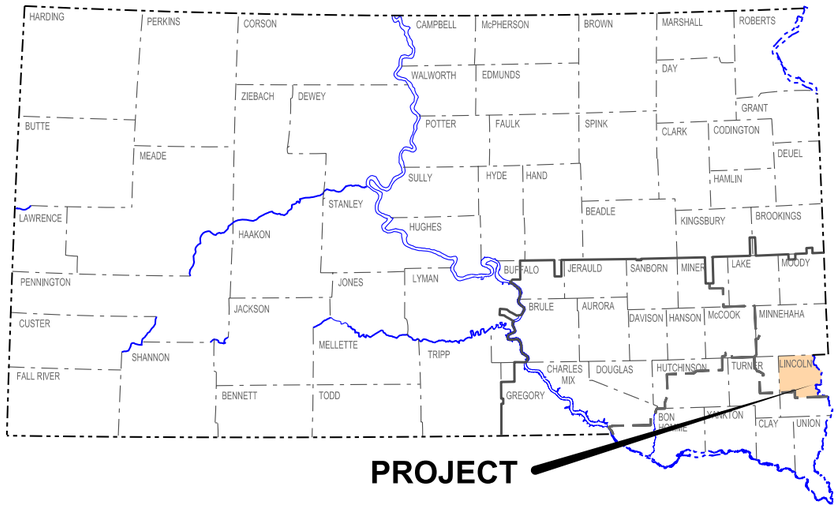


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 018–271
US HIGHWAY 18
LINCOLN COUNTY

REMOVE & REPLACE ASPHALT CONCRETE,
PCC PAVEMENT REPAIR, GUTTER, CURB & GUTTER,
DRIVEWAY PAVEMENT & SIDEWALK
(ADJACENT TO RAILROAD CROSSING)
DETOUR & CONSTRUCTION SIGNING

PCN I3PG

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	1	17

Plotting Date: 03/11/2015

INDEX OF SHEETS

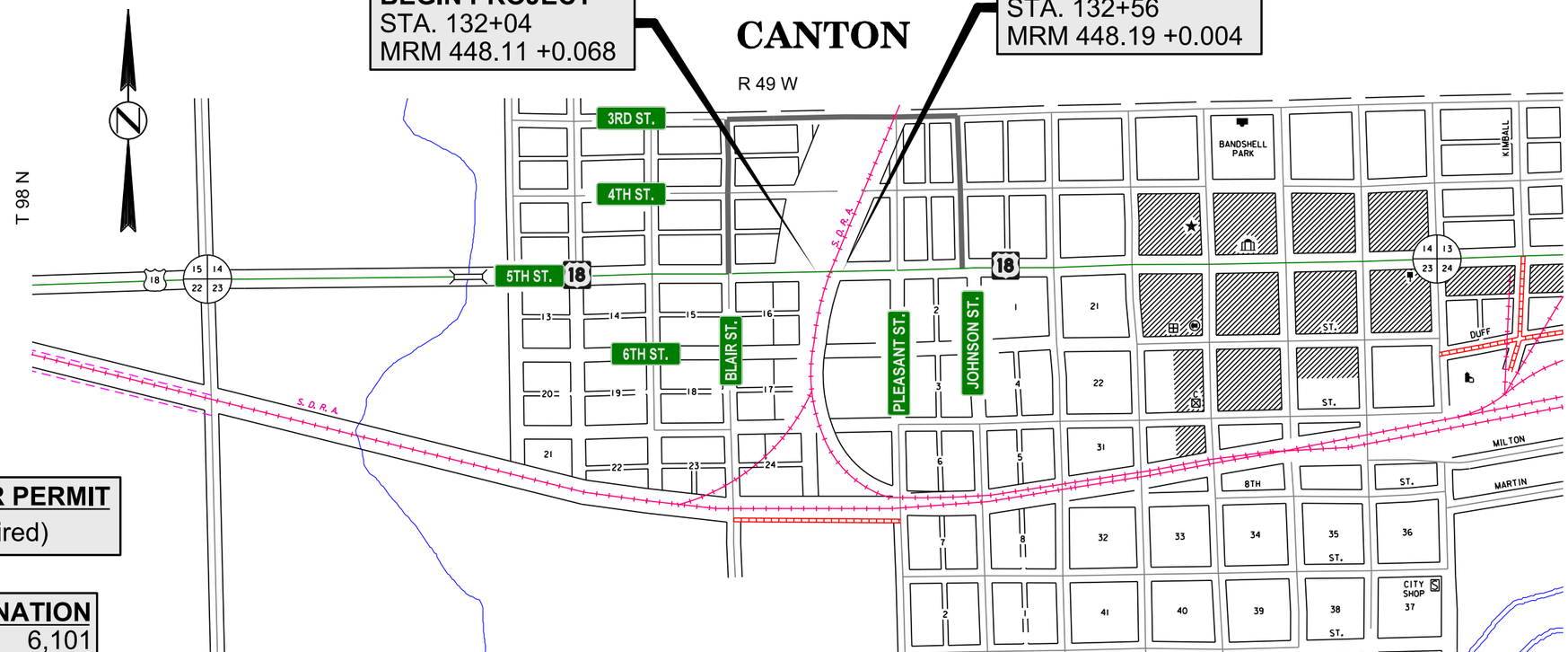
BEGIN PROJECT
STA. 132+04
MRM 448.11 +0.068

END PROJECT
STA. 132+56
MRM 448.19 +0.004

CANTON

R 49 W

T 98 N



STORM WATER PERMIT
(None required)

DESIGN DESIGNATION	
ADT(2013)	6,101
ADT(2033)	11,800
DHV	1,534
D	51%
T DHV	3.7%
T ADT	8.2%
V	25 MPH

——— DETOUR

PROJECT LENGTH
Length: 75' 0.014 Mile

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	29	Ft
110E1100	Remove Concrete Pavement	89.4	SqYd
110E1140	Remove Concrete Sidewalk	18.9	SqYd
320E1200	Asphalt Concrete Composite	25.3	Ton
380E3020	6" PCC Driveway Pavement	6.7	SqYd
380E5030	Nonreinforced PCC Pavement Repair	49.0	SqYd
380E6110	Insert Steel Bar in PCC Pavement	52	Each
380E6450	Saw Joint in PCC Pavement	126.0	Ft
634E0010	Flagging	8	Hour
634E0100	Traffic Control	1,478	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
634E0640	Temporary Pavement Marking	640	Ft
634E1002	Detour Signing	279.0	SqFt
634E1210	State Furnished Portable Changeable Message Sign	2	Each
650E0080	Type B68 Concrete Curb and Gutter	12	Ft
650E4680	Type P8 Concrete Gutter	18	Ft
651E0040	4" Concrete Sidewalk	114	SqFt
998E0100	Railroad Protective Insurance	Lump Sum	LS

SPECIFICATIONS

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

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 B: FEDERALLY THREATENED, ENDANGERED & PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

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.

COMMITMENT H: WASTE DISPOSAL SITE (CONTINUED)

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.

COORDINATION WITH THE RAILROAD COMPANY

A separate contract for Project PS 0018(186)448 - PCN 04C8 for replacing the railroad crossing at this location will be performed in conjunction with this concrete repair project (PCN I3PG).

The Contractor shall coordinate and perform concrete sawing a minimum of 24 hours in advance of when the Railroad Company will begin work on the crossing to facilitate removal of the existing crossing. The Contractor shall contact **Derek Knopp** with BNSF at 605-215-8745.

The Contractor shall schedule his work so as to meet the requirements of the Special Provisions and at the same time, not interfere with or hinder the progress of the work performed by other Contractors on the railroad crossing replacement project.

SCOPE OF WORK

This project includes, but is not limited to, the following:

- Saw existing concrete full depth 4' parallel to the existing concrete adjacent to railroad a minimum of 24 hours prior to the railroad removing the existing crossing. This work will be done under traffic with flaggers.
- Set up the detour per the layout in these plans.
- Perform PCC Pavement repair, remove and replace driveway pavement, gutter, curb & gutter, and sidewalk as detailed in these plans.
- Place asphalt concrete composite between tracks and concrete pavement.

Special Conditions:

1. Insulating blankets will be required when curing the 8" PCCP.
2. Contractor shall have the roadway opened in accordance with the Special Provision for Contract Time.
3. Single lane closures may be used for joint sealing and pavement marking. This work will not be subject to 5 calendar day limitation.

EXISTING PCC PAVEMENT

The existing 8" PCC Pavement is non-reinforced.

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.

GRAVEL CUSHION

If quarried ledge rock is used in the Gravel Cushion, a maximum blend of 40% quarried ledge rock will be allowed.

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 furnish, place and compact gravel cushion to the satisfaction of the Engineer at no additional cost to the State.

Cost for this work shall be incidental to the contract unit price per square yard for 8" Nonreinforced PCC Pavement.

