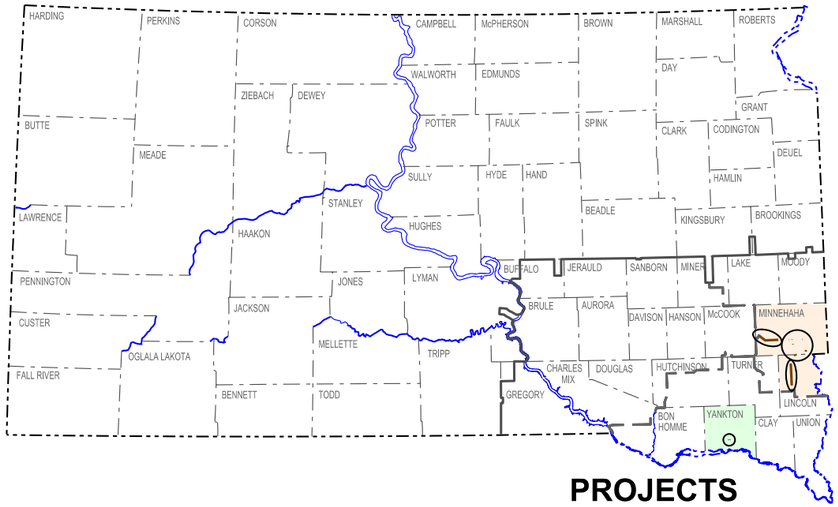
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	1	27

Plotting Date: 05/23/2016

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECTS
090E–271, 090W–271, 029N–271, 029S–271, 229N–271, 090E–271, 090E–271, 029N–271, 029S–271, 229N–271, 011N–271 & 011S–271
SIOUX FALLS AREA
INTERSTATES 29, 90 & 229 & SD HIGHWAY 11
MINNEHAHA & LINCOLN COUNTIES
NRC PAVEMENT REPAIR WITH ASPHALT CONCRETE, CRC PAVEMENT REPAIR, SEALING RANDOM CRACKS, SIDEWALK, C&G & DROP INLET REPAIR & FOAM JACKING
PCN I48Q, I48R, I48T, I48U, I48V, I48W, I48X, I48Y, I49A, I49C, I4CH & I4CJ

PROJECT
081N–292
YANKTON AREA
US HIGHWAY 81
YANKTON COUNTY
PCC PAVEMENT
FOAM JACKING
PCN I49D



PROJECTS

INDEX OF SHEETS

I90 ADT (2015)
PCN I48R 5,649
PCN I48Q 5,648
PCN I48W 6,395
PCN I48X 9,900

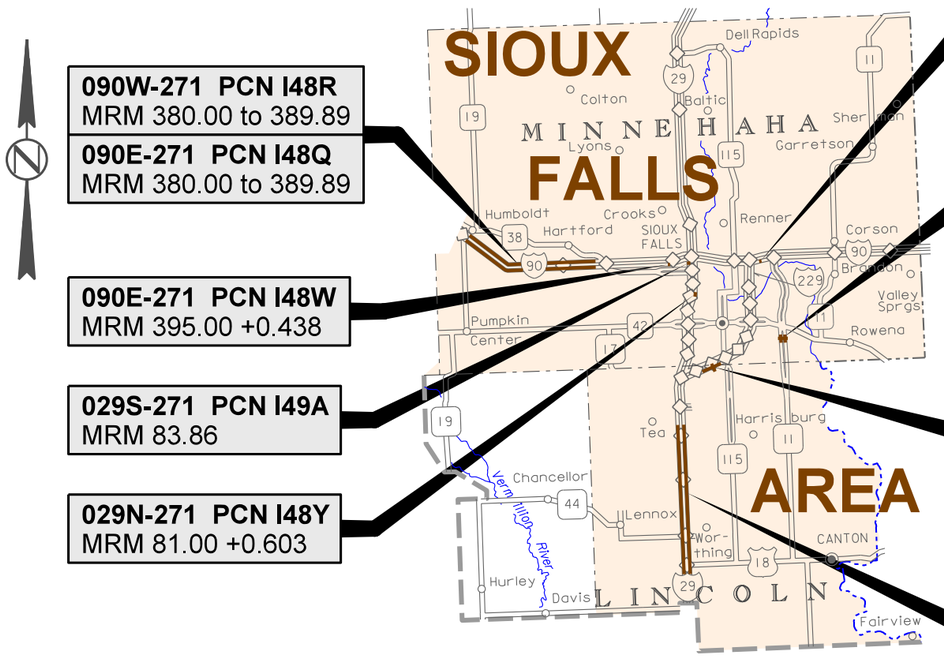
I29 ADT (2015)
PCN I48T 10,124
PCN I48U 10,126
PCN I48Y 18,450
PCN I49A 15,245

I229 ADT (2015)
PCN I49C 19,335

WESTERN AVE ADT (2014)
PCN I48V 18,390

SD11 ADT (2015)
PCN I4CH 3,523
PCN I4CJ 3,523
26TH STREET 8,727

US81N ADT (2015)
PCN I49D 3,430



090W-271 PCN I48R
MRM 380.00 to 389.89

090E-271 PCN I48Q
MRM 380.00 to 389.89

090E-271 PCN I48W
MRM 395.00 +0.438

029S-271 PCN I49A
MRM 83.86

029N-271 PCN I48Y
MRM 81.00 +0.603

090E-271 PCN I48X
MRM 401.00 +0.585

011N-271 PCN I4CH
SD11N MRM 71.25
(at Jct 26th Street)

011S-271 PCN I4CJ
SD11S MRM 71.25
(at Jct 26th Street)

