

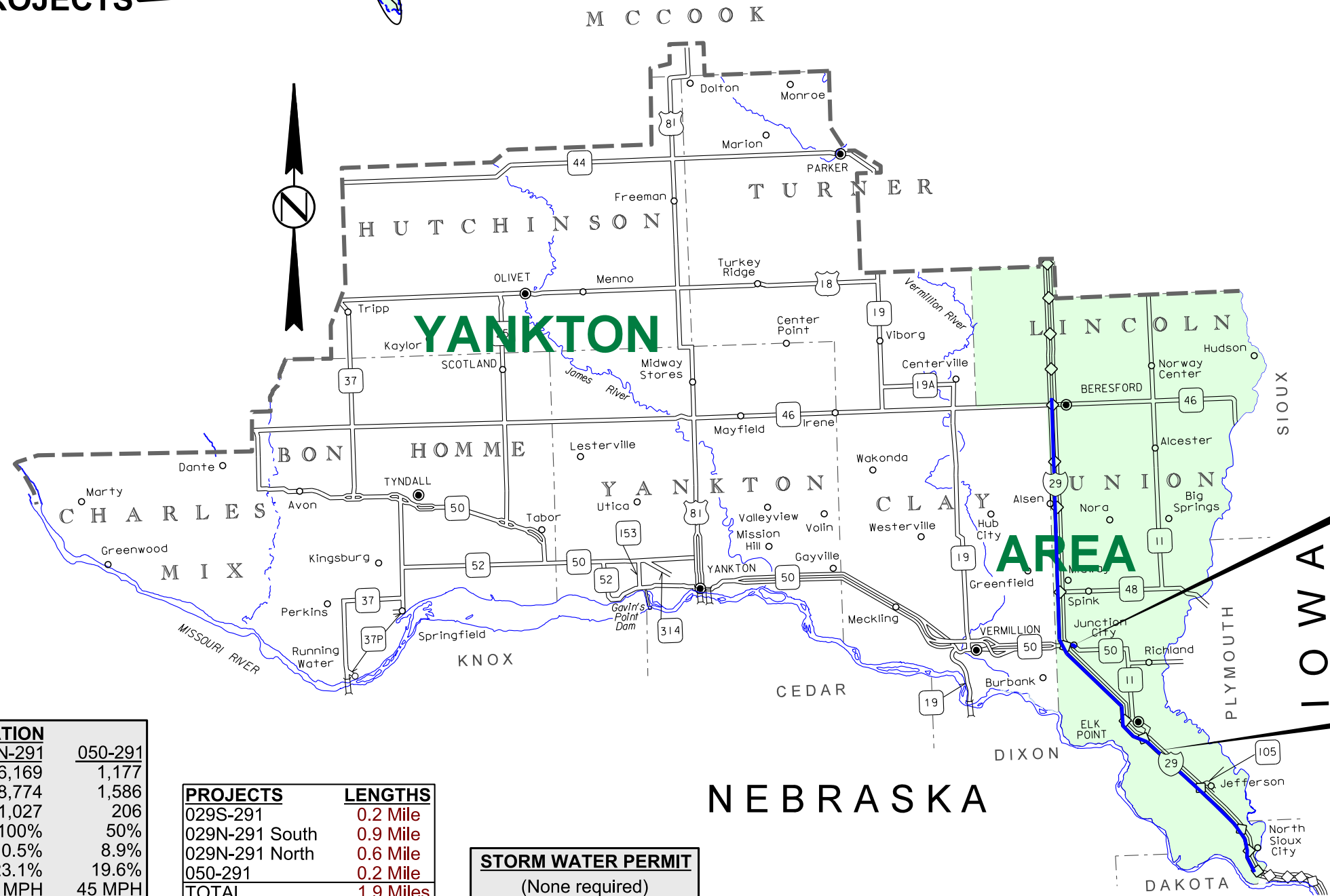
PROJECTS

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
029S-291, 029N-291 & 050-291
INTERSTATE 29 & SD HIGHWAY 50
UNION & LINCOLN COUNTIES
PCC PAVEMENT REPAIR
PCN I3P2, I3P3 & I3P4

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2015 Yankton Area PCCP Repair	1	19

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PROJECT	DESIGN DESIGNATION		
	029S-291	029N-291	050-291
ADT(2013)	5,910	6,169	1,177
ADT(2033)	8,516	8,774	1,586
DHV	996	1,027	206
D	100%	100%	50%
T DHV	9.6%	10.5%	8.9%
T ADT	21.1%	23.1%	19.6%
V	75 MPH	75 MPH	45 MPH

PROJECTS	LENGTHS
029S-291	0.2 Mile
029N-291 South	0.9 Mile
029N-291 North	0.6 Mile
050-291	0.2 Mile
TOTAL	1.9 Miles

STORM WATER PERMIT
(None required)

050-291 PCN I3P4
SD HIGHWAY 50
MRM 417.00 +0.100 to
MRM 417.00 +0.300

029S-291 PCN I3P2
INTERSTATE 29 SB
MRM 18.00 +0.000 to
MRM 18.00 +0.200
029N-291 PCN I3P3
INTERSTATE 29 NB
MRM 1.00 +0.100 to
MRM 47.00 +0.600

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	029S-291 PCN I3P2 QUANTITY	029N-291 PCN I3P3 QUANTITY	050-291 PCN I3P4 QUANTITY	TOTAL QUANTITY	UNIT
009E0010	Mobilization	<----- Lump Sum ----->			Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	16.0	156.7	111.2	283.9	SqYd
380E6000	Dowel Bar	24	183	48	255	Each
380E6110	Insert Steel Bar in PCC Pavement	48	346	76	470	Each
380E6200	Tie Bar Retrofit, Stitching	-	-	79	79	Each
380E6310	Seal Random Cracks in PCC Pavement	-	-	158	158	Ft
634E0010	Flagging	5	5	5	15	Hour
634E0100	Traffic Control	608	841	404	1,853	Unit
634E0120	Traffic Control Miscellaneous	<----- Lump Sum ----->			Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	1	-	2	Each
634E0610	4" Temporary Pavement Marking Tape Type 2 (24" White Stop Bars)	-	-	144	144	Ft
634E0640	Temporary Pavement Marking	900	3,760	2,000	6,660	Ft

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition
and Required Provisions, Supplemental Specifications and
Special Provisions as included in the Proposal.

TABLES FOR PCC PAVEMENT REPAIR ON 029S-291 PCN I3P2

INSERT STEEL BAR
IN PCC PAVEMENT

MRM	LANE	SB DRIVING LANE		PCCP SqYds	NEW JOINT CON- FIG.	No. 9 x 18" DEFORMED TIE BARS Each	No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each
		L Ft	W Ft					
18.00 +0.082	SBDL	6	6	4.0	R	8	4	6
18.00 +0.108	SBDL	6	6	4.0	R	8	4	6
18.00 +0.124	SBDL	6	6	4.0	R	8	4	6
18.00 +0.175	SBDL	6	6	4.0	R	8	4	6
TOTALS:				16.0		32	16	24

TABLES FOR PCC PAVEMENT REPAIR ON 029N-291 PCN I3P3

INSERT STEEL BAR
IN PCC PAVEMENT

MRM	LANE	NB PASSING LANE		NB DRIVING LANE		PCCP SqYds	NEW JOINT CON- FIG.	1½" x 18" PLAIN ROUND DOWEL BARS Each		No. 11 x 18" DEFORMED TIE BARS Each	No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each	COMMENTS
		L Ft	W Ft	L Ft	W Ft								
1.00 +0.150	NBDL			6	6	4.0	R			8	4	6	
1.00 +0.228	NBDL			6	6	4.0	R			8	4	6	
1.00 +0.673	NBDL			6	12	8.0	R			16	4	12	
1.00 +0.673	NBPL	6	6			4.0	R			8	4	6	
1.00 +0.741	NBDL			6	6	4.0	R			8	4	6	
1.00 +0.752	NBDL			6	6	4.0	R			8	4	6	
2.00 +0.060	NBDL			6	12	8.0	R			16	4	12	
2.00 +0.060	NBPL	6	6			4.0	R			8	4	6	
46.00 +0.965	NBDL			6	14	9.3	R			16	2	12	
46.00 +0.980	NBDL			6	14	9.3	R			16	4	12	
47.00 +0.022	NBDL			6	6	4.0	R			8	4	6	
47.00 +0.033	NBDL			6	6	4.0	R			8	4	6	
47.00 +0.420	NBDL			6	7	4.7	R			8	4	7	
47.00 +0.429	NBDL			6	6	4.0	R			8	4	6	
47.00 +0.429	NBPL	6	6			4.0	R			8	4	6	
47.00 +0.440	NBDL			6	6	4.0	R			8	4	6	
47.00 +0.535	NBDL			6	6	4.0	R			8	4	6	
47.00 +0.547	NBDL			6	14	9.3	R			16	4	12	
47.00 +0.554	NBDL			6	14	9.3	R			16	4	12	
47.00 +0.592	NBDL			6	8	5.3	R			10	4	8	
Exit 46				6	12.4	8.3	R			16	2	12	NB On Ramp - Right half.
Exit 46				14.4	12.4	19.8	B	8	8	8	4		NB On Ramp - Right half.
Exit 46				12.5	12.5	17.4	R			16	4	12	NB On Ramp - Left half.
TOTALS:						156.7		8	250	88	88	183	

TABLE FOR PCC PAVEMENT REPAIR ON 050-291 PCN I3P4

INSERT STEEL BAR
IN PCC PAVEMENT

MRM	LANE	WB LANE		PCCP SqYds	NEW JOINT CON- FIG.	1¼" x 18" PLAIN ROUND DOWEL BARS Each		No. 9 x 18" DEFORMED TIE BARS Each	No. 5 x 24" DEFORMED TIE BARS Each	DOWEL BAR Each	TIE BAR RETROFIT STITCHING Each	SEAL RANDOM CRACKS IN PCC PAVEMENT Ft
		L Ft	W Ft									
417.00 +0.125	WBL										24	48
417.00 +0.140	WBL										15	30
417.00 +0.163	WBL	20	14	31.1	R			16	8	12	7	14
417.00 +0.186	WBL	24	14	37.3	B	8	8	8	9	12	33	66
417.00 +0.201	WBL	27.5	14	42.8	R			16	11	24		
TOTALS:				111.2		8	40	28	28	48	79	158

JOINT REPAIR CONFIGURATION KEY

W = Two Working Joints (Use only if repair is full roadway width and uniform length (across all lanes))

T = Two Tied Joints

B = One Working & One Tied Joint

R = Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2015 Yankton Area PCCP Repair	4	19

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating No Dumping Allowed.
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

Cost associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

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

Utilities are not planned to be affected on this project. 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 shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

SCOPE OF WORK

This project consists of tie bar retrofit (stitching), crack sealing and full depth replacement of concrete pavement in areas where concrete pavement blowups or major failures have occurred. Full depth areas vary in length and width; however the minimum length is 6 feet.

EXISTING PCC PAVEMENT

Existing pavement is as follows:

I29S: The existing pavement is 10” x 26’ Nonreinforced PCC Pavement. Existing contraction joints are spaced at approximately 20’. Longitudinal joints are reinforced with No. 5 x 30” deformed tie bars spaced 48” center to center. Transverse joints are reinforced with 1¼” x 18” plain round dowel bars spaced 12” center to center.