NONREINFORCED PCC PAVEMENT REPAIR - GENERAL

PCC Pavement Repair shall be done prior to Grinding PCC Pavement.

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.

At full roadway width repairs and when specified, a working joint will be reconstructed at both ends of each pavement replacement area as shown in these plans.

Concrete placed adjacent to 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.

The initial contraction joint sawing shall be performed as soon as practical after placement to avoid random cracking.

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 stated in Section 380 of the specifications, 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 150 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 60º F or higher throughout the cure period. If the concrete temperature falls below 60º F, the cure time shall be extended or other measures shall be taken, at no additional cost to the State. 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'. This requirement for covering repair areas with insulation blankets may be waived during periods of hot weather upon approval of the Engineer.

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

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 (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

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 may be sealed with either Hot Poured Elastic Joint Sealer or Low Modulus Silicone Sealant.

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

SAW JOINT IN PCC PAVEMENT

Saw existing concrete full depth 4’ parallel to the existing concrete adjacent to railroad one day prior to the railroad removing tracks.

ASPHALT CONCRETE COMPOSITE

Virgin mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements for Class E, Type 1.

The asphalt binder used in the mixture shall be PG 58-34, PG 64-22, PG 64-28 or PG 64-34 Asphalt Binder.

All other requirements in the specifications for Asphalt Concrete Composite shall apply.

Asphalt should be placed in compacted lifts not to exceed 3 inches.

STATE FURNISHED PORTABLE CHANGEABLE MESSAGE SIGNS

Two State furnished portable changeable message boards shall be installed on US18 through Canton. The Contractor shall program the portable changeable message signs with the following messages for use of a period of seven days prior to railroad replacement:

DETOUR
FOR
RAILROAD CLOSURE

STARTS
XXX

The Engineer may approve alternate messages to fit project conditions.

The Contractor shall transport to the sites, install, maintain, and return to the State the State furnished portable changeable message signs. Portable changeable message signs shall be installed outside of the clear zone.

Costs for transportation, grading and bracing required to install the portable changeable message signs at the proper height, programming of the signs, maintenance, and return of the signs to the State shall be incidental to the contract unit price per each for State Furnished Portable Changeable Message Sign.

The Contractor may obtain the State furnished portable changeable message signs from the Sioux Falls SD Dept. of Transportation Maintenance Complex, 5316 W. 60th St. N., Sioux Falls, SD 57107. The Contractor shall coordinate with the Project Engineer to arrange pick up and return of the signs.

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.

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	5	17

Plotting Date: 03/10/2015

DETOUR SIGNING

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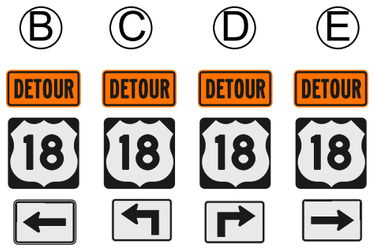

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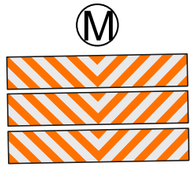

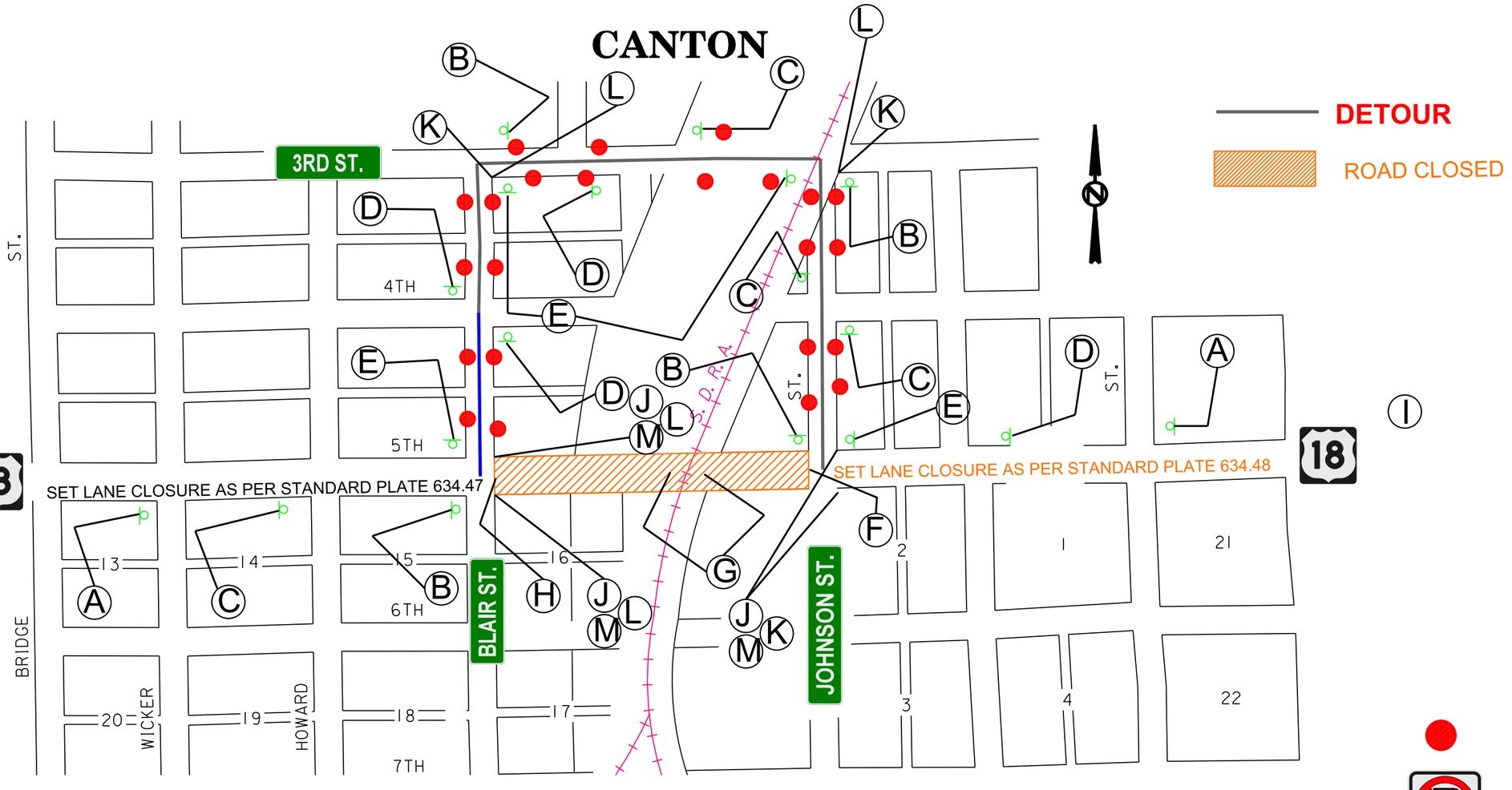

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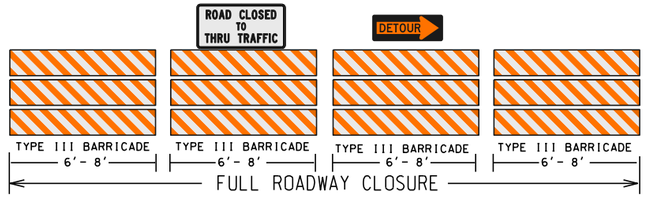

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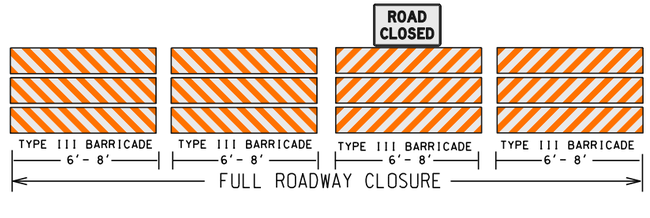

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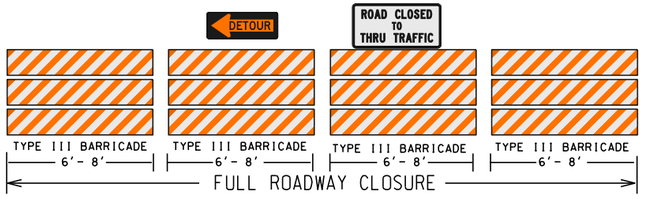

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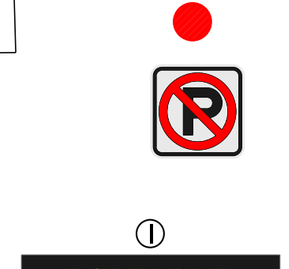


