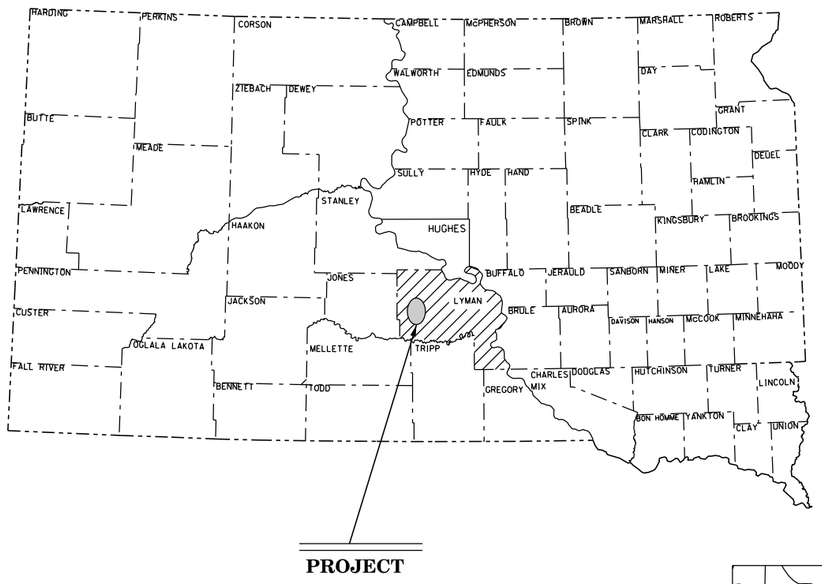
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	083-351	1	20

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 083–351
US HIGHWAY 83
LYMAN COUNTY

PCC Pavement Repair

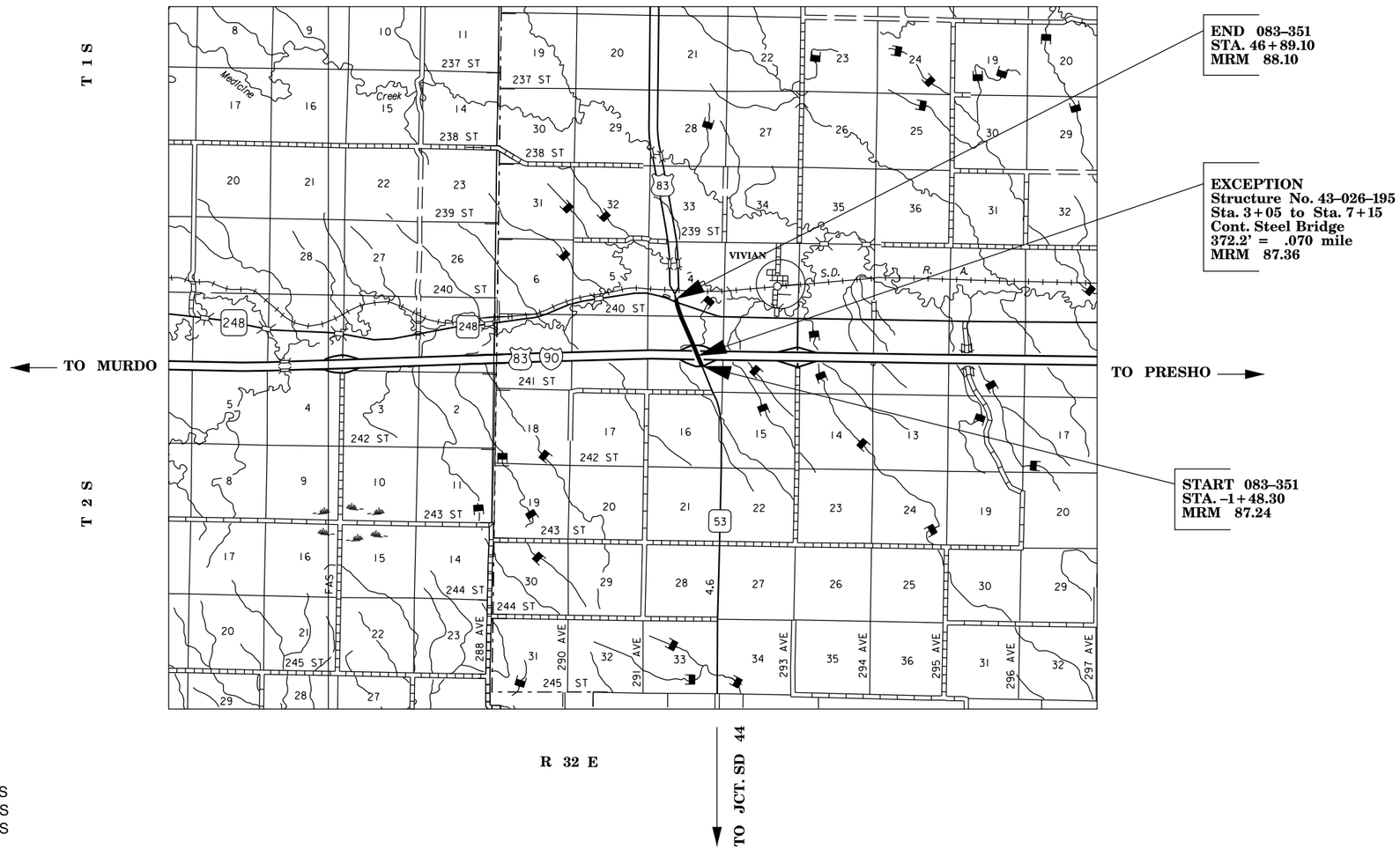
PCN i5F4



INDEX OF SHEETS

DESIGN DESIGNATION
(US HIGHWAY 83)

ADT (2017)	2017
ADT (2037)	3657
DHV	570
D	50%
T DHV	7.4%
T ADT	16.3%
V	55 & 65 MPH



END 083–351
STA. 46+89.10
MRM 88.10

EXCEPTION
Structure No. 43–026–195
Sta. 3+05 to Sta. 7+15
Cont. Steel Bridge
372.2' = .070 mile
MRM 87.36

START 083–351
STA. –1+48.30
MRM 87.24

STORM WATER PERMIT
(NOT REQUIRED)

US HIGHWAY 83 (CONCRETE WORK)

GROSS LENGTH	4,837.4 FEET	0.916 MILES
LENGTH OF EXCEPTIONS	372.20 FEET	0.070 MILES
NET LENGTH	4,465.2 FEET	0.846 MILES

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	2	20

Estimate of Quantities

Non-Section Method

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	370.8	SqYd
380E6110	Insert Steel Bar in PCC Pavement	464	Each
380E6302	Reseal PCC Pavement Joint - Hot Pour	11,692	Ft
380E6310	Seal Random Cracks in PCC Pavement	48	Ft
390E0200	Repair Type A Spall	14.9	SqFt
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	491.1	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	4	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0600	4" Temporary Pavement Marking Tape Type I	8,240	Ft

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: http://www.sddot.com/resources/Manuals/EnvironProcManual.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 B: FEDERALLY THREATENED, ENDANGERED, AND 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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately 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 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.

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".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

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

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

All costs 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 not designated within the plans 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.

SHPO/THPO review does not relieve the Contractor of the responsibility
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.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to 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 Engineer to determine modifications that will be necessary to avoid utility impacts.

EXISTING PCC PAVEMENT

The existing 8” Nonreinforced P.C.C. Pavement is reinforced with No. 5 deformed bars longitudinal, spaced 30” center to center and 1 1/4” plain dowel bars transverse, spaced 12” center to center.

RESTORATION OF GRAVEL CUSHION

An inspection of the granular 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 Nonreinforced PCC Pavement Repair.

NONREINFORCED PCC PAVEMENT REPAIR

Locations, size (length or width) and type of concrete repair are subject to change in the field. The Engineer will determine location, size, and type of each concrete repair area at the time of construction. Payment shall be based on actual area replaced.

Existing concrete pavement shall be sawed full depth on all sides 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.

NONREINFORCED PCC PAVEMENT REPAIR (CONTINUED)

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.

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

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

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

New pavement thickness shall be 8.0” at all locations.

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 125 square feet per gallon. Concrete shall be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60ºF or higher throughout the cure period. If the concrete temperature falls below 60ºF, the cure time shall be extended or other measures taken, at no additional cost to the State. A strength of 3,500 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’.

NONREINFORCED PCC PAVEMENT REPAIR (CONTINUED)

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 3,500 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, furnishing and placing asphalt concrete, repairing asphalt concrete shoulders, sawing and sealing joints, labor, tools and equipment shall be included in the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

ASPHALT CONCRETE

Asphalt concrete used on this project shall conform to the specifications of Asphalt Concrete Composite.

Cost for performing the aforementioned work including sawing and removing asphalt concrete, furnishing and placing asphalt concrete, furnishing and placing asphalt for tack, 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 shall be responsible for ordering the actual quantity of steel bars necessary to complete the work.

The Contractor shall insert the steel bars (1 inch x 18 inch epoxy coated plain round dowel bar for transverse joints, 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.

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

Epoxy coated plain round steel bars shall be installed on 12 inch centers in the transverse joint. The first steel bar shall be placed a minimum of 3 inches and a maximum of 6 inches from the outside edge of the slab.

Epoxy coated deformed steel bars shall be inserted on 18 inch centers in the transverse joint. The first steel bar shall be placed a minimum of 3 inches and a maximum of 9 inches from the outside edge of the slab.

Epoxy coated deformed steel bars shall be inserted on 30 inch centers in the longitudinal joint and shall be placed a minimum of 15 inches from the existing transverse contraction joint.

STEEL BAR INSERTION (CONTINUED)

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

Cost for the epoxy resin adhesive, steel bars, drilling of holes, applying the adhesive, installing the steel bars into the drilled holes and all other items incidental to the installation of the steel bars shall be incidental to 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 shall be sealed with Hot Poured Elastic Joint Sealer.

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

SEAL PCC PAVEMENT JOINT

It is estimated that 50% of the existing longitudinal and transverse joints shall be cleaned and resealed with Hot Pour Elastic Joint Sealer. The joints to be resealed will be determined in the field by the Engineer.

Existing longitudinal and transverse joints shall be cleaned and resealed with Hot Poured Elastic Joint Sealer.

Joints shall not be sealed unless they are thoroughly clean and dry. Cleaning shall be accomplished by sandblasting and other tools as necessary. Sand blasting of both sides of the vessel shall be accomplished simultaneously with a mechanical device approved by the Engineer. Just prior to sealing, each joint shall be blown out using a jet of compressed air to remove all traces of dust.

In certain areas the joint may be wider than the original construction. Any additional cost to perform this work shall be at no additional cost to the State. The Contractor shall be responsible to verify joint widths prior to establishing the contract unit price.

It is not essential that all of the sealant be removed. Remaining sealant adhering to the sides may remain in place if the Engineer determines that it is not detrimental to the joint.

Sealing operations are restricted to the closed lane only.

Cost for cleaning and resealing longitudinal and transverse joints shall be included in the contract unit price per foot for “Reseal PCC Pavement Joint – Hot Pour”.