I29N MRM 1.00 +0.150 to 2.00 +0.060: The existing pavement is 11.5” x 38’ Nonreinforced PCC Pavement. Existing contraction joints are spaced at approximately 20’. Longitudinal joints are reinforced with No. 5 x 30” deformed tie bars spaced 48” center to center. Transverse joints are reinforced with 1¼” x 18” plain round dowel bars spaced 12” center to center.

I29N MRM 46.00 +0.965 to 47.00 +0.592: The existing pavement is 10.5” x 26’ Nonreinforced PCC Pavement. Existing contraction joints are spaced at approximately 20’. Longitudinal joints are reinforced with No. 5 x 30” deformed tie bars spaced 48” center to center. Transverse joints are reinforced with 1¼” x 18” plain round dowel bars spaced 12” center to center.

SD50: The existing pavement is 8” x 28’ Nonreinforced PCC Pavement. Existing contraction joints are spaced at approximately 20’. Longitudinal joints are reinforced with No. 5 x 30” deformed tie bars spaced 48” center to center. Transverse joints are reinforced with 1¼” x 18” plain round dowel bars spaced 12” center to center.

The aggregate in the existing PCC Pavement is quartzite.

RESTORATION OF GRAVEL CUSHION

An inspection of the gravel cushion subgrade shall be made after removing concrete from each pavement replacement area. Areas of excess moisture shall be dried to the satisfaction of the Engineer. Loose material shall be removed. Each replacement area shall be leveled and compacted to the satisfaction of the Engineer.

If additional gravel cushion material is required, the Contractor shall place and compact gravel cushion to the satisfaction of the Engineer at no additional cost to the State. Additional gravel cushion can be obtained from the Department of Transportation Maintenance shops located in Beresford or Junction City.

Cost for this work shall be incidental to the contract unit prices per square yard for Nonreinforced PCC Pavement Repair.

NONREINFORCED PCC PAVEMENT REPAIR - GENERAL

New pavement thickness shall equal existing pavement thickness ($T_N = T$).

Locations and size (length or width) of concrete repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. Payment will be based on actual area replaced.

Existing concrete pavement shall be sawed full depth at the beginning and end of the PCCP repair areas. When either the beginning or end of a PCCP repair area falls close to an existing joint or crack, the PCCP repair area shall be extended to eliminate the existing joint or crack. Where possible, new working joints shall be adjacent to existing working joints.

Saw cuts that extend beyond the repair area shall be minimized and filled with a non-shrinkage mortar mix at the Contractor’s expense.

Existing concrete pavement in the replacement areas shall be removed by the lift out method or by means that minimize damage to the base and sides of remaining in place concrete. All removed material shall be removed from within the right-of-way by the end of the workday. Damage to adjacent concrete caused by the Contractor’s operations shall be removed and replaced at the Contractor’s expense.

If the pavement replacement area is entirely on either side of the existing contraction joint, the location of one of the working joints will be at the original location. Any existing dowel bar assemblies/steel bars shall be sawed off and removed.

Concrete placed adjacent to gravel and asphalt concrete shoulders shall be formed full depth to match the width of existing concrete pavement. Asphalt concrete shoulders adjacent to concrete pavement replacements shall be repaired with new hot-mix asphalt concrete.

At repair locations where the new working joint is not opposite the existing working joint, the Contractor shall place a ¼” preformed asphalt expansion joint material along the longitudinal joint from the existing working joint to the new working joint. The expansion joint material shall meet the requirements of AASHTO M33. Cost for this material shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

All joints (longitudinal and transverse) through and around the repair areas will be sawed and sealed in accordance with the details shown in these plans. Refer to Saw and Seal Joints notes.

NONREINFORCED PCC PAVEMENT REPAIR

Concrete shall meet the requirements of the Specifications Section 380, except as modified by the following notes:

The fine aggregate shall be screened over a one-inch square-opening screen just prior to introduction into the concrete paving mix if required by the Engineer.

The slump requirement will be limited to 3" maximum after water reducer is added and the concrete shall contain 4.5% to 7.0% entrained air. The concrete shall contain a minimum of 50% coarse aggregate by weight. Coarse aggregate shall be crushed ledge rock, Size No. 1 unless an alternative gradation is approved by the Concrete Engineer as part of the mix design submittal. The mix design shall contain at least 650 lbs of Type I or II cement or 600 lbs of Type III cement per cubic yard. The minimum 28 day compressive strength shall be 4,000 psi. The Contractor is responsible for the mix design used. The Contractor shall submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

The use of a water reducer at manufacturer's recommended dosage will be required.

Concrete shall be cured with white pigmented curing compound (AASHTO M148, Type 2) applied as soon as practical at a rate of 125 square feet per gallon. Concrete shall be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60° F or higher throughout the cure period. If the concrete temperature falls below 60° F, the cure time shall be extended or other measures shall be taken, at no additional cost to the State. In addition to the curing requirements, a strength of 4,000 psi must be attained prior to opening to traffic.

Upon placement of the concrete, repair areas shall be straight edged to ensure a smooth riding surface and shall be textured longitudinally with the pavement by finishing with a stiff broom. Repair areas shall then be checked with a 10’ foot straight edge. The permissible longitudinal and transverse surface deviation shall be 1/8” in 10’.

Concrete shall be covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. Insulation blanket shall have an R-value of at least 0.5, as rated by the manufacturer. Insulation blanket shall be left in place, except for joint sawing operations, until the 4000 psi is attained. Insulation blanket shall be overlapped on to the existing concrete by 4’. The initial contraction joint sawing shall be performed as soon as practical after placement to avoid random cracking.

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing concrete, sawing and sealing joints, repairing gravel and asphalt concrete shoulders, labor, tools and equipment shall be included in the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

STEEL BAR INSERTION - NONREINFORCED PCC PAVEMENT

Locations and quantities of concrete repair are subject to change in the field at the discretion of the Engineer. The Contractor will be responsible for ordering the actual quantity of steel bars necessary to complete the work.

For existing pavement thickness greater than or equal to 10.5" (T >= 10.5"):

The Contractor shall insert the steel bars (1½" x 18" epoxy coated plain round dowel bars and No. 11 x 18" epoxy coated deformed tie bars for transverse joints and No. 5 x 24" epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

For existing pavement thickness greater than or equal to 8.5" and less than 10.5" (T >= 8.5" and T < 10.5"):

The Contractor shall insert the steel bars (1¼" x 18" epoxy coated plain round dowel bars and No. 9 x 18" epoxy coated deformed tie bars for transverse joints and No. 5 x 24" epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

For existing pavement thickness less than 8.5" (T < 8.5"):

The Contractor shall insert the steel bars (1" x 18" epoxy coated plain round dowel bars and No. 8 x 18" epoxy coated deformed tie bars for transverse joints and No. 5 x 24" epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

Plain round dowel bars shall be cut to the specified length by sawing and shall be free from burring or other deformations. Shearing will not be permitted.

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).

Steel bars shall be inserted in the transverse joint on 18" centers. The first steel bar in the transverse joint shall be placed 9" from the edge of the slab closest to centerline. Steel bars shall be inserted in the longitudinal joint on 30" centers and shall be a minimum of 15" from either transverse joint. A typical one-lane patch 12' wide and 6' long will require 18 steel bars (8 in each transverse joint and 2 in the longitudinal joint). It will be necessary to laterally adjust the location of some of the inserted steel bars when the dimensions above interfere with existing steel bar locations.

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.

A rigid frame or mechanical device will be required to guide the drill to ensure proper horizontal and vertical alignment of the steel bars in the drilled holes.

STEEL BAR INSERTION - NONREINFORCED PCC PAVEMENT (CONTINUED)

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 by the dipping method will not be allowed. The epoxy shall start to gel before placing fresh concrete or as per manufacturer's recommendations if given.

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

SAW AND SEAL JOINTS - NONREINFORCED PCC PAVEMENT

All longitudinal and transverse joints at concrete repair areas shall be sawed and sealed.

Joints shall not be sealed unless they are thoroughly clean and dry. Cleaning shall be accomplished by sand blasting and other tools as necessary. Just prior to sealing, each joint shall be blown out using a jet of compressed air to remove all traces of dust.

Longitudinal and transverse joints in urban sections shall be sealed with Hot Poured Elastic Joint Sealer. Transverse joints in rural sections shall be sealed with Low Modulus Silicone Sealant. Longitudinal joints in rural sections may be sealed with either Hot Poured Elastic Joint Sealer or Low Modulus Silicone Sealant.

Acceptance of the Low Modulus Silicone Sealant and Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

Cost for sawing and sealing of the longitudinal construction joint and both transverse joints shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

TIE BAR RETROFIT, STITCHING

Tie Bar Retrofit, Stitching shall be done on random cracks as marked out by the Engineer.

The Contractor shall insert No. 5 epoxy coated deformed tie 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. A rotary drill or other approved drill shall be used that will not damage the concrete surface. The diameter of the disturbed surface from drilling shall be less than 2 inches. A rigid frame or mechanical device will be required to guide the drill to ensure the proper angle of the steel bars in the drilled holes.

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 dried color of the epoxy shall be gray or black.

TIE BAR RETROFIT, STITCHING (CONTINUED)

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. The holes shall be drilled at an angle alternating from opposite sides of the joint to produce a cross-stitching pattern. 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. Damage to pavement shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

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 sufficiently with epoxy prior to the insertion of the tie bar such that the epoxy will be level with the top of the concrete pavement after insertion of the tie bar. 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. The top of the drilled hole shall be filled with epoxy or excess epoxy removed such that the epoxy is level with the existing pavement.

No bars shall be inserted within 15" of an existing transverse contraction joint. Any bars not functioning or damaged shall be repaired or replaced at the Contractor's expense.

Cost for the epoxy resin adhesive, tie bars, drilling of holes, debris or loose material removal, applying the adhesive, inserting the tie bars into the drilled holes and incidentals necessary for the insertion of the tie bars shall be included in the contract unit price per each for Tie Bar Retrofit, Stitching.

SEAL RANDOM CRACKS IN PCC PAVEMENT

Random cracks shall be repaired in accordance with the detail for Sealing Random Cracks. Reservoir dimensions may vary slightly from the details, due to the nature of this operation. However, any variance due to Contractor negligence will be repaired at the Contractor's expense.

Only those random cracks in the existing concrete pavement that are open and accept water and incompressible materials as selected by the Engineer shall be prepared and sealed with either Low Modulus Silicone Sealant or Hot Poured Elastic Joint Sealer.

Prior to sealing, each random crack shall be routed and thoroughly cleaned with compressed air or by other methods satisfactory to the Engineer. Routing shall be performed with a saw designed for that purpose.