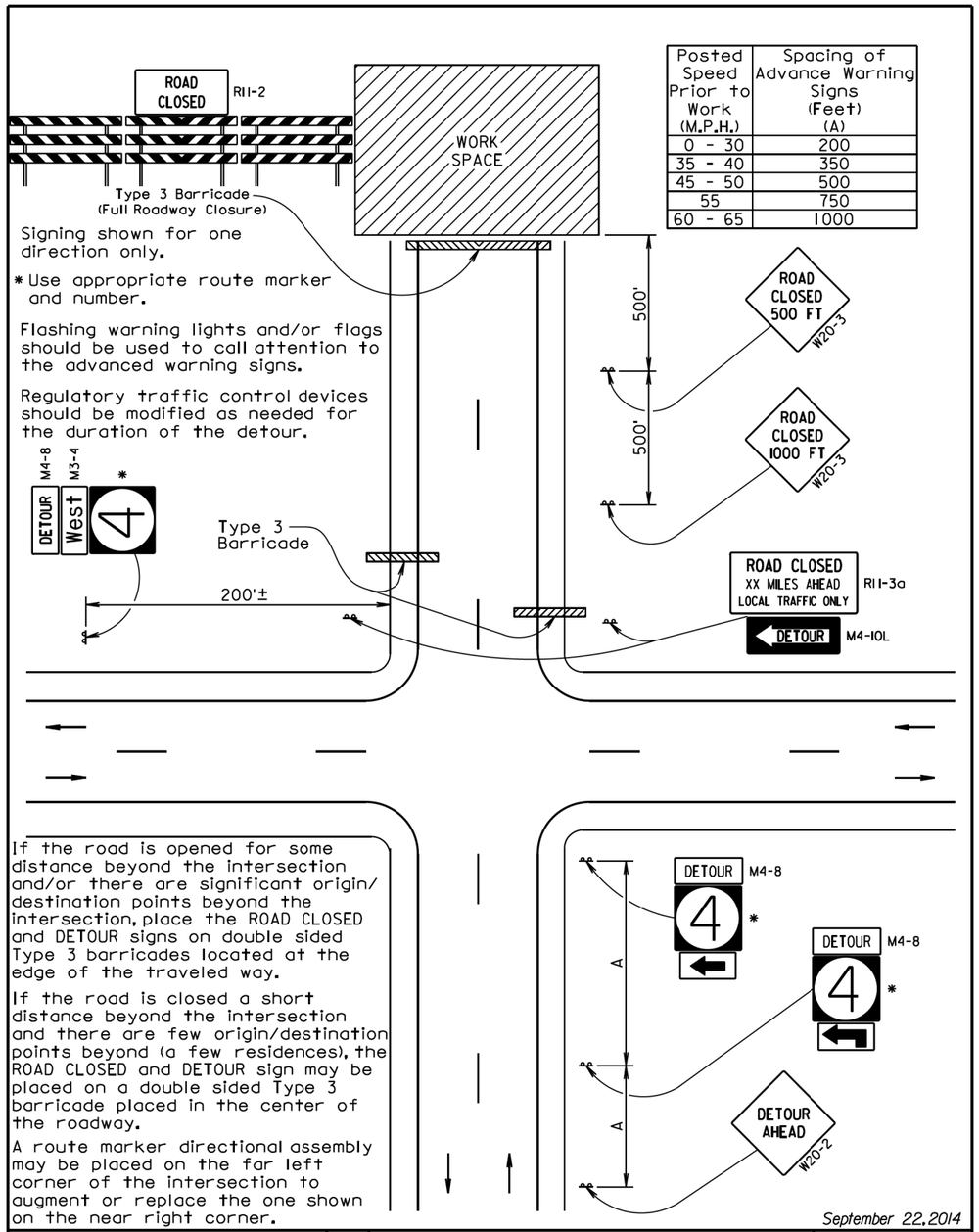
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	6	17

ITEMIZED LIST FOR TRAFFIC CONTROL

		CONVENTIONAL ROAD			
SIGN CODE	DESCRIPTION	NUMBER	SIGN SIZE	UNITS PER SIGN	UNITS
R9-9	SIDEWALK CLOSED	4	24" x 12"	15	60
R11-2	ROAD CLOSED		48" x 30"	27	
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	2	60" x 30"	30	60
R11-4	ROAD CLOSED TO THRU TRAFFIC		60" x 30"	30	
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	34	68
W20-2	DETOUR AHEAD	2	48" x 48"	34	68
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	34	68
G20-2	END ROAD WORK	2	36" x 18"	17	34
-	TYPE 3 BARRICADE - 8' double sided	20		56	1120
				TOTAL UNITS	**1478**

DETOUR SIGNING

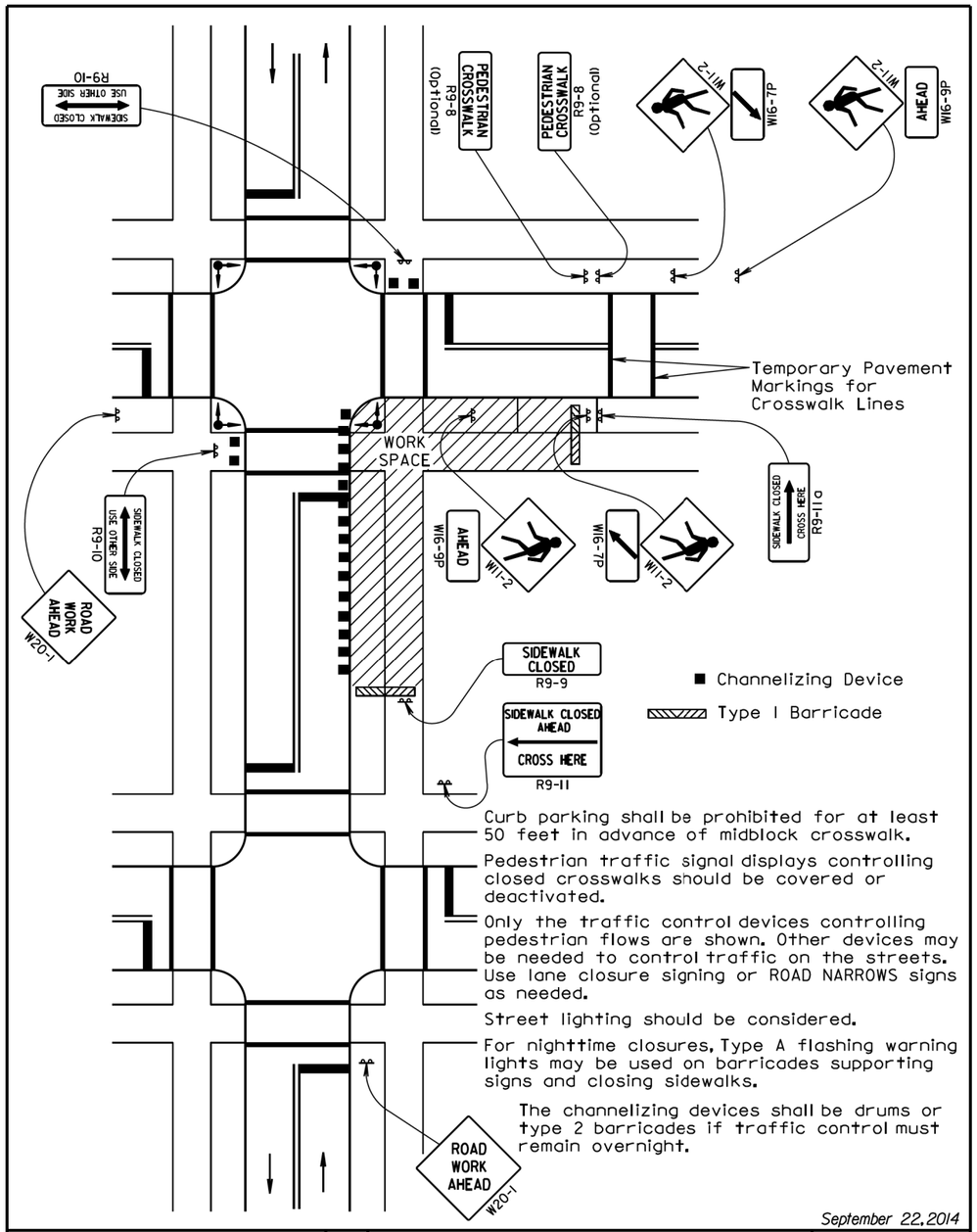
		CONVENTIONAL ROAD			
SIGN CODE	DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R8-3	NO PARKING (symbol)	24	24" x 24"	4.00	96.00
M1-4	US ROUTE MARKER (1 or 2 digits)	16	24" x 24"	4.00	64.00
M4-8	DETOUR	16	24" x 12"	2.00	32.00
M4-9a	BIKE/PEDESTRIAN (symbol) DETOUR with ARROW (L or R)	8	30" x 24"	5.00	40.00
M4-10	DETOUR ARROW (L or R)	2	48" x 18"	6.00	12.00
M5-1	ADVANCE TURN ARROW 90º (L or R)	8	21" x 15"	2.19	17.50
M6-1	DIRECTION ARROW - Horizontal Single Head (L or R)	8	21" x 15"	2.19	17.50
				DETOUR SIGNING TOTAL:	**279 SQFT**



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

September 22,2014

Published Date: 1st Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES ROAD CLOSED WITH OFF-SITE DETOUR	PLATE NUMBER 634.29 Sheet 1 of 1



September 22,2014

Published Date: 1st Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES SIDEWALK CLOSURES AND PEDESTRIAN DETOURS	PLATE NUMBER 634.33 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)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing to be every 40' for 42" cones.