SEALING RANDOM CRACKS – US83

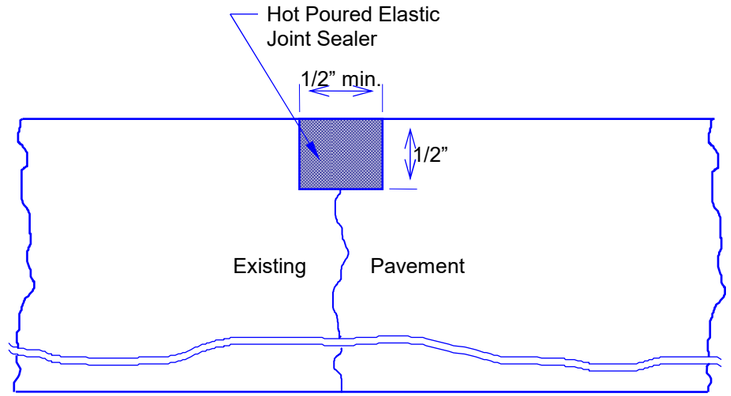
Only those random cracks in the existing concrete pavement with joints that are open and accept water and incompressibles as selected by the Engineer shall be prepared and sealed with Hot Poured Elastic Joint Sealant.

Each random crack shall be routed and the joint and roadway surface immediately cleaned by flushing with water or compressed air. The use of a concrete saw to route the crack will not be allowed. If there is any existing joint filler remaining in the cracks following routing, it shall be satisfactorily removed prior to sealing. Just prior to sealing, the sides of the routed crack shall be cleaned by sandblasting and the routed reservoir blown clean with compressed air.

The sealant shall be placed in the routed reservoir with equipment and by methods that insure complete and uniform filling.

Sealing Random Cracks will be measured by the foot to the nearest 0.1 foot of random cracks sealed and accepted on the project.

Sealing Random Cracks will be paid for at the contract unit price per foot measured for payment. Payment shall be full compensation for all labor, equipment, materials and incidentals required for crack routing, cleaning, furnishing and placing sealant and removing routed and foreign material from the roadway.



REPAIR TYPE A SPALLS

Concrete Patch Material shall be Type III conforming to Section 390.2 B.3.

As an alternative, the Contractor may remove concrete by milling, provided it produces results similar to the sawing and chipping process described in the Specifications.

Spalls which are repaired according to plans and specifications and exhibit partial respalling or cracking, shall be repaired to the satisfaction of the Engineer at no additional cost to the State.

INCIDENTAL WORK

Underdrain outlets located along the project as per the table located below shall be cleaned out and positive drainage away from the underdrain outlet shall be re-established.

Cost for cleaning and establishing positive drainage shall be included in the contract lump sum price for “Incidental Work, Grading”.

Station	Lt./Rt.
3+25	Rt.
3+25	Lt.
7+15	Rt.
7+15	Lt.
39+10	Rt.
39+25	Rt.
40+36	Rt.
41+08	Rt.
41+15	Rt.
43+04	Rt.
43+84	Lt.
44+52	Lt.
45+90	Lt.
46+42	Rt.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports. Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract bid items.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

SHEETING FOR TRAFFIC CONTROL SIGNS

All fluorescent orange background material on traffic control signs, all temporary delineators, and all temporary STOP (R1-1), YIELD (R1-2), DO NOT ENTER (R5-1), and WRONG WAY (R5-1a) signs will conform to the requirements of ASTM D4956 Type IX or XI. All other traffic control signs and background colors will conform to the requirements of ASTM D4956 Type IV.

TRAFFIC CONTROL FOR PCCP REPAIR

Each mainline concrete repair location, from which the in-place concrete has been removed, will be marked with a minimum of two reflectorized drums. In areas containing numerous concrete repair locations, two reflectorized drums should be installed at a spacing of 660 feet alternating with the Type 3 Barricades.

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans. Additional Type 3 Barricades will be installed facing traffic within the closed lane at a spacing of ¼ mile.

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

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 the shoulders around the work zones.

TEMPORARY PAVEMENT MARKINGS

Approximately 3,120 feet of 4 inch white temporary pavement marking tape, type I and 5,120 feet of 4 inch yellow temporary pavement marking tape, type I, will be required for the project. The Contractor will be paid only once for tape placement. The Contractor is responsible for maintaining and cleaning the tape throughout the duration of the project and for removing all temporary pavement marking tape when it is no longer required.

ITEMIZED LIST OF TRAFFIC CONTROL

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
R3-2	LEFT TURN PROHIBITION (symbol)	2	24" x 24"	4.0	8.0
W1-3	REVERSE TURN (L or R)	2	48" x 48"	16.0	32.0
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W4-3	ADDED LANE (symbol)	1	48" x 48"	16.0	16.0
W9-3	CENTER LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	11	48" x 48"	16.0	176.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	7	36" x 18"	4.5	31.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			491.1

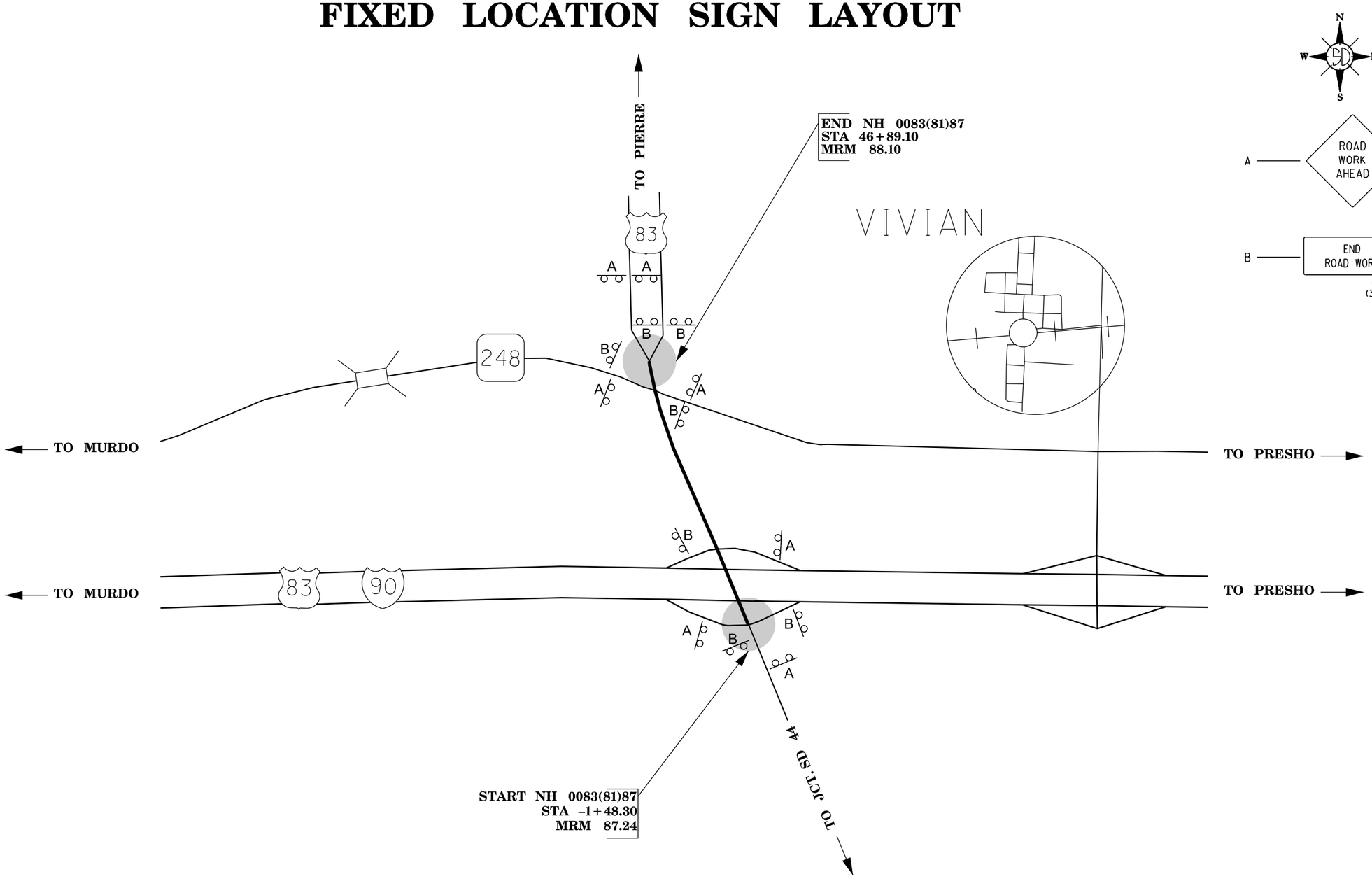
STATE OF SOUTH DAKOTA	Project	SHEET NO.	TOTAL SHEETS
	083-351	7	20

TABLE OF NON-REINFORCED PCC PAVEMENT REPAIR HWY 83

	NB Driving Lane		NB Passing Lane		Center Turn Lane		SB Passing Lane		SB Driving Lane		Nonreinforced PCC Pavement Repair (8.0")	Type of Repair	Dowel Bar	Insert Steel Bar in PCC Pavement EACH			Spall Repair		Spall Repair	Seal Random Crack	Comments
	L	W	L	W	L	W	L	W	L	W		As per sheets		#5	#8	1"	Length	Width			
Station	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Sqyd		Each	Each	Each	Each	Ft	Ft	SqFt	Ft	
-0+40												Spall					1	0.75	0.8		Centerline
-0+40									4	5	2.2	T		4	8						Corner of the off ramp adjacent to SB driving lane
0+20												Spall					2.25	2	4.5		Centerline
8+35												Spall					1	1	1.0		On the white line of the NB Driving Lane
13+00									6	3	2.0	R		12							No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
13+20									6	3	2.0	R		12							No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
13+20	6	3									2.0	R		12							No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
13+32	10	14	10	12			10	12	10	14	57.8	R			36						Remove 10' PCCP, Replace with 8'x52' PCCP Repair and 2'x52'x8" Asphalt Concrete.
15+70									16	14	24.9	R		12	20						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
16+45							5	2			1.1	B		6							No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
16+68	14	14	6	12							29.8	B		5	6						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
17+08									6	14	9.3	R		4	20						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
18+89	4	14									6.2	B		2	10						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
18+90							3	2			0.7	B		6							No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
19+47												Random Crack								19	9' Passing Lane, 10' Driving Lane
20+80												Spall					0.33	1	0.3		NB Driving Lane
20+85	9	6									6.0	T		8	8						
20+89												Spall					1	2	2.0		NB Passing Lane
22+76												Random Crack									NB Driving Lane
23+24					6	7					4.7	B		3	5						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
24+44	20	14	20	12							57.8	R			36						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
24+85									40	14	62.2			8		24					No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
24+85							10	12			13.3	R			16						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
25+54									5	3	1.7	R		4	4						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
25+62					9	12					12.0	R		4	16						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
26+43							5	2.5	5	2.5	2.8	R		8	8						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
27+00												Spall					2.5	2.5	6.3		Splits the longitudinal joint in the NBL's
28+00												Random Crack								7	7' Longitudinal random crack in the SB Driving Lane
29+00												Random Crack								11	11' Longitudinal random crack in the NB Passing Lane
29+00			3	4							1.3	B		2	3						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
29+00	6	3									2.0	R		8	4						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
30+54												Random Crack								11	11' Longitudinal random crack in the NB Driving Lane
30+55	6	14	6	12	6	12	6	12	6	14	42.7	B			44						Remove 6' PCCP, Replace with 4'x64' PCCP Repair and 2'x64'x8" Asphalt Concrete.
32+73			3	3							1.0	B		2	2						No dowel bars. Install preformed asphalt expansion joint filler same width as transverse contraction joint.
38+60					6	12	6	12	6	14	25.3	R				72					
Totals											370.8		0	122	246	96			14.9	48	

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	083-351	8	20

FIXED LOCATION SIGN LAYOUT



Notes:

Sign locations will be verified in the field by the Engineer prior to installation.