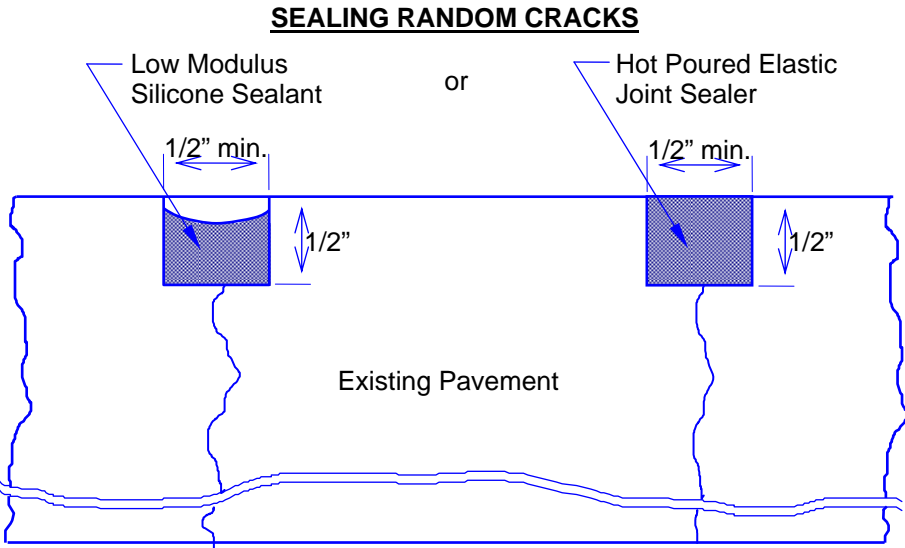
Random cracks narrower than ½ inch shall be routed and sealed ½ inch wide by ½ inch deep. Random cracks wider than ½ inch may require the placement of a backer rod prior to sealing.

Sealant shall be placed in the routed reservoir with equipment and by methods that insure complete and uniform filling. Hot Poured Elastic Joint Sealer shall be placed level with the driving surface of the concrete. Low Modulus Silicone Sealant shall have a tooled surface with the top middle portion of the sealant recessed. Any excess or overrun of sealant shall be removed by the Contractor at no additional cost to the state.

Acceptance of the Low Modulus Silicone Sealant and Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

SEAL RANDOM CRACKS IN PCC PAVEMENT (CONTINUED)

Seal Random Cracks in PCC Pavement will be measured by the foot to the nearest 0.1 foot of random cracks sealed and accepted on the project and will be paid for at the contract unit price per foot measured for payment. Payment shall be full compensation for all labor, equipment, material and incidentals required for crack routing, cleaning, furnishing and installing backer rod when necessary, furnishing and placing sealant and removing routed and foreign material from the roadway.



TEMPORARY PAVEMENT MARKING

Temporary pavement marking (except stop bars) shall consist of Temporary Road Markers. (One workspace with a 900' taper on 029S-291, two workspaces with 780' tapers on 029N-291, two workspaces with 900' tapers on 029N-291, two workspaces with 200' tapers on the Exit 46 On Ramp on 029N-291 and one workspace with two double 500' lane lines on 050-291). Cost shall be included in the contract unit price per foot for Temporary Pavement Marking.

Temporary pavement marking for 24" white stop bars shall consist of 4" Temporary Pavement Marking Tape Type 2 and shall be included in the contract unit price per foot for 4" Temporary Pavement Marking Tape Type 2. (One workspace at 144' =144' on 050-291).

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

GENERAL MAINTENANCE OF TRAFFIC (CONTINUED)

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Sufficient traffic control devices have been included in these plans to sign one lane closure for 029S-291, one lane closure for 029N-291, one lane closure on a ramp for 029N-291 and one stop sign closure for 050-291. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per unit for Traffic Control.

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR

A Type III Barricade shall be installed at the end of a lane closure taper as detailed in these plans. Additional Type III Barricades shall be installed facing traffic within the closed lane at a spacing of 1/4 mile.

Each mainline concrete repair location from which the in place concrete has been removed shall be marked with a minimum of two reflectorized cones (42" minimum height) or two reflectorized drums. In areas containing numerous concrete repair locations, two reflectorized drums should be installed at a spacing of 660' alternating with the Type III Barricades.

Signs may be mounted on portable supports for a period of 3 days or less.

Drivers in one lane two-way traffic workspaces must be able to see approaching traffic through and beyond the workspaces.

Construction workspaces on divided and/or multi-lane roadways shall be limited to 3 miles in length. Construction workspaces on two-lane undivided roadways shall be limited to 300 feet in length. The distance between the closest points of any two construction workspaces, including channeling devices, shall not be less than 3 miles. Drivers in two-way traffic workspaces must be able to see approaching traffic through and beyond the work zone.

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC Pavement Repair areas shall be filled with gravel and cold-mix asphalt concrete prior to opening the lane to traffic. Gravel and cold-mix asphalt concrete can be obtained from the Department of Transportation Maintenance shops located in Beresford or Junction City.

Holes in the gravel and asphalt concrete shoulders created during removal and replacement of PCC Pavement Repair areas shall be filled with gravel and hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Gravel can be obtained from the Department of Transportation Maintenance shops located in Beresford or Junction City. Hot-mix asphalt concrete shall be furnished by the Contractor.

Cost for furnishing, hauling and placing gravel and asphalt concrete shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

Routing traffic onto the shoulders during any phase of the construction will not be allowed. Traffic will be permitted on the ramp shoulders when necessary to allow traffic around a workspace.

Damage to the shoulders, median or ditch due to the Contractor's operations shall be repaired by the Contractor, to the satisfaction of the Engineer, at no expense to the State. This includes the apparent routing of traffic onto these shoulders around the work zones.

The use of interstate maintenance crossovers will not be permitted.

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	DESCRIPTION	CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	UNITS PER SIGN	UNITS	NUMBER	SIGN SIZE	UNITS PER SIGN	UNITS
R1-1	STOP	2	30" x 30"	21	42		36" x 36"	27	
R2-1	SPEED LIMIT (4-45MPH, 4-65MPH & 2-75PMH)		24" x 30"	18		10	36" x 48"	29	290
R2-6aP	FINES DOUBLE (plaque)		24" x 18"	15		2	36" x 24"	20	40
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	34	34		48" x 48"	34	
W3-1	STOP AHEAD (symbol)	2	48" x 48"	34	68		48" x 48"	34	
W3-5	SPEED REDUCTION AHEAD (2-45MPH & 4-65MPH)		48" x 48"	34		6	48" x 48"	34	204
W4-2	LEFT or RIGHT LANE ENDS (symbol)		48" x 48"	34		4	48" x 48"	34	136
W4-3	ADDED LANE (symbol)		48" x 48"	34		2	48" x 48"	34	68
W5-4	RAMP NARROWS		48" x 48"	34		1	48" x 48"	34	34
W13-1P	ADVISORY SPEED (plaque)		30" x 30"	21		1	30" x 30"	21	21
W20-1	ROAD WORK AHEAD	2	48" x 48"	34	68	6	48" x 48"	34	204
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	34	68		48" x 48"	34	
W20-5	LEFT or RIGHT LANE CLOSED AHEAD		48" x 48"	34		4	48" x 48"	34	136
W20-7	FLAGGER (symbol)	1	48" x 48"	34	34	2	48" x 48"	34	68
G20-2	END ROAD WORK	2	36" x 18"	17	34	2	48" x 24"	24	48
-	TYPE 3 BARRICADE - 8' single sided			40		5		40	200
-	TYPE 3 BARRICADE - 8' double sided	1		56	56			56	
TOTAL UNITS					404	TOTAL UNITS 1449			

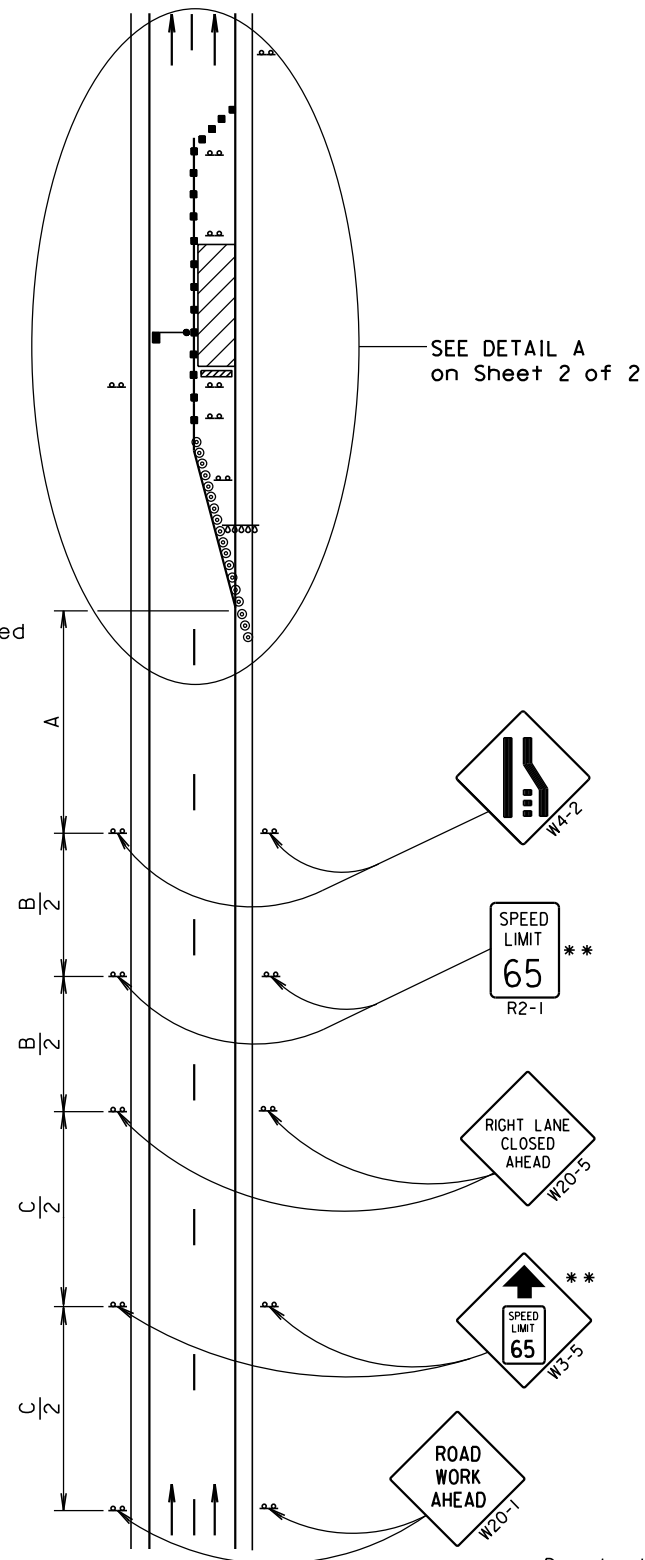
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)		
	(A)	(B)	(C)
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
	(A)	(B)	(C)
70 - 75	1000	1500	2640

** Speed appropriate for location.

- Reflectorized Drum
- Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



December 16, 2014

Published Date: 1st Qtr. 2015

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**WORK ZONE SPEED REDUCTION
FOR INTERSTATE AND HIGH
SPEED MULTI-LANE HIGHWAYS**

PLATE NUMBER
634.63

Sheet 1 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet)	Taper Length (Feet)
	(G)	(L)
0 - 30	25	180
35 - 40	25	320
45 - 50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 75	50 *	900

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs shall be covered or removed when workers are not present.

