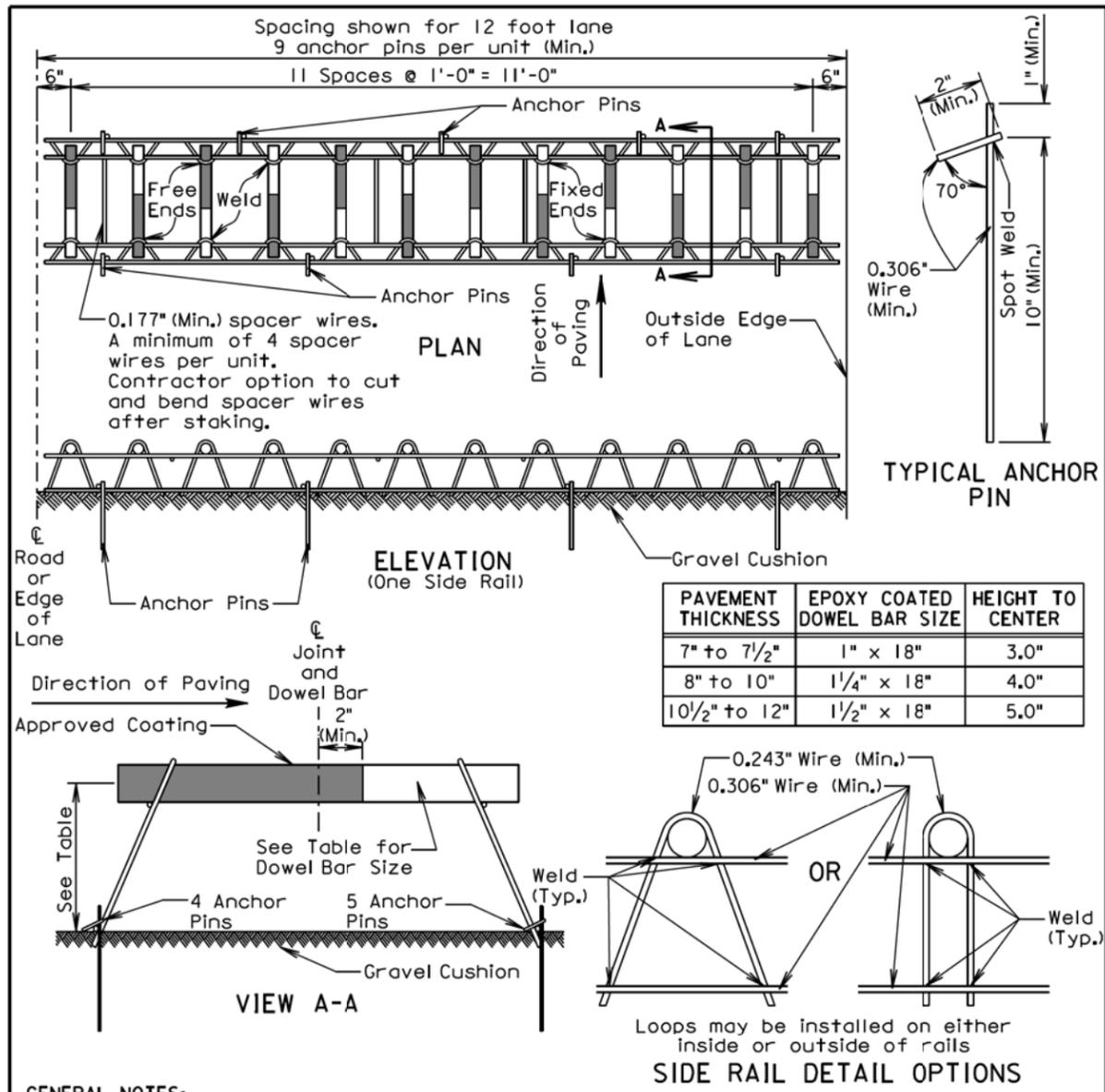
* 35' Radius except as noted elsewhere in plans.