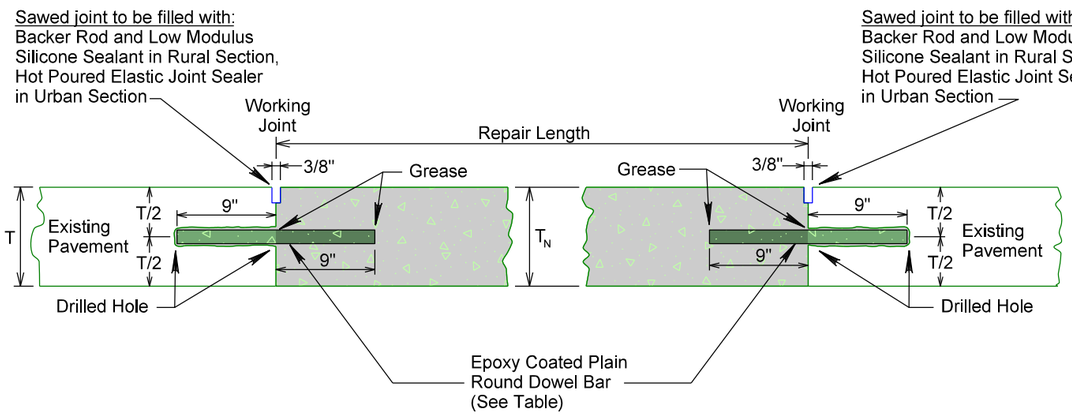
DRAWING NOT TO SCALE

NONREINFORCED PCC PAVEMENT REPAIR

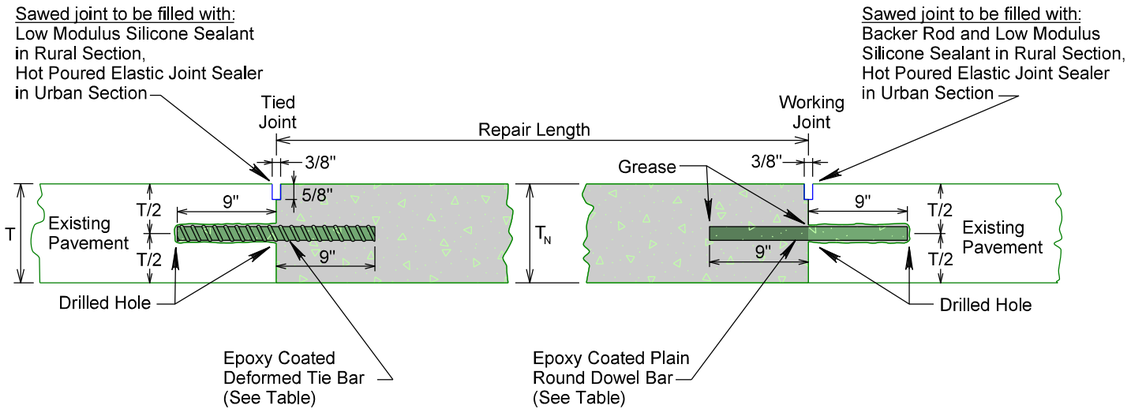
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	9	20

Plotting Date: 03/05/2019

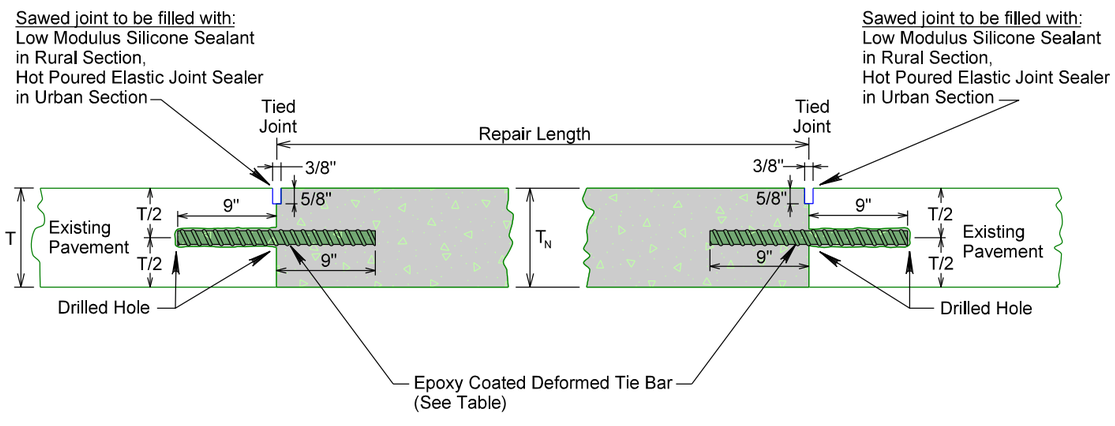
PLAIN ROUND DOWEL BAR INSERTION
TYPE W - (TWO WORKING JOINTS)



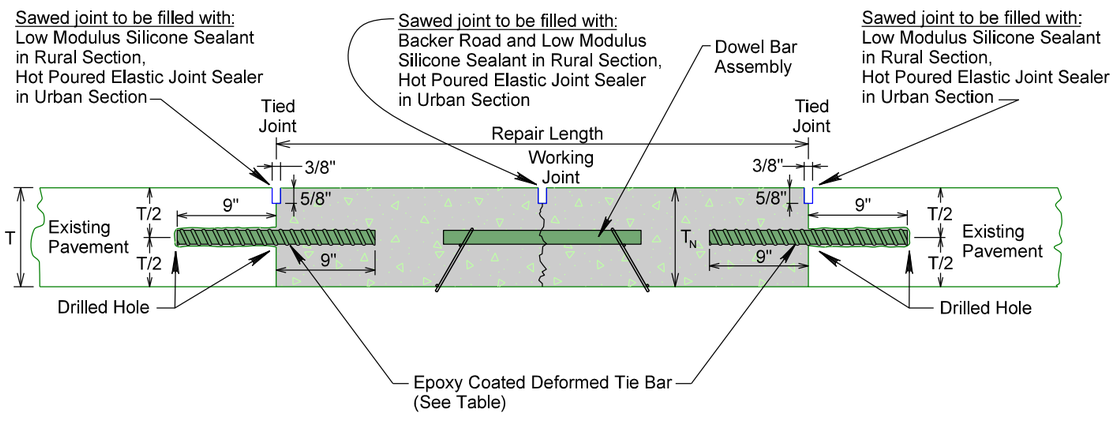
DEFORMED TIE BAR AND PLAIN ROUND DOWEL BAR INSERTION
TYPE B - (ONE TIED JOINT AND ONE WORKING JOINT)



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)



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.

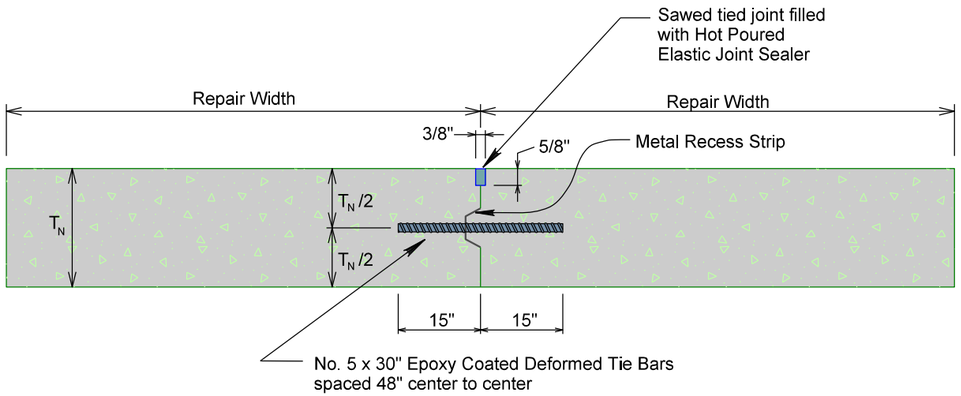
Cost for furnishing and installing dowel bar assembly shall be included in the contract unit price per each for Dowel Bar.

NONREINFORCED PCC PAVEMENT REPAIR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	10	20

Plotting Date: 03/05/2019

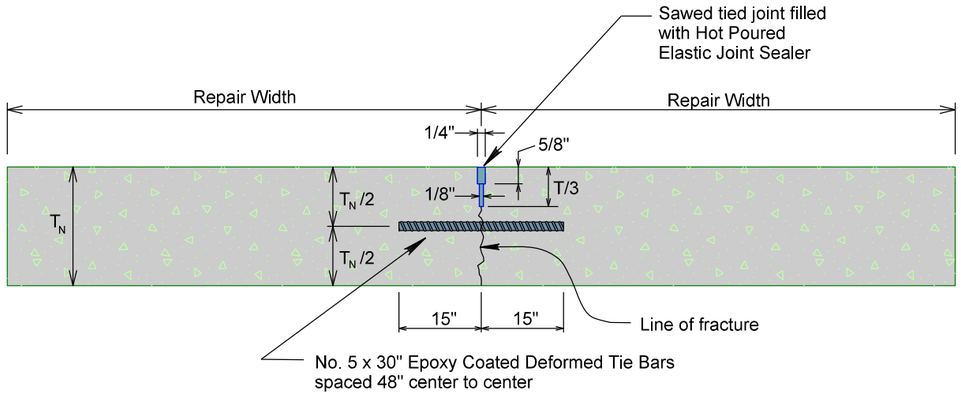
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



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

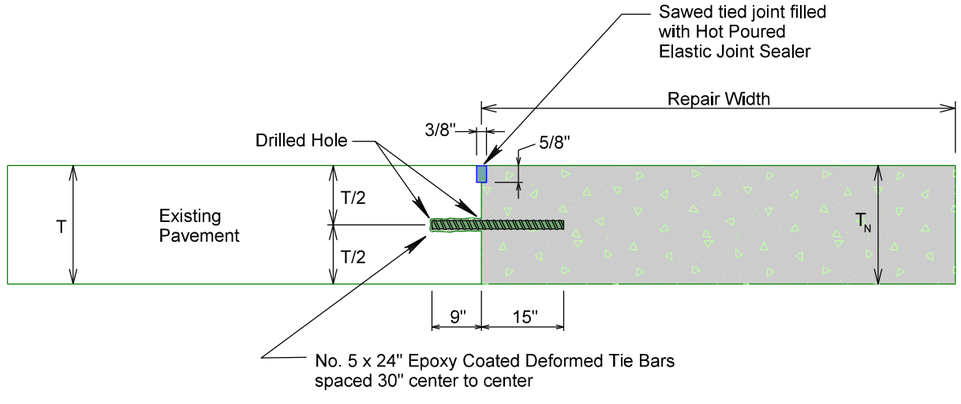


T_N = New pavement thickness.

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



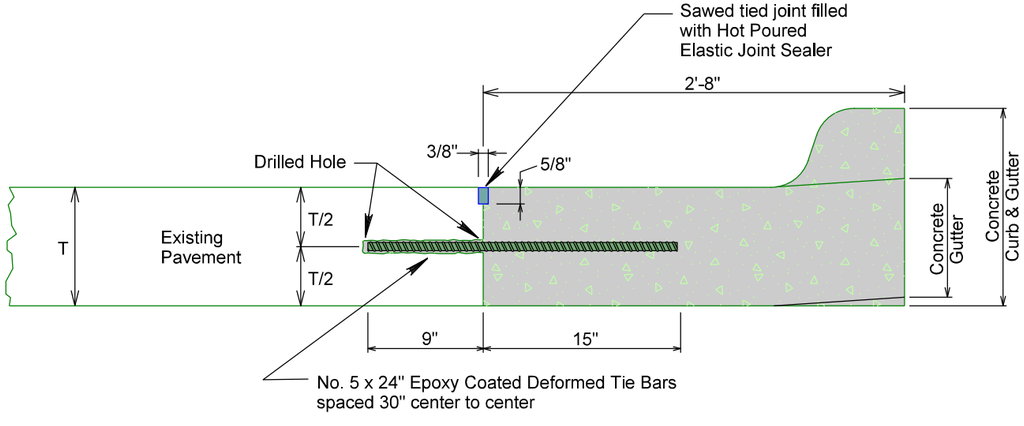
T = Existing pavement thickness.
T_N = New pavement thickness.