● Flagger (As Necessary)

- Reflectorized Drum
- Channelizing Device

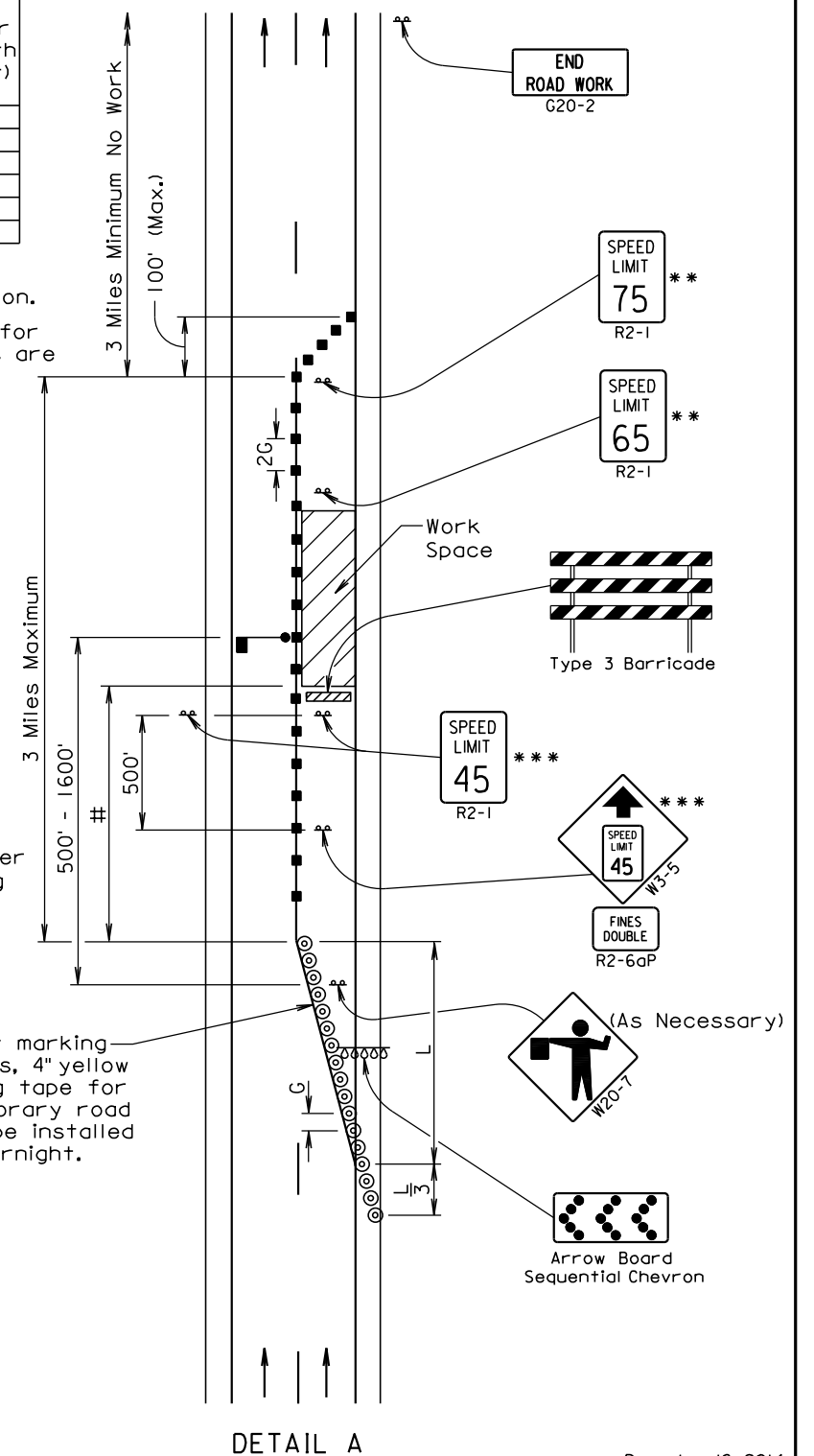
The Work Space shall be a minimum of 500' from the end of the taper.

The FLAGGER sign shall be used whenever there is a Flagger present.

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary road markers at 5' spacing shall be installed when the lane is closed overnight.



DETAIL A

December 16, 2014

Published Date: 1st Qtr. 2015

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**WORK ZONE SPEED REDUCTION
FOR INTERSTATE AND HIGH
SPEED MULTI-LANE HIGHWAYS**

PLATE NUMBER
634.63

Sheet 2 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B)	L (Feet)
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B)	
70 - 75	1000 1500	1125

■ Channelizing Device

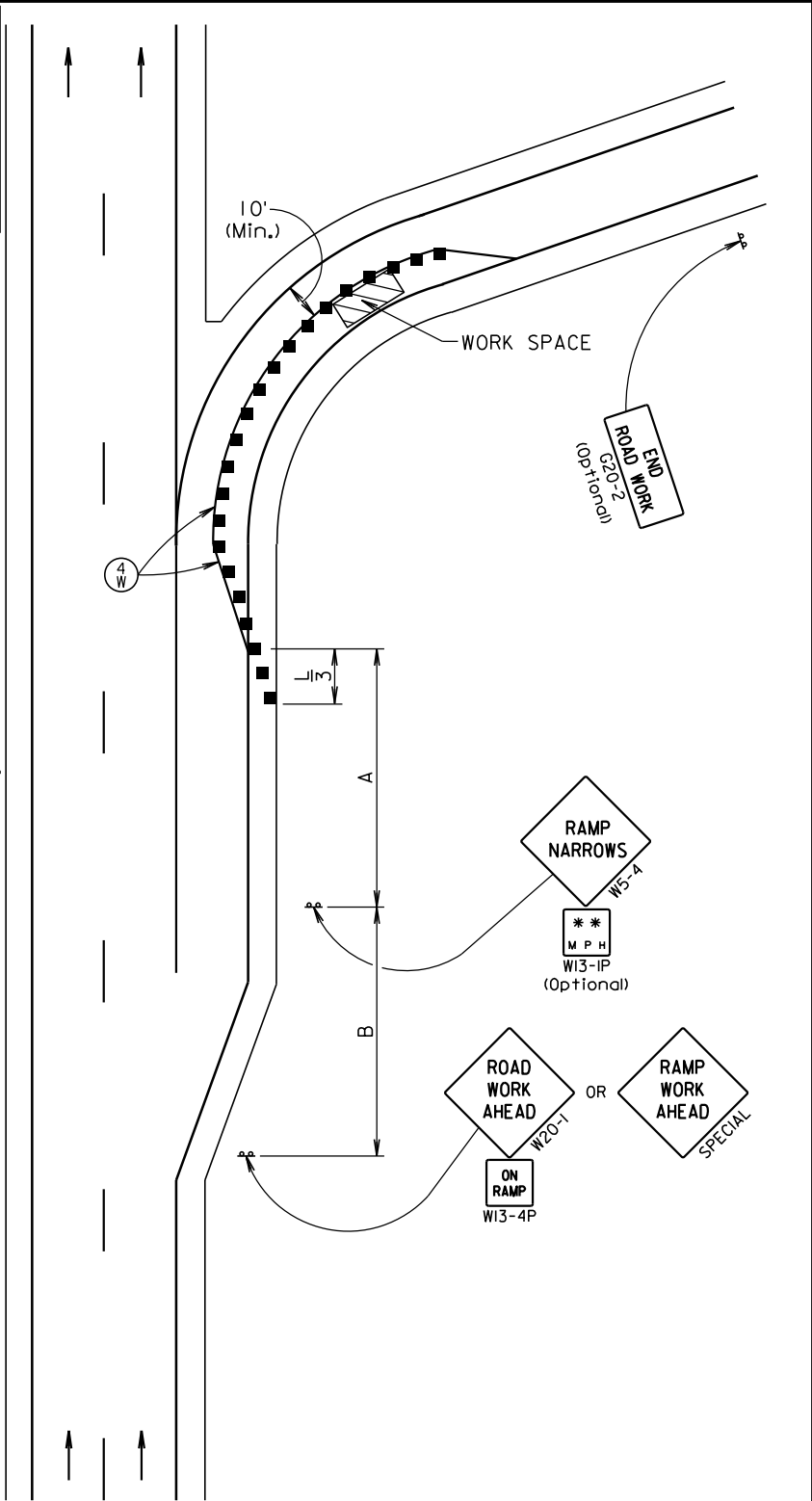
④ 4" White Temporary
Pavement Marking

** Need and safe speed to
be determined by the
Highway Authority.

Temporary pavement markings
shall be used if traffic
control must remain overnight.

The channelizing devices shall
be drums or 42" cones if
traffic control must remain
overnight.

Truck off-tracking should be
considered when determining
whether the 10-foot minimum
lane width is adequate.



September 22, 2014

Published Date: 1st Qtr. 2015

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GUIDES FOR TRAFFIC CONTROL DEVICES
PARTIAL EXIT RAMP CLOSURE

PLATE NUMBER
634.69

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 75	1000 1500 2640	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 65	50 *

* Spacing is 40' for 42" cones.

⊙ Reflectorized Drum

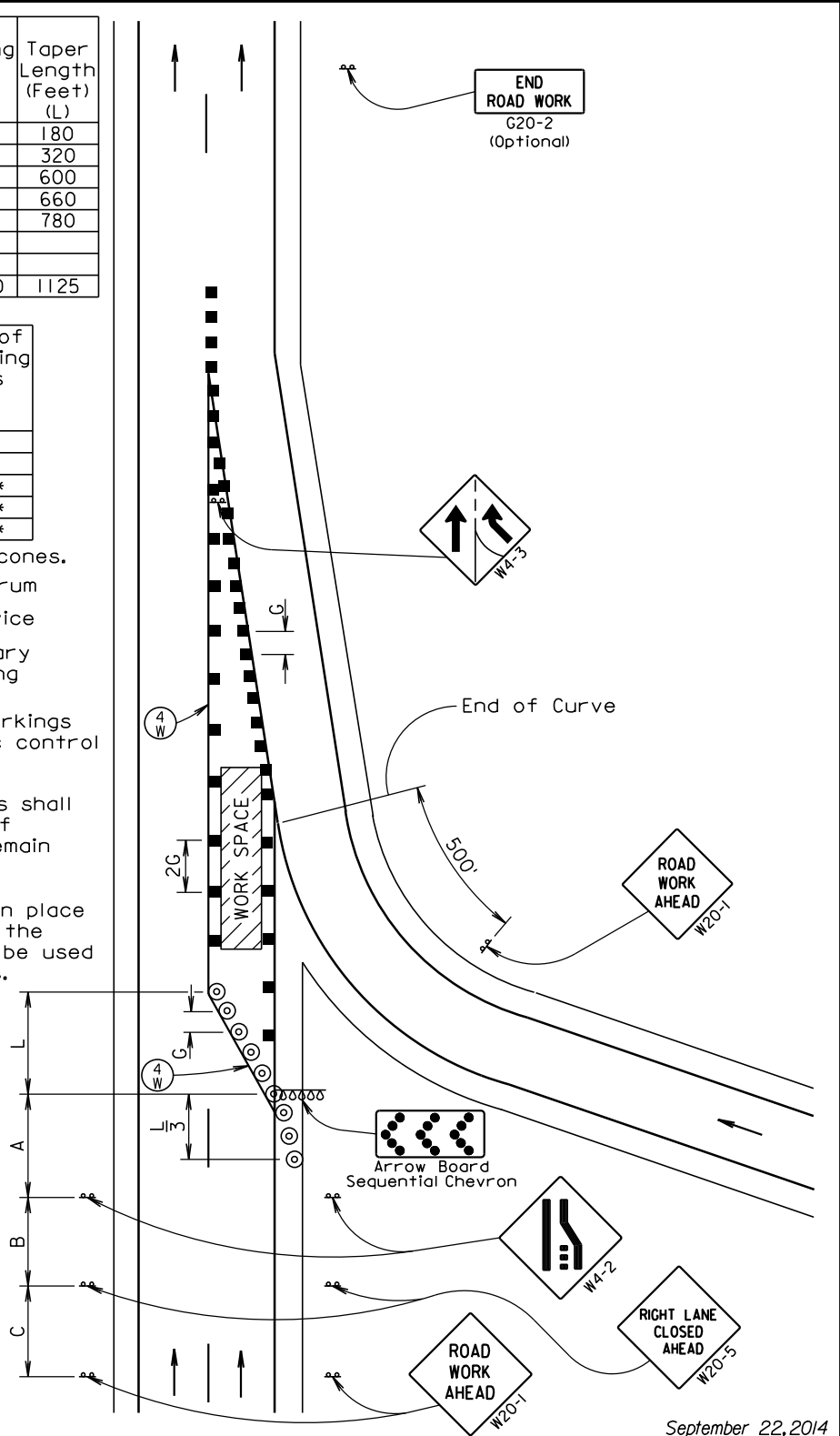
■ Channelizing Device

④ 4" White Temporary
Pavement Marking

Temporary pavement markings
shall be used if traffic control
must remain overnight.