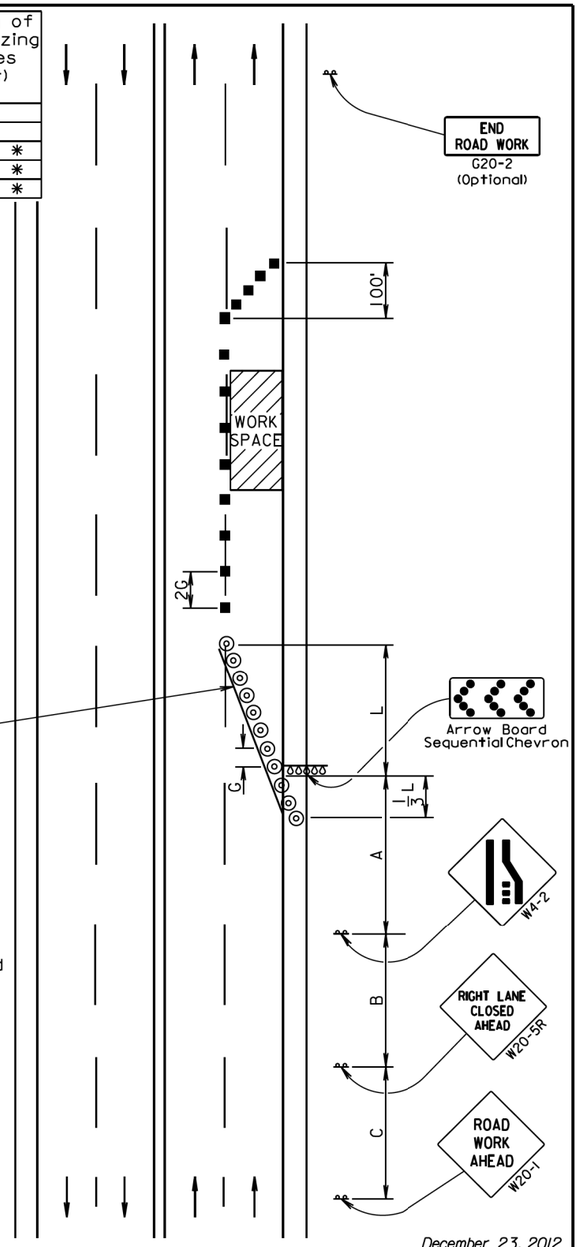
◎ Reflectorized Drum

■ Channelizing Device 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 any night time hours.

4" white temporary pavement marking shall be used for overnight and long term operations.

Longitudinal dimensions may be adjusted to fit project conditions such as horizontal curves, vertical curves, and other site restrictions.



December 23, 2012

Published Date: 1st Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47 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)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing to be every 40' for 42" cones.

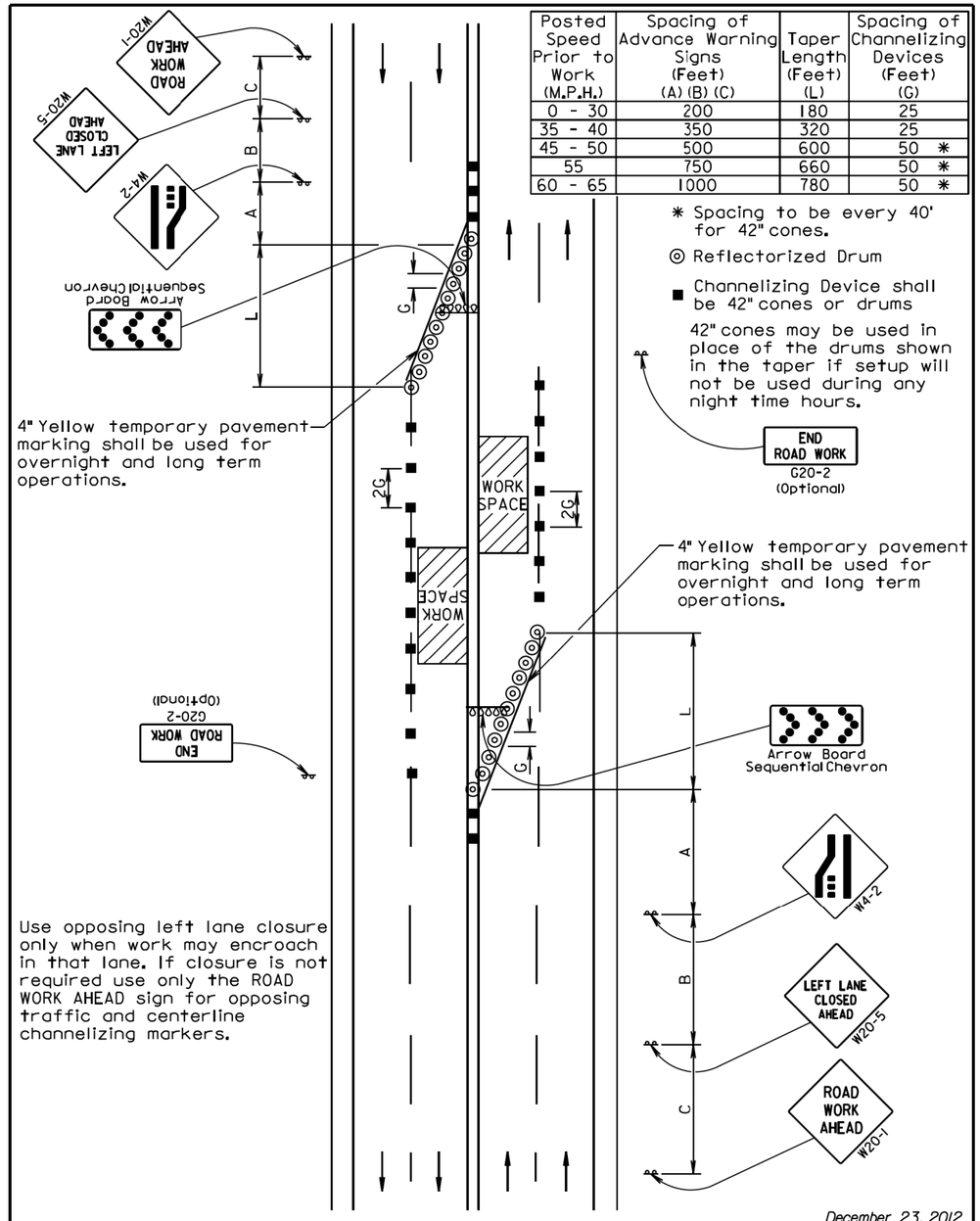
◎ Reflectorized Drum

■ Channelizing Device 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 any night time hours.

4" Yellow temporary pavement marking shall be used for overnight and long term operations.

Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and centerline channelizing markers.



December 23, 2012

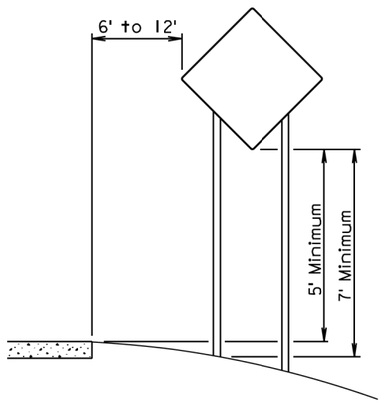
Published Date: 1st Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, LEFT LANE CLOSED	PLATE NUMBER 634.48 Sheet 1 of 1