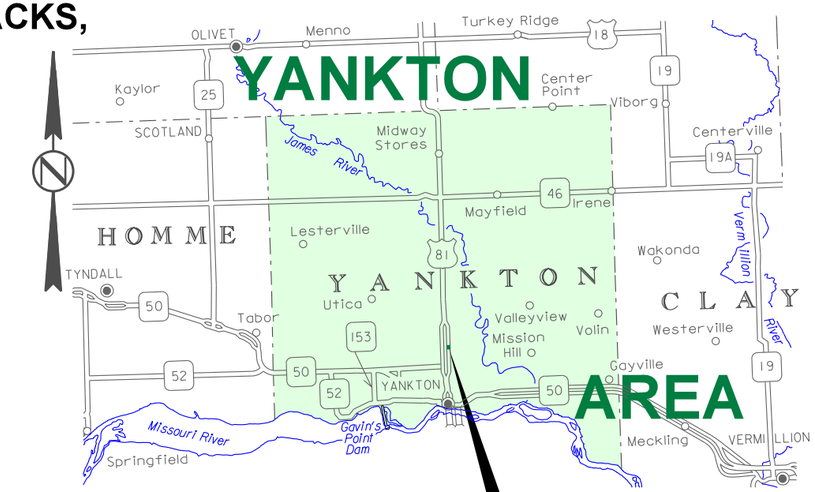
229N-271 PCN I48V
I229N MRM 2.07
(at Jct Western Ave)

229N-271 PCN I49C
MRM 1.00 to 2.70

029N-271 PCN I48T
MRM 62.00 to 72.00

029S-271 PCN I48U
MRM 62.00 to 72.00

STORM WATER PERMIT
(None required)



081N-292 PCN I49D
MRM 4.00 +0.608

PROJECT LENGTH

HWY	PCN	MILES
I90E	I48Q	9.882
I90W	I48R	9.884
I29N	I48T	9.986
I29S	I48U	9.988
I229N	I48V	-
I90E	I48W	-
I90E	I48X	-
I29N	I48Y	-
I29S	I49A	-
I229N	I49C	1.713
SD11N	I4CH	-
SD11S	I4CJ	-
US81N	I49D	-
TOTAL		41.453

PLOT SCALE - 1:56000
PLOTTED FROM - TRMI1NT15
PLOT NAME - 1
FILE - ...\MINN1480\TITL1480.DGN

ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	2	27

090E-271 PCN I48Q

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1100	Remove Concrete Pavement	183.6	SqYd
320E1200	Asphalt Concrete Composite	140.9	Ton
634E0010	Flagging	50	Hour
634E0110	Traffic Control Signs	354.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	9	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	5760	Ft

090W-271 PCN I48R

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1100	Remove Concrete Pavement	229.3	SqYd
320E1200	Asphalt Concrete Composite	179.3	Ton
634E0010	Flagging	50	Hour
634E0110	Traffic Control Signs	354.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	10	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	5760	Ft

029N-271 PCN I48T

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
380E5100	Continuously Reinforced PCC Pavement Repair	47.2	SqYd
380E6110	Insert Steel Bar in PCC Pavement	120	Each
380E6310	Seal Random Cracks in PCC Pavement	3716	Ft
634E0010	Flagging	50	Hour
634E0110	Traffic Control Signs	354.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	12	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	5760	Ft

029S-271 PCN I48U

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
380E5100	Continuously Reinforced PCC Pavement Repair	106.4	SqYd
380E6110	Insert Steel Bar in PCC Pavement	229	Each
380E6310	Seal Random Cracks in PCC Pavement	2581.00	Ft
634E0010	Flagging	50	Hour
634E0110	Traffic Control Signs	354.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	12	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	5760	Ft

229N-271 PCN I48V

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	10	Ft
110E0420	Remove Drop Inlet Frame and Grate Assembly	1	Each
380E6110	Insert Steel Bar in PCC Pavement	8	Each
634E0110	Traffic Control Signs	86.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
650E0090	Type B69 Concrete Curb and Gutter	10	Ft
670E1200	Type B Frame and Grate	1	Each

090E-271 PCN I48W

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
392E0210	PCC Pavement Jacking Foam	2000	Lb
634E0110	Traffic Control Signs	104.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	1560	Ft

090E-271 PCN I48X

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
392E0210	PCC Pavement Jacking Foam	1500	Lb
634E0110	Traffic Control Signs	104.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	1920	Ft

029N-271 PCN I48Y

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
392E0210	PCC Pavement Jacking Foam	1000	Lb
634E0110	Traffic Control Signs	104.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	1560	Ft

029S-271 PCN I49A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
392E0210	PCC Pavement Jacking Foam	1100	Lb
634E0110	Traffic Control Signs	104.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	1560	Ft

229N-271 PCN I49C

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
392E0210	PCC Pavement Jacking Foam	3500	Lb
634E0110	Traffic Control Signs	104.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	3120	Ft

081N-292 PCN I49D

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
392E0210	PCC Pavement Jacking Foam	2000	Lb
634E0110	Traffic Control Signs	100.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	1560	Ft

011N-271 PCN I4CH

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1140	Remove Concrete Sidewalk	12	SqYd
634E0110	Traffic Control Signs	36.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
651E0060	6" Concrete Sidewalk	108	SqFt
651E7000	Type 1 Detectable Warnings	16	SqFt

011S-271 PCN I4CJ

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1140	Remove Concrete Sidewalk	3	SqYd
634E0110	Traffic Control Signs	54.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
651E0060	6" Concrete Sidewalk	27	SqFt
651E7000	Type 1 Detectable Warnings	8	SqFt

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

ENVIRONMENTAL COMMITMENTS

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

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES (CONTINUED)

SHPO/THPO review does not relieve the Contractor of the responsibility 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COORDINATION BETWEEN CONTRACTORS

A separate contract for Projects IM 0293(96)73 & IM 2292(90)0, Minnehaha and Lincoln Counties - PCN 01QS & 020Q has been awarded to T & R Contracting for reconstruction in the vicinity of the I29/I229 interchange.