The channelizing devices shall
be drums or 42" cones if
traffic control must remain
overnight.

42" cones may be used in place
of the drums shown in the
setup if setup will not be used
during night time hours.



September 22, 2014

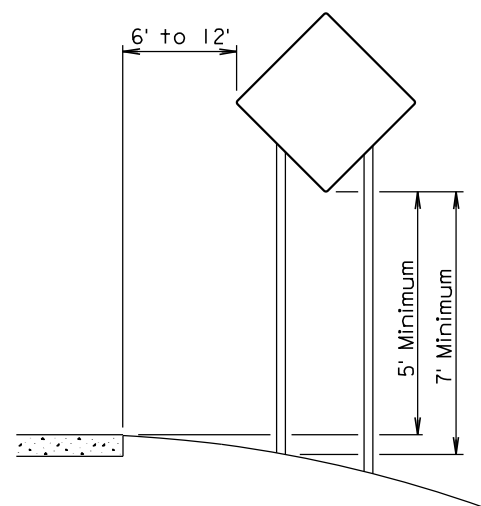
Published Date: 1st Qtr. 2015

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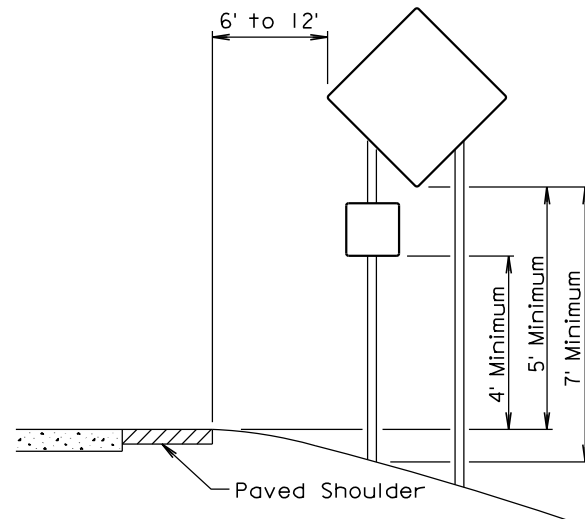
GUIDES FOR TRAFFIC CONTROL DEVICES
WORK IN VICINITY OF ENTRANCE RAMP

PLATE NUMBER
634.70

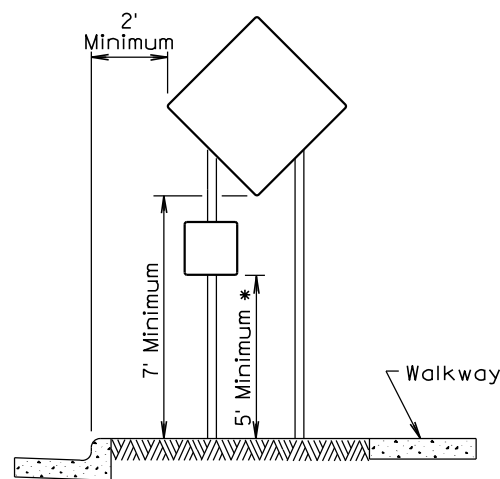
Sheet 1 of 1



RURAL DISTRICT

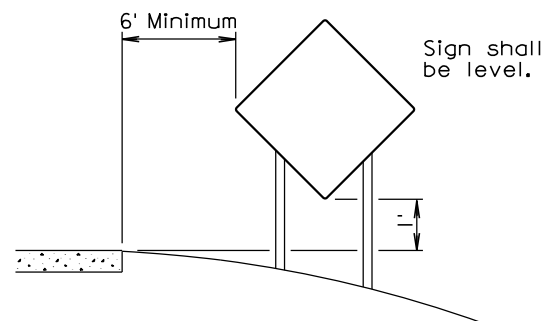


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

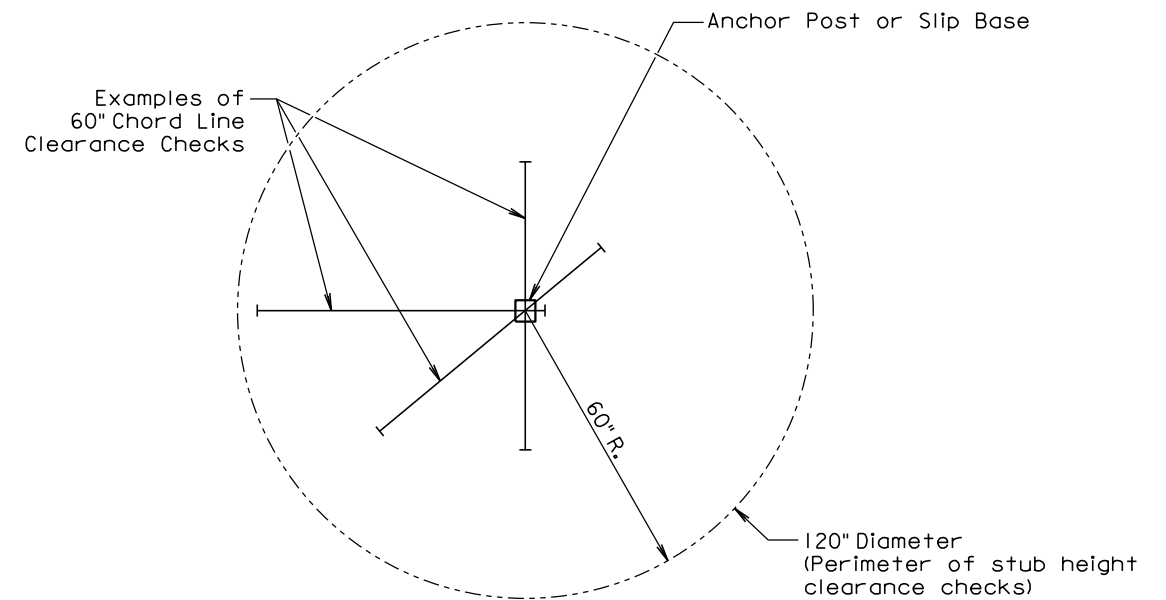
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



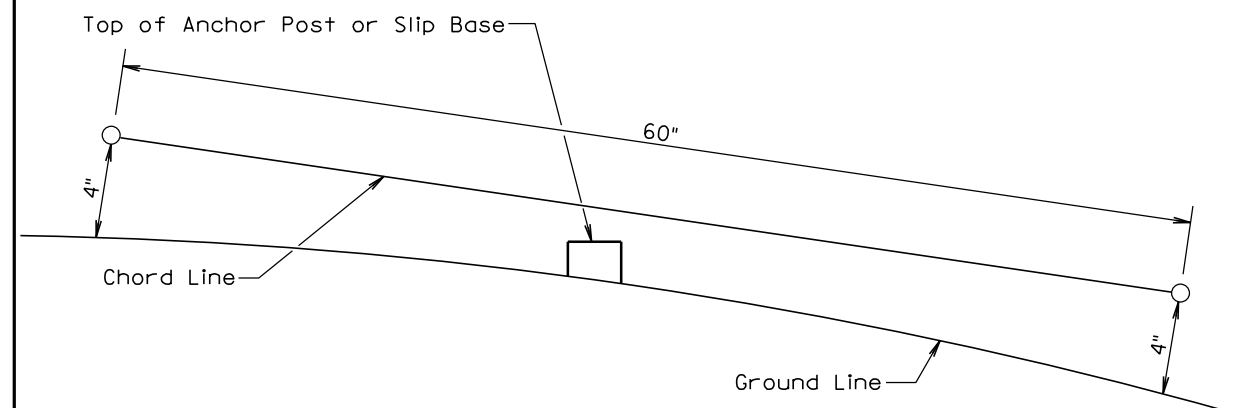
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 1st Qtr. 2015	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

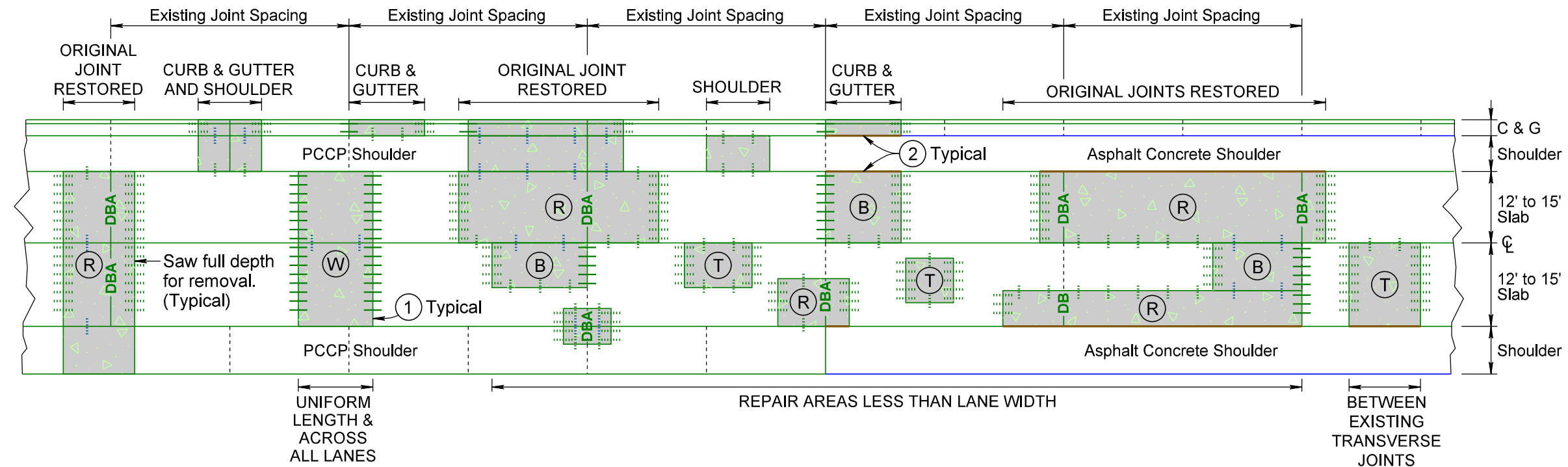
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 1st Qtr. 2015	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

NONREINFORCED PCC PAVEMENT REPAIR

UP TO TWO LANE ROADWAY OR UP TO FOUR LANE DIVIDED ROADWAY
TYPICAL REPAIR AREAS



KEY:



PCC Pavement Repair Area

PCC PAVEMENT REPAIR AREA TYPES:

- ④ Two Working Joints (Use only if repair is full roadway width and uniform length (across all lanes))
- ③ Two Tied Joints
- ② One Working & One Tied Joint
- ① Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

Steel Bars for Transverse Joints

Pavement Thickness $\geq 10.5"$

- Drilled in No. 11 x 18" epoxy coated deformed tie bars spaced 18" center to center.