PLOT SCALE - 1:200

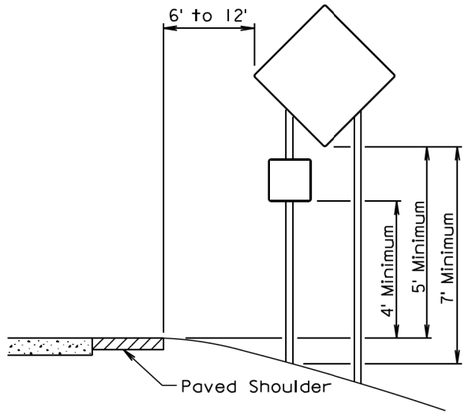
PLOTTED FROM - TRM1INT15

PLOT NAME - 3

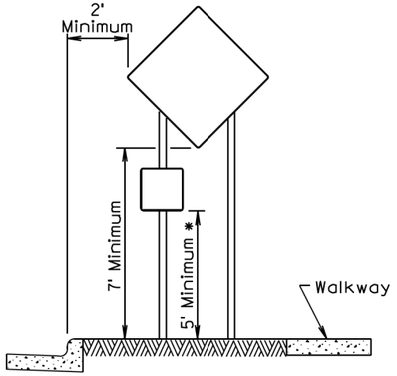
FILE - ...\STD PLATES 13PG.DGN



RURAL DISTRICT

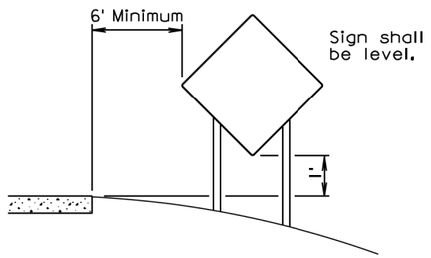


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

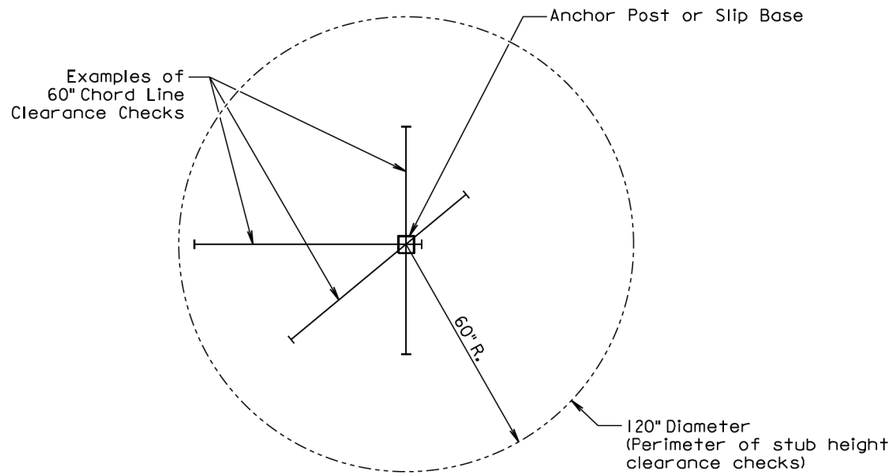
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



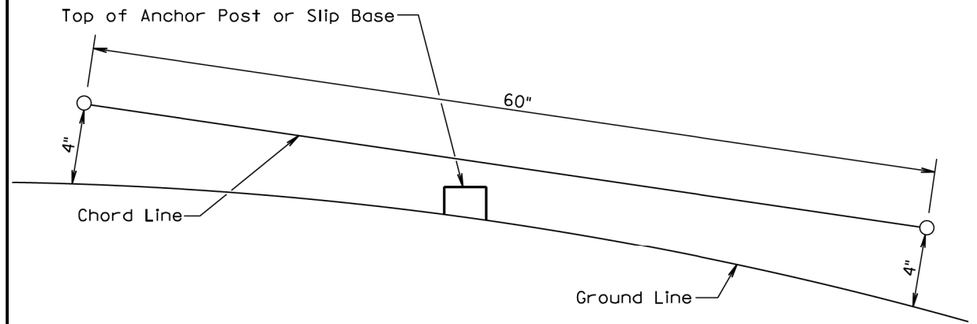
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22,2014

Published Date: 1st Qtr. 2015	SDDOT	**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	SDDOT	**BREAKAWAY SUPPORT STUB CLEARANCE**	PLATE NUMBER 634.99 / Sheet 1 of 1

PLOT SCALE - 1:200

PLOT NAME - 4

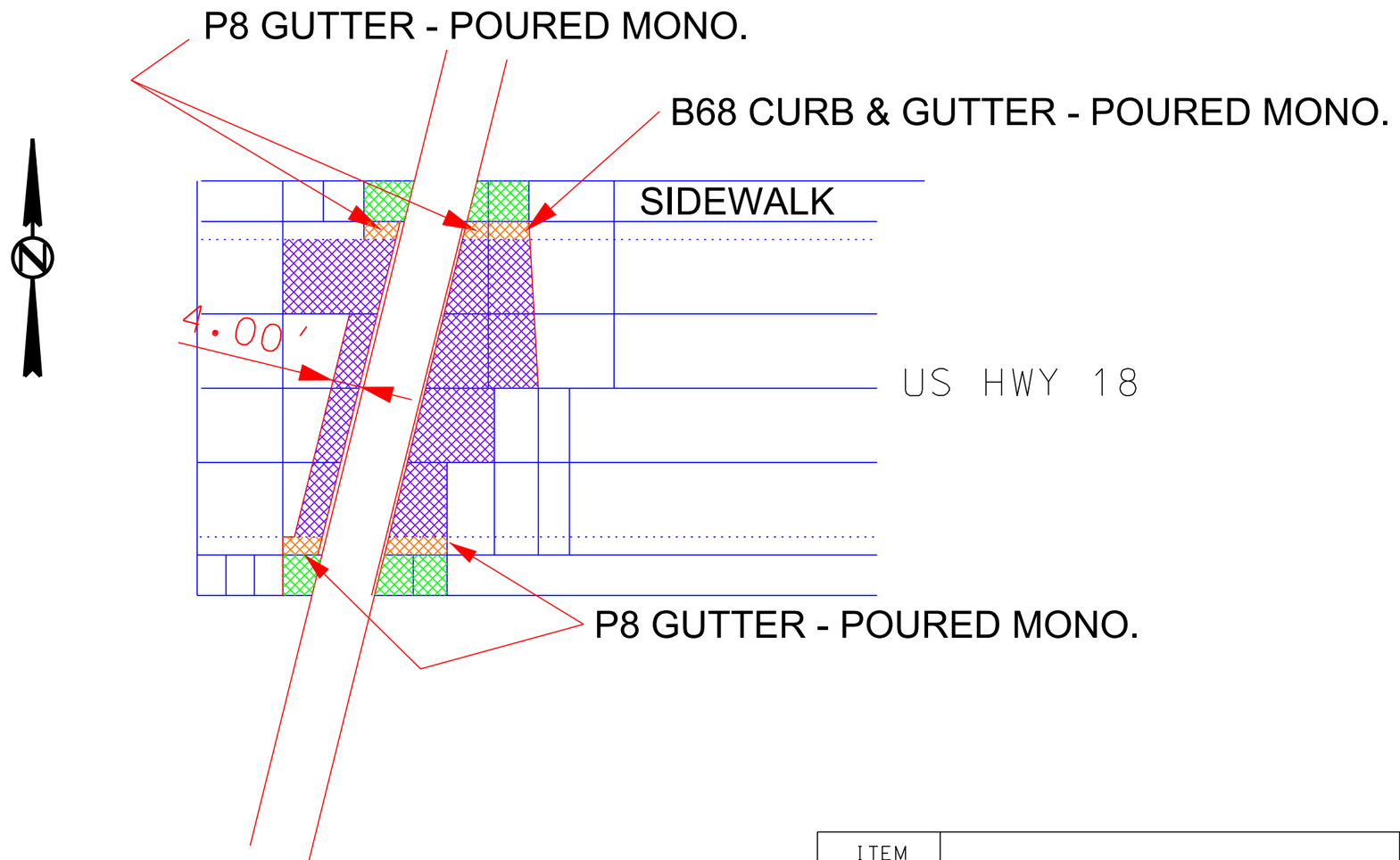
FILE - ...\STD PLATES 13PG.DGN

PLOTTED FROM - TRM1INT15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	10	17