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



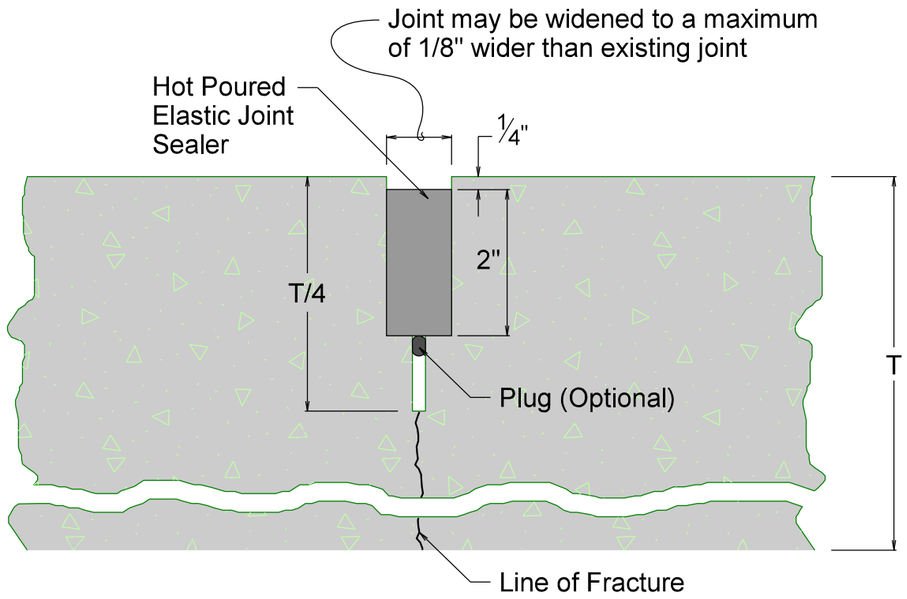
T = Existing pavement thickness.

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.

RESEAL PCC PAVEMENT TRANSVERSE JOINT WITH HOT POURED ELASTIC JOINT SEALER

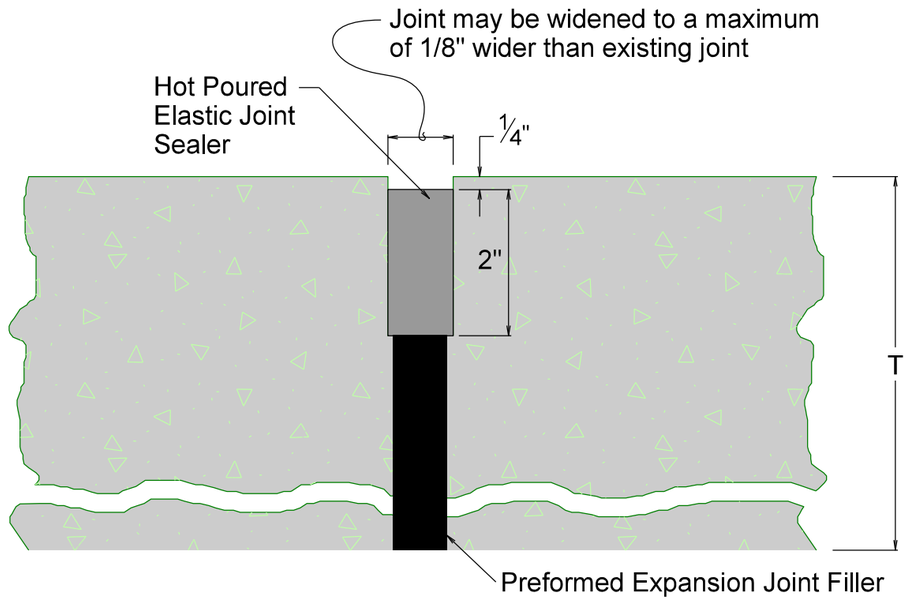


T = Pavement Thickness

NOTES:

The first saw cut to control cracking will be a minimum of 1/4 the depth of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the Hot Poured Elastic Joint Sealer will be necessary.

PCC PAVEMENT TRANSVERSE JOINT WITH PREFORMED EXPANSION JOINT FILLER



T = Pavement Thickness

NOTES:

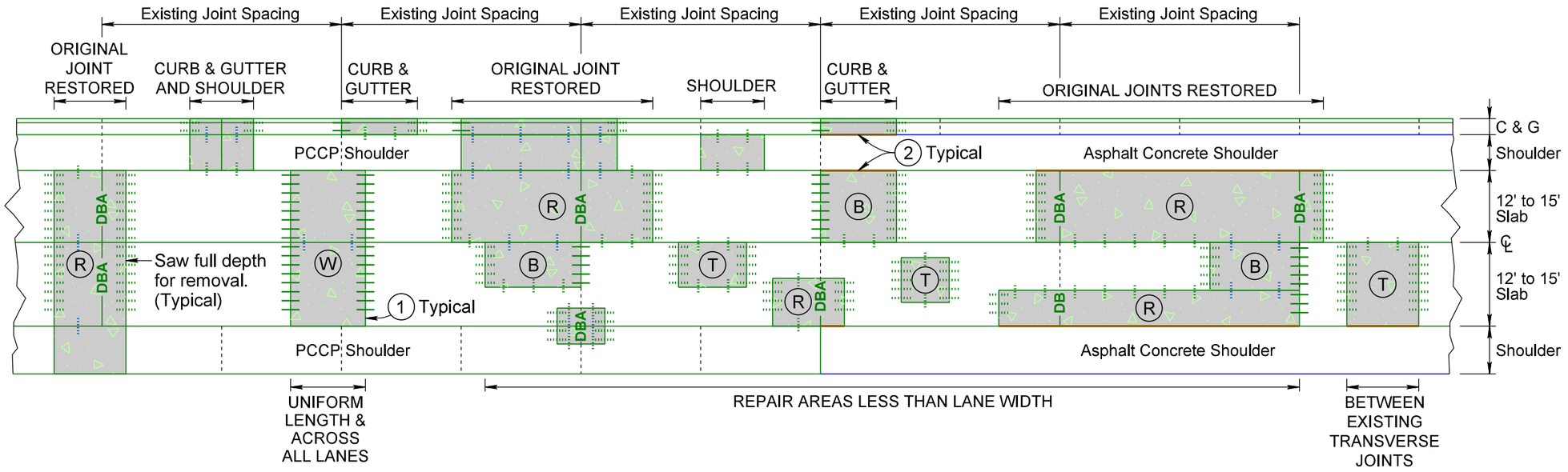
The expansion joint filler shall match the width of the existing transverse contraction joint of the adjacent PCC Pavement.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	12	20

Plotting Date: 11/09/2018

NONREINFORCED PCC PAVEMENT REPAIR

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



KEY:

PCC Pavement Repair Area

PCC PAVEMENT REPAIR AREA TYPES:

(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 >= 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.

PLOT SCALE - 1:10.1628

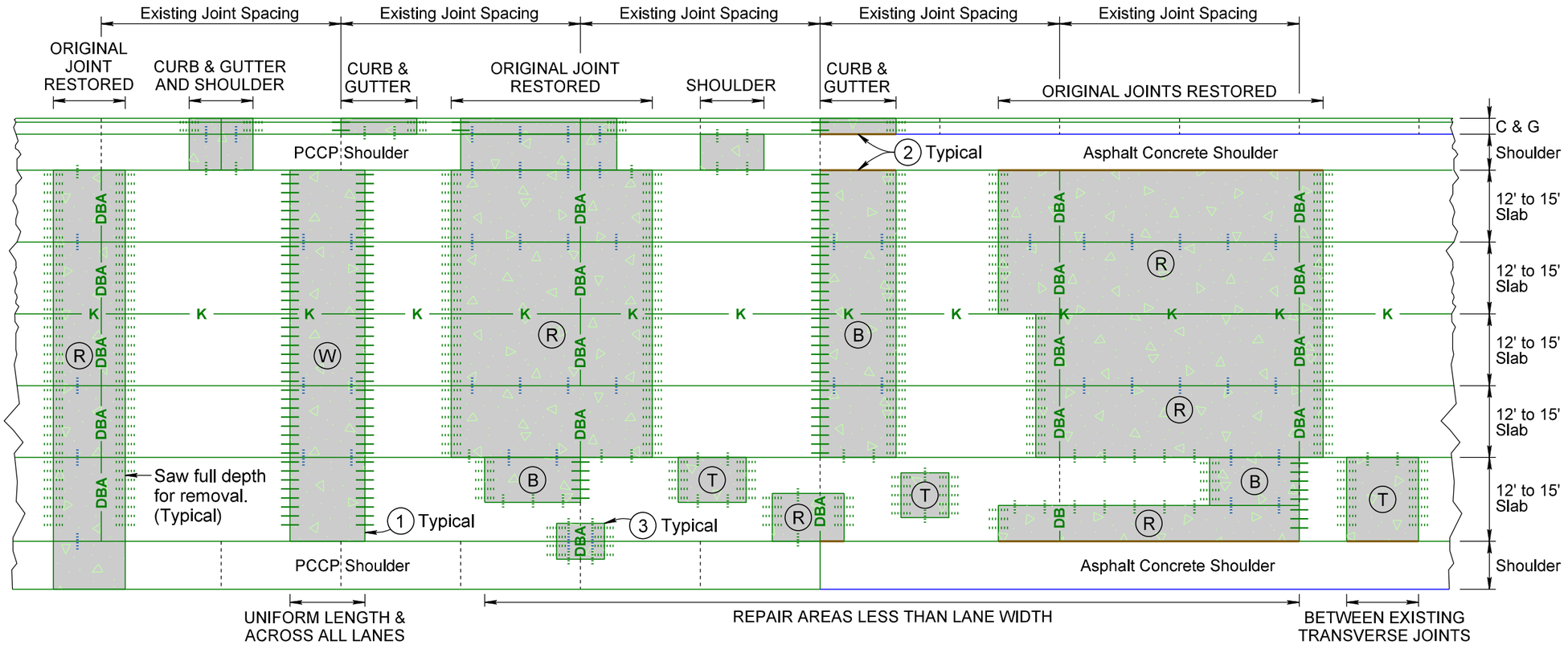
NONREINFORCED PCC PAVEMENT REPAIR

UP TO FOUR LANE ROADWAY WITH CENTER TURN LANE OR UP TO TEN LANE DIVIDED ROADWAY

TYPICAL REPAIR AREAS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	13	20

Plotting Date: 11/09/2018



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.

