

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-271	1	19

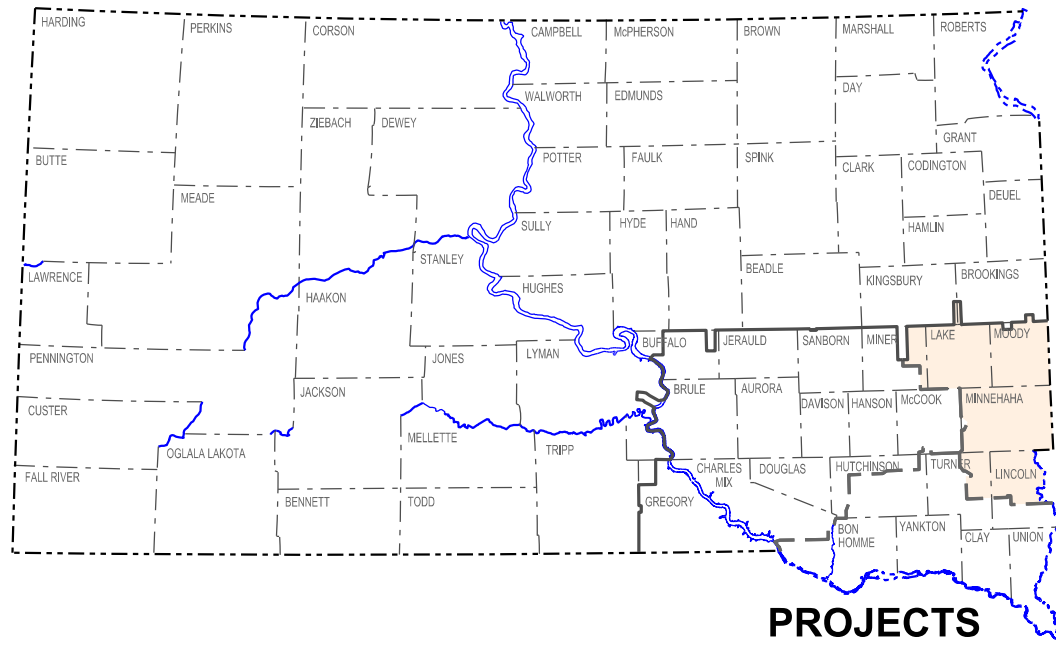
Plotting Date: 01/08/2020

PLANS FOR PROPOSED  
**PROJECT 0009-271**  
VARIOUS ROUTES IN THE SIOUX FALLS AREA  
NRC PAVEMENT REPAIR  
PCN I5HM

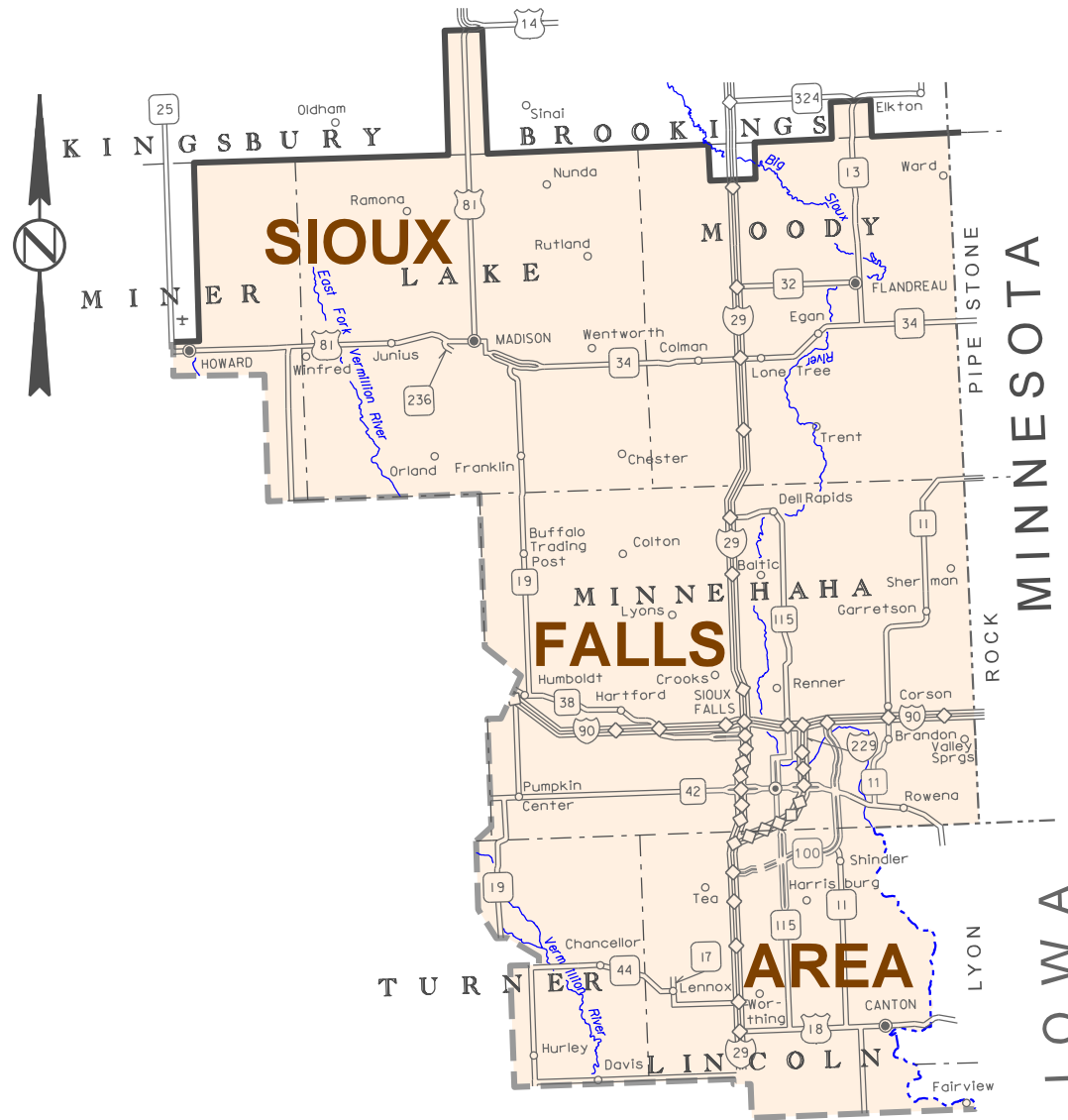
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PLOT SCALE - 1"=70000'



PROJECTS



**STORM WATER PERMIT**  
(None required)

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PLOT NAME - 1

### ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0197	Mobilization 1	15	Each
110E0300	Remove Concrete Curb and/or Gutter	100	Ft
380E5030	Nonreinforced PCC Pavement Repair	1,615.0	SqYd
380E6000	Dowel Bar	480	Each
380E6110	Insert Steel Bar in PCC Pavement	839	Each
462E0100	Class M6 Concrete	2.0	CuYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	414.0	SqFt
634E0126	Traffic Control for Pavement Repair	15	Site
634E0275	Type 3 Barricade	12	Each
634E0420	Type C Advance Warning Arrow Board	15	Each
650E2100	Special Concrete Curb and Gutter	100	Ft
670E7000	Reset Drop Inlet Frame and Grate Assembly	2	Each

### SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the proposal.

### ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Section A Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

### COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species waters within South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment to prevent and control the introduction and spread of invasive species into the project vicinity.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

#### Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of Aquatic Invasive Species in South Dakota can be accessed at: <http://sdleastwanted.com/maps/default.aspx>.

### 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 will 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 Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for 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) will 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 Environmental Office and the Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates and placement of a sign or signs at the entrance to the site stating No Dumping Allowed.

### COMMITMENT H: WASTE DISPOSAL SITE (CONTINUED)

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 will 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) will be incidental to the various contract items.

### COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

#### Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease, and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

### UTILITIES

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

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 will contact the Project Engineer to determine if project changes are necessary to avoid utility impacts.

### SCOPE OF WORK

This project consists of On-call mainline Nonreinforced PCCP Repair. As repairs are identified, the Contractor will be given notification that a repair is needed. On-call repair needs may exceed estimated quantities. Once a repair need is identified, the Contractor will be given notification of the needed repair and the Contractor will have 21 calendar days from the date of notification to fully complete the identified repair.

### ESTIMATED PCCP REPAIR QUANTITIES AND LOCATIONS

It is estimated that:

On I90 East from MRM 391.0 to 397.5 there is 478 SqYd of NRC Pavement Repair at 34 locations.

On I90 West from MRM 397.5 to 391.0 there is 827 SqYd of NRC Pavement Repair at 108 locations.

In addition to the above estimates, it is estimated that 310 SqYd of NRC Pavement Repair, 2 drop inlet replacements, and 100 feet of curb and gutter repair will be needed on varying routes in the Sioux Falls Area. The intent of the above quantity is to repair the pavement distress that has already occurred and will continue to occur in the Sioux Falls Area throughout the duration of this project. Other repair locations may be added during the duration of this project.

The actual repair sizes, quantity of insert steel, and dowel bars needed in the field will be determined by the size, number and locations of the repair needed at the discretion of the Engineer. Payments to re-stock bars that were ordered but not used on this project will not be made.

### EXISTING NRC PAVEMENT

The existing pavement in the Sioux Falls Area ranges from 6" – 13" thick NRC PCC Pavement. The Contractor will set contract unit prices accordingly, and no additional payment based on thickness will be considered.

The aggregate in the existing NRC Pavement is quartzite.

### RESTORATION OF GRAVEL CUSHION

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

If additional gravel cushion material is required, the Contractor will furnish, place and compact gravel cushion to the satisfaction of the Engineer at no additional cost to the State.

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

### GRAVEL CUSHION

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

### NONREINFORCED PCC PAVEMENT REPAIR - GENERAL

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

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

Existing concrete pavement in the replacement areas will 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 will be removed from within the right-of-way by the end of the workday. Damage to adjacent concrete caused by the Contractor's operations will 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 will 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 gravel and asphalt concrete shoulders will be formed full depth to match the width of existing concrete pavement. Asphalt concrete shoulders adjacent to concrete pavement replacements will 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 will place a 1/4" preformed asphalt expansion joint material along the longitudinal joint from the existing working joint to the new working joint. The expansion joint material will meet the requirements of AASHTO M33. Cost for this material will be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

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

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 will meet the requirements stated in Section 380 of the specifications, except as modified by the following notes:

The fine aggregate will 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 will contain 4.5% to 7.0% entrained air. The concrete will contain a minimum of 50% coarse aggregate by weight. Coarse aggregate will 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 will 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 will be 4,000 psi. The Contractor is responsible for the mix design used. The Contractor will 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 will 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. A strength of 3,500 psi must be attained prior to opening to traffic.

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

Concrete will 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 will have an R-value of at least 0.5, as rated by the manufacturer. Insulation blanket will be left in place, except for joint sawing operations, until the 3,500 psi is attained. Insulation blanket will 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 will be included in the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

### **STEEL BAR INSERTION**

Steel bars will conform to Section 1010.

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 will 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 as per Section 380.3 C.1.

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 will 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 as per Section 380.3 C.1.

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

The Contractor will 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 as per Section 380.3 C.1.

Steel bars will be inserted in the transverse joint on 18" centers. The first steel bar in the transverse joint will be placed 9" from the edge of the slab closest to centerline. Steel bars will be inserted in the longitudinal joint on 30" centers and will 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.

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.

### **SAW AND SEAL JOINTS**

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

Joint sealing will conform to Section 380.3 P.

Longitudinal and transverse joints in urban sections will be sealed with Hot Poured Elastic Joint Sealer. Transverse joints in rural sections will 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 will be incidental to the contract unit prices per square yard for Nonreinforced PCC Pavement Repair.

### **FRAME AND GRATE REPAIR**

Type B frame and grates, as identified by the Engineer, will be removed, collars repaired as needed to reestablish the proper elevation for drainage, and the existing grates will be reset. It is estimated that 1 CuYd of M6 concrete will be required to repair collar and reset the grate.

**TEMPORARY PAVEMENT MARKING**

Cost for temporary pavement marking for stop bars and individual lane closure tapers that must remain overnight will be incidental to the contract unit price per site for Traffic Control for Pavement Repair.

Temporary pavement marking on centerline will consist of temporary flexible vertical markers (tabs) and will be used as depicted on Standard Plate 634.25 when the stop condition must remain in place during nighttime hours 9:00PM to 6:00AM.

Temporary pavement marking for stop bars will consist of 4" Temporary Pavement Marking Tape Type I. Placement of each 24" white stop bar may be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop bars which is an equivalent of approximately 144' of 4" tape.

**GENERAL MAINTENANCE OF TRAFFIC**

Sufficient traffic control devices have been included in these plans to sign one workspace on a multi-lane highway and one workspace on a two lane highway. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices will be incidental to the contract unit price per square foot for Traffic Control Signs.

**MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR**

Enough quantity has been included in these plans for 3 work zones for the work on I90E and 3 work zones for the work on I90W and another 9 work zones at anticipated locations. The Department will pay for 6 mobilization, 6 arrow boards, and 6 traffic control set-ups for this work on I90. Any work zones in excess of the 6 included in the plans for this planned work on I90 will be done at the Contractor's expense at no additional cost to the Department. Quantities for these items will be increased accordingly when the Contractor is ordered to perform repair work at anticipated locations that arise throughout the duration of project.

Additional Type 3 Barricades will be installed facing traffic within the closed lane at a spacing of 1/4 mile. At intersecting roadways, two additional Type 3 Barricades will be used to block the entire closed lane and shoulder.

Each mainline concrete repair location from which the in-place concrete has been removed will be marked with a minimum of two reflectorized drums.

Construction workspaces on divided roadways will be limited to 3 miles in length. Construction workspaces on undivided roadways will be limited to 300 feet in length. The distance between the closest points of any two construction workspaces, including channeling devices, will 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

Construction workspaces in urban areas will be limited to 3 blocks in length. The minimum distance between workspaces will be 3 blocks.

When work is in progress within an intersection, Flaggers will be required to direct traffic.

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC Pavement Repair areas will be filled with gravel cushion material and cold-mix asphalt concrete prior to opening the lane to traffic. Gravel cushion material and cold-mix asphalt concrete will be furnished by the Contractor.

**MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR (CONTINUED)**

Holes in the asphalt concrete shoulders created during removal and replacement of PCC Pavement Repair areas will be filled with gravel cushion material and hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Hot-mix asphalt concrete will be furnished by the Contractor at no additional cost to the State.

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

Routing traffic onto the mainline shoulders during any phase of the construction will not be allowed.

Damage to the shoulders, median or ditch due to the Contractor's operations will 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.

Traffic approaching the project from intersecting roadways, streets and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers and other traffic control devices on a temporary basis until work activities pass these areas.

Cost for material (except signs, corresponding supports and hardware), labor, delivery, set up and maintenance of all necessary traffic control devices for each site will be included in the contract unit price per site for Traffic Control for Pavement Repair. Cost for signs, corresponding supports and hardware will be included in the contract unit price per square foot for Traffic Control Signs, per Specification.

**ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS**

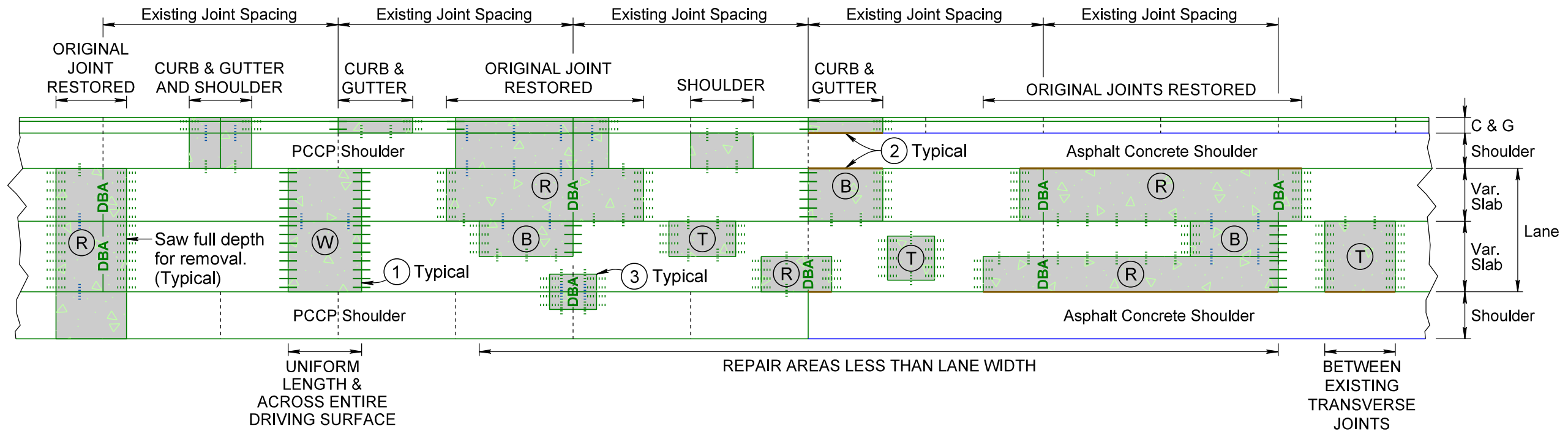
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE					
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT		
R1-1	STOP	2	30"	5.2	10.4		36"	7.5			
R2-1	SPEED LIMIT 45		24" x 30"	5.0		2	36" x 48"	12.0	24.0		
R2-1	SPEED LIMIT 65		24" x 30"	5.0		1	36" x 48"	12.0	12.0		
R2-1	SPEED LIMIT 80		24" x 30"	5.0		1	36" x 48"	12.0	12.0		
R2-6aP	FINES DOUBLE (plaque)		24" x 18"	3.0		1	36" x 24"	6.0	6.0		
W1-3	REVERSE TURN (L or R)	2	48" x 48"	16.0	32.0		48" x 48"	16.0			
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0		48" x 48"	16.0			
W3-5	SPEED REDUCTION AHEAD (45 MPH)		48" x 48"	16.0		1	48" x 48"	16.0	16.0		
W3-5	SPEED REDUCTION AHEAD (65 MPH)		48" x 48"	16.0		2	48" x 48"	16.0	32.0		
W4-2	LEFT or RIGHT LANE ENDS (symbol)		48" x 48"	16.0		2	48" x 48"	16.0	32.0		
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6		30" x 30"	6.3			
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0	2	48" x 48"	16.0	32.0		
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0		48" x 48"	16.0			
W20-5	LEFT or RIGHT LANE CLOSED AHEAD		48" x 48"	16.0		2	48" x 48"	16.0	32.0		
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0	1	48" x 48"	16.0	16.0		
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0	1	48" x 24"	8.0	8.0		
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT				192.0	EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT				222.0

# NONREINFORCED PCC PAVEMENT REPAIR

## ANY SINGLE LANE ROADWAY (RAMPS, ETC.) TYPICAL REPAIR AREAS

STATE OF SOUTH DAKOTA	PROJECT 0009-271	SHEET 6	TOTAL SHEETS 19
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Plotting Date: 01/08/2020



### 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 entire driving surface))
- (T) Two Tied Joints
- (B) One Working & One Tied Joint
- (R) Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

### Steel Bars for Transverse Joints

#### Pavement Thickness $\geq 10.5"$

— Drilled in  $1\frac{1}{2}" \times 18"$  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 $\geq 8.5"$ and $< 10.5"$

— Drilled in  $1\frac{1}{4}" \times 18"$  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  $1" \times 18"$  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. Sawn 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.

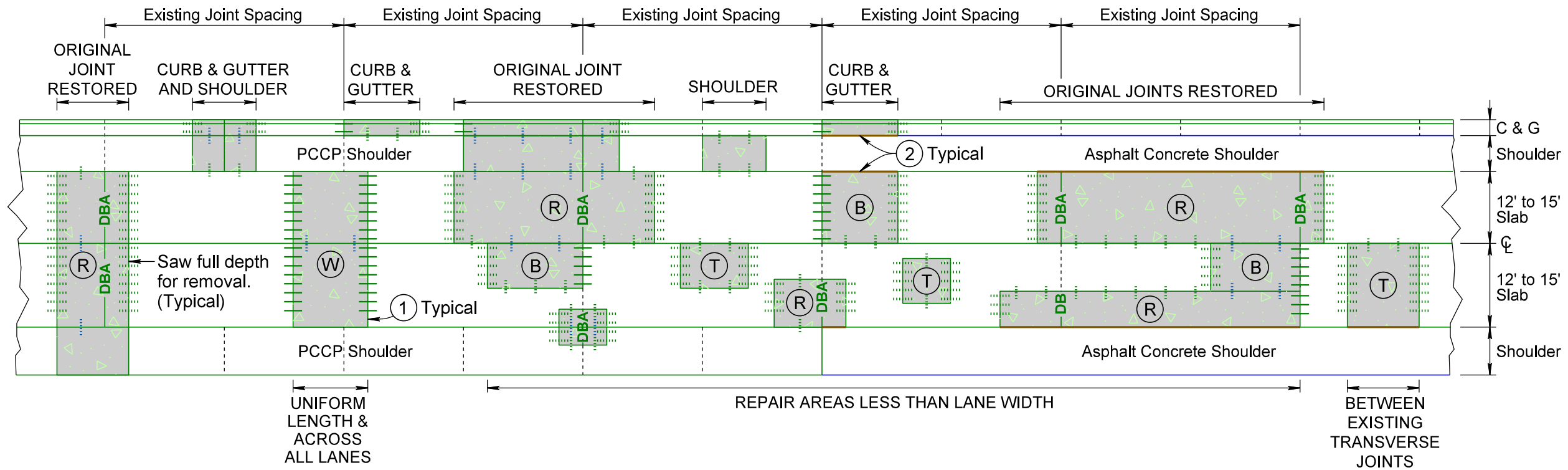
# NONREINFORCED PCC PAVEMENT REPAIR

## UP TO TWO LANE ROADWAY OR UP TO FOUR LANE DIVIDED ROADWAY

### TYPICAL REPAIR AREAS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-271	7	19

Plotting Date: 01/08/2020



**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

**Steel Bars for Transverse Joints**

- Pavement Thickness  $\geq 10.5$ "
  - 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  $\geq 8.5$ " 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. Sawn 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.

PLOT SCALE - 1:10

PLOT NAME - 3

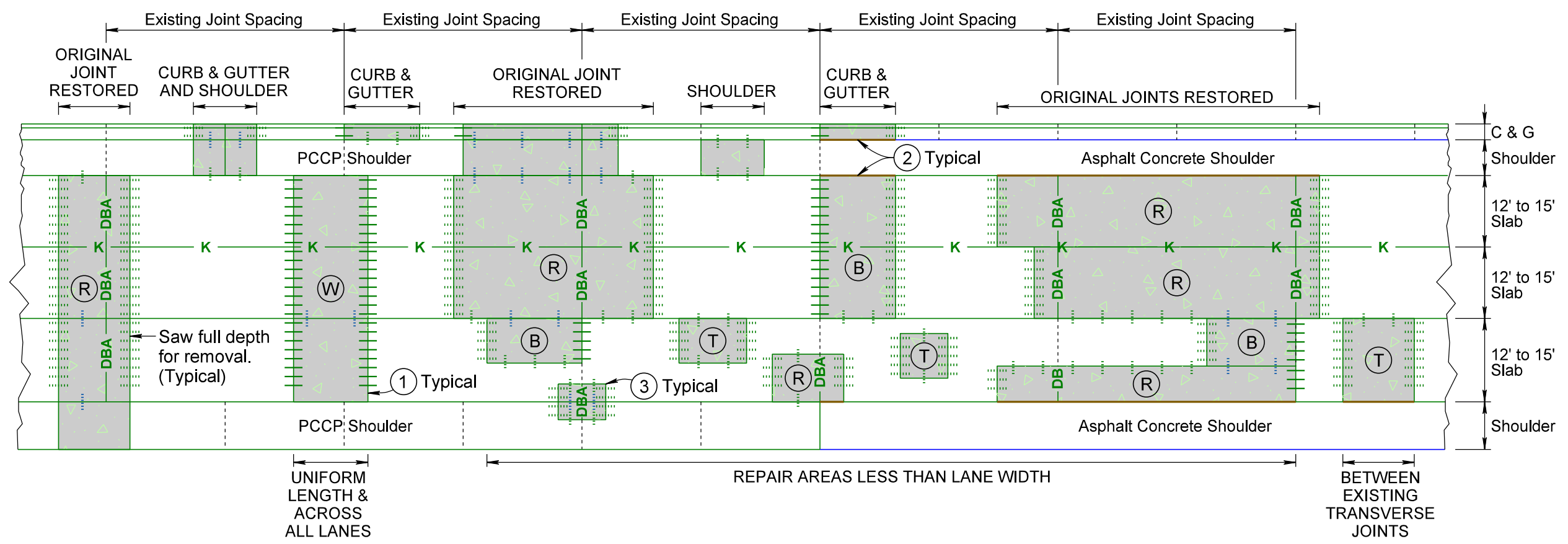
FILE - ... \PATCH2.DGN

PLOTTED FROM - TRMLINT15

# NONREINFORCED PCC PAVEMENT REPAIR

UP TO TWO LANE ROADWAY WITH CENTER LANE OR UP TO SIX LANE DIVIDED ROADWAY  
TYPICAL REPAIR AREAS

Plotting Date: 01/08/2020



**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  $\geq 10.5$ "
  - 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  $\geq 8.5$ " 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. Sawn 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.