Plotting Date: 03/10/2015

CONCRETE REMOVAL LAYOUT

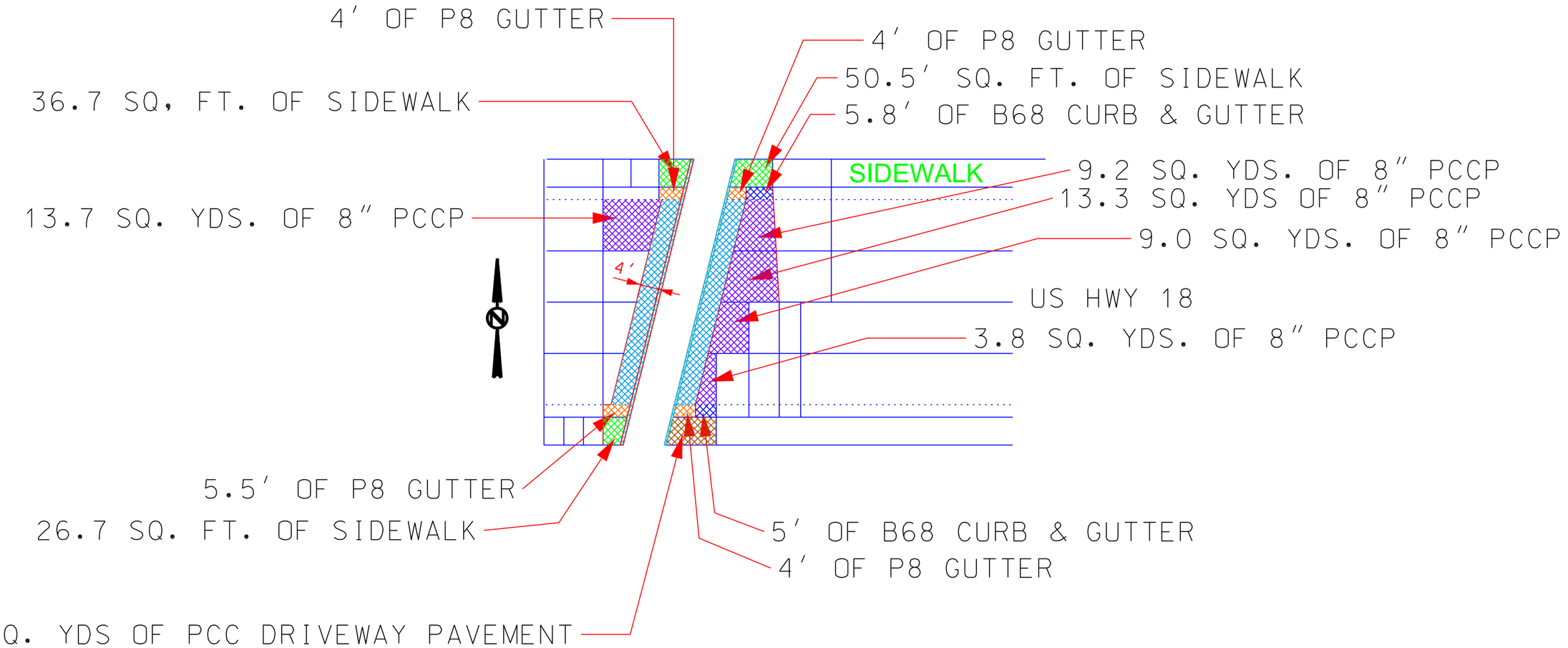


ITEM NUMBER	DESCRIPTION	QUANTITY	UNIT OF MEASURE
110E0300	REMOVE CONCRETE CURB AND GUTTER	29	Ft
110E1100	REMOVE CONCRETE PAVEMENT	89.4	SqYd
110E1140	REMOVE CONCRETE SIDEWALK	18.9	SqYd

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	11	17

Plotting Date: 03/10/2015

SURFACING LAYOUT & QUANTITIES



ITEM NUMBER	DESCRIPTION	QUANTITY	UNIT OF MEASURE
320E1200	ASPHALT CONCRETE COMPOSITE	22	TON
380E0050	8″ NONREINFORCED PCC PAVEMENT	49	SqYd
380E3020	6″ PCC DRIVEWAY PAVEMENT	6.7	SqYd
380E6110	INSERT STEEL BAR IN PCC PAVEMENT	52	EACH
650E0080	TYPE B68 CONCRETE CURB AND GUTTER	12	Ft
650E4680	TYPE P8 CONCRETE GUTTER	18	Ft
651E0040	4″ CONCRETE SIDEWALK	114	SqFt
380E6450	SAW JOINT IN PCC PAVEMENT	126	Ft

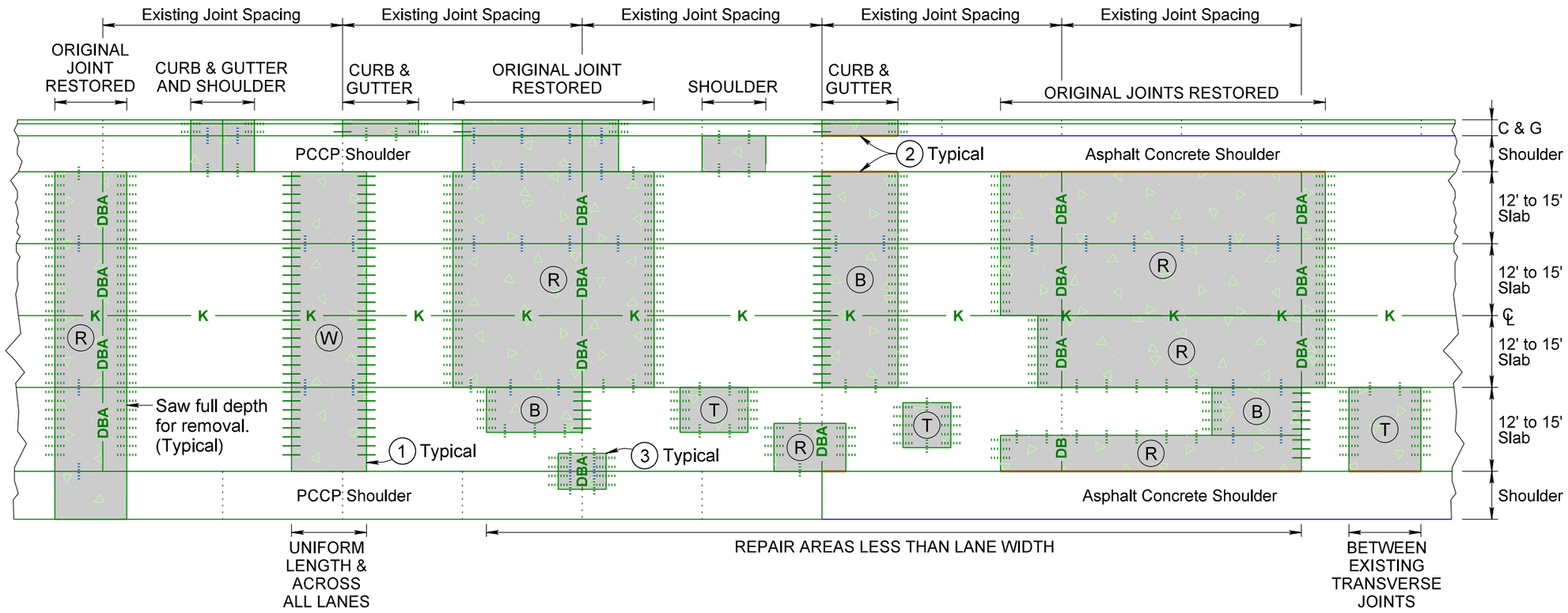
8″ PCC PAVEMENT
ASPHALT CONCRETE COMPOSITE
4″ CONCRETE SIDEWALK
TYPE P8 CONCRETE GUTTER
TYPE B68 CONCRETE CURB AND GUTTER
6″ PCC DRIVEWAY PAVEMENT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	12	17

Plotting Date: 03/10/2015

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 1½" 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 1¼" 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.

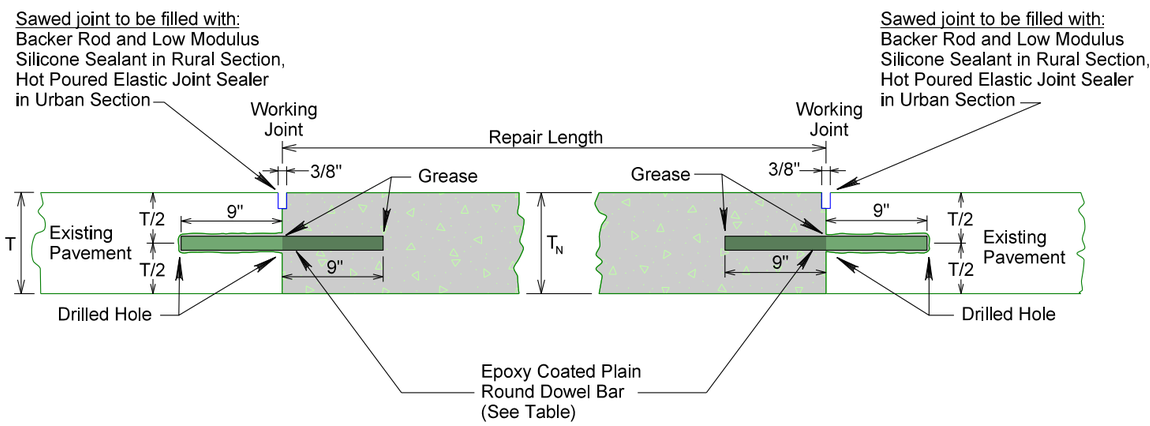
1. Where possible, transverse joints shall be constructed/maintained full roadway width.
2. Edges of repair areas shall be formed to match the width of the existing concrete pavement.
3. Need for bars in small repair areas on/near the shoulder to be determined on a case-by-case basis, on construction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