PLOTTED FROM - TRPR22412

PLOT NAME - 1

FILE - ...\PCCP REPAIR\PATCH5.DGN

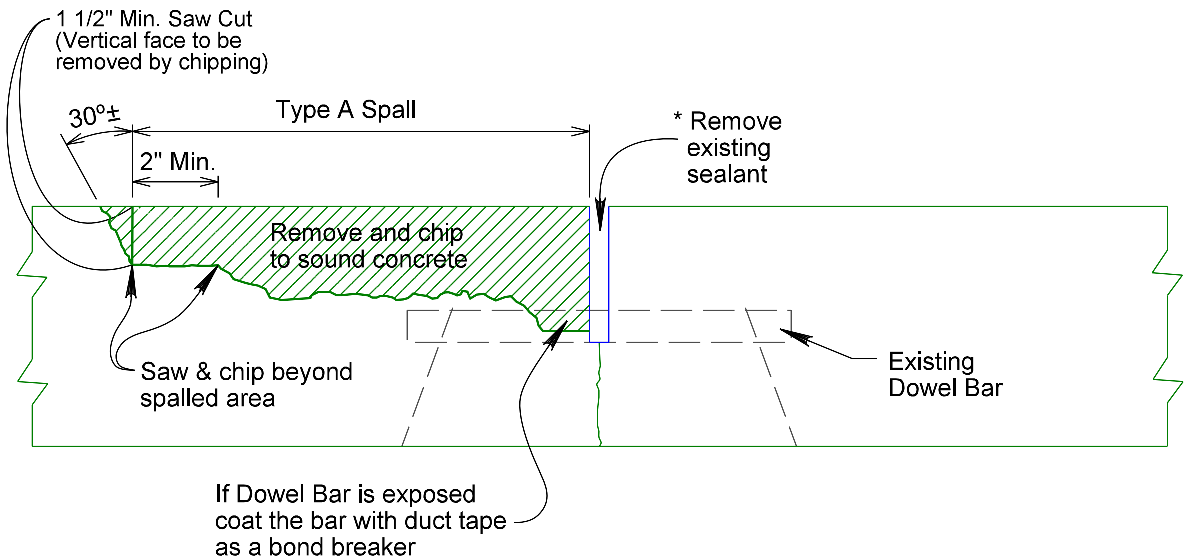
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	14	20

Plotting Date: 11/09/2018

PLOT SCALE - 1:9.42475

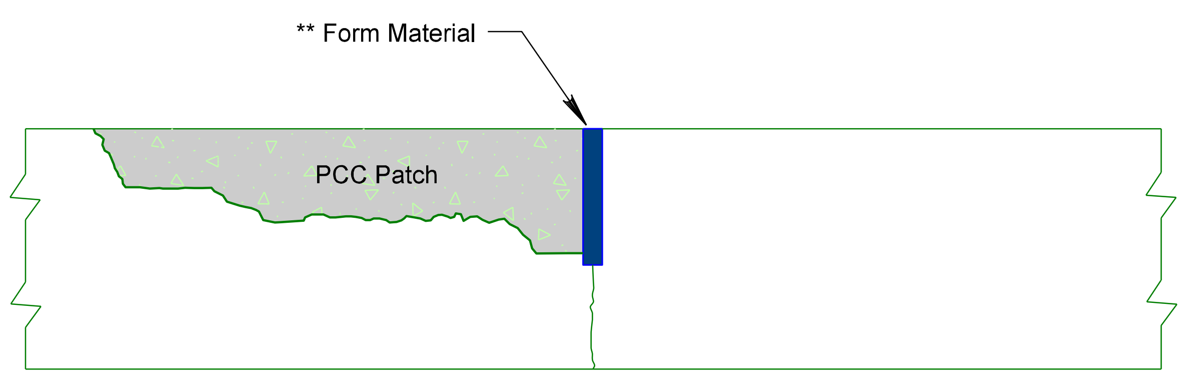
REPAIR OF TYPE A SPALLS

SPALL REMOVAL



* Existing Sealant to be removed is low modulus silicone sealant with backer rod or hot poured elastic joint sealer.

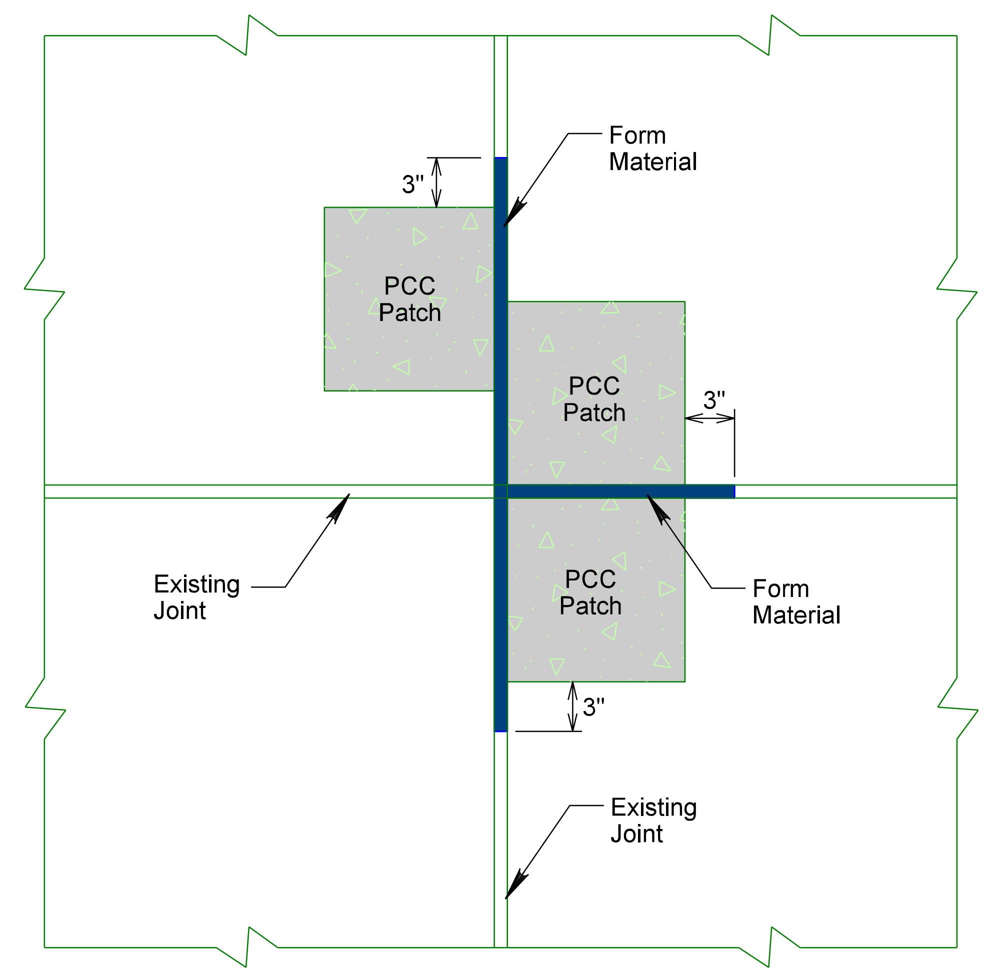
SPALL PATCH



** Form Material will be removed by sawing or other means approved by the Engineer. Spall repaired joints will then be sealed with Backer Rod and Low Modulus Silicone Sealant.

REPAIR OF TYPE A SPALLS

SPALL PATCHES (PLAN VIEW)



PLOTTED FROM - TRPR22412

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.

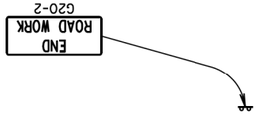
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

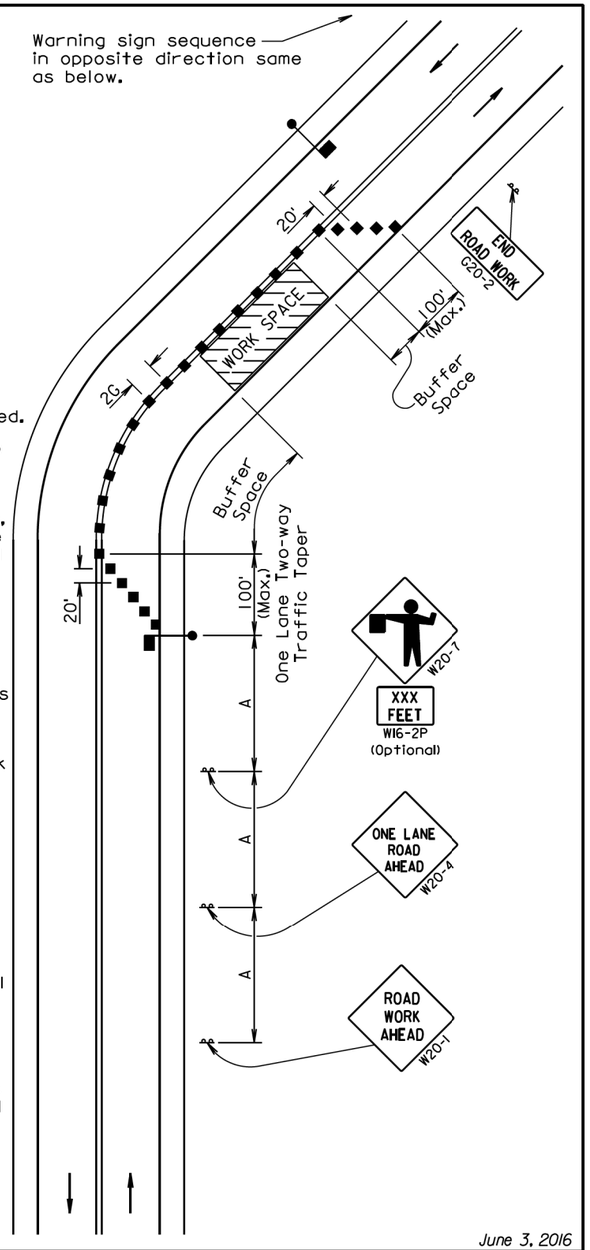
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.

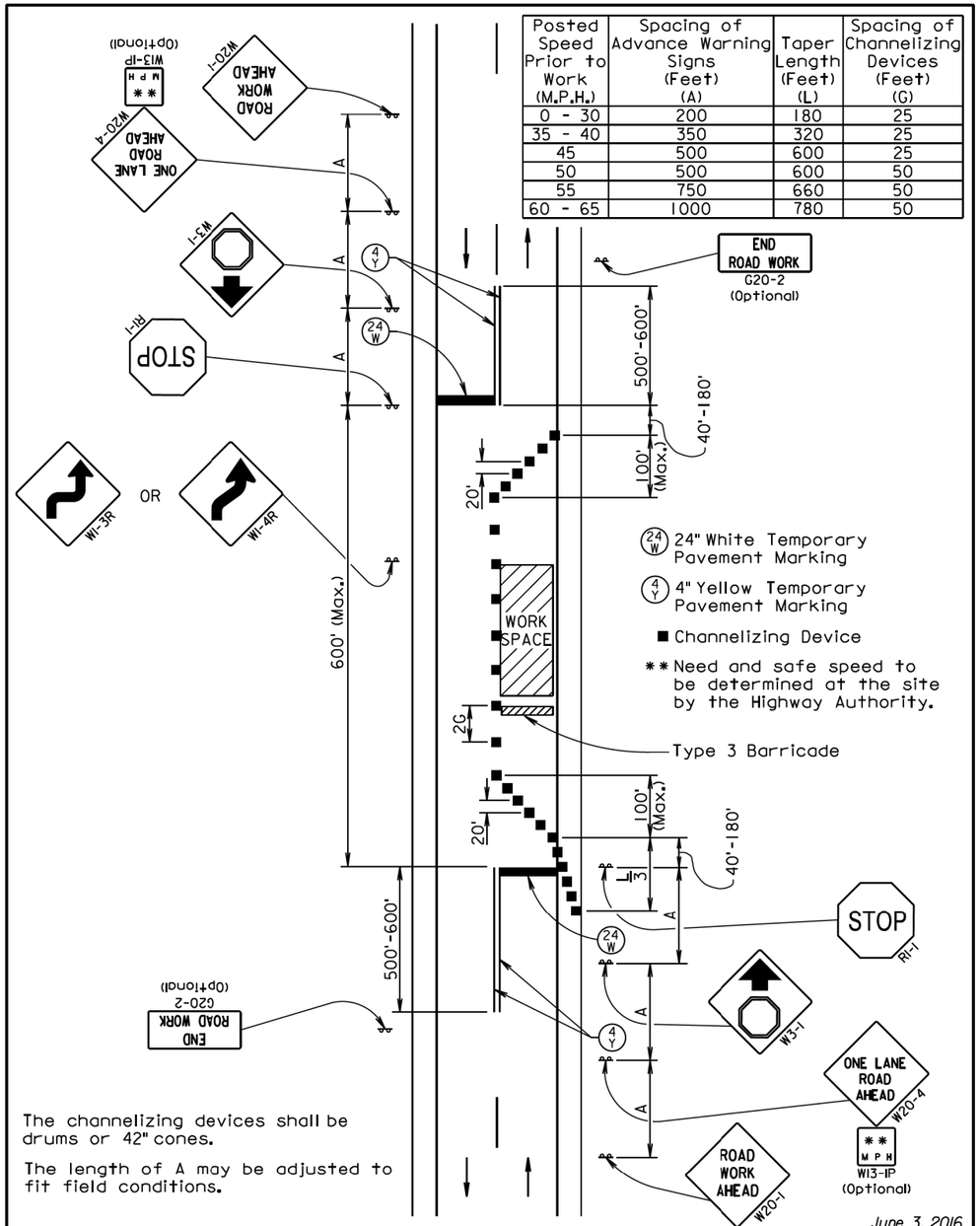
The length of A may be adjusted to fit field conditions.