A separate contract for Project PH 0020(128), Minnehaha, Lincoln and Davison Counties - PCN 03B4 will be awarded to another Contractor for Durable Marking of interchanges on I29, I90 and I229 looping the City of Sioux Falls.

The Contractor shall schedule work so as not to interfere with or hinder the progress of the work performed by other Contractors on the reconstruction and durable marking projects.

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, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

SCOPE OF WORK

The Interstate 90 portion of this project consists of full depth replacement of Nonreinforced Concrete (NRC) Pavement with Asphalt Concrete Composite in areas where concrete pavement blowups or major failures have occurred. Full depth areas vary in length and width; however the minimum length is 4 feet.

The Interstate 29 portion of this project consists of full depth replacement of Continuously Reinforced Concrete (CRC) Pavement in areas where major failures have occurred. Full depth areas may vary in length and width; however the minimum length is 4 feet.

This project also consists of PCC Pavement Jacking at various locations.

EXISTING NRC PAVEMENT (BENEATH EXISTING ASPHALT CONCRETE PAVEMENT)

The existing 9" x 24' NRC Pavement on I90 from MRM 377 to MRM 390 is reinforced with welded wire fabric. The welded wire fabric weighs not less than 60 pounds per 100 square feet, the longitudinal wires are No. 1 gauge and are spaced 6" center to center and the transverse wires are No. 4 gauge and are spaced 12" center to center.

Existing contraction joints are spaced at approximately 46.5'. Longitudinal joints are reinforced with No. 5 x 24" deformed tie bars spaced 30" to 48" center to center. Transverse joints are reinforced with 1¼" x 18" plain round dowel bars spaced 12" center to center.

The aggregate in the existing NRC Pavement is quartzite.

EXISTING ASPHALT CONCRETE PAVEMENT

The existing asphalt concrete pavement on I90 from MRM 377 to 390 consists of a 2" lift and a 1 ½" lift Class Q-HVT and a 1 ¼" Class S over 9" NRC Pavement.

EXISTING CRC PAVEMENT

The existing pavement on I29 from MRM 61 to 72 is 11” x 26’ CRC Pavement. The longitudinal reinforcing steel consists of No. 6 deformed bars spaced 6 1/2” center to center, and the transverse reinforcing steel consists of No. 4 deformed bars spaced 48” center to center.

The aggregate in the existing CRC Pavement is quartzite.

RESTORATION OF GRAVEL CUSHION

An inspection of the gravel cushion 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 prices per square yard for Nonreinforced PCC Pavement Repair and Continuously Reinforced 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 WITH ASPHALT CONCRETE

Full depth repair areas shall be backfilled with Asphalt Concrete Composite in lifts not to exceed 3 inches. Asphalt concrete pavement thickness shall equal that of the existing adjacent concrete pavement.

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

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

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.

All joints (longitudinal and transverse) through and around the repair areas will be sawed 5/8” width x 5/8” depth in the final lift of asphalt concrete and sealed to the same dimensions with hot-poured elastic joint sealer.

Cost for performing the aforementioned work including sawing and removing concrete and asphalt concrete shall be included in the contract unit price per square yard for Remove Concrete Pavement.

Cost for furnishing, placing and compacting asphalt concrete shall be included in the contract unit price per ton for Asphalt Concrete Composite.

Cost for sawing and sealing joints shall be incidental to the contract unit price per ton for Asphalt Concrete Composite.

CONTINUOUSLY REINFORCED PCC PAVEMENT REPAIR

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

Locations and size (length or width) of pavement 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.

The Engineer will mark the location of the area to be repaired on construction. Where repair crosses both lanes, the passing lane should be repaired first.

The Contractor shall saw the in place concrete transversely at four locations for each repair area. Two saw cuts shall be full depth. The other two saw cuts shall be partial depth saw cuts and shall be made to a depth just above the in place reinforcing steel, and be placed outside of the previous full depth saw cuts. The outside cuts shall be a minimum of 6” from the nearest tight crack outside of the patch.

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

The Contractor shall lift out or break out the center section (including reinforcing steel) and then use light chipping hammers (not exceeding 15 pounds) to remove the remaining concrete at each end of the repair area, leaving the reinforcing steel in place. Care shall be taken not to cut, bend or otherwise damage the in place reinforcing steel. Damage to in place reinforcing steel or to in place concrete beyond the repair area will be replaced at the Contractor’s expense, to the satisfaction of the Engineer.

The Contractor shall remove and dispose of the in place concrete and in place asphalt concrete.

Existing exposed reinforcing steel and concrete faces shall be cleaned by sandblasting and compressed air to remove dirt and debris prior to placement of concrete.

Place reinforcing steel according to the notes for REINFORCING STEEL (CRCP) and STEEL BAR INSERTION (CRCP).

Concrete placed adjacent to asphalt concrete shoulders shall be formed full depth to match the width of existing concrete pavement. The excavated area of the asphalt concrete shoulder adjacent to repair areas shall be filled with asphalt concrete.

Concrete shall not be placed in the repair areas before 12:00pm and should be placed in the late afternoon._Temperature of the concrete at the time of placement shall be between 50°F and 90°F. The temperature of the concrete shall be maintained above 40°F during the curing period.

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.

CONTINUOUSLY REINFORCED PCC PAVEMENT REPAIR (CONTINUED)

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 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 4,000 psi must be obtained prior to opening to traffic.

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. 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.

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’.

Cost for performing the aforementioned work including sawing, chipping and removing concrete, sandblasting, cleaning, furnishing and placing concrete and reinforcing steel, finishing and curing, replacing asphalt concrete shoulders, labor and equipment shall be included in the contract unit price per square yard for Continuously Reinforced PCC Pavement Repair.