NONREINFORCED PCC PAVEMENT REPAIR

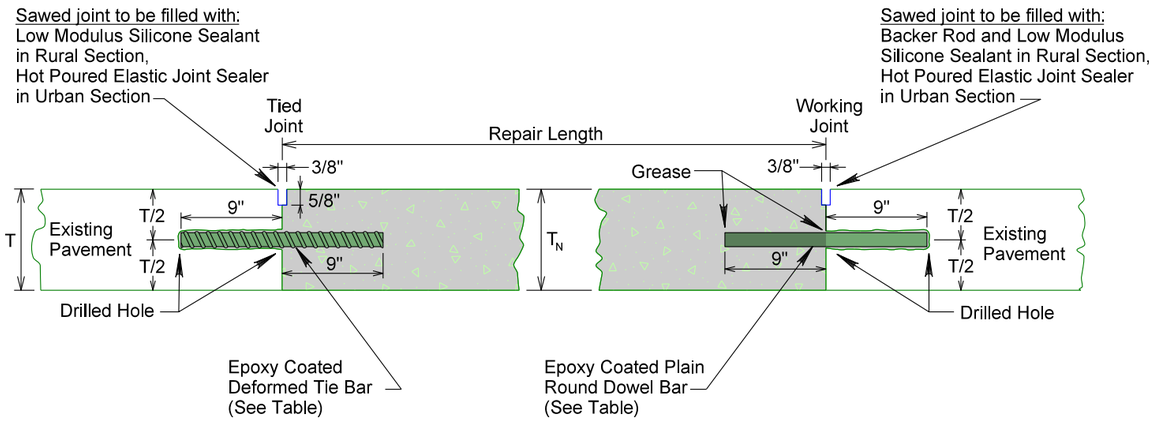
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	13	17

Plotting Date: 03/10/2015

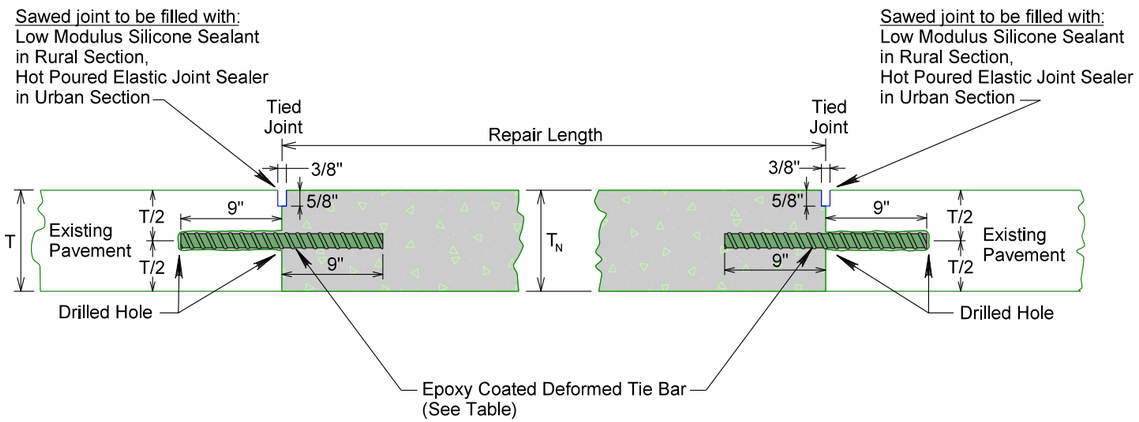
PLAIN ROUND DOWEL BAR INSERTION
TYPE W - (TWO WORKING JOINTS)



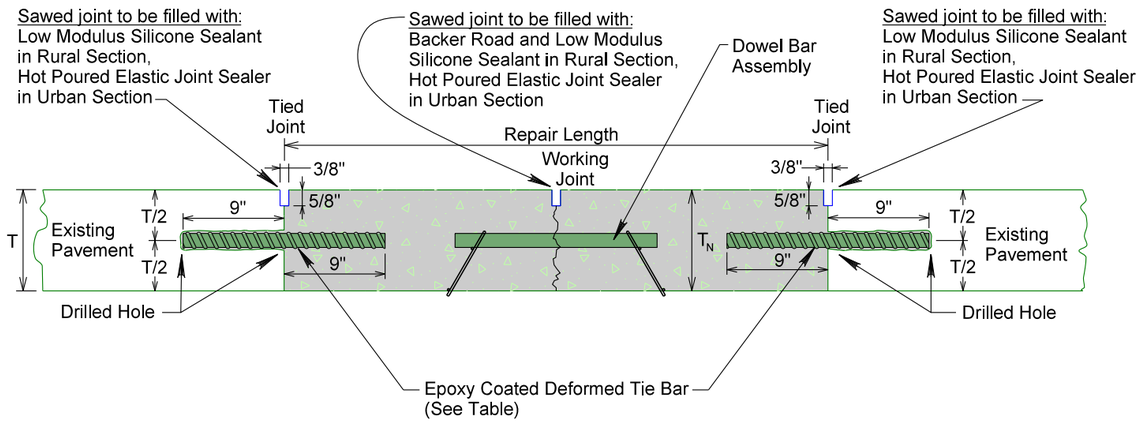
DEFORMED TIE BAR AND PLAIN ROUND DOWEL BAR INSERTION
TYPE B - (ONE TIED JOINT AND ONE WORKING JOINT)



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.
T_N = New pavement thickness.

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.

T_N = T

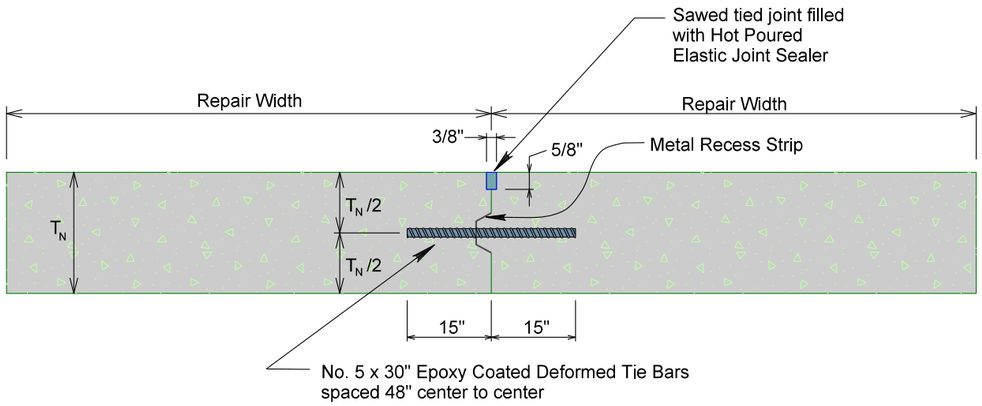
(top of new pavement shall be flush with top of existing pavement)

NONREINFORCED PCC PAVEMENT REPAIR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-271	14	17

Plotting Date: 03/10/2015

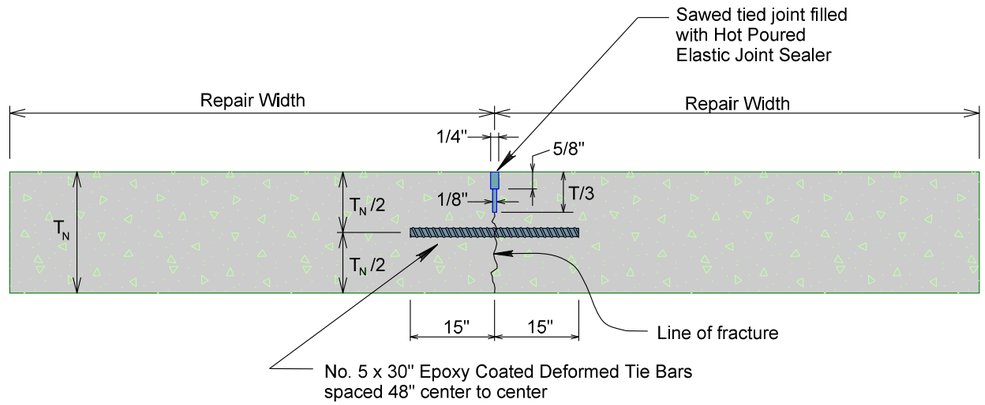
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



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

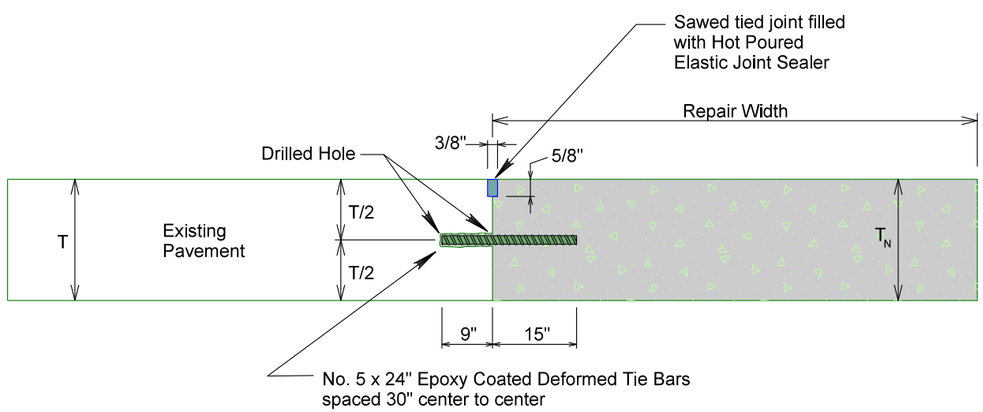


T_N = New pavement thickness.