PLOT SCALE - 1:10

PLOT NAME - 4

FILE - ... \PATCH3.DGN

PLOTTED FROM - TRMLINT15

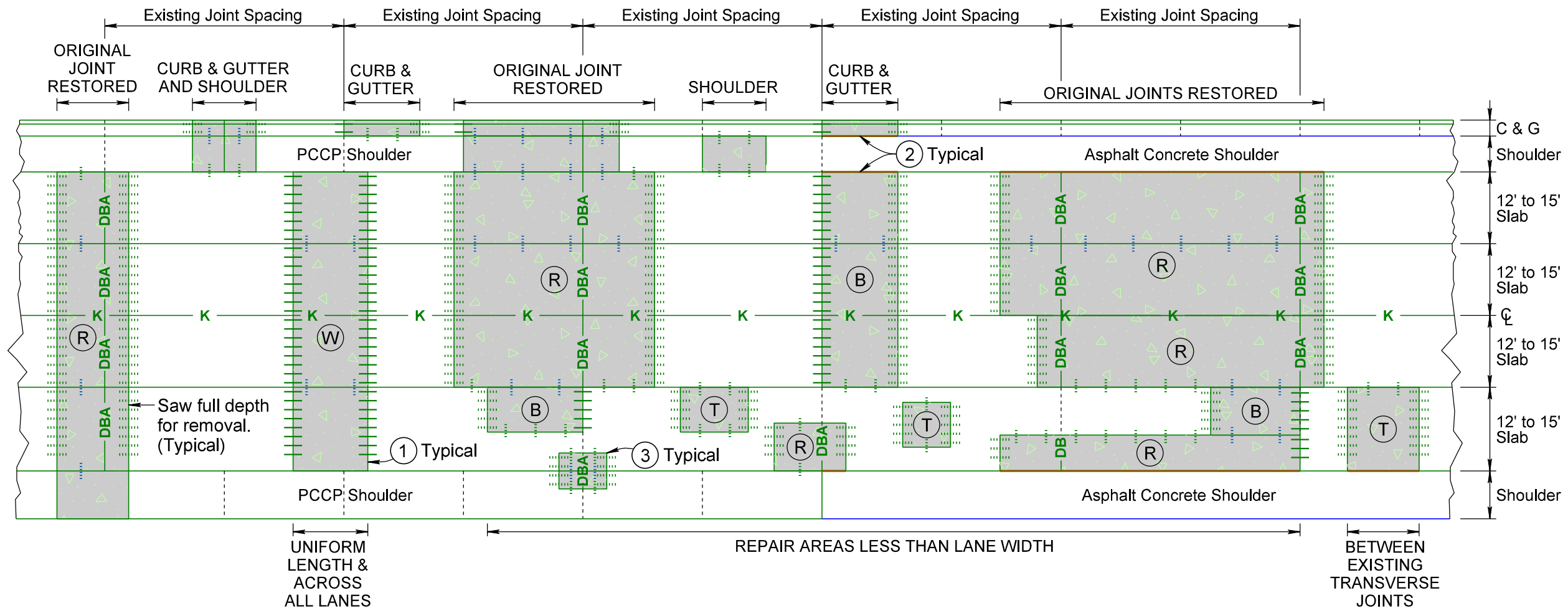


# NONREINFORCED PCC PAVEMENT REPAIR

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

### TYPICAL REPAIR AREAS

Plotting Date: 01/08/2020



**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  $\geq 10.5$ "

— 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  $\geq 8.5$ " 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. Sawn 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.

PLOT SCALE - 1:10

PLOT NAME - 5

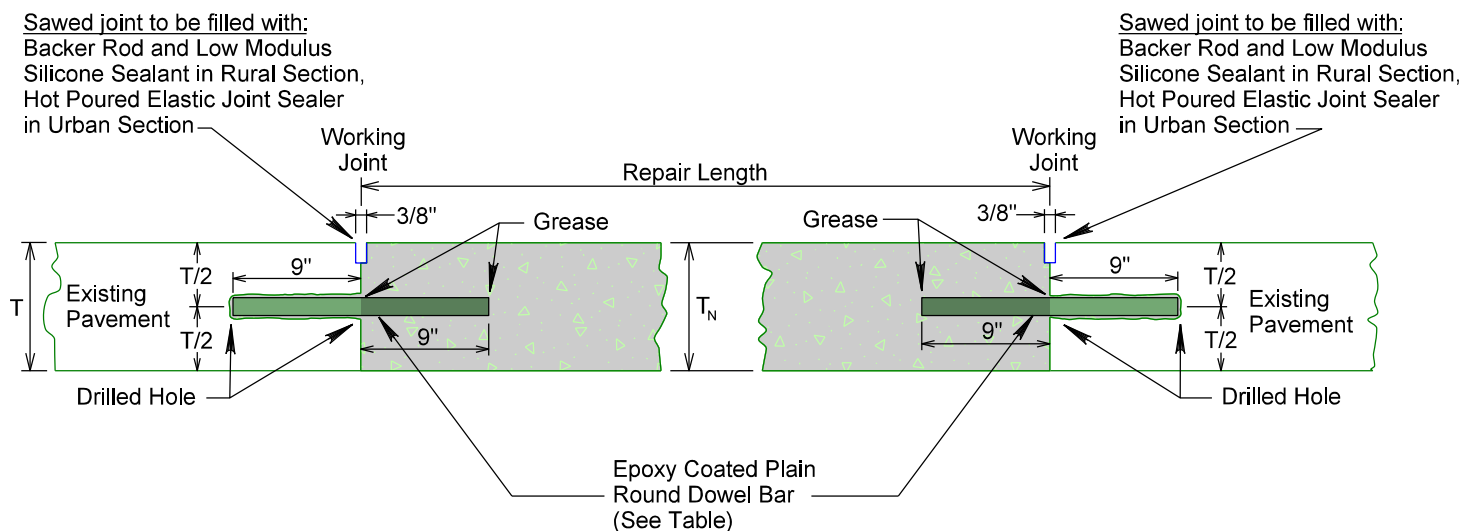
FILE - ... \PATCH4.DGN

PLOTTED FROM - TRMLINT15

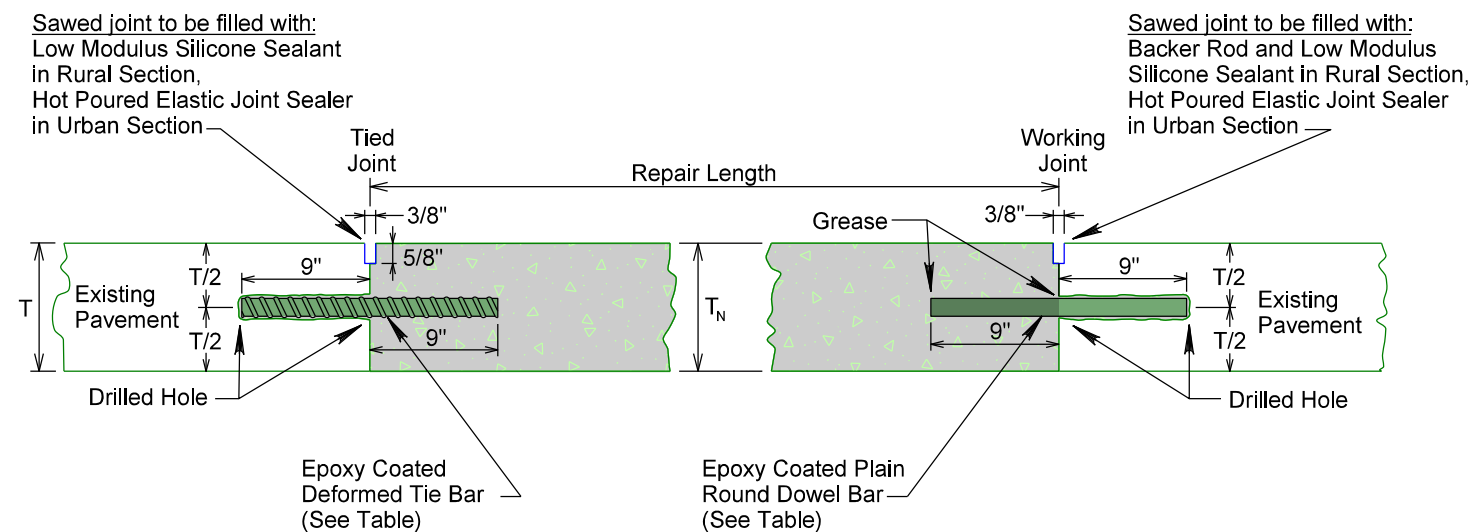
# NONREINFORCED PCC PAVEMENT REPAIR

Plotting Date: 01/08/2020

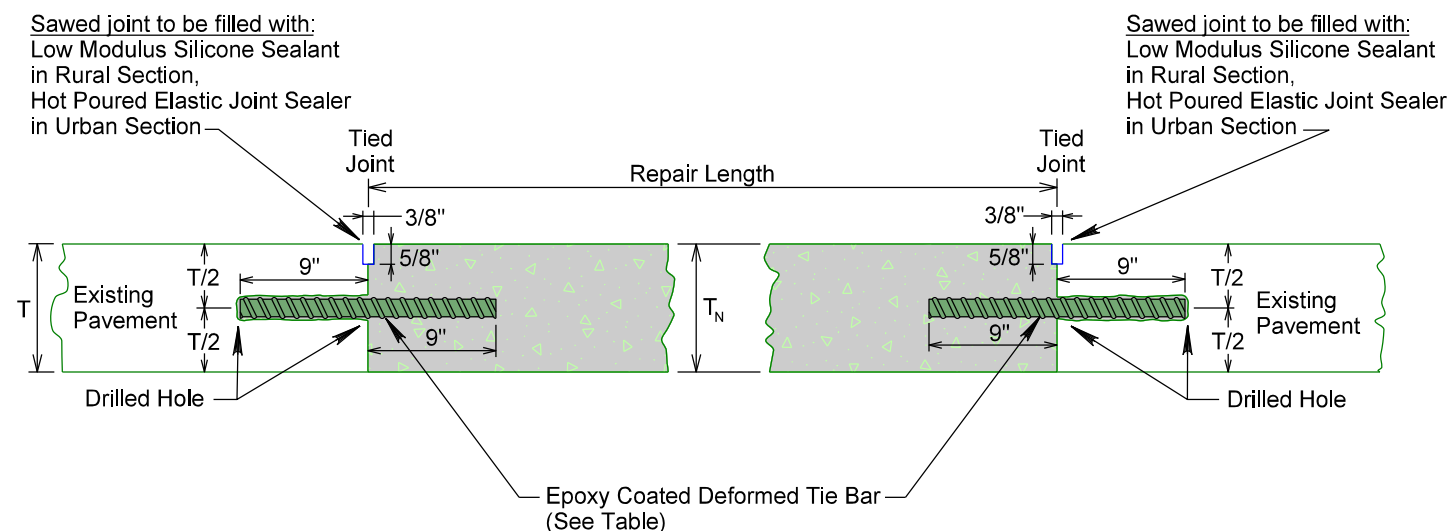
**PLAIN ROUND DOWEL BAR INSERTION  
TYPE W - (TWO WORKING JOINTS)**



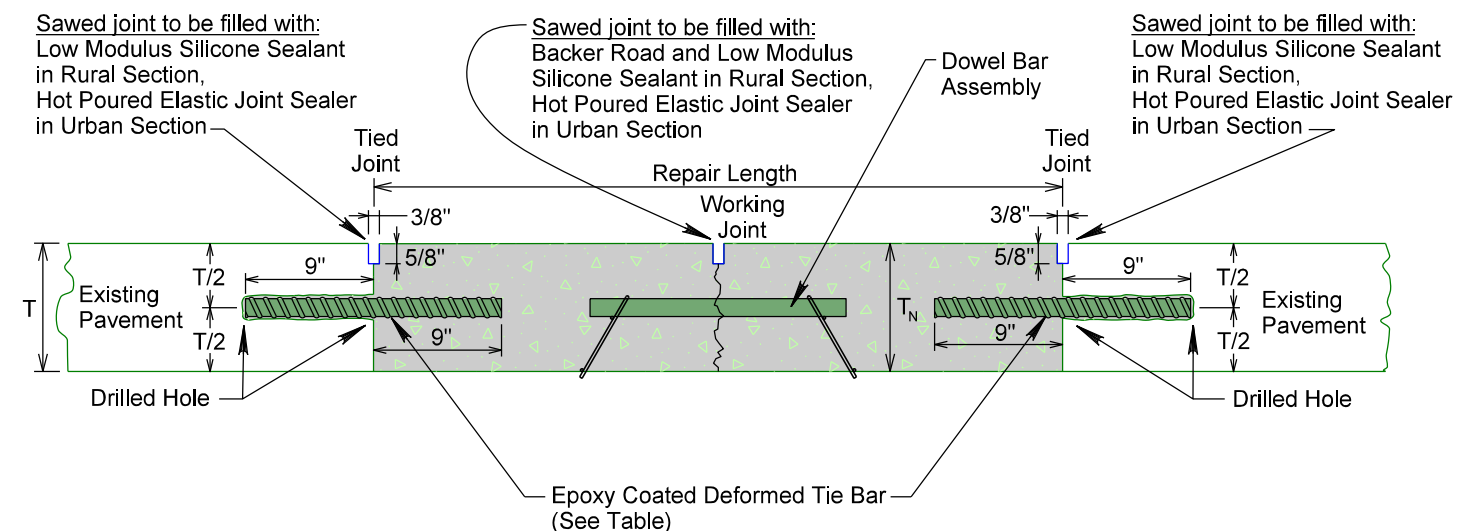
**DEFORMED TIE BAR AND PLAIN ROUND DOWEL BAR INSERTION  
TYPE B - (ONE TIED JOINT AND ONE WORKING JOINT)**