REINFORCING STEEL (CRCP)

Reinforcing steel shall conform to Section 1010.

After removal of the in place concrete and repair of the gravel cushion subgrade, new reinforcing steel shall be installed. Refer to the CRC Pavement Repair Area layouts for details.

1. New longitudinal bars shall be lap spliced with the preserved in place longitudinal bars (New bar diameter to match in place bar diameter).
2. At full lane width repair areas, additional longitudinal bars shall be centered between every other set of two spliced longitudinal bars throughout the width of the repair area. The additional longitudinal bars shall overlap into the existing concrete 9” on both sides of the repair area. Drilled holes will be required and the additional longitudinal bars shall be inserted in accordance with the notes for STEEL BAR INSERTION (CRCP). The additional longitudinal bars shall then be lap spliced.
3. Additional transverse bars shall be centered between the in place transverse bars throughout the length of the repair area. The spacing of transverse bars in the completed repair area should be half the spacing of the in place transverse reinforcing steel.

   The additional transverse bars shall be lap spliced with No. 5 x 24” epoxy coated deformed tie bars inserted 9” into the existing concrete. Drilled holes will be required. Tie bars shall be inserted according to the notes for STEEL BAR INSERTION (CRCP).

Cost for this work, including reinforcing steel, ties, labor and equipment shall be incidental to the contract unit price per square yard for Continuously Reinforced PCC Pavement Repair.

STEEL BAR INSERTION (CRCP)

Steel bars shall 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.

Longitudinal deformed tie bars shall be inserted 9 inches into the in place concrete at the transverse joint and centered between every other set of two spliced longitudinal bars throughout the width of the repair area. Transverse deformed bars shall be lap spliced with deformed tie bars which are inserted 9 inches into the in place concrete at the longitudinal joint throughout the length of the repair area. Refer to the notes for REINFORCING STEEL (CRCP). An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

Holes drilled into the existing concrete pavement shall be located at mid-depth of the slab and true and normal except that in transverse joints, the drilled in longitudinal steel bar angle will be slightly under 90° to allow for centering of the lap splice between existing longitudinal steel.

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.

Cost for reinforcing steel (except the inserted No. 5 x 24" epoxy coated deformed tie bars) shall be incidental to the contract unit price per square yard for Continuously Reinforced PCC Pavement Repair.

Cost for drilling holes, furnishing and applying epoxy resin adhesive, furnishing and inserting No. 5 x 24" epoxy coated deformed tie bars into the drilled holes and inserting all other reinforcing steel bars into the drilled holes, and any incidentals necessary to complete the work shall be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

SAW AND SEAL LONGITUDINAL JOINTS (CRCP)

Longitudinal joints (in line with existing longitudinal joints) at concrete repair areas shall be sawed and sealed.

Joint sealing shall conform to Section 380.3 P.

Longitudinal joints shall be sealed with Low Modulus Silicone Sealant or Hot Poured Elastic Joint Sealer.

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 shall be incidental to the contract unit price per square yard for Continuously Reinforced PCC Pavement Repair.

SEAL RANDOM CRACKS IN PCC PAVEMENT (CRCP)

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

Only those random cracks in the existing concrete pavement that are open and accept water and incompressible materials as selected by the Engineer shall be prepared, sealed and overbanded with Hot Poured Elastic Joint Sealer. Typically, patterned cracks associated with the underlying steel reinforcement should not be routed and sealed.

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

Random cracks narrower than ½ inch shall be routed and sealed ½ inch wide by ½ inch deep.

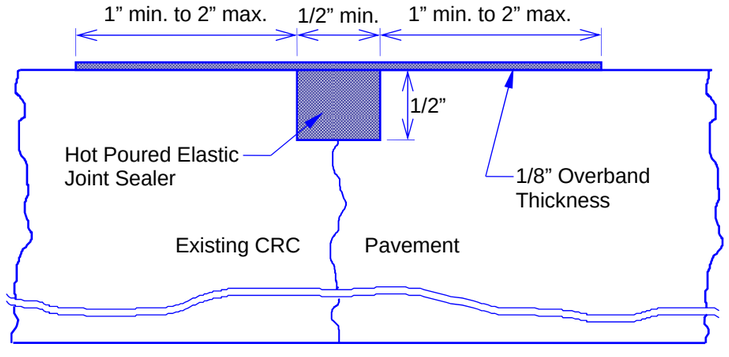
Random cracks wider than ½ inch may require the placement of a backer rod prior to sealing. Use of backer rod should be limited to locations where, once placed, the top of the backer rod will be 2 inches below the top surface of the pavement, resulting in a maximum hot pour depth of 2 inches.

Sealer shall be placed in the routed reservoir with equipment and by methods that insure complete and uniform filling. Sealer shall be overbanded to prohibit further respalling of the joint.

Acceptance of the sealer will be based on visual inspection by the Engineer.