Pavement Thickness ≥ 8.5 " and < 10.5 "

- Drilled in 1 1/4" x 18" epoxy coated plain round
dowel bars spaced 18" center to center.
- Drilled in No. 9 x 18" epoxy coated deformed
tie bars spaced 18" center to center.

Pavement Thickness < 8.5"

- Drilled in 1" x 18" epoxy coated plain round
dowel bars spaced 18" center to center.
- ***** Drilled in No. 8 x 18" epoxy coated deformed
tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

Steel Bars for Longitudinal Joints

- No. 5 x 30" epoxy coated deformed tie bars.
Sawed Joint - spaced 48" center to center.
Construction Joint - spaced 48" center to center.
- No. 5 x 24" epoxy coated deformed tie bars.
Drilled In - spaced 30" center to center.

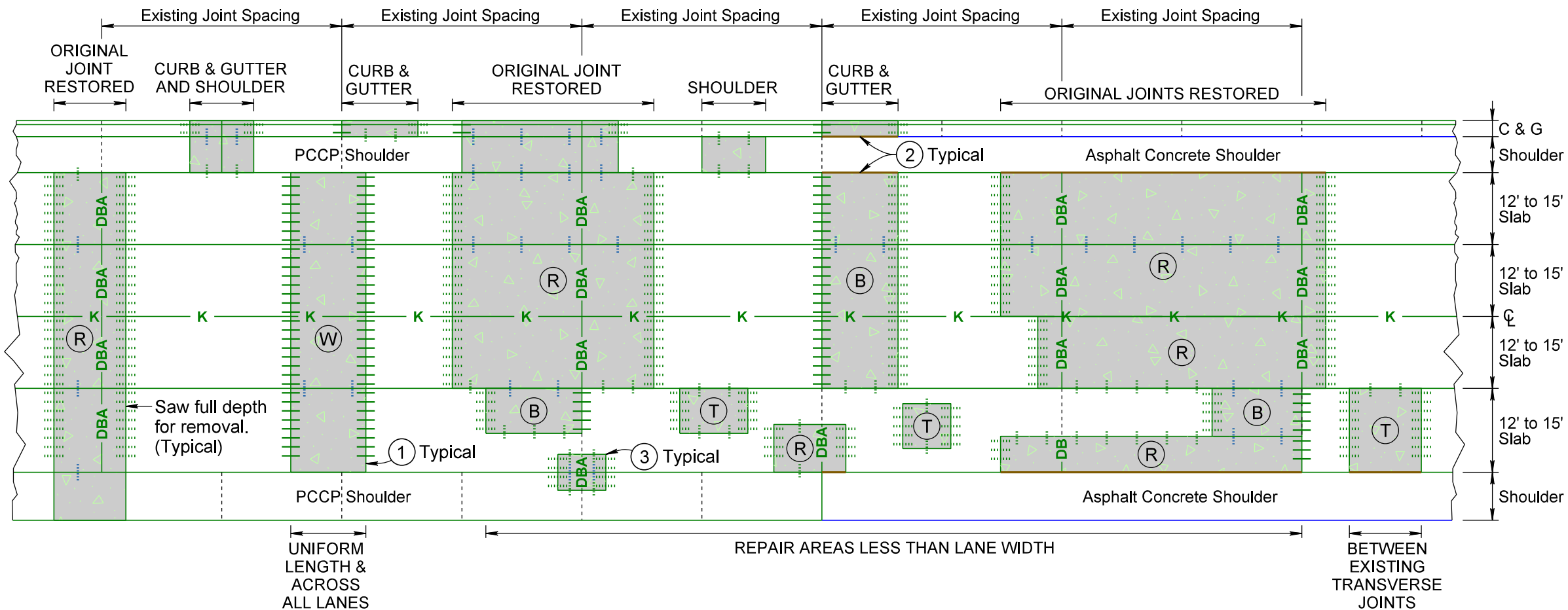
NOTES: Saw around repair areas full depth for removal.

- ① Where possible, transverse joints shall be constructed/maintained full roadway width.
- ② Edges of repair areas shall be formed to match the width of the existing concrete pavement.
- ③ Need for bars in small repair areas on/near the shoulder to be determined on a case-by-case basis, on construction by the Engineer.

NONREINFORCED PCC PAVEMENT REPAIR

UP TO FOUR LANE ROADWAY OR UP TO EIGHT LANE DIVIDED ROADWAY

TYPICAL REPAIR AREAS



KEY:

PCC Pavement Repair Area

PCC PAVEMENT REPAIR AREA TYPES:

- (W) Two Working Joints (Use only if repair is full roadway width and uniform length (across all lanes))
- (T) Two Tied Joints
- (B) One Working & One Tied Joint
- (R) Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

Longitudinal Keyway Joints Without Bars

— K — Where a repair area intersects an existing longitudinal keyway joint without tie bars, the newly constructed joint should also be a keyway without tie bars.

Steel Bars for Transverse Joints

Pavement Thickness ≥ 10.5 "

— Drilled in $1\frac{1}{2}$ " x 18" epoxy coated plain round dowel bars spaced 18" center to center.

..... Drilled in No. 11 x 18" epoxy coated deformed tie bars spaced 18" center to center.

Pavement Thickness ≥ 8.5 " and < 10.5 "

— Drilled in $1\frac{1}{4}$ " x 18" epoxy coated plain round dowel bars spaced 18" center to center.

..... Drilled in No. 9 x 18" epoxy coated deformed tie bars spaced 18" center to center.

Pavement Thickness < 8.5 "

— Drilled in 1" x 18" epoxy coated plain round dowel bars spaced 18" center to center.

..... Drilled in No. 8 x 18" epoxy coated deformed tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

Steel Bars for Longitudinal Joints

..... No. 5 x 30" epoxy coated deformed tie bars.
Sawed Joint - spaced 48" center to center.
Construction Joint - spaced 48" center to center.

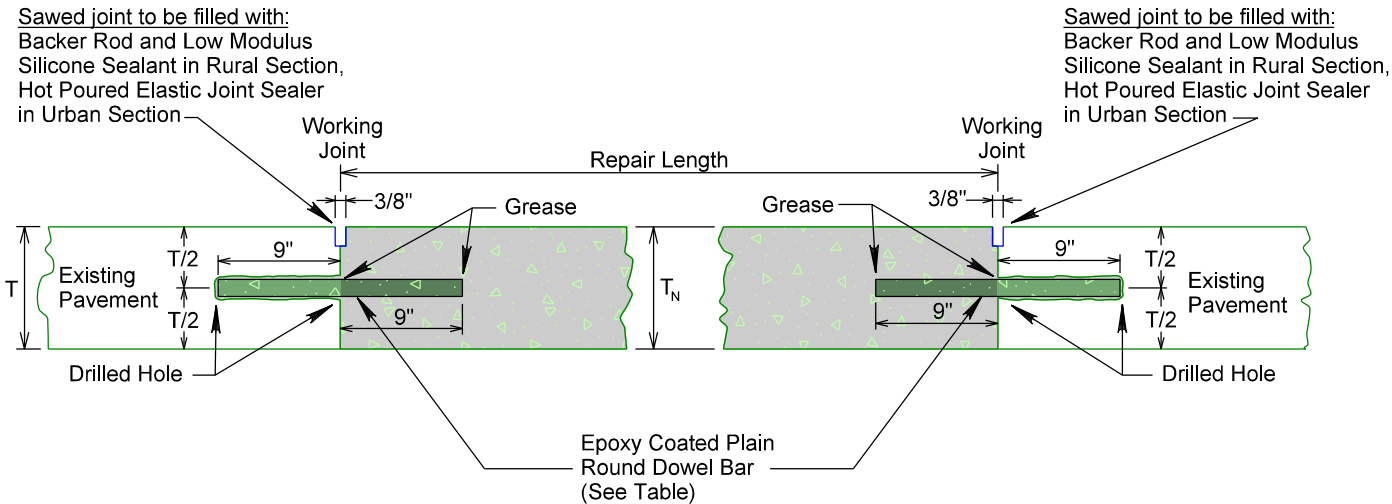
..... No. 5 x 24" epoxy coated deformed tie bars.
Drilled In - spaced 30" center to center.

NOTES: Saw around repair areas full depth for removal.

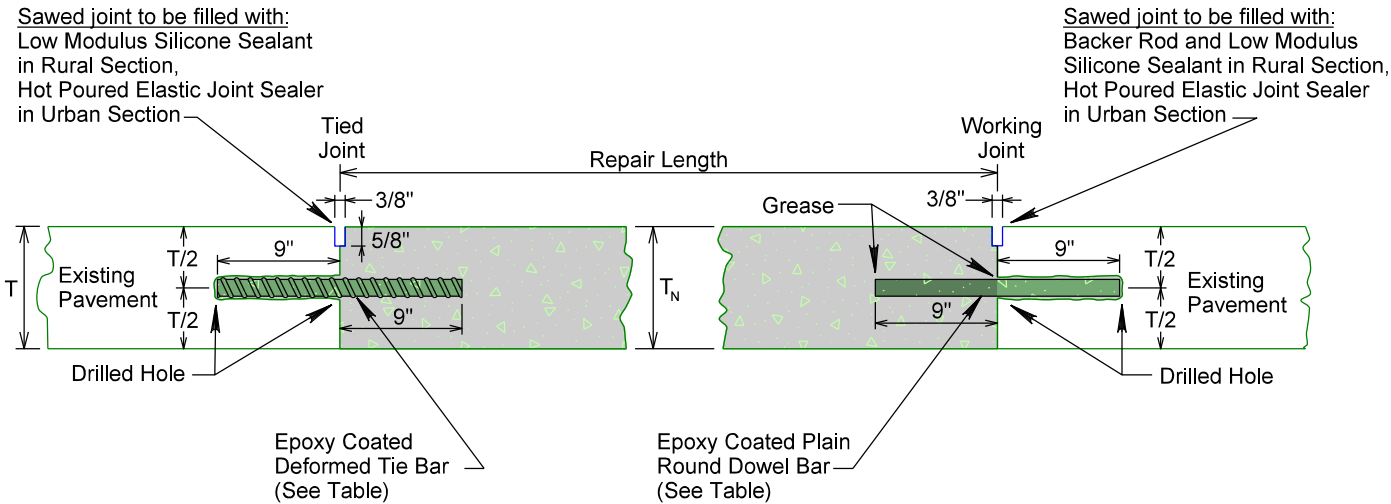
- ① Where possible, transverse joints shall be constructed/maintained full roadway width.
- ② Edges of repair areas shall be formed to match the width of the existing concrete pavement.
- ③ Need for bars in small repair areas on/near the shoulder to be determined on a case-by-case basis, on construction by the Engineer.