**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<sub>N</sub> = 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<sub>N</sub> = T  
(top of new pavement shall be flush with top of existing pavement)

PLOT SCALE - 1/4"=1'-0"

PLOTTED FROM - TRMLINT15

PLOT NAME - 6

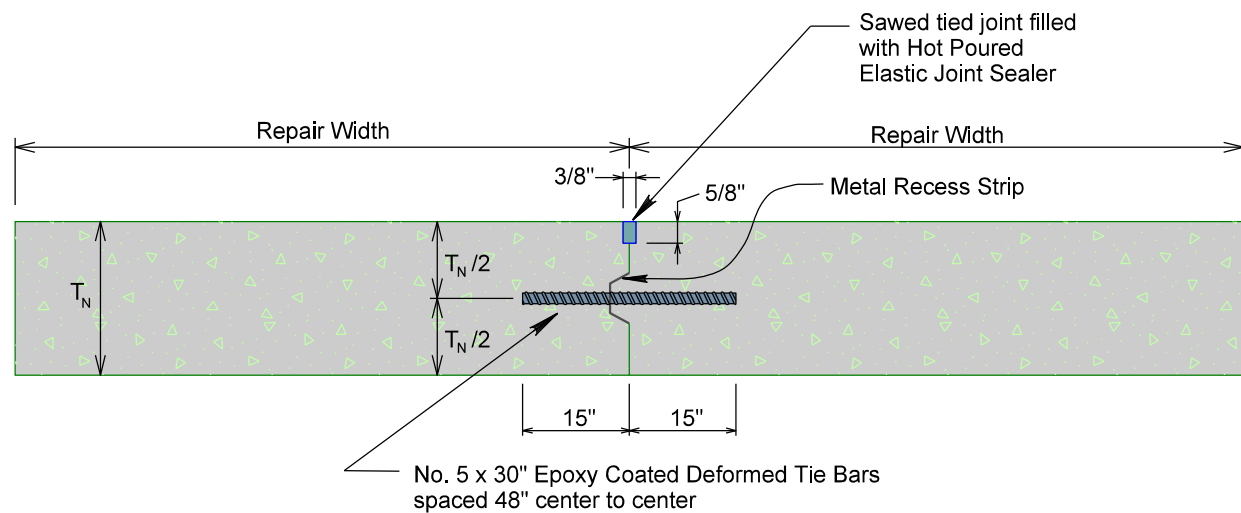
FILE - ... \SFAREA15HW (ON CALL) \BARS.DGN

# NONREINFORCED PCC PAVEMENT REPAIR

STATE OF SOUTH DAKOTA	PROJECT 0009-271	SHEET 11	TOTAL SHEETS 19
-----------------------	---------------------	-------------	--------------------

Plotting Date: 01/08/2020

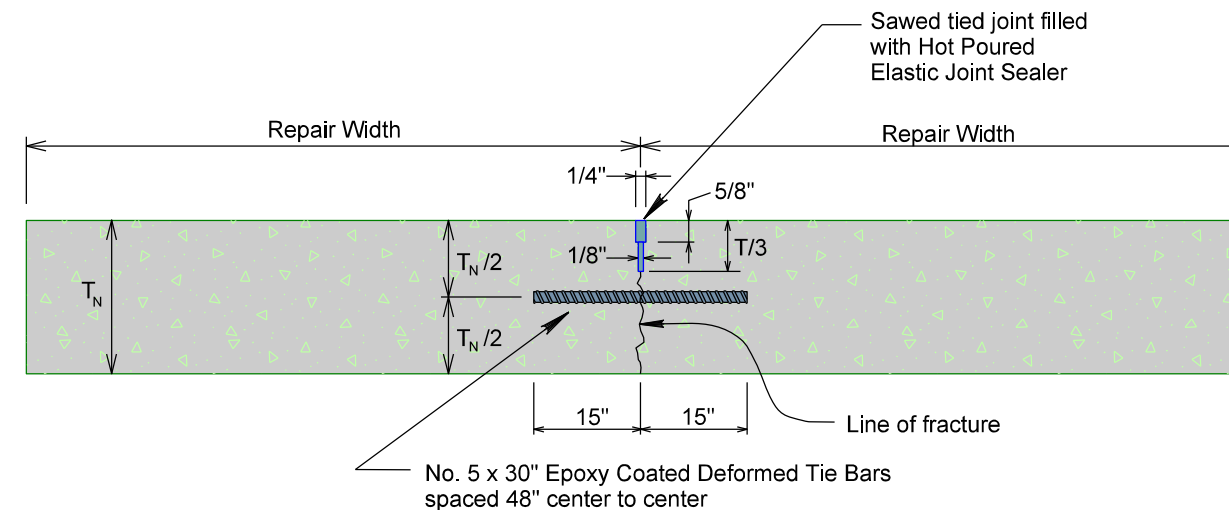
### LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



$T_N$  = 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

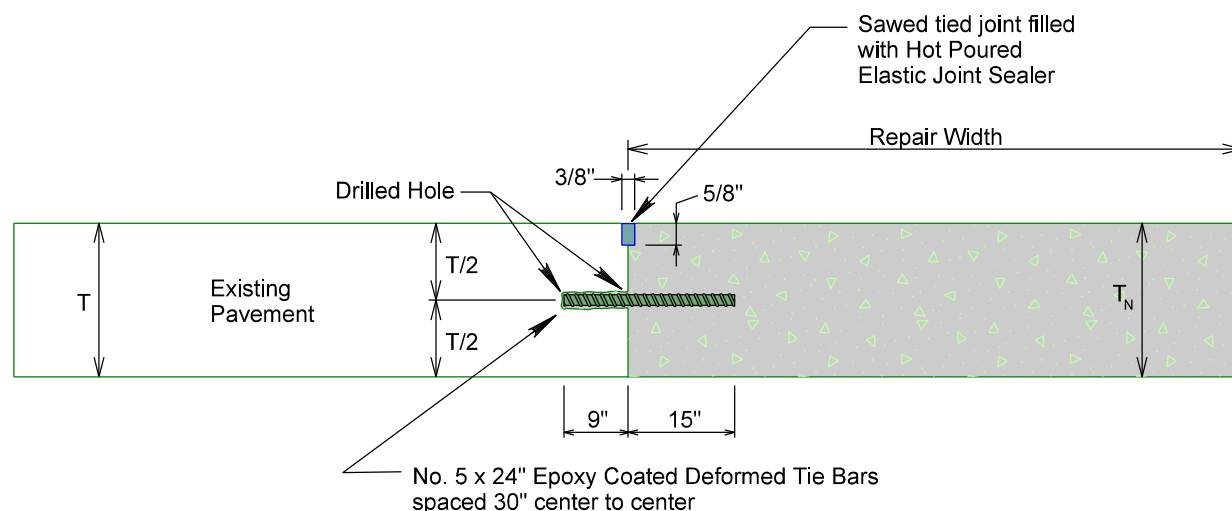


$T_N$  = New pavement thickness.

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



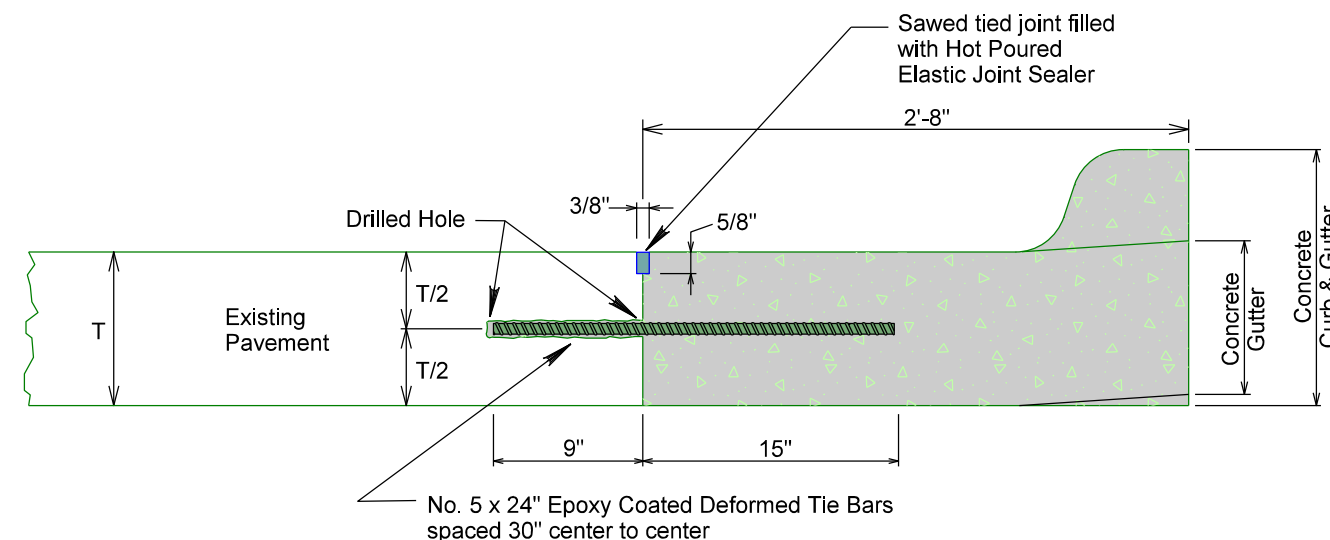
$T$  = Existing pavement thickness.  
 $T_N$  = New pavement thickness.

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.

PLOT SCALE - 1:11.25

PLOTTED FROM - IRMLINT15

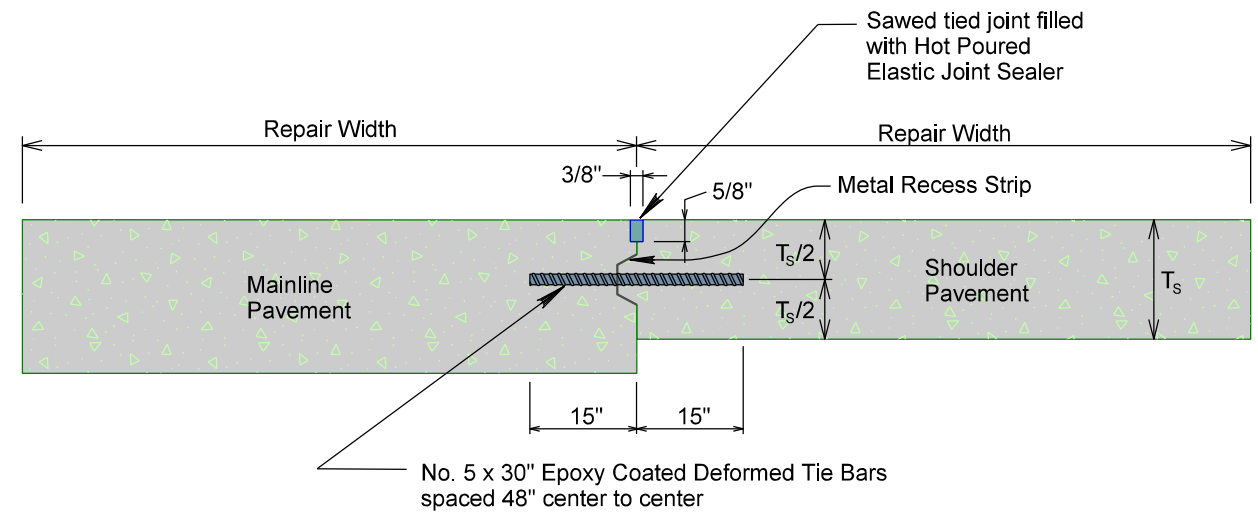
FILE - ... \SFAREA15HM (ON CALL) \BARS.DGN