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

SEALING RANDOM CRACKS



029N-271
SEALING RANDOM CRACKS IN CRC PAVEMENT

MRM	DISP.	DMI	LANE	Ft
62.00	0.543	62.543	Driving	182
63.00	0.464	63.464	Driving	75
63.00	0.734	63.734	Driving	85
63.00	0.764	63.764	Driving	94
63.00	0.791	63.791	Passing	34
63.00	0.813	63.813	Driving	35
63.00	0.870	63.870	Passing	26
63.00	0.927	63.927	Driving	45
63.00	0.943	63.943	Driving	108
64.00	0.089	64.089	Driving	87
64.00	0.314	64.314	Passing	33
64.00	0.338	64.339	Driving	46
64.00	0.424	64.424	Driving	49
64.00	0.986	64.986	Driving	99
65.00	0.011	65.011	Driving	71
65.00	0.570	65.570	Passing	25
66.00	0.547	66.547	Driving	138
66.00	0.777	66.777	Driving	19
66.00	0.866	66.866	Driving	51
66.00	0.913	66.914	Driving	190
66.00	0.963	66.963	Driving	65
67.00	0.202	67.202	Driving	182
67.00	0.262	67.262	Driving	226
67.00	0.331	67.331	Passing	48
67.00	0.354	67.354	Driving	60
67.00	0.547	67.547	Driving	45
67.00	0.782	67.782	Driving	108
67.00	0.816	67.816	Driving	40
67.00	0.834	67.834	Driving	36
67.00	0.957	67.957	Driving	72
67.00	0.983	67.983	Driving	47
68.00	0.003	68.003	Driving	47
68.00	0.047	68.047	Driving	154
68.00	0.085	68.085	Driving	49
68.00	0.754	68.754	Driving	30
68.00	0.880	68.880	Passing	63
68.00	0.986	68.986	Driving	36
69.00	0.239	69.239	Driving	15
69.00	0.354	69.354	Driving	30
69.00	0.448	69.448	Driving	22
69.00	0.497	69.497	Driving	24
69.00	0.542	69.542	Driving	64
69.00	0.592	69.592	Driving	29
69.00	0.652	69.652	Passing	27
69.00	0.677	69.677	Passing	39
70.00	0.195	70.195	Driving	69
70.00	0.245	70.245	Driving	27
70.00	0.400	70.400	Passing	35
70.00	0.426	70.426	Driving	24
70.00	0.930	70.930	Driving	37
71.00	0.002	71.002	Driving	120
71.00	0.091	71.091	Driving	52
71.00	0.232	71.232	Passing	44
71.00	0.322	71.322	Driving	99
71.00	0.634	71.634	Driving	159
			NB LANES TOTAL:	**3716**

029S-271
SEALING RANDOM CRACKS IN CRC PAVEMENT

MRM	DISP.	DMI	LANE	Ft
71.00	0.516	71.516	Driving	22
71.00	0.270	71.270	Driving	17
71.00	0.252	71.252	Passing	22
71.00	0.116	71.116	Passing	26
70.00	0.822	70.822	Passing	22
70.00	0.695	70.695	Passing	33
70.00	0.347	70.348	Both	50
70.00	0.328	70.328	Passing	17
70.00	0.318	70.318	Driving	38
70.00	0.189	70.189	Driving	20
69.00	0.716	69.716	Driving	95
69.00	0.308	69.309	Passing	12
69.00	0.096	69.096	Passing	28
68.00	0.802	68.802	Passing	26
68.00	0.646	68.646	Both	82
68.00	0.625	68.625	Driving	83
68.00	0.516	68.516	Driving	40
68.00	0.329	68.329	Driving	15
68.00	0.317	68.318	Driving	39
68.00	0.270	68.270	Passing	19
68.00	0.260	68.260	Driving	36
68.00	0.100	68.100	Driving	33
68.00	0.076	68.076	Driving	424
67.00	0.995	67.995	Passing	40
67.00	0.965	67.965	Driving	469
67.00	0.876	67.876	Passing	25
66.00	0.379	66.379	Passing	25
65.00	0.915	65.915	Driving	29
65.00	0.745	65.745	Driving	56
65.00	0.723	65.723	Driving	33
65.00	0.556	65.556	Passing	34
65.00	0.269	65.269	Driving	24
65.00	0.243	65.243	Driving	95
65.00	0.210	65.210	Driving	72
64.00	0.570	64.570	Driving	37
64.00	0.551	64.551	Driving	35
64.00	0.502	64.502	Passing	41
64.00	0.453	64.453	Passing	13
64.00	0.406	64.407	Driving	73
64.00	0.296	64.296	Passing	38
64.00	0.274	64.274	Passing	14
64.00	0.157	64.157	Driving	151
63.00	0.836	63.836	Driving	25
62.00	0.181	62.181	Driving	29
62.00	0.104	62.104	Passing	24
			SB LANES TOTAL:	**2581**

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

CONCRETE SIDEWALK

Areas to be replaced shall be designated by the Engineer.

Existing sidewalk shall be removed and replaced as detailed in these plans or as directed by the Engineer. If the end of any section to be removed does not fall on an existing joint, a sawed joint (3" to 4" deep) must be made to provide a vertical face with the new joint.

Existing foundation material shall be shaped and compacted to a firm, uniform bearing surface, conforming to the existing section or established grades as set by the Engineer. Unsuitable foundation material shall be removed and replaced as directed.

Cost for labor, equipment, material and incidentals required for excavation and providing cushion material shall be incidental to the contract unit prices for the various items.

Curb and Gutter shall be tied to existing PCC pavement with drilled in No. 5 x 24" epoxy coated deformed tie bars spaced 30" center to center or by salvaged in place tie bars. Also, two No. 5 x 24" epoxy coated deformed tie bar shall be drilled into the existing curb and gutter at each end of the replacement area. Refer to the notes for STEEL BAR INSERTION (C&G).

Cost for this work shall be included in the contract unit price per each for Insert Steel Bar in Concrete Pavement.

Curb and sidewalk ramps, curb openings and detectable warnings shall be installed at every quadrant where concrete repair is being done on this project. See Standard Plates for Curb Ramp/Opening details.

There will be no separate payment for Curb and sidewalk ramps and/or curb openings. Cost for this work shall be included in the contract unit prices for the various items.

The Contractor shall satisfactorily restore all disturbed areas adjacent to the new concrete placement to the satisfaction of the Engineer. Cost for this restoration work shall be incidental to the contract unit prices for the various items.