ROADWAY WITH SHOULDER

**SURFACING OF
INTERSECTING ROADS AND ENTRANCES
(PCCP OR AC PAVED SHOULDERS)**

PLOTTED FROM - TRPR15123

FILE - ... \MS NEWS2004.DGN



GENERAL NOTES:

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

Centerline of individual dowel bars shall be parallel to top of subgrade $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

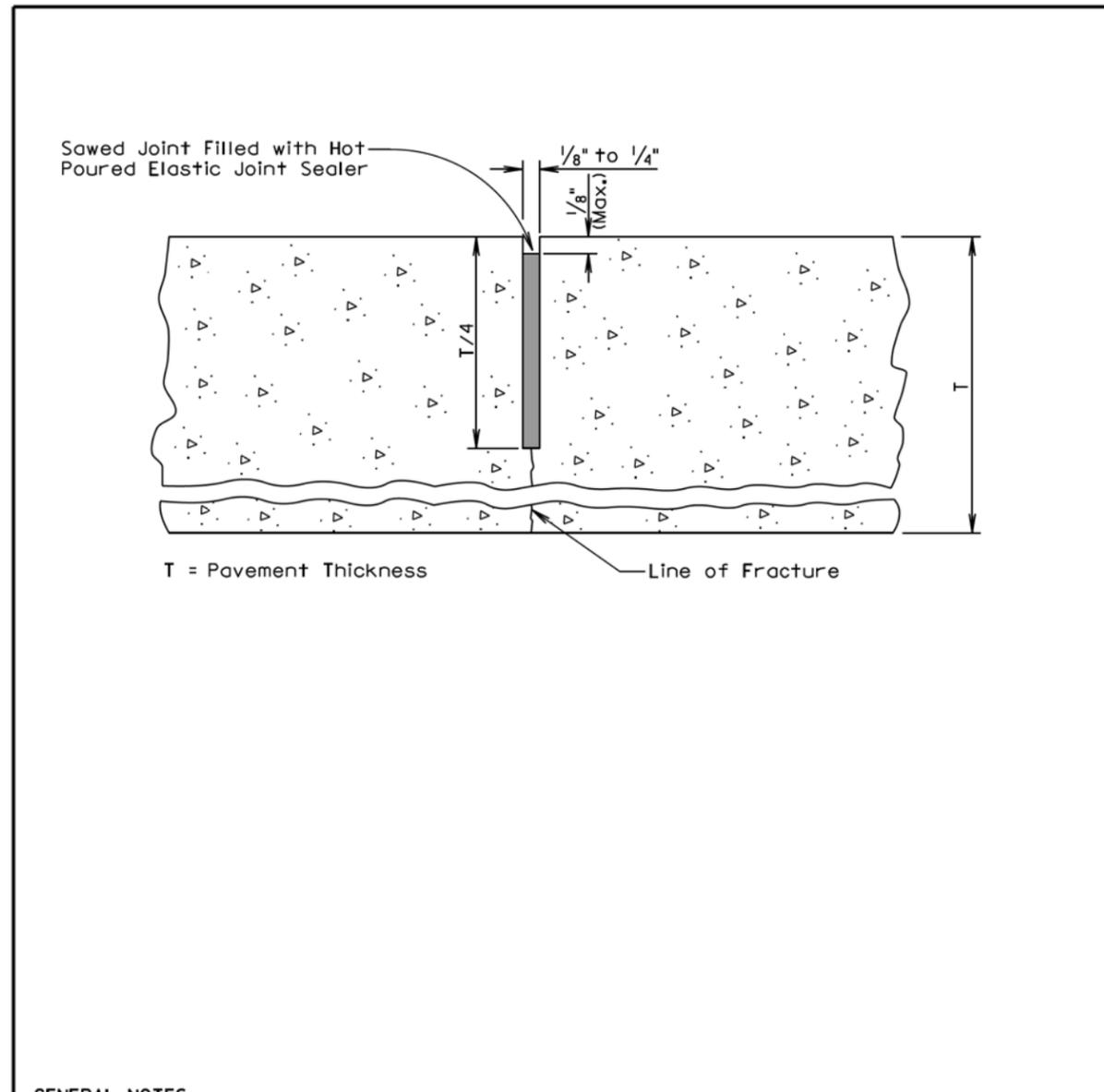
Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