# NONREINFORCED PCC PAVEMENT REPAIR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-271	12	19

Plotting Date: 01/08/2020

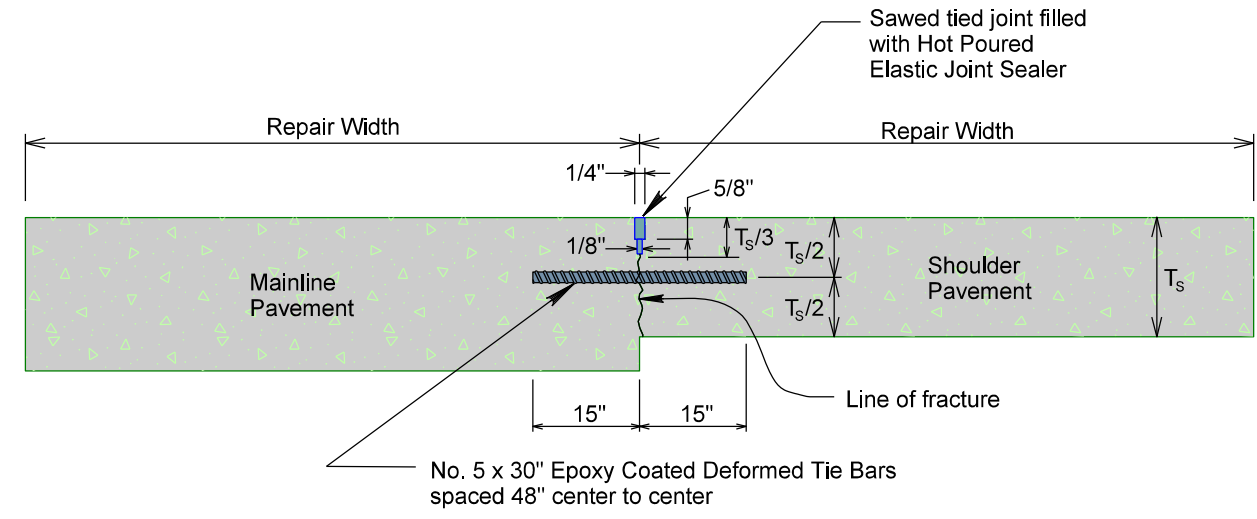
LONGITUDINAL SHOULDER CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



$T_s$  = New shoulder 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 SHOULDER JOINT

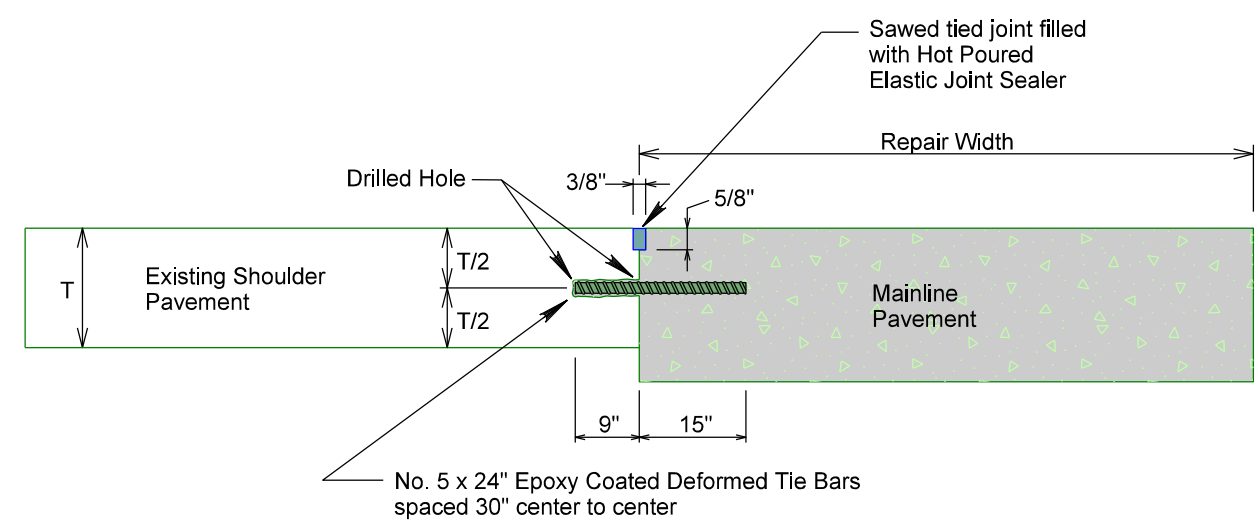


$T_s$  = New shoulder pavement thickness.

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 SHOULDER JOINT WITH DRILLED IN TIE BARS



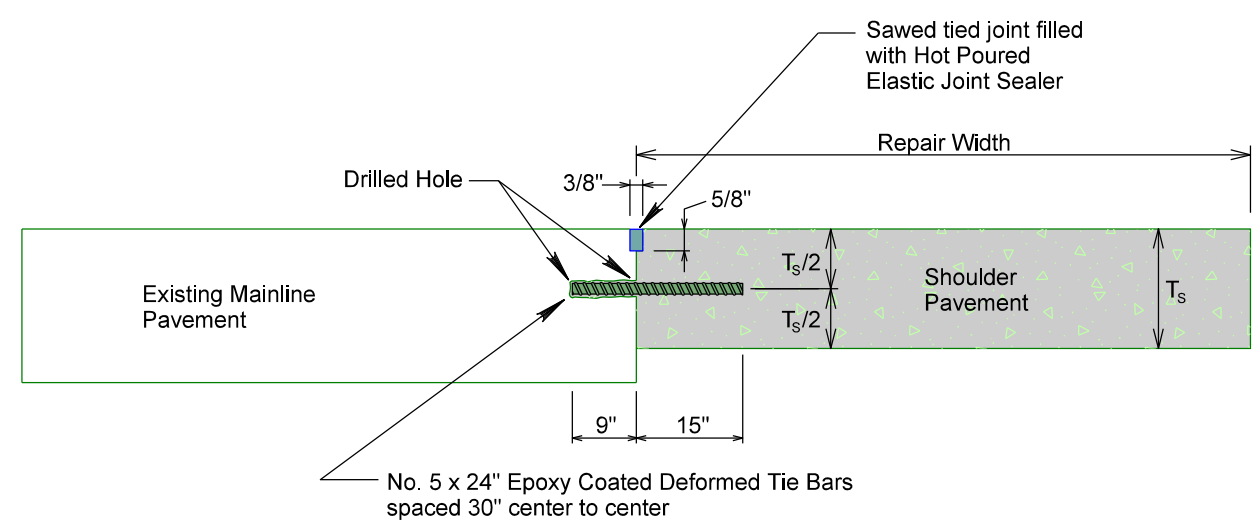
$T$  = Existing shoulder pavement thickness.

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 SHOULDER JOINT WITH DRILLED IN TIE BARS



$T_s$  = New shoulder 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.

PLOT SCALE - 1:11.25

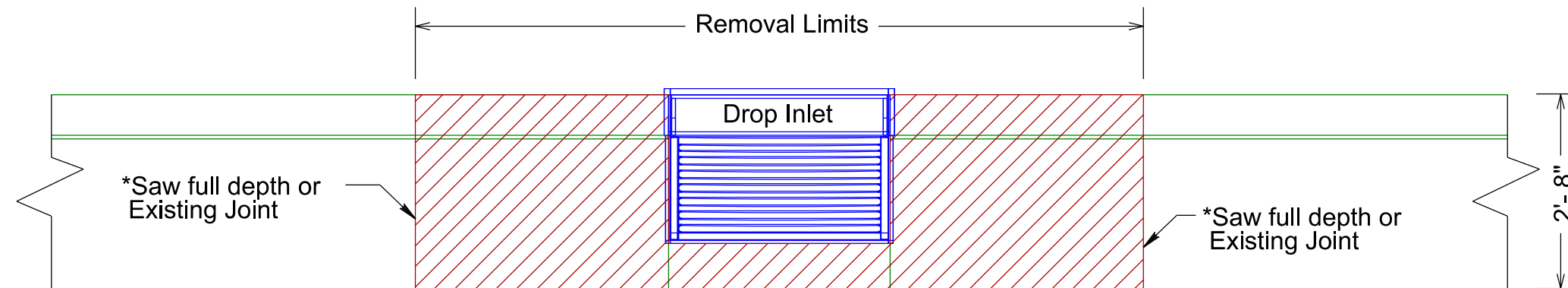
PLOTTED FROM - IRMLINT15

PLOT NAME - 8

FILE - ... \SFAREA15HM (ON CALL) \BARS.DGN

# LAYOUT FOR REPLACING CONCRETE CURB & GUTTER ADJACENT TO DROP INLET

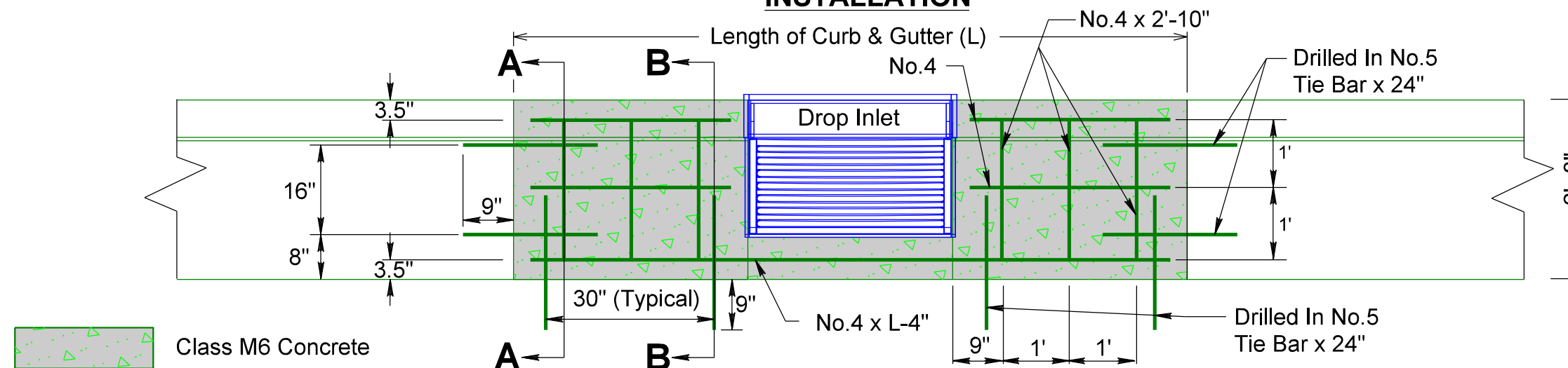
## REMOVAL




 Remove Concrete Curb and/or Gutter

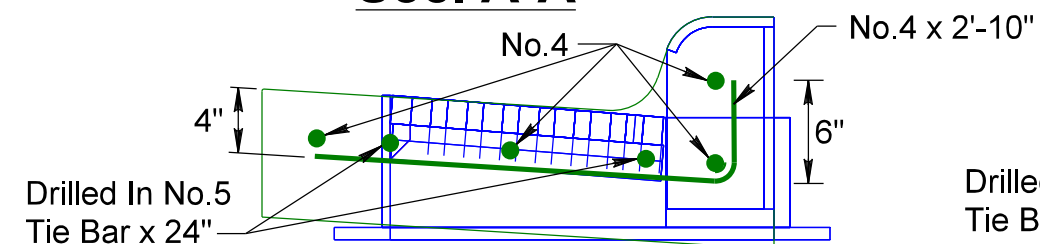
\* If sawing is required, the cost shall be incidental to the contract unit price per foot for Remove Concrete Curb and/or Gutter.