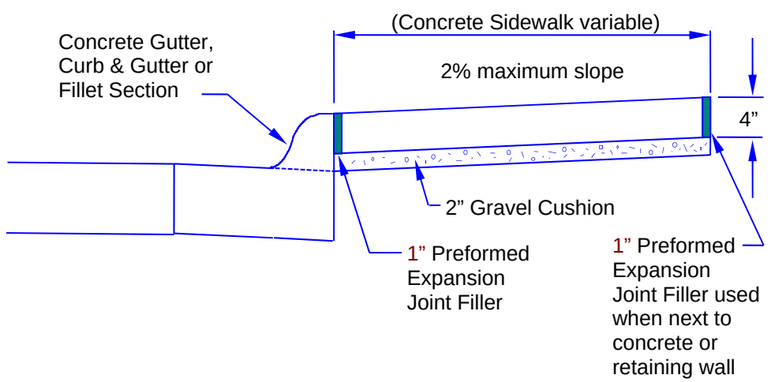


TABLE OF 6" CONCRETE SIDEWALK

Location		Quantity (SqFt)
*SD11 & 26th St.	NE Quadrant	56
*SD11 & 26th St.	SE Quadrant	36
SD11 & 26th St.	SE Quadrant	16
SD11 & 26th St.	SW Quadrant	27
	Total:	135

TABLE OF PRECAST CONCRETE DETECTABLE WARNING PANELS

Station	L/R	Quantity (SqFt)
SD 11 & 26th St.	SE Quadrant	16
SD 11 & 26th St.	SW Quadrant	8
	Total:	24

TYPE 1 DETECTABLE WARNINGS

Detectable warnings shall be in compliance with the Americans with Disabilities Act regulations.

The detectable warnings shall be installed according to the manufacturer's installation instructions.

A concrete thickness equal to the adjacent concrete sidewalk thickness and 2 inches of granular cushion material shall be placed below the Type 1 Detectable Warnings. When concrete is placed below the detectable warnings then the concrete thickness shall be transitioned at the rate of 1" per foot to match the adjacent concrete sidewalk thickness.

The detectable warnings shall be a brick red color for application in concrete curb ramps. Cast iron plates may be a natural patina (weathered steel).

When Type 1 Detectable Warnings are specified, the Contractor shall furnish and install only one of the products listed in the Type 1 Detectable Warnings table:.

Type 1 Detectable Warnings

Product	Manufacturer
Detectable Warning Plate Cast Iron Plate	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate	Deeter Foundry Lincoln, NE 800-234-7466 http://www.deeter.com/
Detectable Warning Plate Cast Iron Plate(No Coating)	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com

Type 1 Detectable Warnings (Continued)

TufTile (wet-set) Cast Iron Replaceable Tile	TufTile 1200 Flex Court Lake Zurich, IL 60047 888-960-8897 http://www.tuftile.com/
Pre-Manufactured Detectable Warning Paver Concrete Panel	M.R. Castings, Inc. PO Box 34232 Omaha, NE 68134 402-510-3279 http://mrcastings.com/
ADA Arcis Tactile Detectable Warning Tile Concrete Panel Reinforced with Stainless Steel Prestress Strands	Arcis Corporation 10680 NW 289th Place PO Box 1250 North Plains, Oregon 97133 503-647-5042 http://www.arcis-corp.com/#/tactile/
CASTinTACT Concrete Panel Reinforced with Stainless Steel Prestress Strands	MASCO Mason Supply 6018 234th St SE Woodinville, Washington 98072 425-487-6161 http://www.castintact.com
CASTinTACT 3 Concrete Panel Enhanced with Microsilica and Fiber Reinforced	MASCO Mason Supply 6018 234th St SE Woodinville, Washington 98072 425-487-6161 http://www.castintact.com
TufTile (wet-set) Polymer Replaceable Tile	TufTile 1200 Flex Court Lake Zurich, IL 60047 888-960-8897 http://www.tuftile.com/
Alertcast Composite Replaceable Cast in Place	Cape Fear Systems, III, LLC 215 South Water Street, Suite 103 Wilmington, NC 28401 877-232-6287 http://www.alerttile.com/
Detectable Warning Tile Composite Replaceable Wet-Set	ADA Solutions, Inc. North Billerica, MA 01862 800-372-0519 http://www.adatile.com
Access Tile Composite Replaceable Cast in Place	Access Products Inc. 241 Main Street, Suite 100 Buffalo, NY 14203 888-679-4022 http://www.accesstile.com/
Armorcast Detectable Warning Tile Composite Replaceable Wet-Set	Armorcast Products Company 13230 Saticoy Street North Hollywood, CA 91605 818-982-3600 http://www.armorcastprod.com/

REPLACING CURB & GUTTER ADJACENT TO DROP INLETS

Damaged concrete curb and gutter around the following drop inlets shall be sawed full depth and removed and replaced with concrete curb and gutter prior to placing the mainline lifts of asphalt concrete at the following locations:

The NE quadrant of the Western Avenue and I229 NB On Ramp.

Lengths of curb and gutter removal shall be as shown in these plans or as directed by the Engineer.

New concrete curb and gutter shall be tied to adjacent PCC Pavement and existing concrete curb and gutter with deformed tie bars and reinforcing steel shall be placed as shown on the Layout for Replacing Concrete Curb & Gutter Adjacent to Drop Inlet.

Costs for performing this work shall be included in the contract unit prices for Remove Concrete Curb and/or Gutter and Type B69 Concrete Curb and Gutter.

STEEL BAR INSERTION (C&G)

The Contractor shall insert the 5 x 24” epoxy coated deformed tie bars into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

Steel bars shall be inserted in the longitudinal joint on 30" centers and shall be a minimum of 9" from either transverse joint.

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

PCC PAVEMENT JACKING

PCC Pavement Jacking Foam shall be used to correct the existing pavement profile in accordance with Section 392 of the specifications. This work shall be done prior to Grinding or Planing PCC Pavement.