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

August 30, 2013

Published Date: 3rd Qtr. 2016	S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material	PLATE NUMBER 380.01
			Sheet 1 of 1



GENERAL NOTES:

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

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

PLOT SCALE - 1:200

PLOTTED FROM - TRPB15123

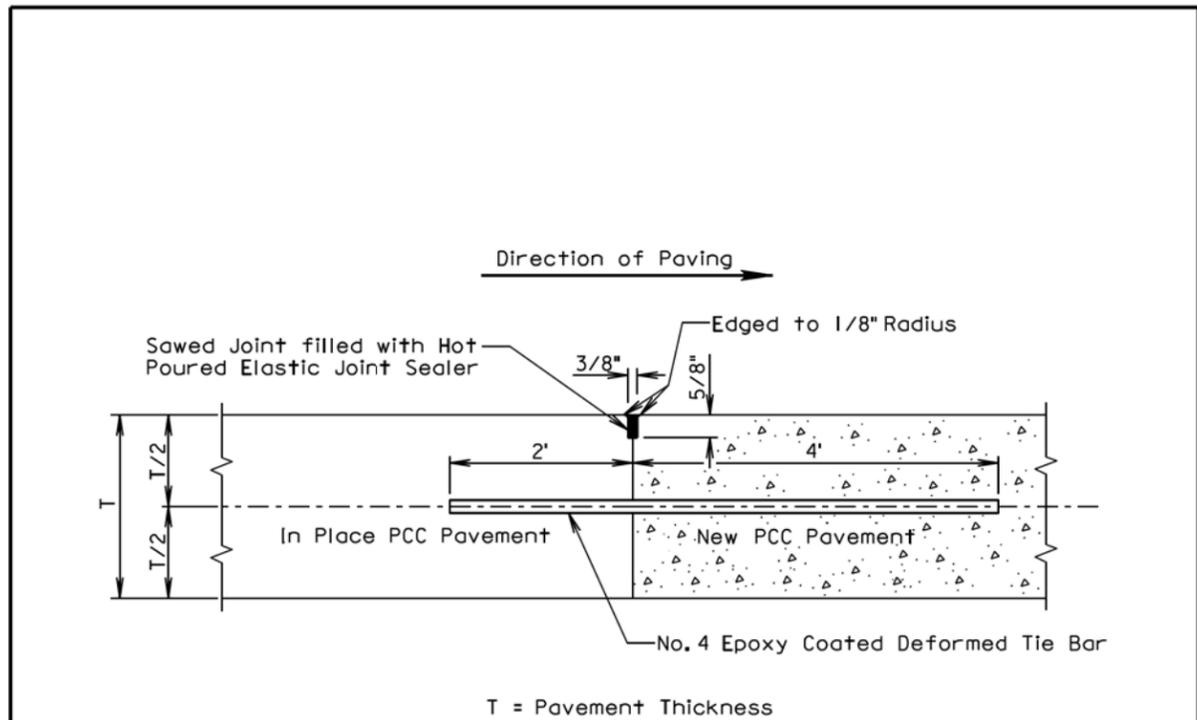
PLOT NAME - 12

FILE - ... \380-01 380-05.DGN

PLOT SCALE - 1:200

PLOT NAME - 13

FILE - ... \380.07 380.08.1.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.