NONREINFORCED PCC PAVEMENT REPAIR

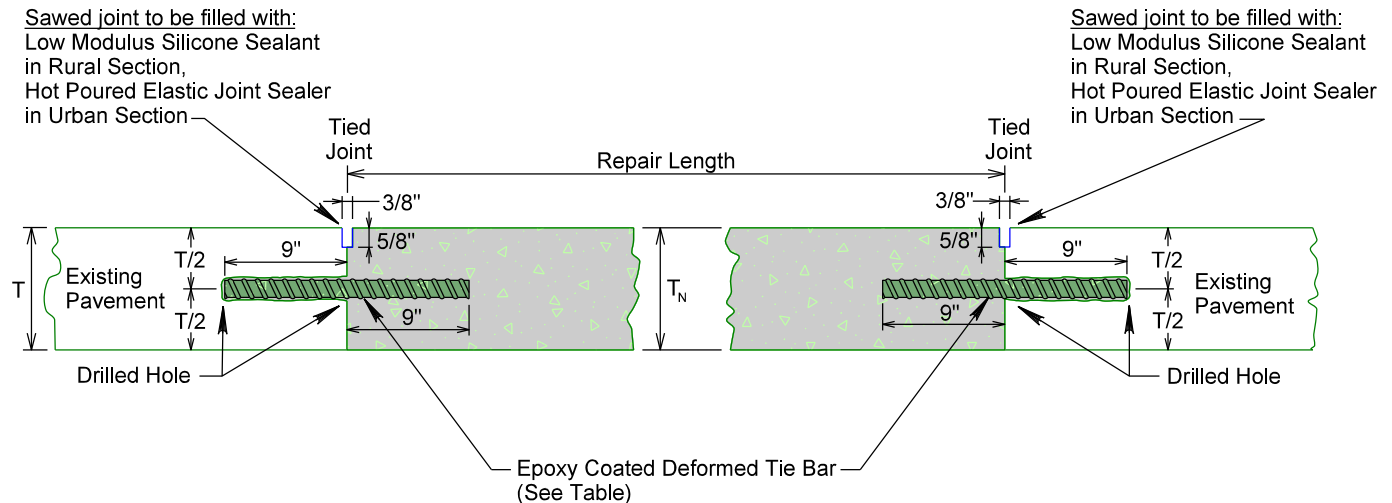
PLAIN ROUND DOWEL BAR INSERTION
TYPE W - (TWO WORKING JOINTS)



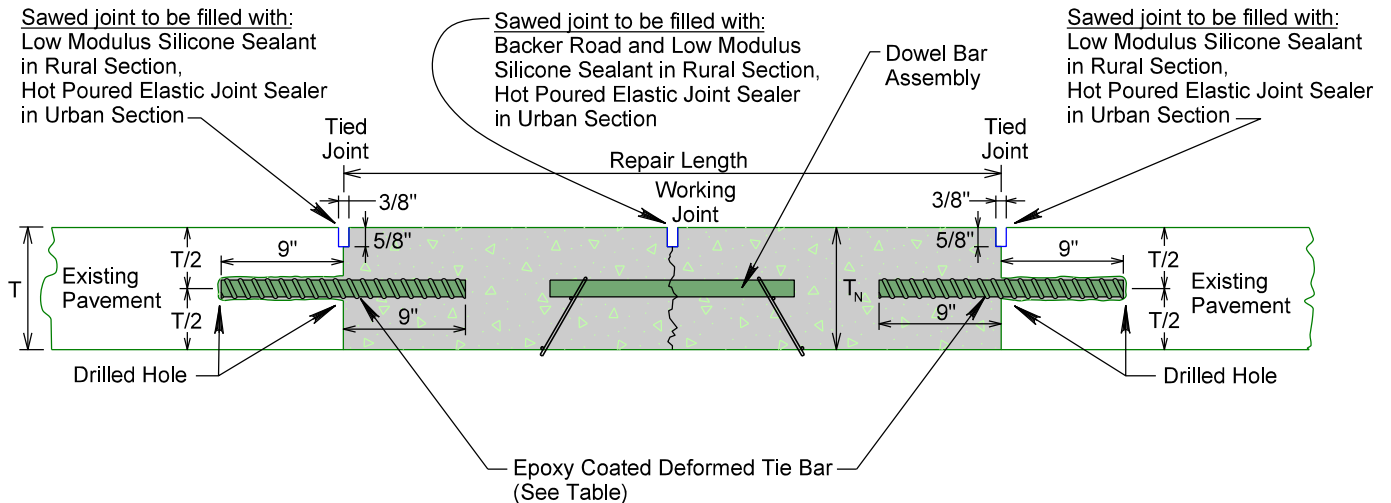
DEFORMED TIE BAR AND PLAIN ROUND DOWEL BAR INSERTION
TYPE B - (ONE TIED JOINT AND ONE WORKING JOINT)



DEFORMED TIE BAR INSERTION
TYPE T - (TWO TIED JOINTS)



DEFORMED TIE BAR INSERTION WITH DOWEL BAR ASSEMBLY
TYPE R - (TWO TIED JOINTS AND ONE WORKING JOINT - ORIGINAL JOINT RESTORED)



Existing Pavement Thickness	Epoxy Coated Deformed Tie Bar Size	Epoxy Coated Plain Round Dowel Bar Size
T ≥ 10.5"	No. 11 x 18"	1½" x 18"
T ≥ 8.5" & T < 10.5"	No. 9 x 18"	1¼" x 18"
T < 8.5"	No. 8 x 18"	1" x 18"

T = Existing pavement thickness.
 TN = New pavement thickness.
 TN = T

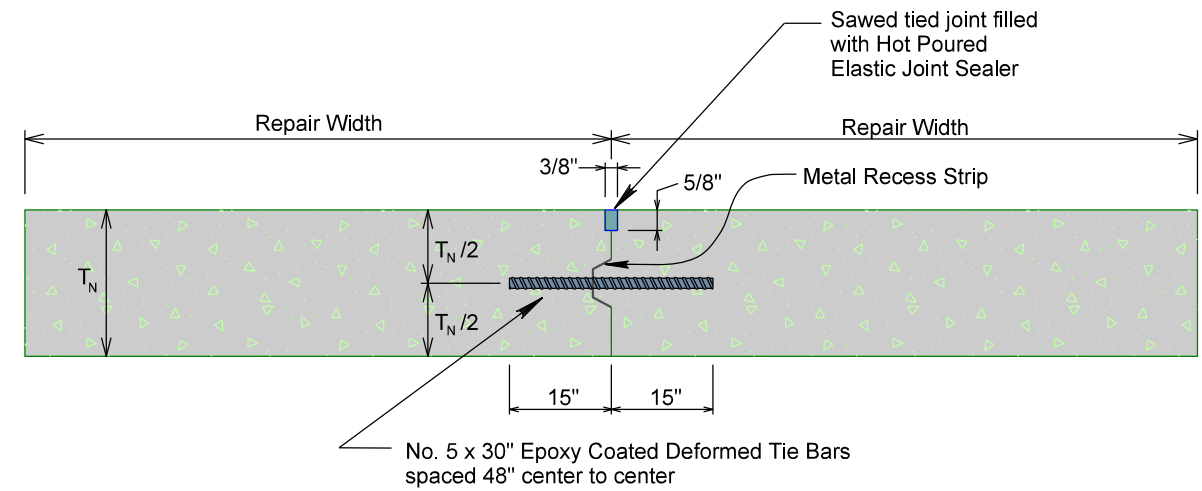
Bar embedded to a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Cost for furnishing and inserting steel bars (deformed tie and plain round dowel) shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

Cost for furnishing and installing dowel bar assembly shall be included in the contract unit price per each for Dowel Bar.

NONREINFORCED PCC PAVEMENT REPAIR

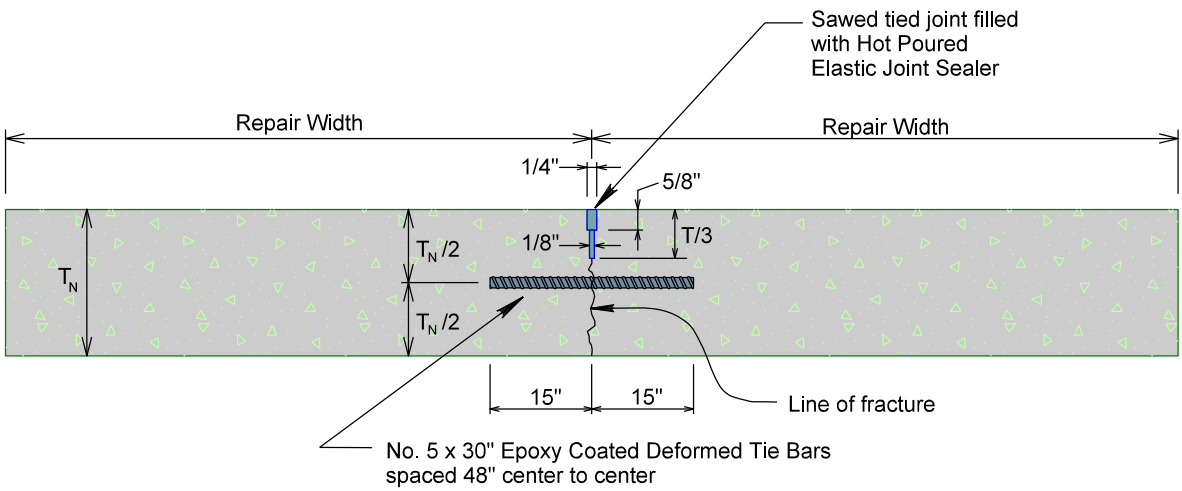
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



T_N = New pavement thickness.

Cost for furnishing and inserting tie bars shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

SAWED LONGITUDINAL JOINT

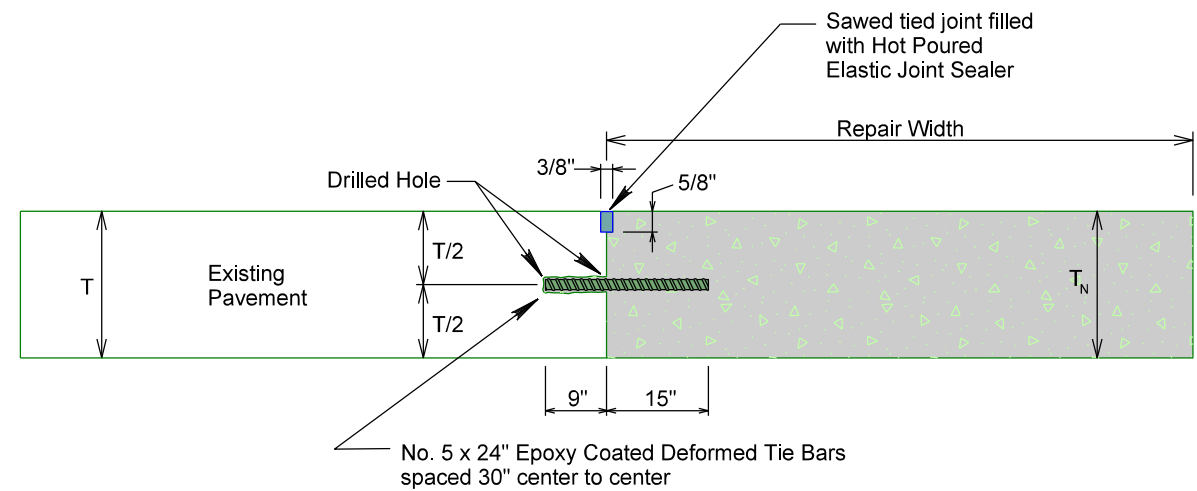


T_N = New pavement thickness.