## INSTALLATION

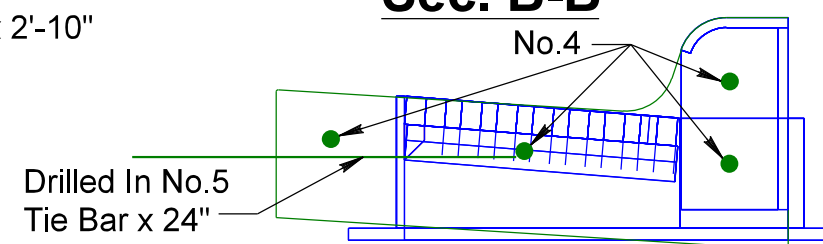


 Class M6 Concrete

### Sec. A-A

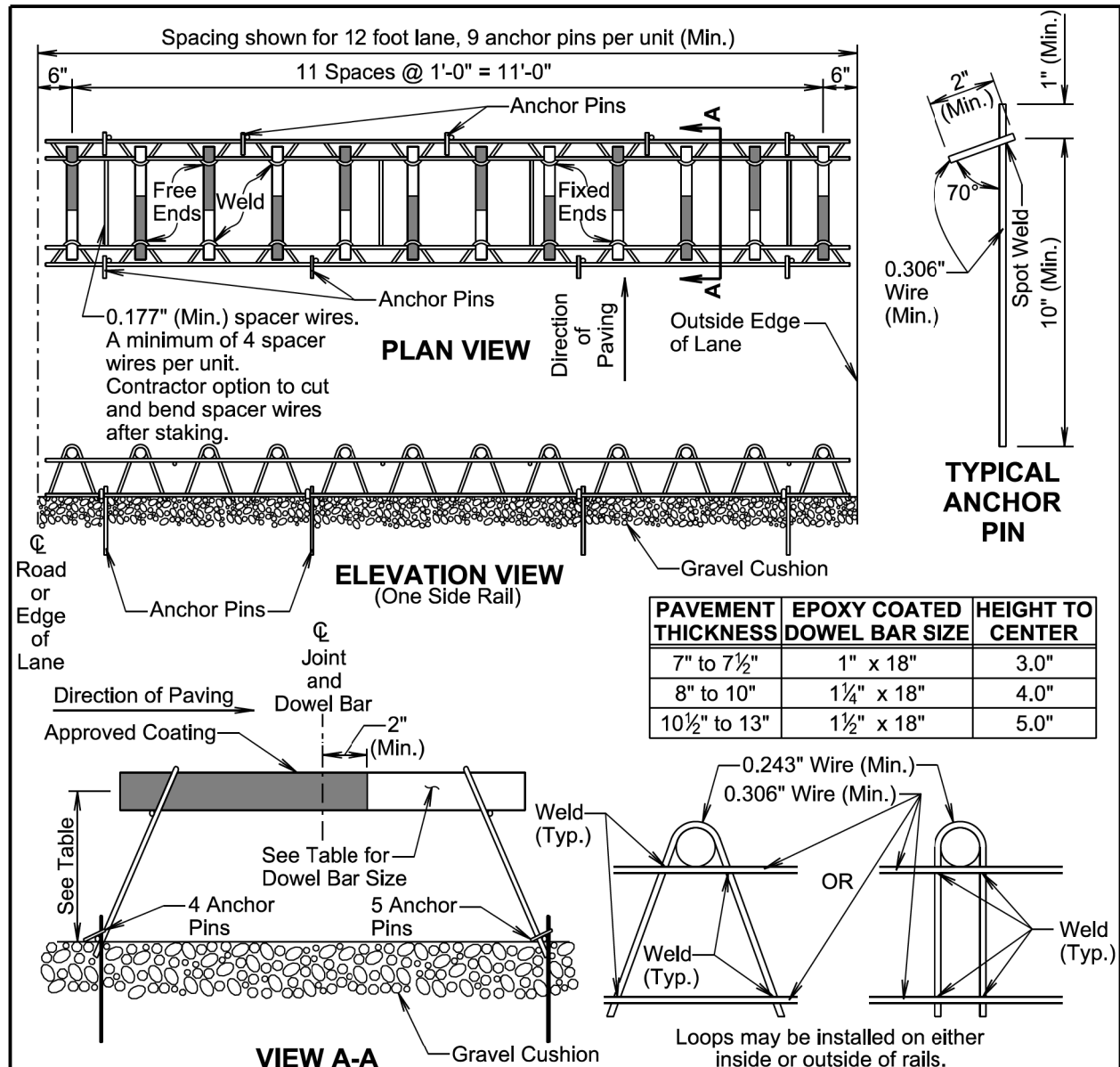


### Sec. B-B



Maintain 2" clear cover on all rebar.

See standard plate for Type B Concrete Curb and Gutter for forming details.



**GENERAL NOTES:**

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

Centerline of individual dowel bars will 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.

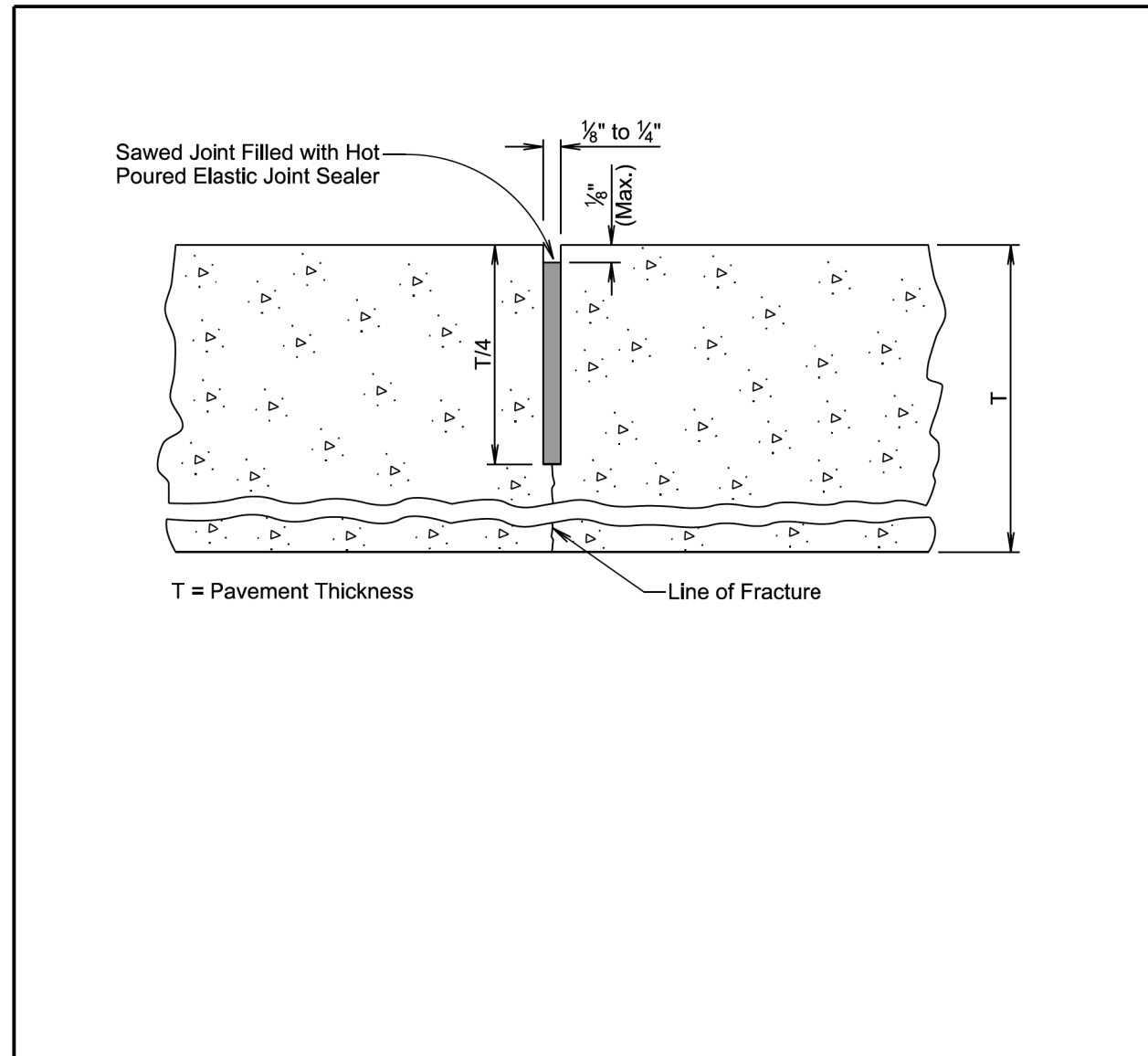
Centerline of individual dowel bars will be parallel to the centerline of the roadway  $\pm 1/2$  inch in 18 inches.

The transverse contraction joints will be sawed perpendicular to the centerline of the roadway and the dowel bars will be centered on the sawed joint  $\pm 1$  inch.

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

June 26, 2019

<b>S D D O T</b>	<b>PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material</b>	PLATE NUMBER 380.01
		Sheet 1 of 1



**GENERAL NOTES:**

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum  $1/4$  of the thickness of the pavement.

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

<b>S D D O T</b>	<b>PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY</b>	PLATE NUMBER 380.05
		Sheet 1 of 1

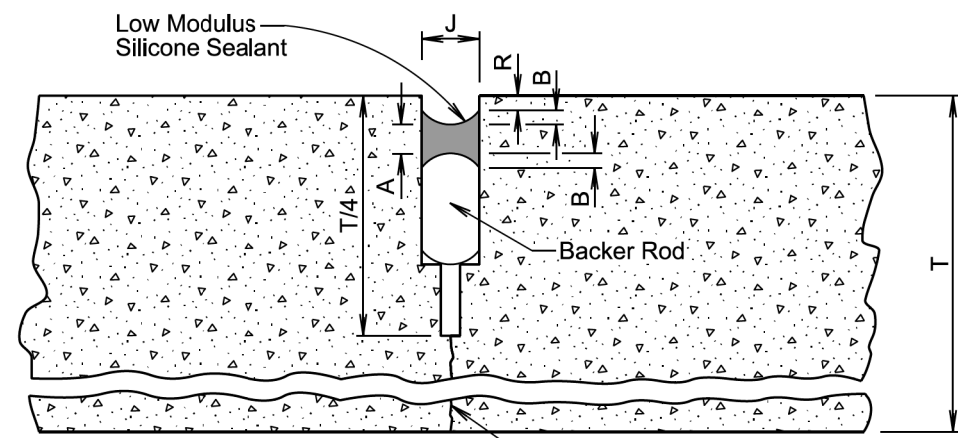
PLOT SCALE - 1:200

PLOTTED FROM - TRMLINT15

PLOT NAME - 10

FILE - ... \STD PLATE 15MM.DGN

Plotting Date: 01/08/2020



T=Pavement Thickness

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

June 26, 2019

<b>S D D O T</b>	<b>RESEAL PCC PAVEMENT JOINT (SILICONE)</b>	PLATE NUMBER 380.13
	Published Date: 4th Qtr. 2019	Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

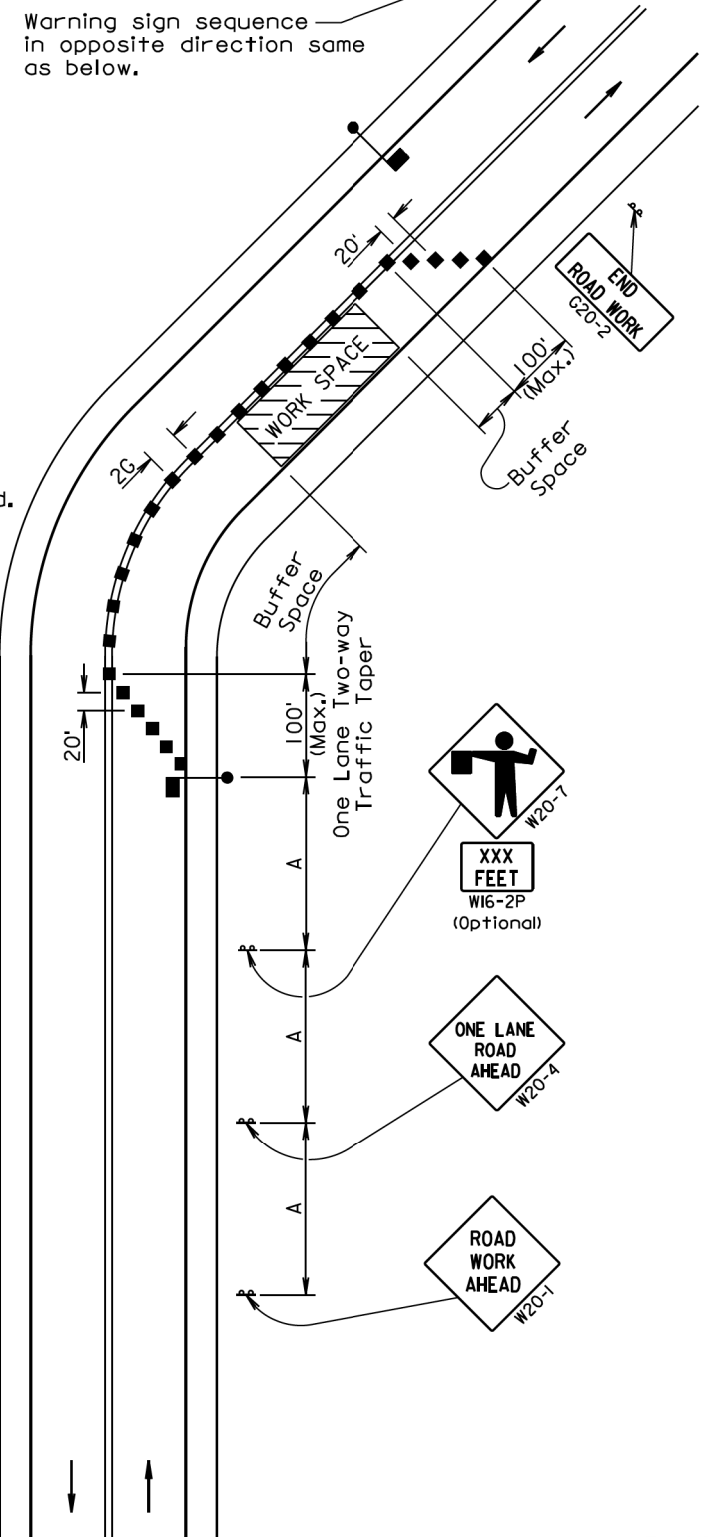
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.