The settlement in approaches varied from 0” to 2.5” at the time of the survey. Additional settlement may occur prior to pavement jacking operations and will be corrected at the contract unit price per cubic foot for PCC Pavement Jacking Foam. The existing PCC Pavement is Nonreinforced.

Listed below are the locations for PCC Pavement Jacking Foam:

LOCATION
I90 MRM 395.438 EBL
I90 MRM 401.585 EBL
I29 MRM 81.603 NBL
I29 MRM 83.933 SBL
I229 MRM 1.186 NBL
I229 MRM 2.274 NBL
US81 MRM 4.608 NBL

Included in the Estimate of Quantities are 11,100.0 lbs. of PCC Pavement Jacking Foam for the above listed locations.

Quantity for PCC Pavement Jacking Foam was figured by taking one-half the deflection times the length times the width and doubling that quantity.

If the Contractor elects to pressure jack the existing PCC Pavement at other locations, the cost for the additional jacking shall be at the Contractor’s expense and at no cost to the State.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking on lane closure tapers shall consist of temporary flexible vertical markers (tabs). (Estimate fourteen workspaces with 960’ tapers on I90, two workspaces with 780’ tapers on I90, twelve workspaces with 960’ tapers on I29, four workspaces with 780’ tapers on I29, four workspaces with 780’ tapers on I229 and two workspaces with 780’ tapers on US81).

Temporary pavement marking on centerline shall consist of temporary raised pavement markers.

Cost shall be included in the contract unit price per foot for Temporary Pavement Marking.

GENERAL MAINTENANCE OF TRAFFIC

Sufficient traffic control devices have been included in these plans to sign 2 workspaces on a four-lane highway. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per square foot for Traffic Control Signs.

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR

A Type 3 Barricade shall be installed at the end of a lane closure taper as detailed in these plans. Additional Type 3 Barricades shall be installed facing traffic within the closed lane at a spacing of 1/4 mile.

Each mainline concrete repair location from which the in place concrete has been removed shall be marked with a minimum of two reflectorized cones (42” minimum height) or two reflectorized drums. In areas containing numerous concrete repair locations, two reflectorized drums should be installed at a spacing of 660’ alternating with the Type 3 Barricades.

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

Construction workspaces on divided roadways shall be limited to 3 miles in length. The distance between the closest points of any two construction workspaces, including channeling devices, shall not be less than 3 miles.

Work activities shall not be conducted simultaneously on the median and outside shoulders of the same directional set of lanes.

The use of interstate maintenance crossovers will not be permitted.

Traffic will be permitted on the ramp shoulders when necessary to allow traffic around a workspace.

It is possible that Flagging will be required during all daytime hours. Advance warning Flagger signs will be required when Flaggers are present and removed when no Flaggers are present.

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

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

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

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

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

Extra care shall be taken to protect the in place asphalt concrete shoulders In all workspaces areas, the same channelizing devices and spacing used on centerline, will also be required on the shoulders. These channelizing devices shall be placed in locations to adequately keep traffic completely off these shoulders. Continuous maintenance of the shoulder devices will be required to keep them in place. Cost for these extra channelizing devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Work activities (not including flagging) during non-daylight hours are subject to prior approval.

TABLE FOR NRC PAVEMENT REPAIR WITH ASPHALT CONCRETE COMPOSITE ON 090E-271 - PCN I48Q EB

MRM	DISP.	DMI	PASSING LANE L Ft	PASSING LANE W Ft	DRIVING LANE L Ft	DRIVING LANE W Ft	REMOVE CONCRETE PAVEMENT SqYds	ASPHALT CONCRETE COMPOSITE Tons
380.00	0.950	380.950	4	12	4	14	11.6	8.8
381.00	0.269	381.269	6	12	6	14	17.3	13.2
381.00	0.533	381.533	4	12	4	14	11.6	8.8
384.00	0.651	384.651	4	12	4	14	11.6	8.8
384.00	0.800	384.800	4	12	4	14	11.6	8.8
385.00	0.408	385.408	7	12	7	14	20.2	15.4
386.00	0.630	386.630	4	12	4	14	11.6	8.8
389.00	0.160	389.160	4	12	4	14	11.6	8.8
389.00	0.301	389.301	4	12	4	14	11.6	8.8
389.00	0.398	389.398			4	14	6.2	4.7
389.00	0.406	389.406	6	12	6	14	17.3	13.2
389.00	0.627	389.627	4	12	4	14	11.6	8.8
TOTALS:			**51**	**132**	**55**	**168**	**153.6**	**116.9**
ADDITIONAL QUANTITIES:							**30.0**	**24.0**
GRAND TOTAL:							**183.6**	**140.9**

TABLE FOR NRC PAVEMENT REPAIR WITH ASPHALT CONCRETE COMPOSITE ON 090W-271 - PCN I48R WB

MRM	DISP.	DMI	PASSING LANE L Ft	PASSING LANE W Ft	DRIVING LANE L Ft	DRIVING LANE W Ft	REMOVE CONCRETE PAVEMENT SqYds	ASPHALT CONCRETE COMPOSITE Tons
388.00	0.545	388.545	6	12	6	12	16.0	12.4
388.00	0.175	388.175			6	14	9.3	7.3
388.00	0.167	388.167	6	12			8.0	6.2
368.00	0.414	368.414	4	12	4	14	11.6	9.0
386.00	0.300	386.300	6	12	6	14	17.3	13.5
385.00	0.940	385.940	4	12	4	14	11.6	9.0
384.00	0.805	384.805	6	12	6	14	17.3	13.5
384.00	0.462	384.462	4	12	4	14	11.6	9.0
384.00	0.233	384.233	4	12	4	14	11.6	9.0
382.00	0.436	382.436			4	14	6.2	4.8
382.00	0.427	382.427	4	12			5.3	4.1
381.00	0.090	381.090	4	12	4	14	11.6	9.0
380.00	0.782	380.782	6	12	6	14	17.3	13.5
380.00	0.527	380.527	6	12	6	14	17.3	13.5
380.00	0.440	380.440	6	12	6	14	17.3	13.5
TOTALS:			**66**	**156**	**66**	**180**	**189.3**	**147.3**
ADDITIONAL QUANTITIES:							**40.0**	**32.0**
GRAND TOTAL:							**229.3**	**179.3**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	9	27