June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50



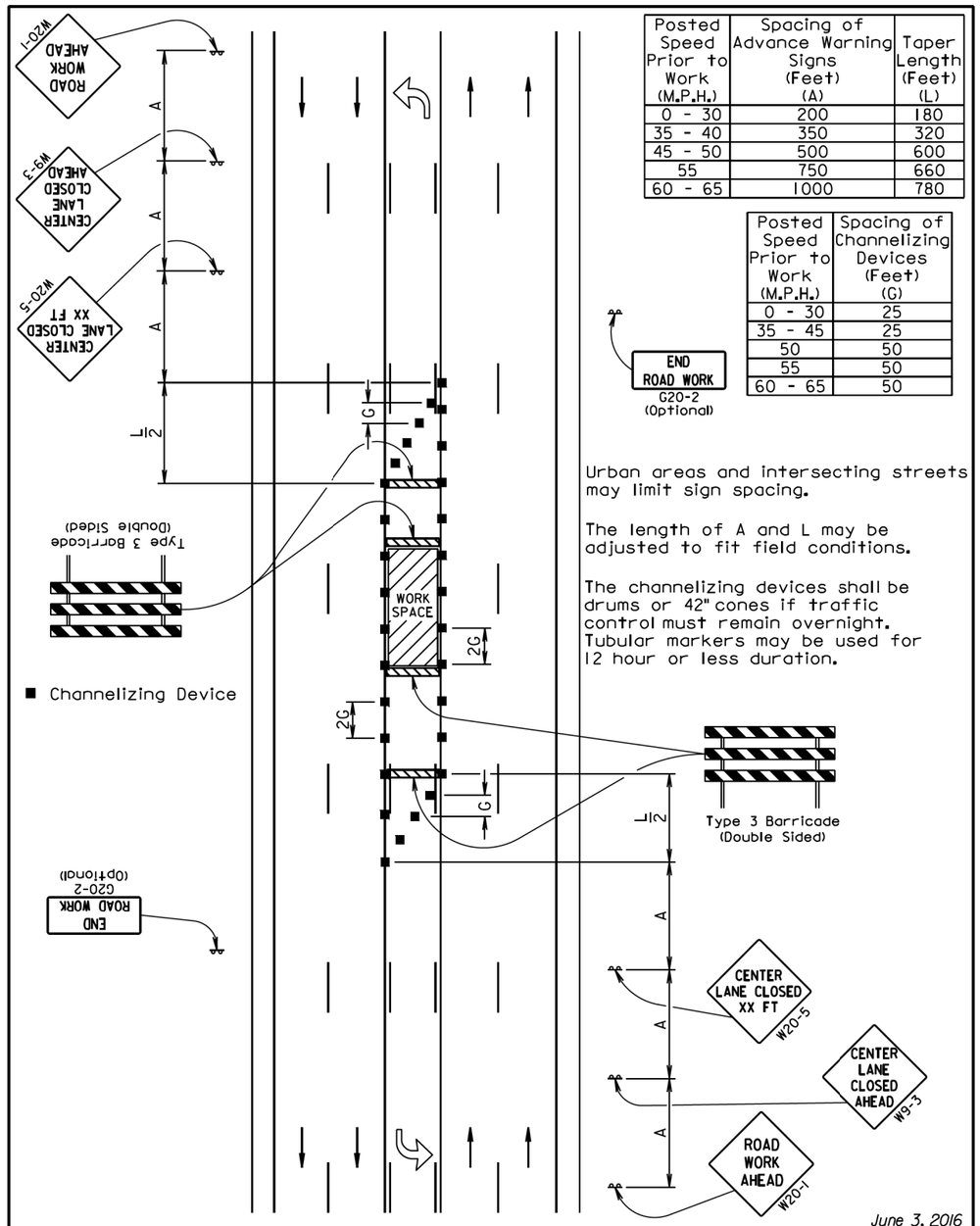
The channelizing devices shall be drums or 42" cones.

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

June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	16	20



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

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

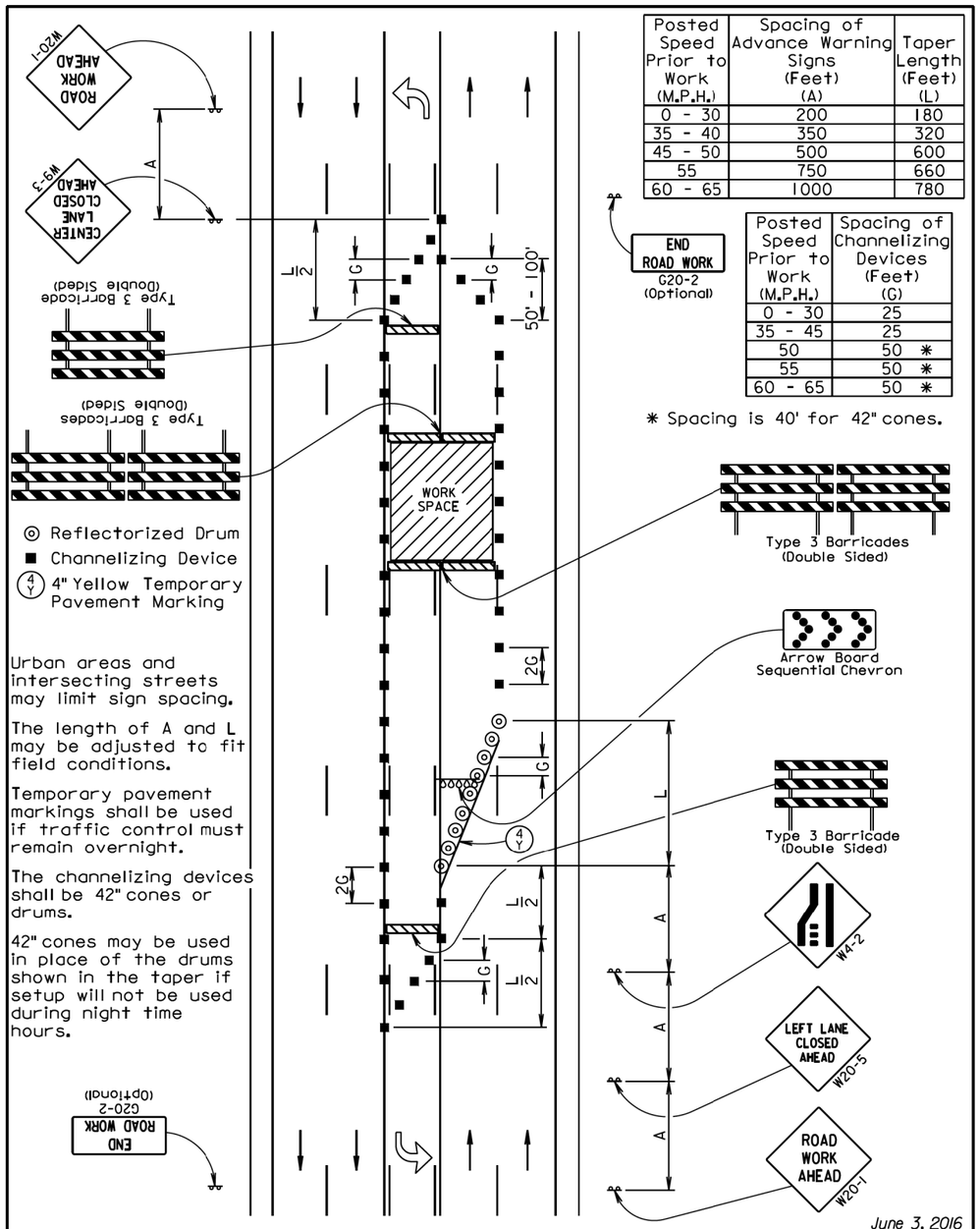
Urban areas and intersecting streets may limit sign spacing.

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

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight. Tubular markers may be used for 12 hour or less duration.

June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, CENTER LANE CLOSED	PLATE NUMBER 634.55 Sheet 1 of 1



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

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

* Spacing is 40' for 42" cones.

Urban areas and intersecting streets may limit sign spacing.

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

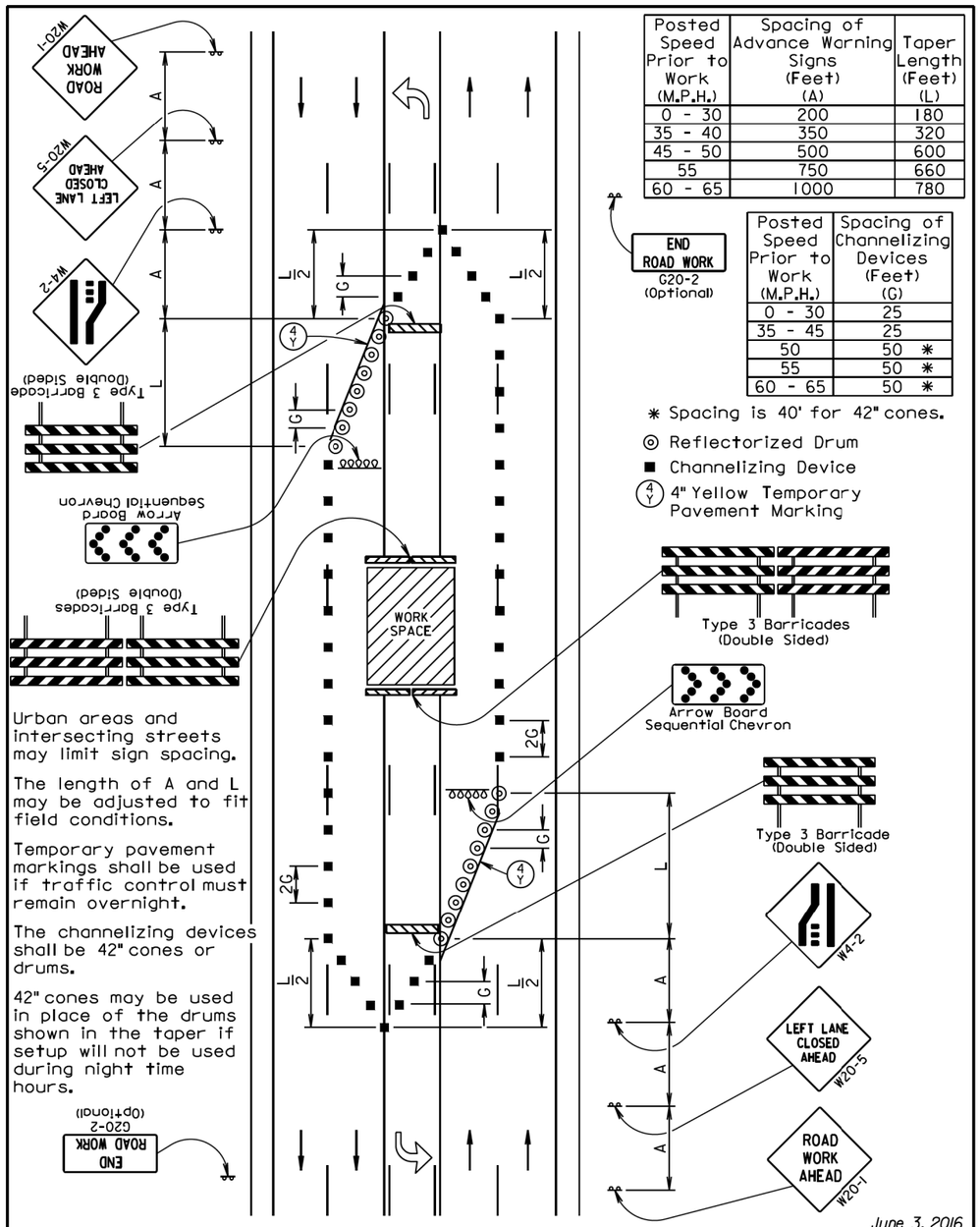
Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be 42" cones or drums.