The first saw cut to control cracking shall be a minimum of 1/3 the depth of the pavement. Additional sawing for widening the saw cut will be necessary.

Cost for furnishing and inserting tie bars shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS



T = Existing pavement thickness.

T_N = New pavement thickness.

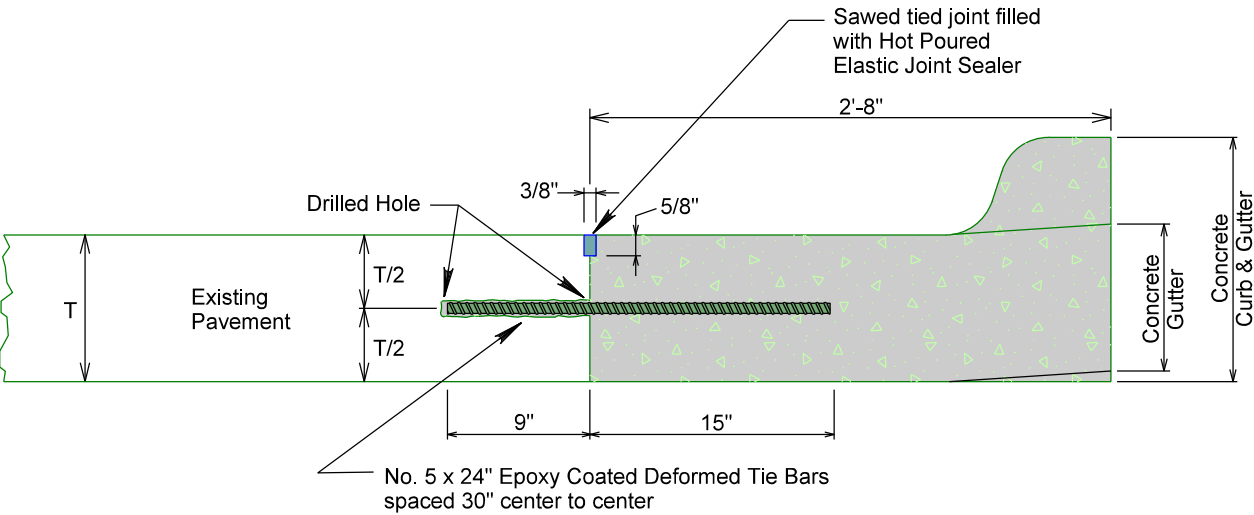
$T_N = T$

Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

Cost for furnishing and inserting drilled in tie bars shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS

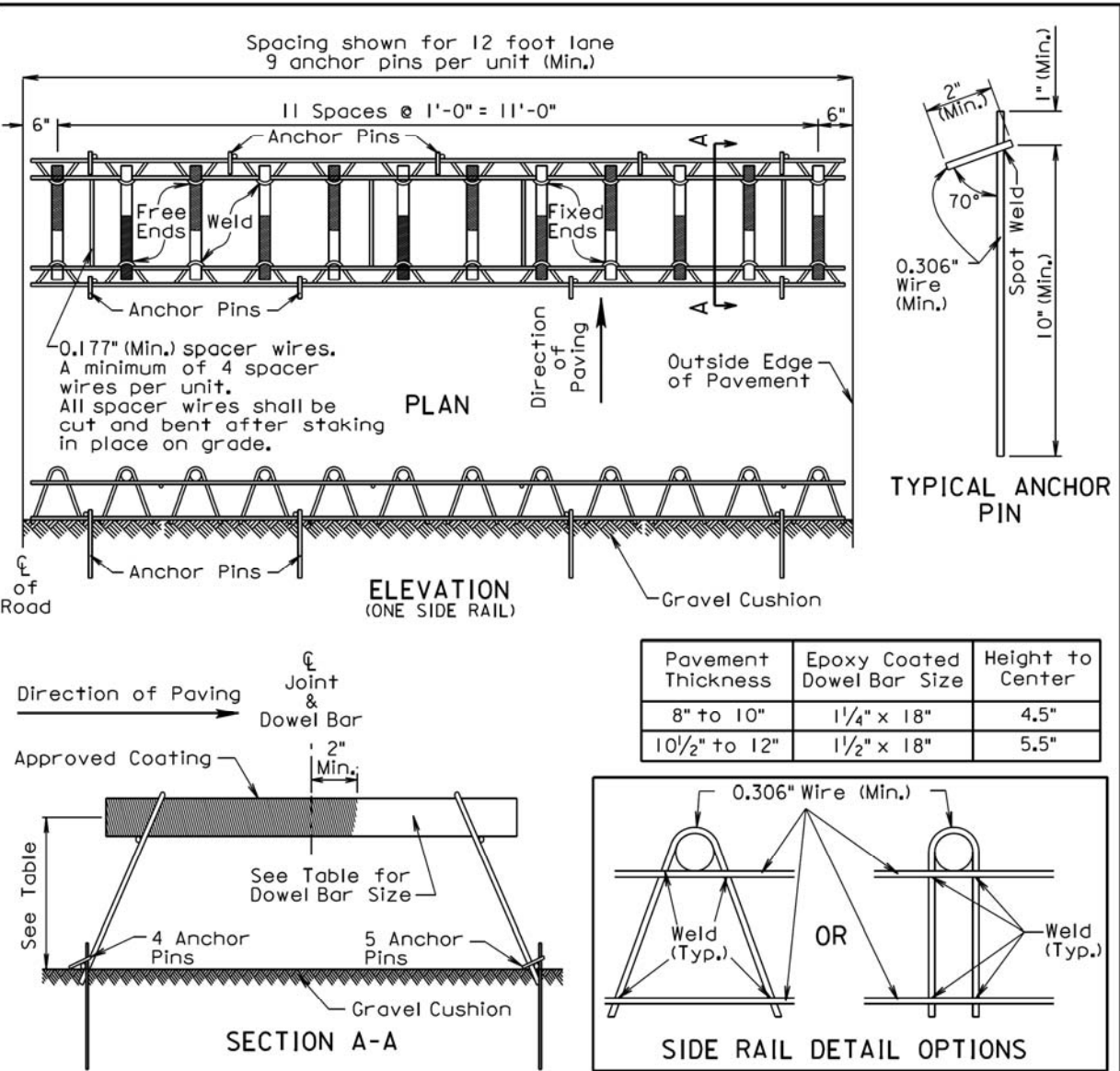


T = Existing pavement thickness.

Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

Cost for furnishing and inserting drilled in tie bars shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.



GENERAL NOTES:

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

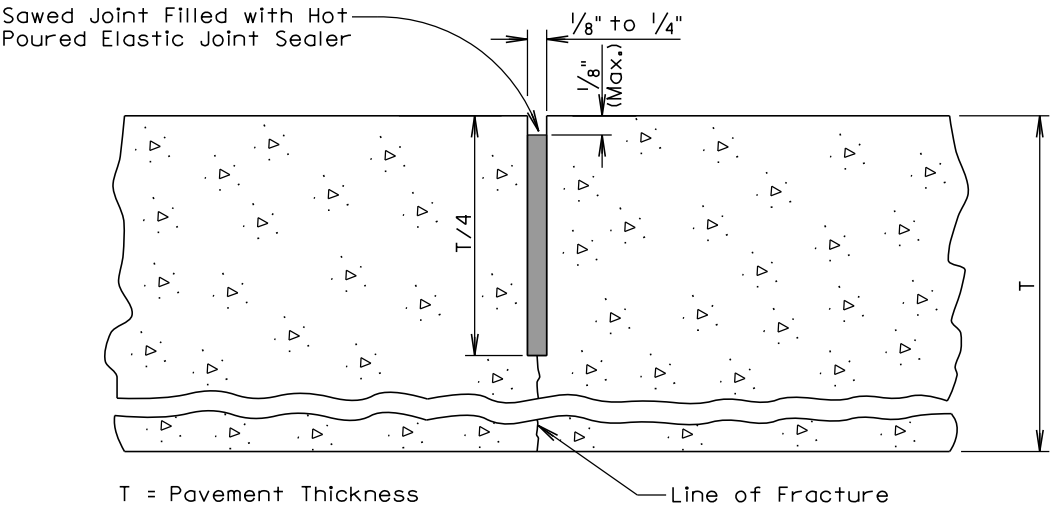
Centerline of individual dowel bars shall be parallel to top of subgrade $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

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 of the type 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.

**SPECIAL DETAIL FOR
PCC PAVEMENT DOWEL BAR ASSEMBLY
FOR TRANSVERSE CONTRACTION JOINTS**



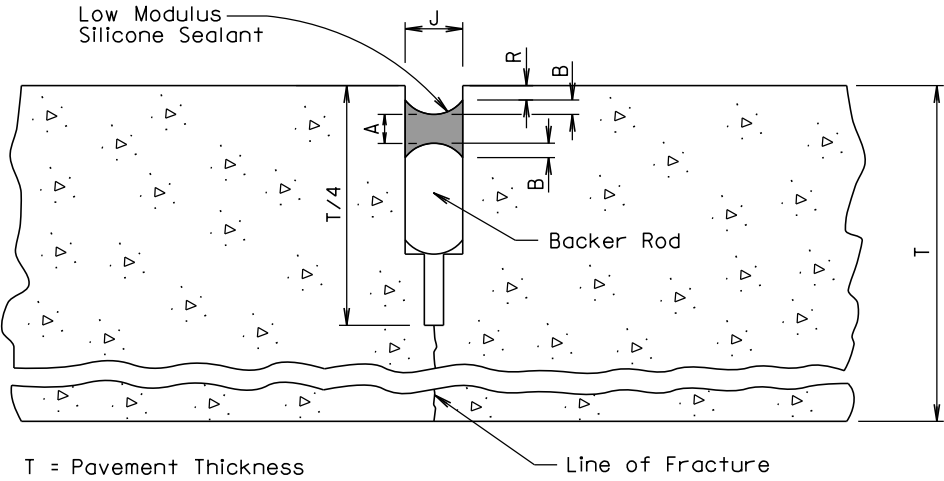
GENERAL NOTES:

The saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

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

June 26, 2013

Published Date: 1st Qtr. 2015	S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.05
			Sheet 1 of 1



LOW MODULUS SILICONE SEALANT ALLOWABLE CONSTRUCTION TOLERANCES				
J = 3/8"				
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)	R (In)
3/16	5/16	1/8	1/4	1/4
J = 1/2"				
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)	R (In)
3/16	3/8	1/8	1/4	1/4
J = 5/8"				
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)	R (In)
1/4	7/16	1/8	5/16	1/4
J = 3/4"				
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)	R (In)
5/16	1/2	3/16	3/8	5/16
J = 1"				
A (Min.) (In)	A (Max.) (In)	B (Min.) (In)	B (Max.) (In)	R (In)
3/8	5/8	3/16	1/2	5/16

GENERAL NOTE:

The backer rod shall be a nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

February 14, 2011

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