END ROAD WORK G20-2



June 3, 2016

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED</b>	PLATE NUMBER 634.23
	Published Date: 4th Qtr. 2019	Sheet 1 of 1

PLOT SCALE - 1:200

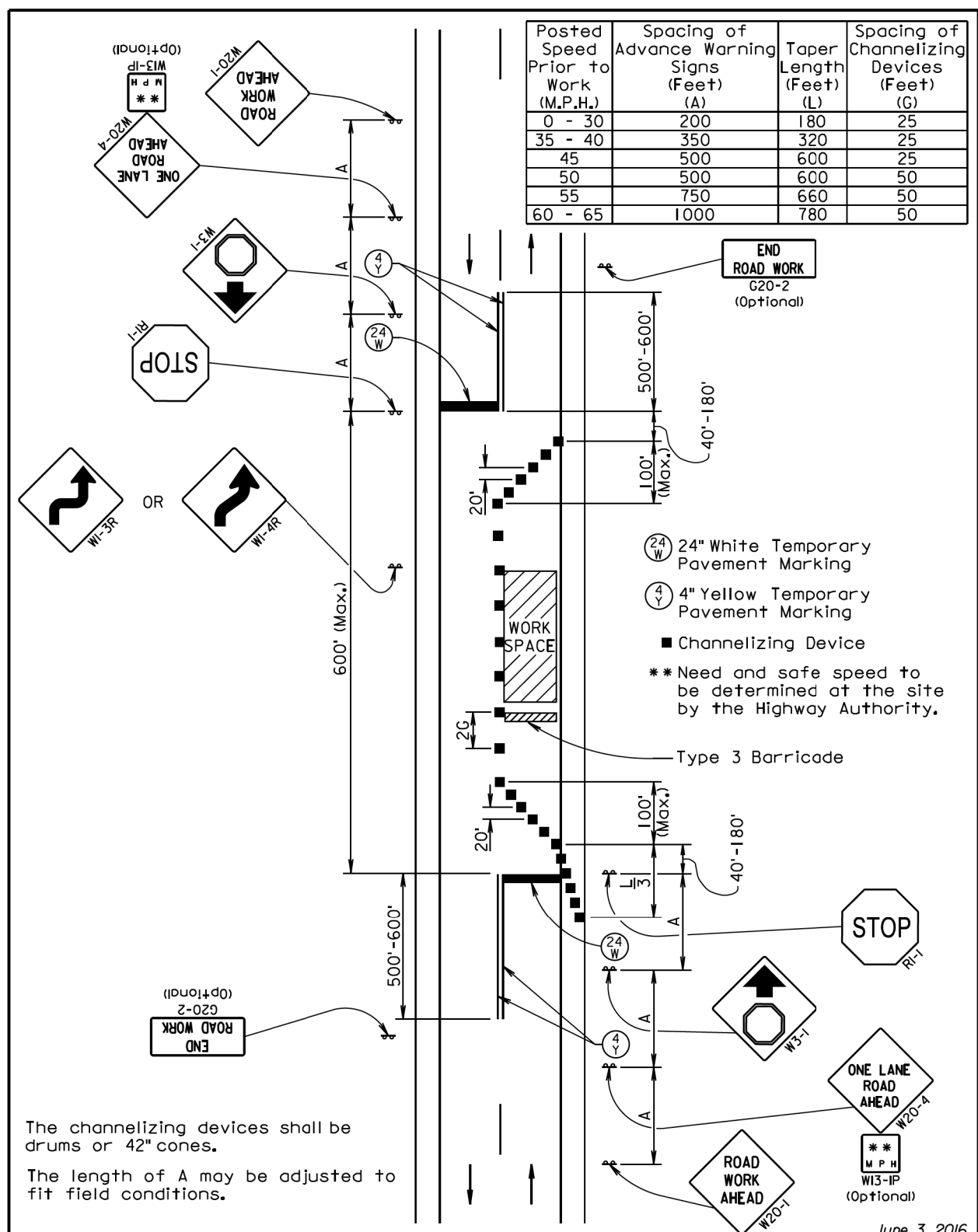
PLOTTED FROM - TRMLINT15

PLOT NAME - 11

FILE - ... \STD PLATE 15MM.DGN

Plotting Date: 01/08/2020

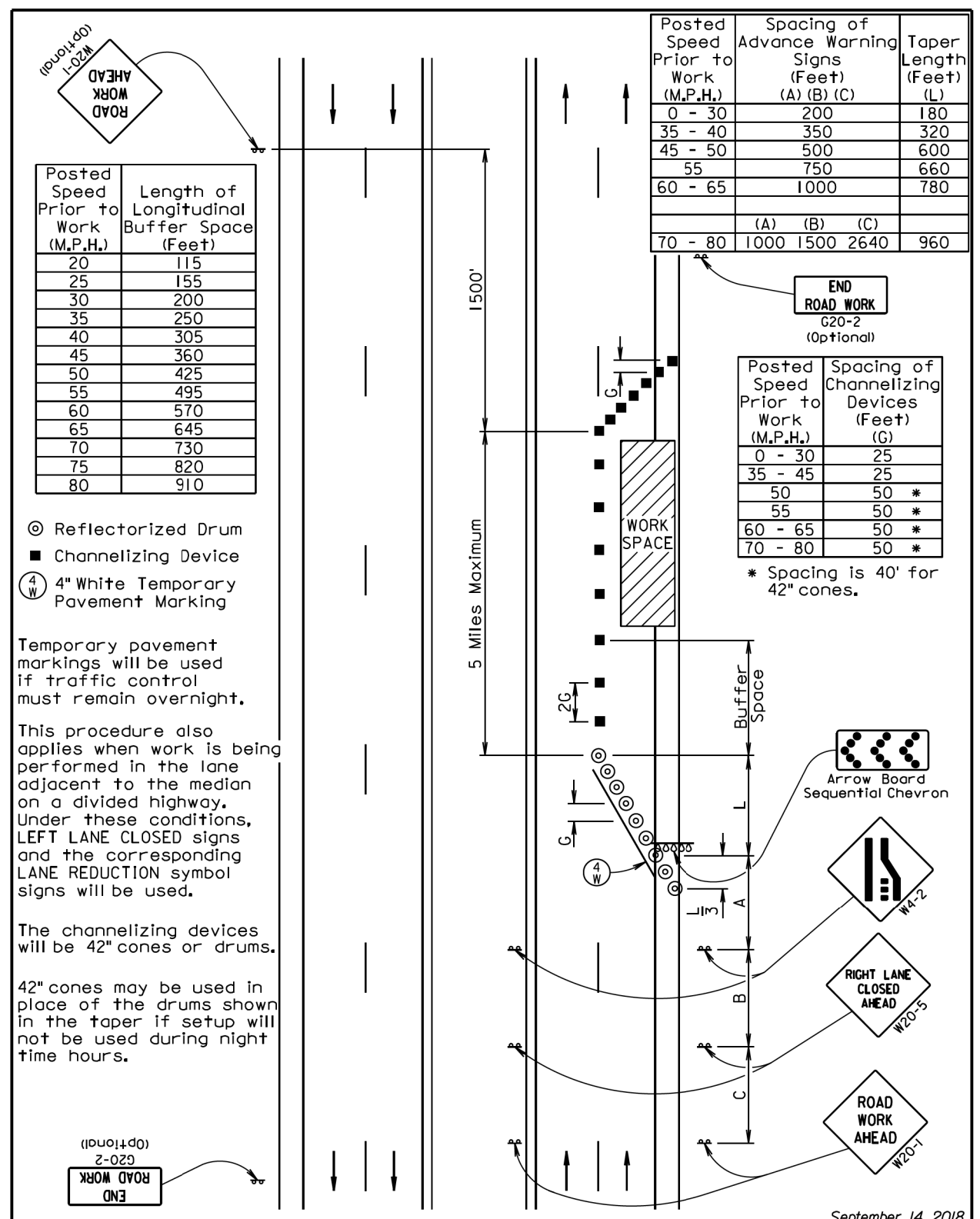
PLOT SCALE - 1:200



June 3, 2016  
**SD DOT**  
**GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS**  
 PLATE NUMBER 634.25  
 Sheet 1 of 1  
 Published Date: 4th Qtr. 2019

PLOT NAME - 12

FILE - ... \STD PLATE 15MM.DGN



September 14, 2018  
**SD DOT**  
**GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER**  
 PLATE NUMBER 634.64  
 Sheet 1 of 1  
 Published Date: 4th Qtr. 2019

PLOTTED FROM - TRMLINT15



Plotting Date: 01/08/2020

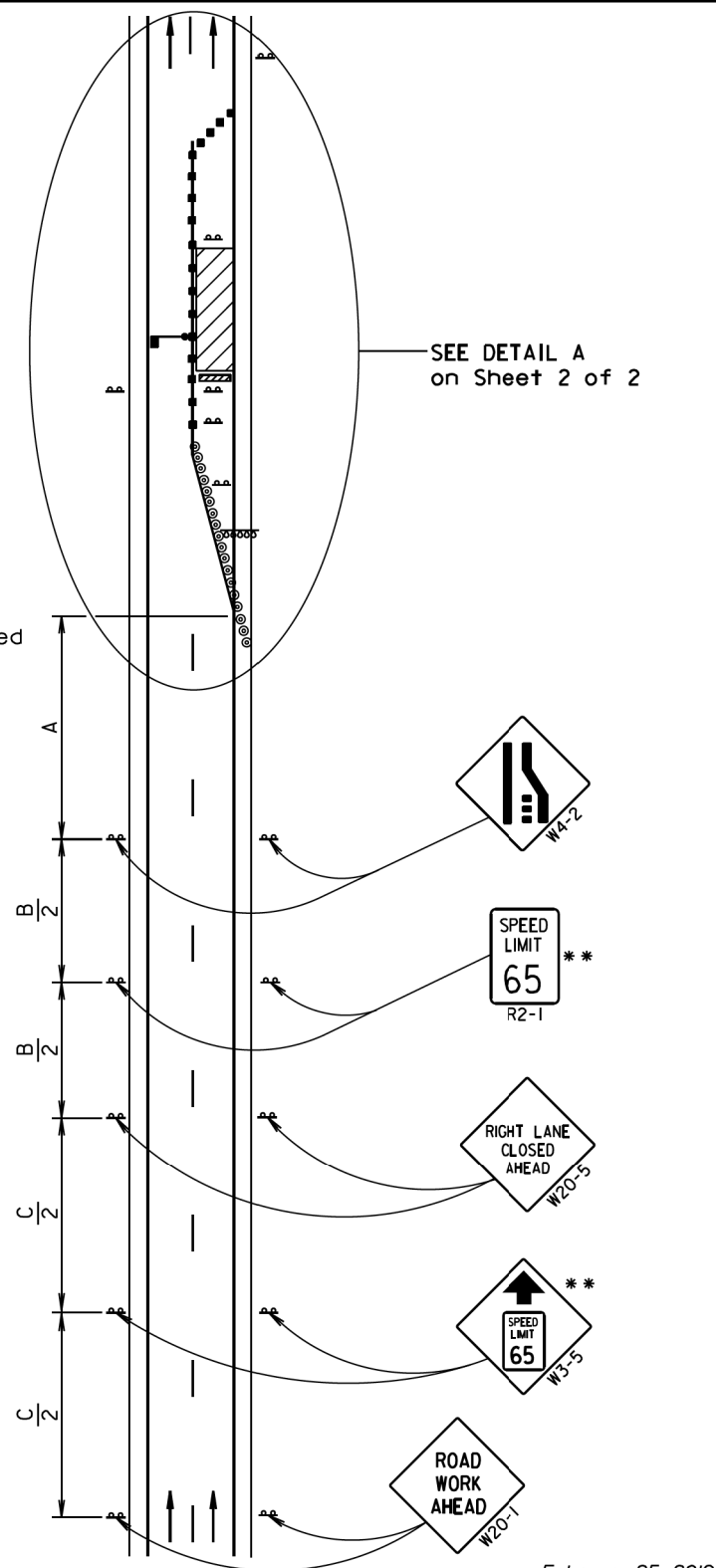
PLOT SCALE - 1:1200

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 - 80	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.



February 25, 2019

<b>S D D O T</b>	<b>WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS</b>	PLATE NUMBER <b>634.63</b>
		Sheet 1 of 2

Published Date: 4th Qtr. 2019

PLOTTED FROM - IRMLINT15

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

- \* 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 will be covered or removed when workers are not present.