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

June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, INSIDE 2 LANES CLOSED	PLATE NUMBER 634.56 Sheet 1 of 1



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

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

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

(4Y) 4" Yellow Temporary Pavement Marking

Urban areas and intersecting streets may limit sign spacing.

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

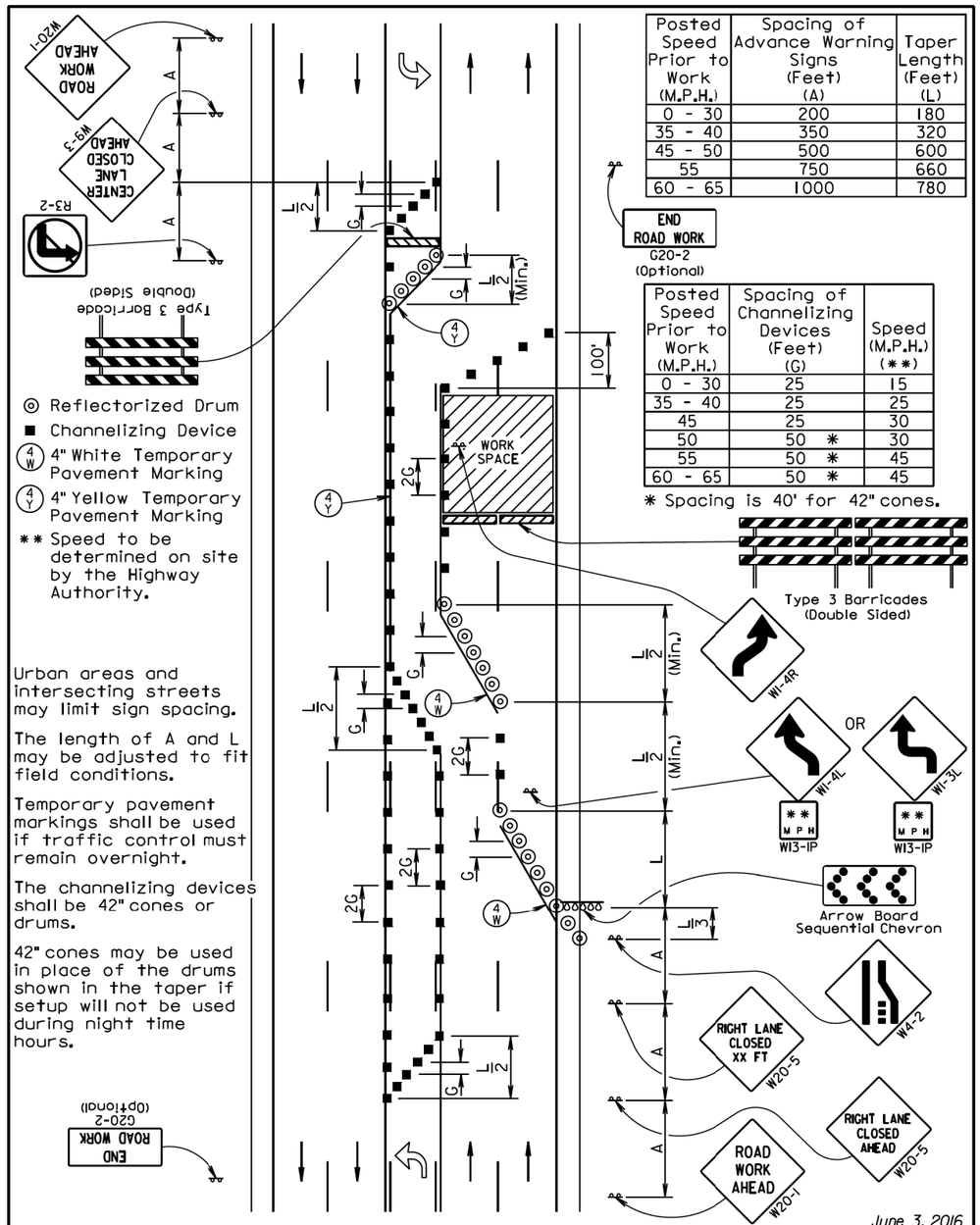
Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be 42" cones or drums.

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

June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, CENTER 3 LANES CLOSED	PLATE NUMBER 634.57 Sheet 1 of 1



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

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Speed (M.P.H.) (**)
0 - 30	25	15
35 - 40	25	25
45	25	30
50	50 *	30
55	50 *	45
60 - 65	50 *	45

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

(4Y) 4" Yellow Temporary Pavement Marking

** Speed to be determined on site by the Highway Authority.

Urban areas and intersecting streets may limit sign spacing.

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

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

The channelizing devices shall be 42" cones or drums.

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

June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, 2 LANES CLOSED ONE SIDE	PLATE NUMBER 634.58 Sheet 1 of 1

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

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Speed (M.P.H.) (**)
0 - 30	25	15
35 - 45	25	25
50	50 *	30
55	50 *	45
60 - 65	50 *	45

* Spacing is 40' for 42" cones.

- ◎ Reflectorized Drum
- ■ Channelizing Device
- (4W) 4" White Temporary Pavement Marking
- (4Y) 4" Yellow Temporary Pavement Marking
- ** Speed to be determined on site by the Highway Authority.

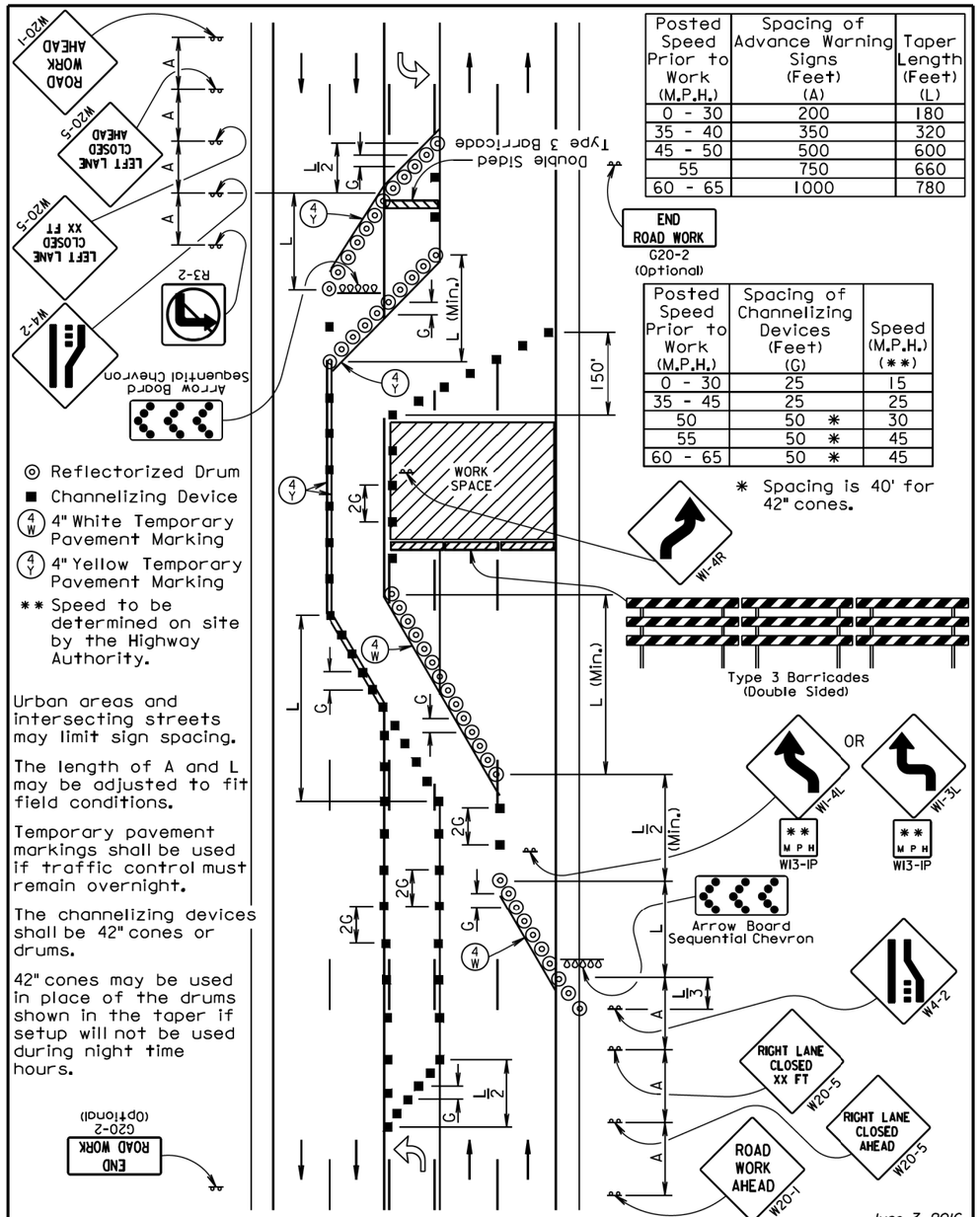
Urban areas and intersecting streets may limit sign spacing.

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

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

The channelizing devices shall be 42" cones or drums.

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



June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, 3 LANES CLOSED ONE SIDE	PLATE NUMBER 634.59 Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

- ◎ Reflectorized Drum
- ■ Channelizing Device
- (4W) 4" White Temporary Pavement Marking

Urban areas and intersecting streets may limit sign spacing.