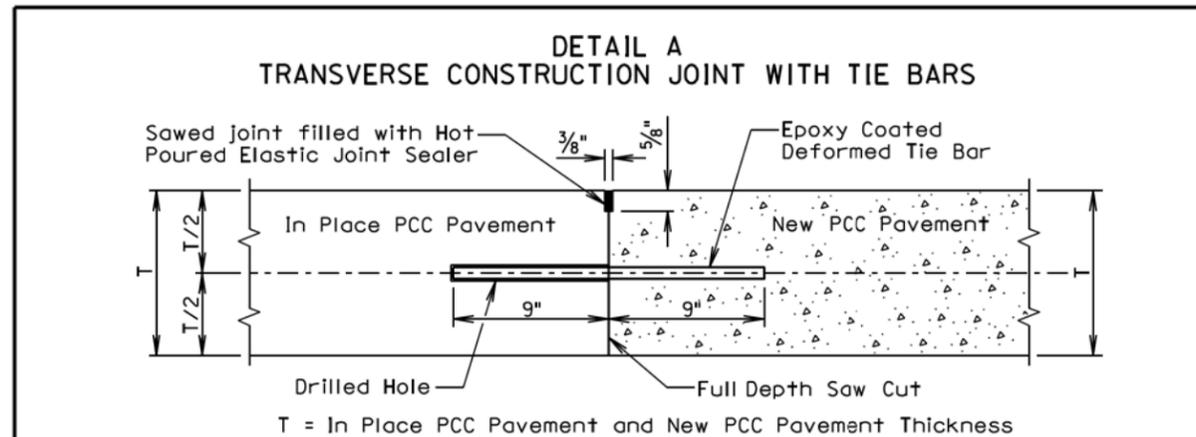
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

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
		Sheet 1 of 1

Published Date: 3rd Qtr. 2016



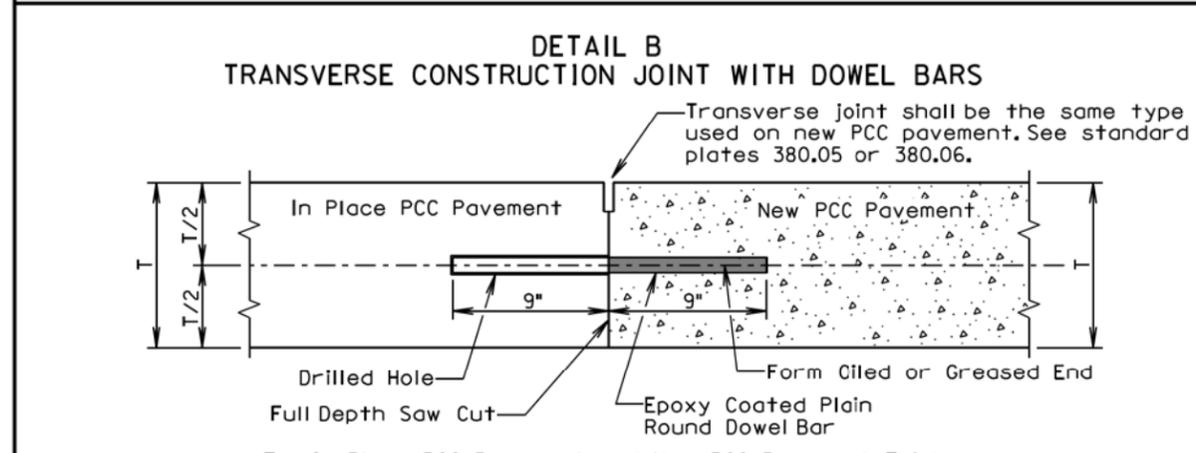
GENERAL NOTES:

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

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

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

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



GENERAL NOTES:

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

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

The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

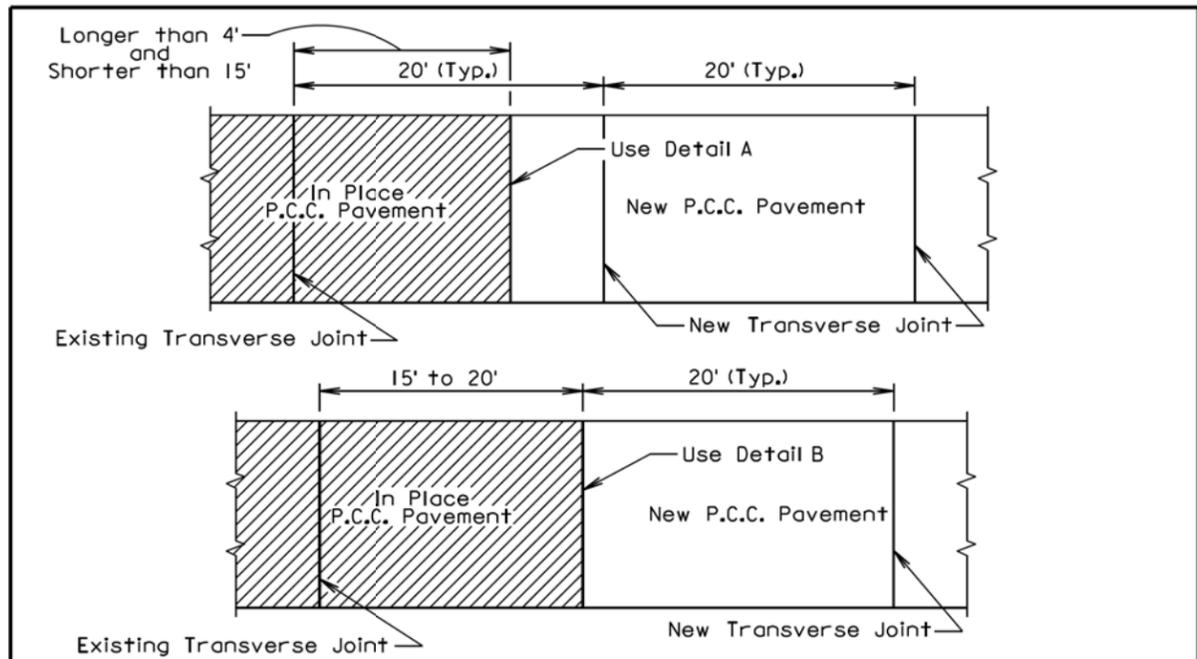
The epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement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