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



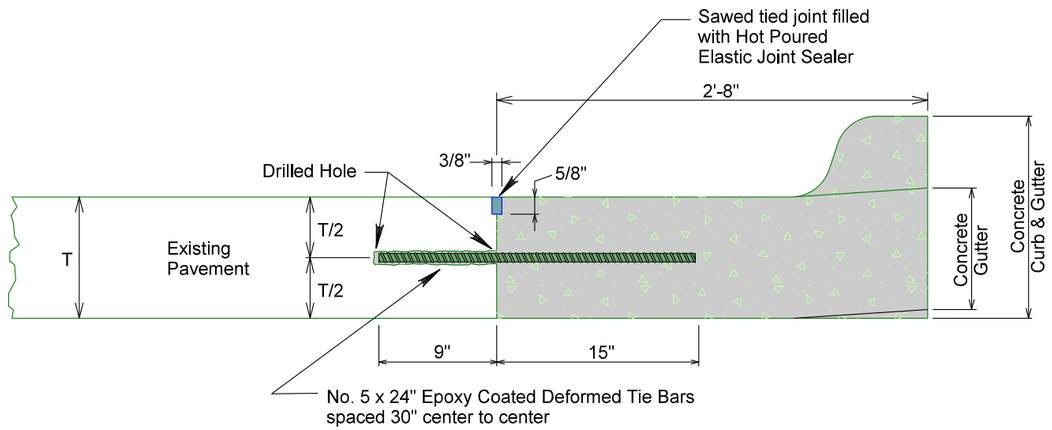
T = Existing pavement thickness.
T_N = New pavement thickness.

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

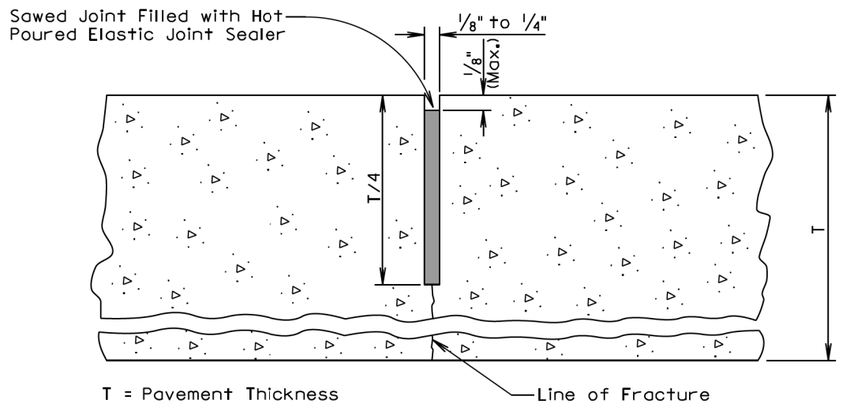


T = Existing pavement thickness.

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.



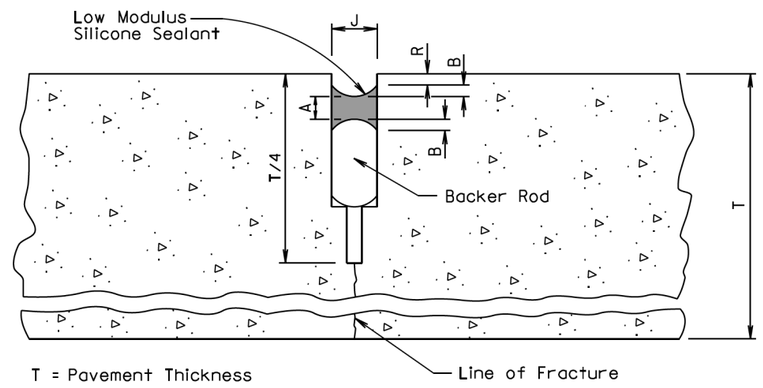
GENERAL NOTES:

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	SDDOT	*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

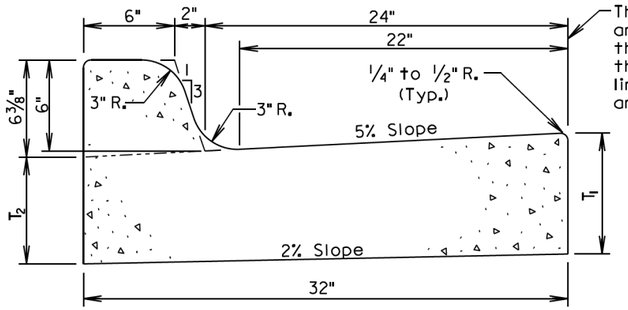
Published Date: 1st Qtr. 2015	SDDOT	*RESEAL PCC PAVEMENT JOINT (SILICONE)*	*PLATE NUMBER* 380.13
			Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRM11NT15

PLOT NAME - 1

FILE - ...\STD PLATES 13PG.DGN



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

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

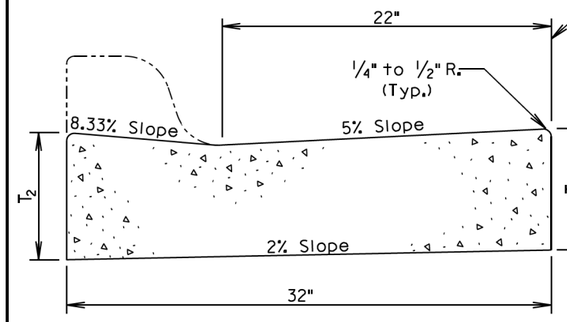
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

Published Date: 1st Qtr. 2015	SDDOT	***TYPE B CONCRETE CURB AND GUTTER***	***PLATE NUMBER*** 650.01 *Sheet 1 of 1*

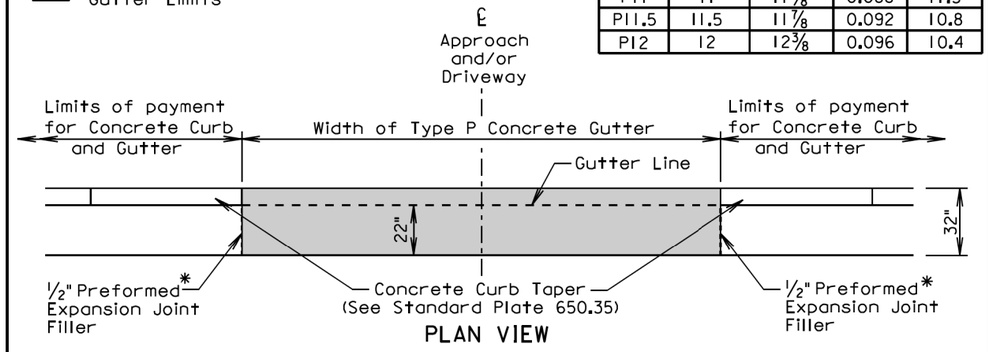


The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4

TRANSVERSE SECTION

Type P Concrete Gutter Limits



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the 1/2" Preformed Expansion Joint Filler is provided, then the joint shall be sealed in accordance with standard plate 650.90.

GENERAL NOTES:

The concrete for the Type P Concrete Gutter shall comply with the requirements of the Standard Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

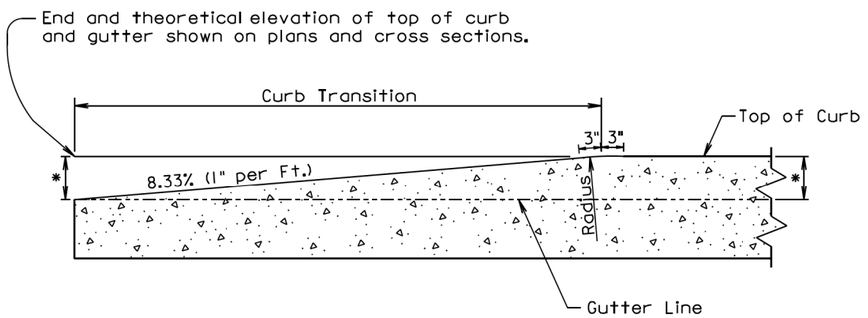
Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete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

When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete.

September 6, 2013

Published Date: 1st Qtr. 2015	SDDOT	***TYPE P CONCRETE GUTTER***	***PLATE NUMBER*** 650.30 *Sheet 1 of 1*



* Height of Curb

LONGITUDINAL SECTION OF CONCRETE CURB TAPER

September 14, 2005

Published Date: 1st Qtr. 2015	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1