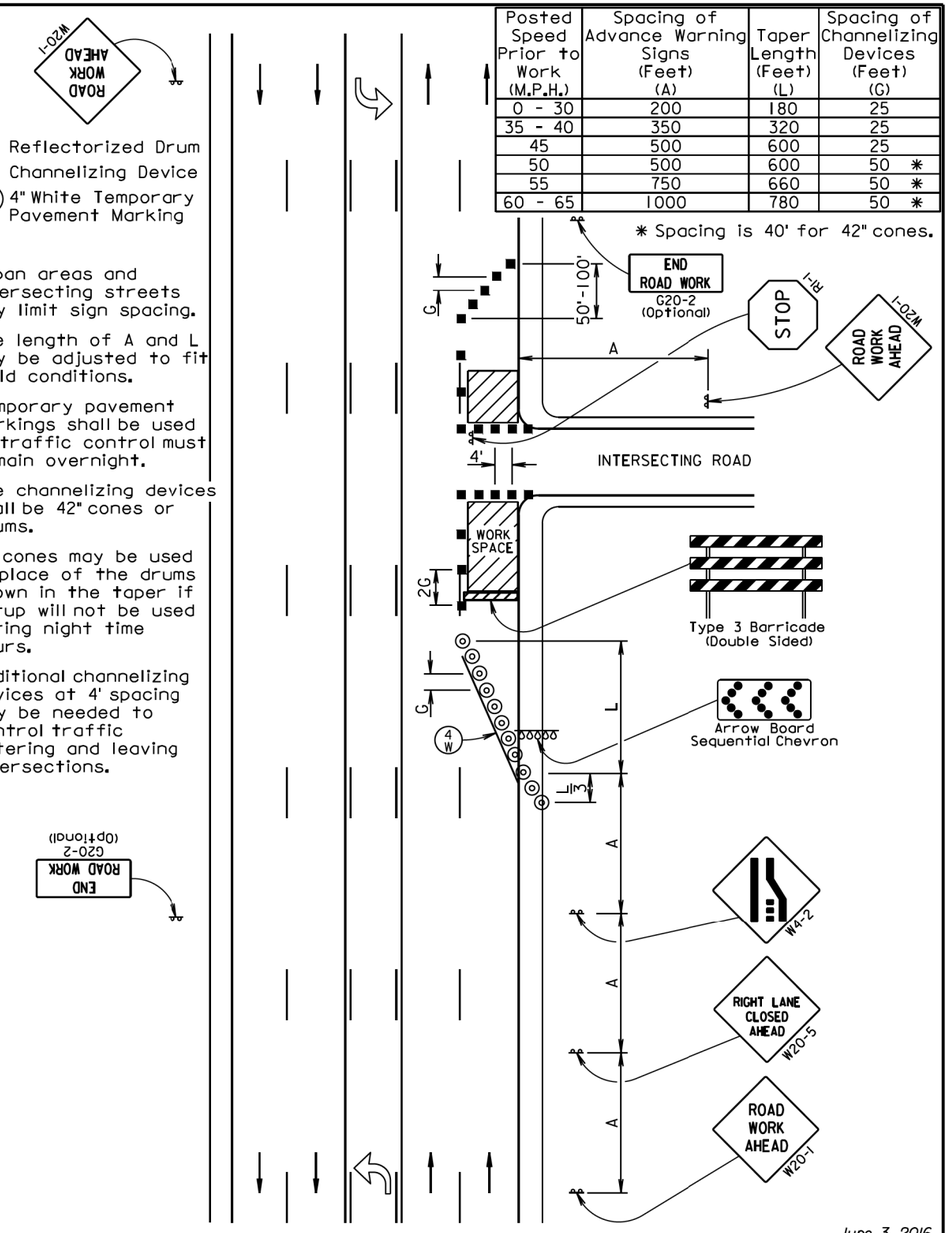
The length of A and L may be adjusted to fit field conditions.

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

The channelizing devices shall be 42" cones or drums.

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

Additional channelizing devices at 4' spacing may be needed to control traffic entering and leaving intersections.



June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, OUTSIDE LANE CLOSED	PLATE NUMBER 634.60 Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 80	1000 1500 2640	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

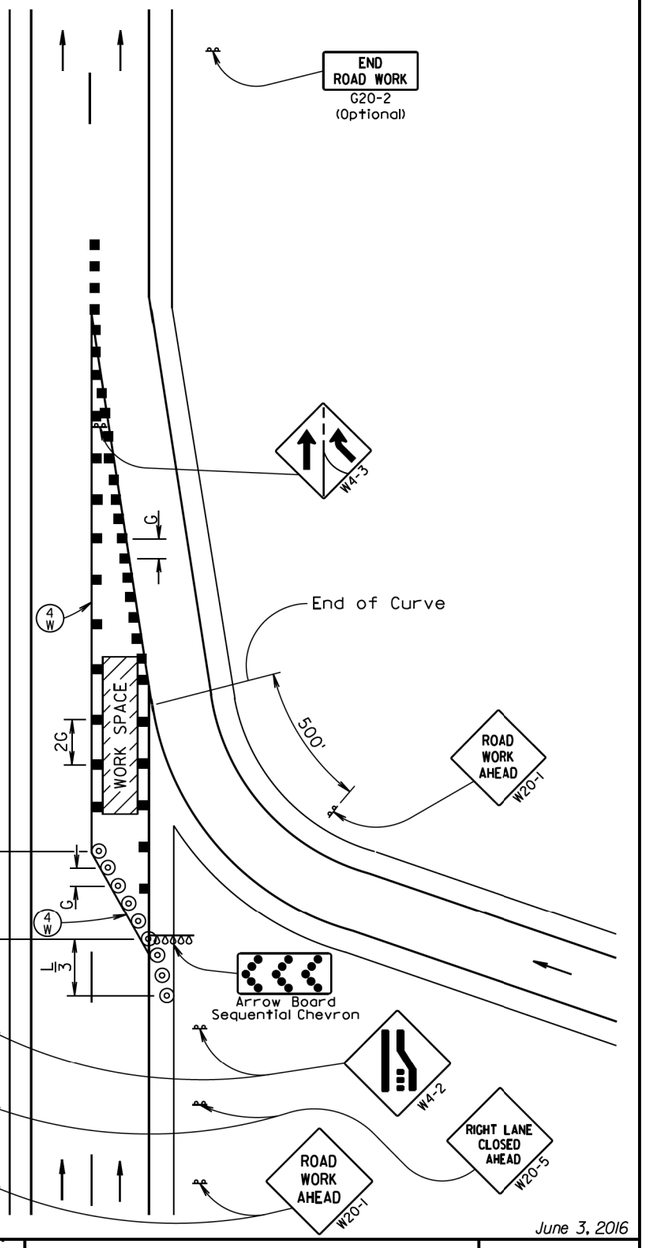
■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

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

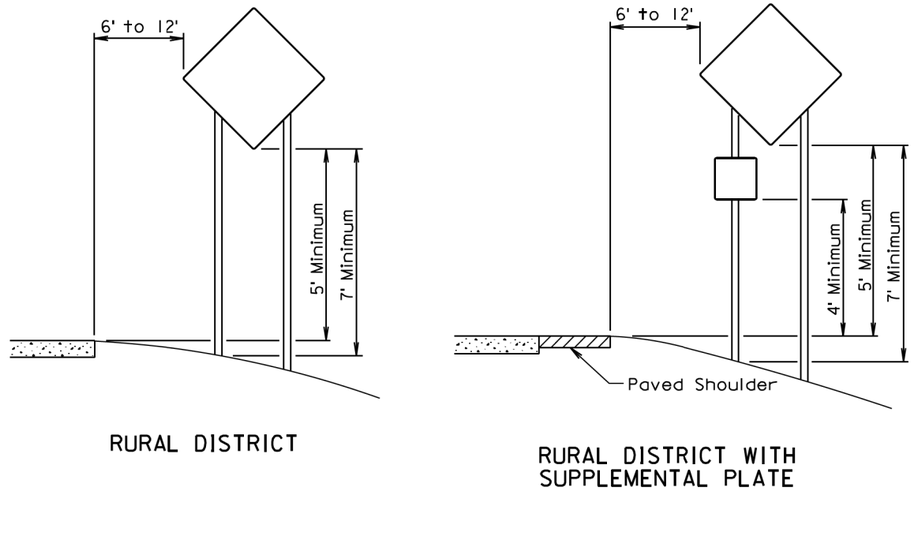
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

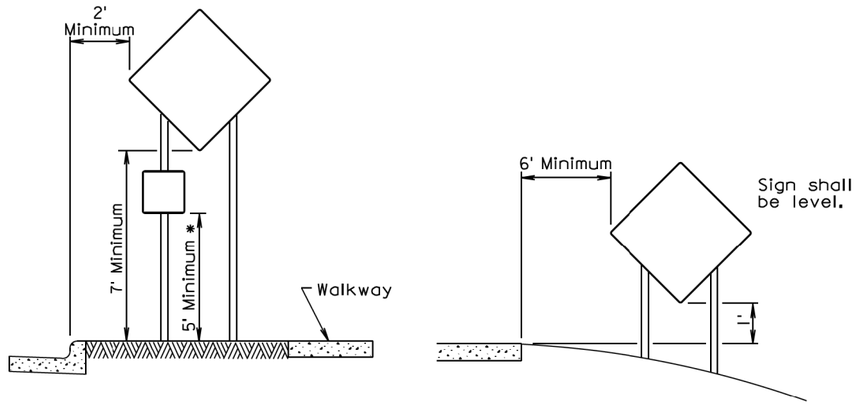
42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.



June 3, 2016

Published Date: 1st Qtr. 2019	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK IN VICINITY OF ENTRANCE RAMP	PLATE NUMBER 634.70
			Sheet 1 of 1



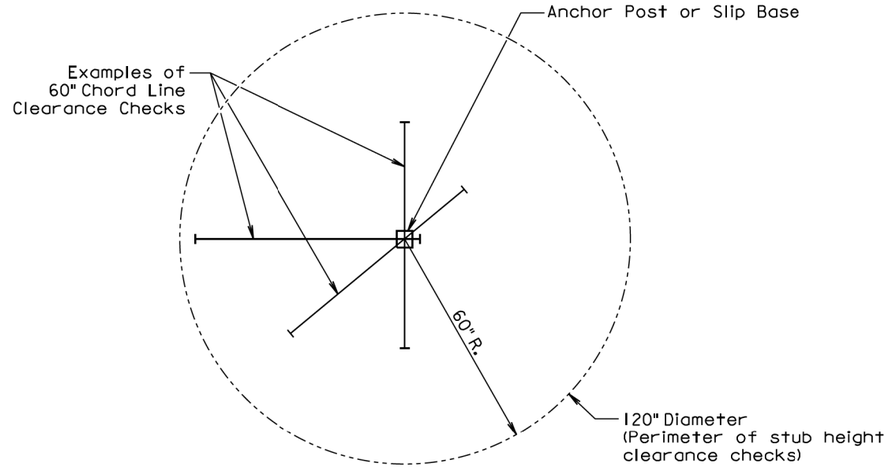


* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

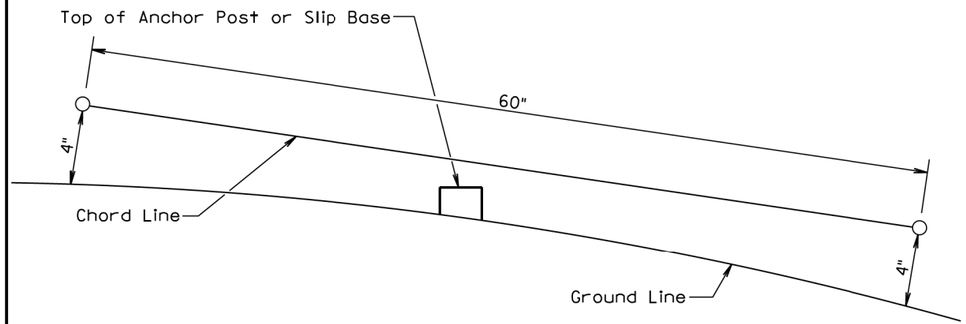
Published Date: 1st Qtr. 2019	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	083-351	20	20



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. 2019	SDDOT	***BREAKAWAY SUPPORT STUB CLEARANCE***	***PLATE NUMBER*** *634.99*
			Sheet 1 of 1