September 6, 2013

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

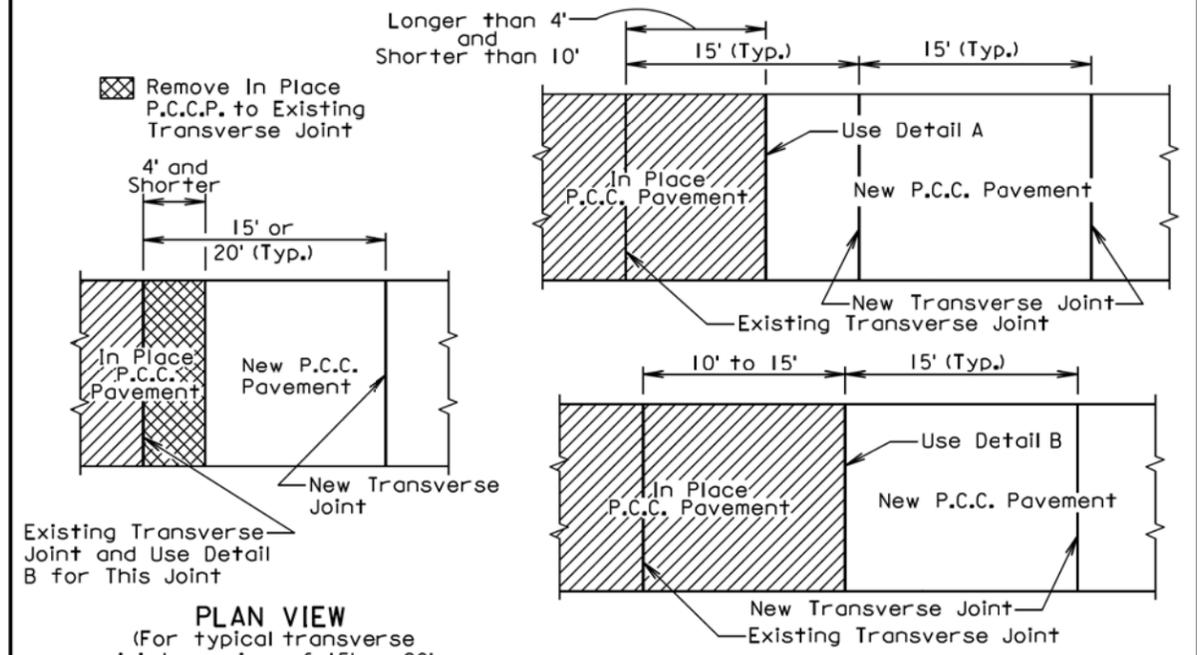
Published Date: 3rd Qtr. 2016

Plotting Date: 07/27/2016



PLAN VIEW

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



PLAN VIEW

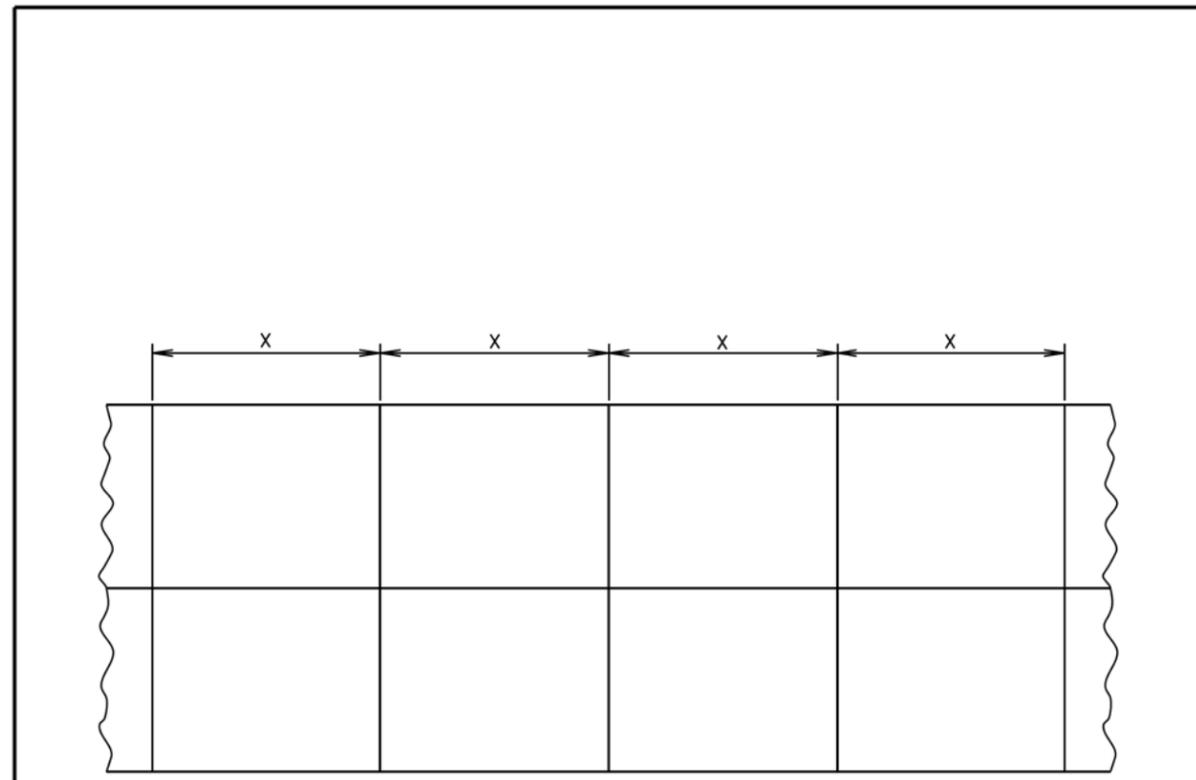
(For typical transverse joint spacing of 15' or 20' on the current project)