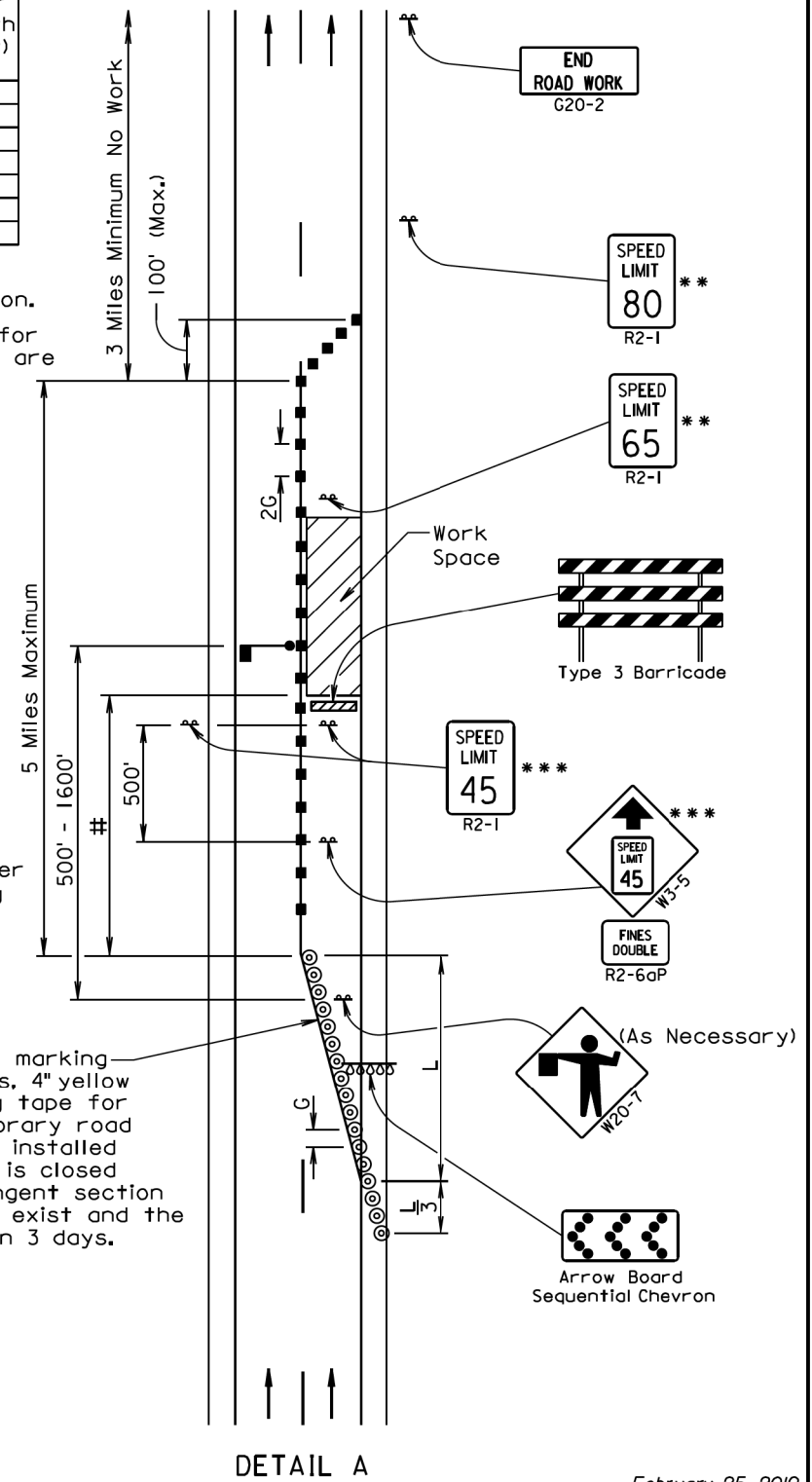
- Flagger (As Necessary)
- ⊙ Reflectorized Drum
- Channelizing Device
- # The Work Space will be a minimum of 500' from the end of the taper.

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

The channelizing devices will 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 will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

February 25, 2019

<b>S D D O T</b>	<b>WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS</b>	PLATE NUMBER <b>634.63</b>
		Sheet 2 of 2

Published Date: 4th Qtr. 2019

PLOT NAME - 13

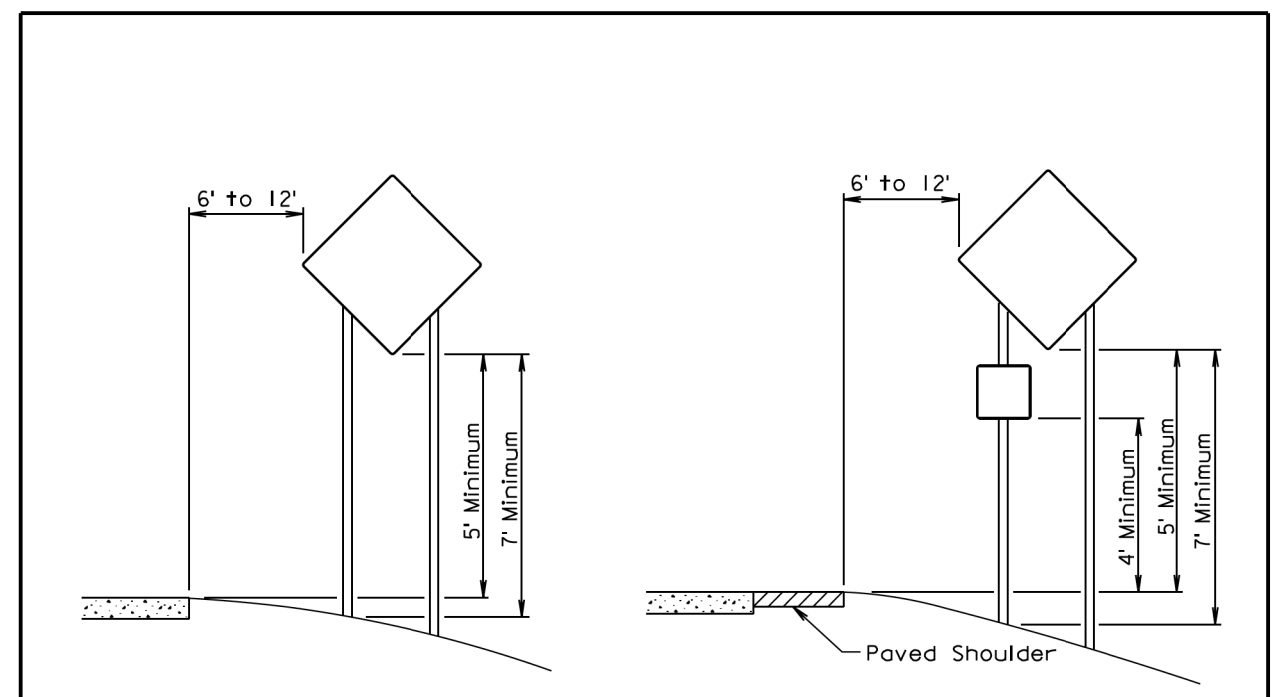
FILE - ... \STD PLATE 15MM.DGN

Plotting Date: 01/08/2020

PLOT SCALE - 1:200

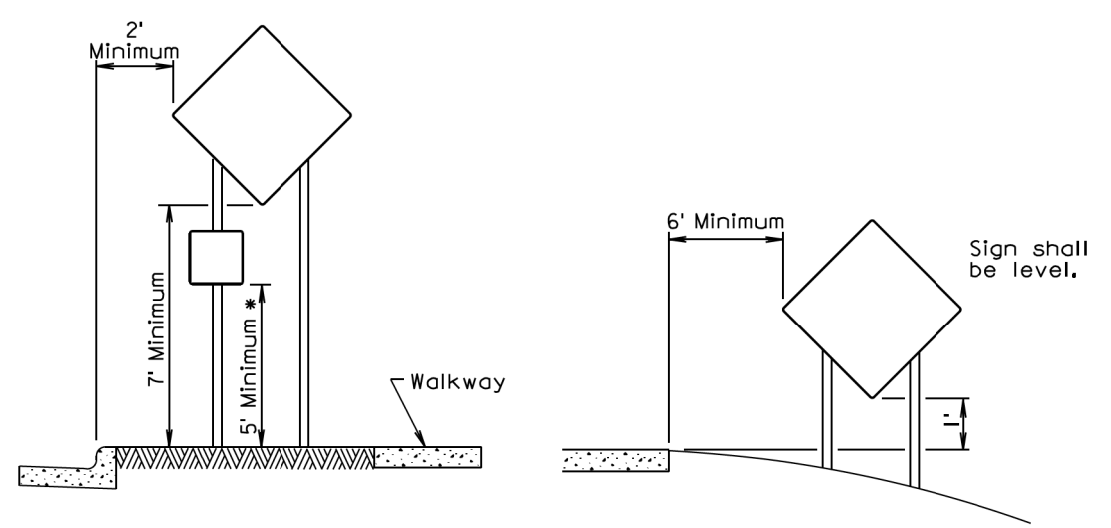
PLOT NAME - 14

FILE - ... \STD PLATE 15MM.DGN



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

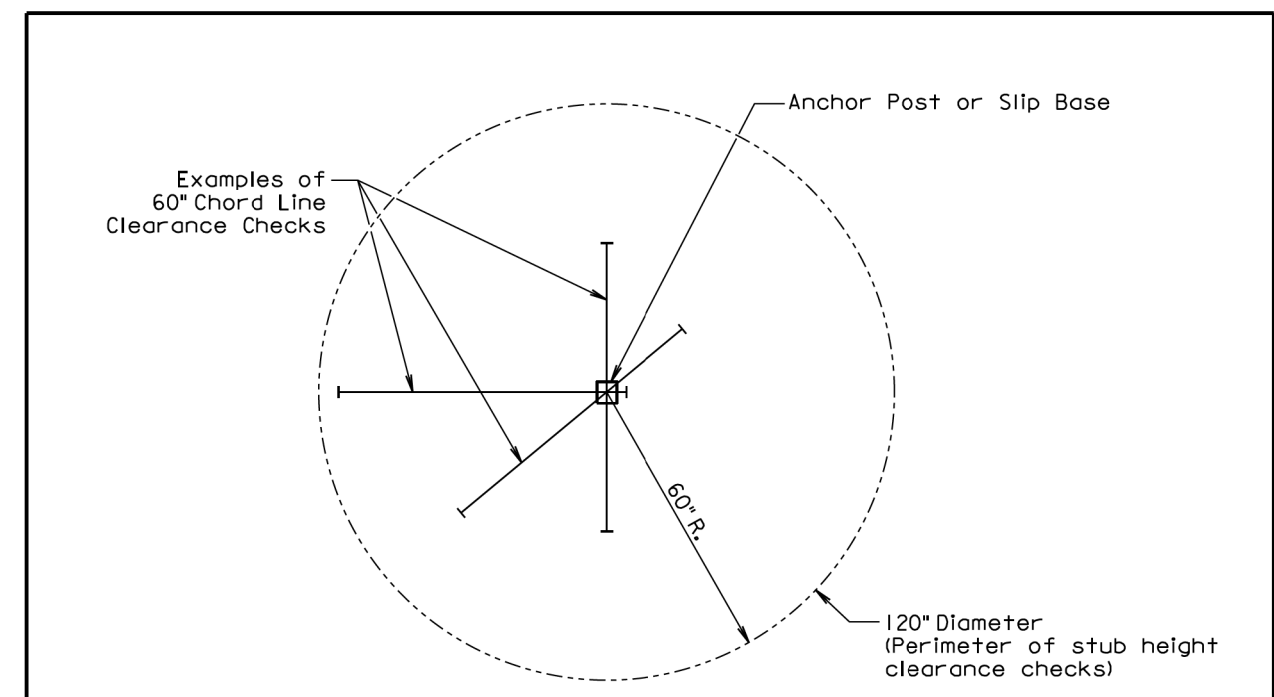
RURAL DISTRICT 3 DAY MAXIMUM

\* 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.

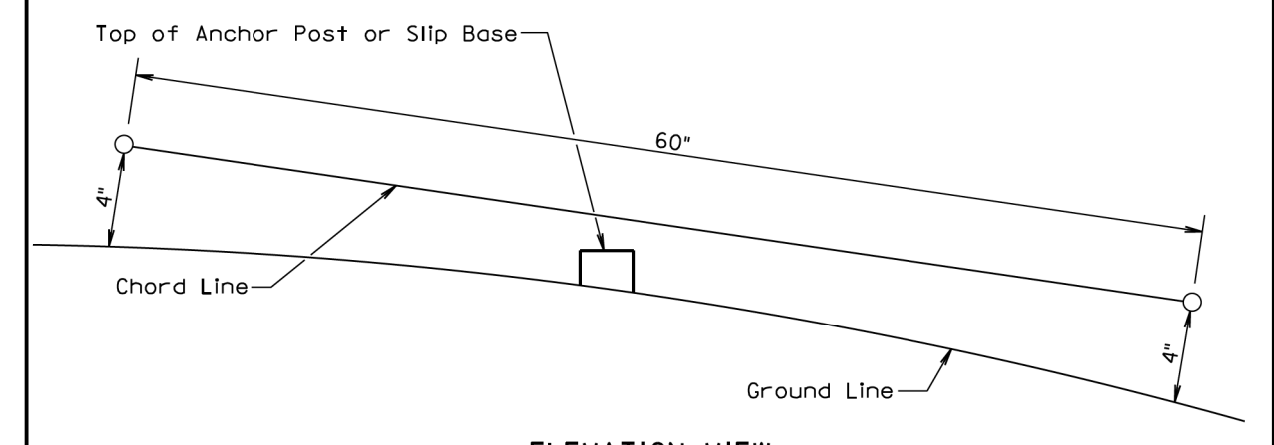
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2019	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
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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: 4th Qtr. 2019	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

..PLOTTED FROM - TRMLINT15