PLAN VIEW

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

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

PLOT SCALE - 1:200

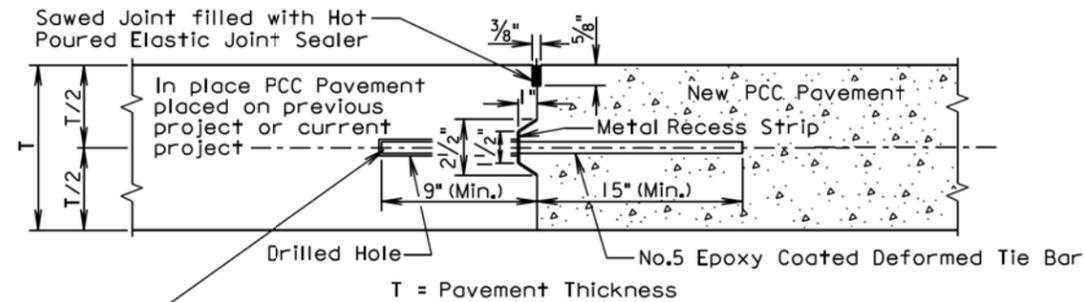
PLOTTED FROM - TRPB15123

PLOT NAME - 14

FILE - ... \380_08-2_380_09.DGN

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

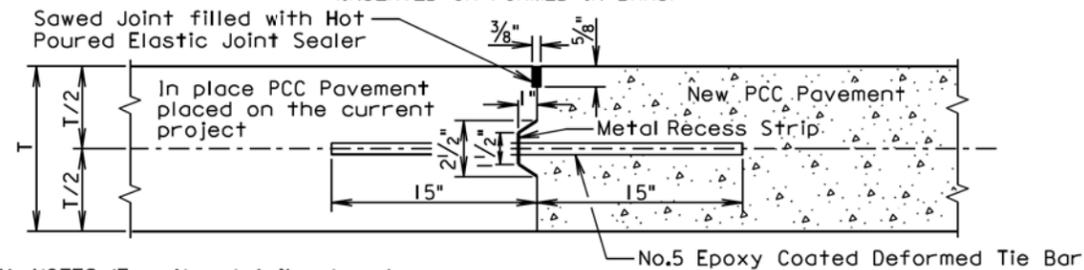
(DRILLED IN BARS)



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.

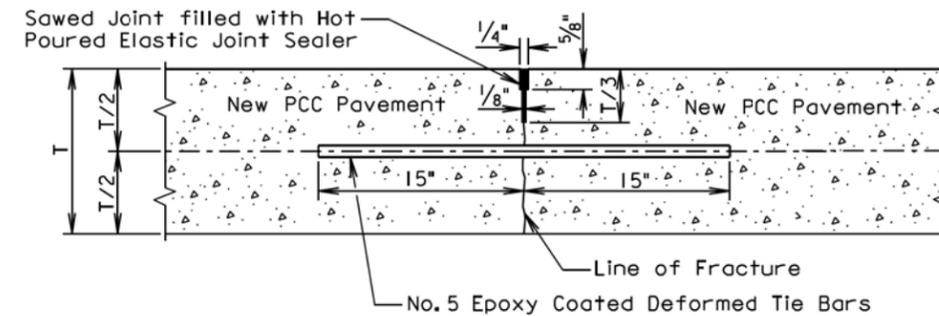
August 31, 2013

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.

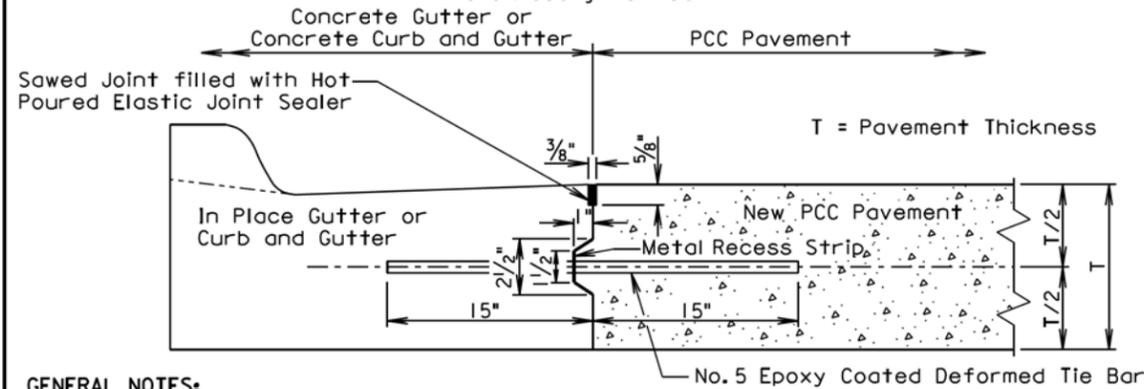
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

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 WITH TIE BARS (Individually Formed)



GENERAL NOTES:

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

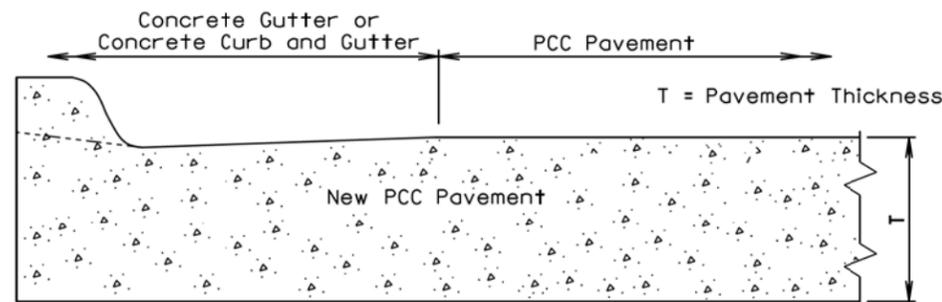
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

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 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 shall be at least 1/4 the thickness of the concrete gutter or concrete curb and gutter.

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

POURED MONOLITHICALLY



GENERAL NOTES:

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

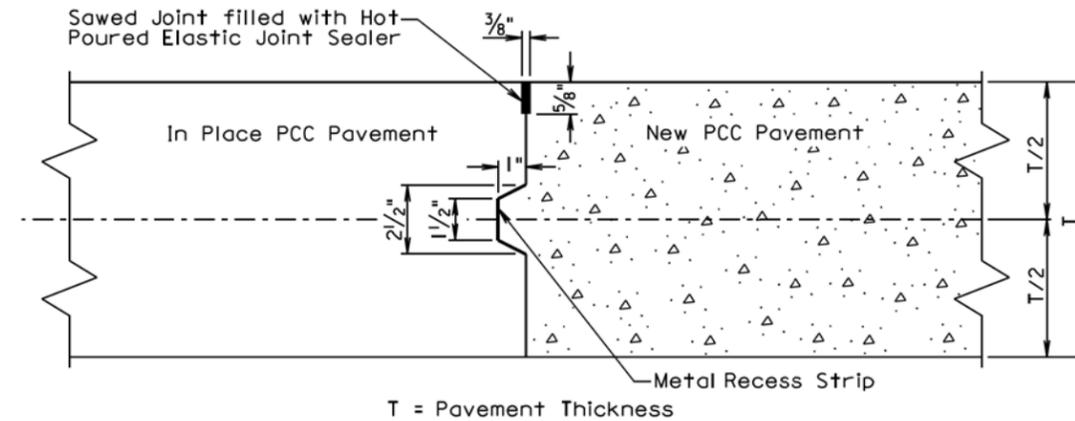
The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

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

June 26, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS

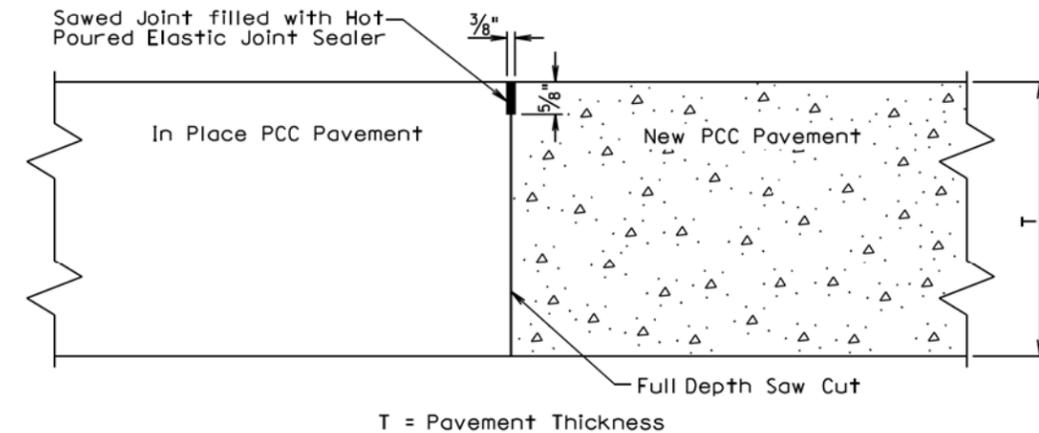


GENERAL NOTES:

When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

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

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



GENERAL NOTE:

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

September 14, 2001

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