TABLE FOR CRC PAVEMENT REPAIR ON 029N-271 - PCN I48T NB

MRM	DISP	DMI	NB PASSING LANE L Ft	NB PASSING LANE W Ft	NB DRIVING LANE L Ft	NB DRIVING LANE W Ft	CRCP REPAIR SqYds
62.00	0.502	62.502			4	4	1.8
63.00	0.469	63.469			4	4	1.8
64.00	0.348	64.348	4	4			1.8
64.00	0.550	64.550			4.5	14	7.0
69.00	0.563	69.563			20	4	8.9
69.00	0.953	69.953			20	4	8.9
72.00	0.400	72.400			4.5	14	7.0
TOTALS:							**37.2**
ADDITIONAL QUANTITIES:							**10.0**
GRAND TOTALS:							**47.2**

TABLE FOR CRC PAVEMENT REPAIR ON 029N-271 - PCN I48T NB

			REINFORCING STEEL (CRCP) FOR NB PASSING LANE (STEEL FOR CRCP IS NOT A BID ITEM - ACTUAL STEEL QUANTITIES WILL VARY DUE TO LOCATION AND SIZE OF INDIVIDUAL REPAIR AREAS)								INSERT STEEL BAR IN PCC PAVEMENT (CRCP) NB PASSING LANE	
MRM	DISP	DMI	No. 6 Longitudinal Bars to be lap spliced with existing bars # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 4 Transverse Bars to be lap spliced with No. 5 x 24" bars # bars @ length	Length	New Trans Bar Spacing	Reinforcing Steel Lbs	INSERT No. 5 x 24" TIE BARS Each	INSERT BAR TOTAL Each
62.00	0.502	62.502										
63.00	0.469	63.469										
64.00	0.348	64.348	7 bars @ 40" =	23.33'	14"	-	2 bars @ 42" =	7.00'	2'	39.718	4	4
64.00	0.550	64.550										
69.00	0.563	69.563										
69.00	0.953	69.953										
72.00	0.400	72.400										
TOTALS:			**7 bars**	**23'**			**2 bars**	**7'**		**40 Lbs**	**4**	**4**
ADDITIONAL QUANTITIES:			**-**	**-**			**-**	**-**		**10 Lbs**	**-**	**-**
GRAND TOTALS:			**7 bars**	**23'**			**2 bars**	**7'**		**50 Lbs**	**4**	**4**

TABLE FOR CRC PAVEMENT REPAIR ON 029N-271 - PCN I48T NB

			REINFORCING STEEL (CRCP) FOR NB DRIVING LANE (STEEL FOR CRCP IS NOT A BID ITEM - ACTUAL STEEL QUANTITIES WILL VARY DUE TO LOCATION AND SIZE OF INDIVIDUAL REPAIR AREAS)														INSERT STEEL BAR IN PCC PAVEMENT (CRCP) NB DRIVING LANE			
MRM	DISP	DMI	No. 6 Longitudinal Bars to be lap spliced with existing bars # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 6 Longitudinal Bars to be spliced together between every other existing longitudinal bar # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 6 Longitudinal Bars to be spliced together between every other existing longitudinal bar # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 4 Transverse Bars to be lap spliced with No. 5 x 24" bars # bars @ length	Length	New Trans Bar Spacing	Reinforcing Steel Lbs	INSERT No. 6 LONG. BARS Each	INSERT No. 5 x 24" TIE BARS Each	INSERT BAR TOTAL Each	INSERT STEEL BAR IN CRCP TOTAL Each
62.00	0.502	62.502	7 bars @ 40" =	23.33'	14"	-									2 bars @ 42" =	7.00'	2'	39.718		4	4	4
63.00	0.469	63.469	7 bars @ 40" =	23.33'	14"	-									2 bars @ 42" =	7.00'	2'	39.718		4	4	4
64.00	0.348	64.348																				4
64.00	0.550	64.550	26 bars @ 46" =	99.67'	14"	-	13 bars @ 44" =	47.67'	14"	-	13 bars @ 44" =	47.67'	14"	-	2 bars @ 162" =	27.00'	2'	310.941	26	2	28	28
69.00	0.563	69.563	7 bars @ 218" =	127.17'	30"	14"									8 bars @ 42" =	28.00'	2'	209.713		16	16	16
69.00	0.953	69.953	7 bars @ 218" =	127.17'	30"	14"									8 bars @ 42" =	28.00'	2'	209.713		16	16	16
72.00	0.400	72.400	26 bars @ 46" =	99.67'	14"	-	13 bars @ 44" =	47.67'	14"	-	13 bars @ 44" =	47.67'	14"	-	2 bars @ 162" =	27.00'	2'	310.941	26	2	28	28
TOTALS:			**80 bars**	**500'**			**26 bars**	**95'**			**26 bars**	**95'**			**24 bars**	**124'**		**1121 Lbs**	**52**	**44**	**96**	**100**
ADDITIONAL QUANTITIES:			**20 bars**	**100'**			**10 bars**	**20'**			**10 bars**	**20'**			**-**	**20'**		**220 Lbs**	**10**	**10**	**20**	**20**
GRAND TOTALS:			**100 bars**	**600'**			**36 bars**	**115'**			**36 bars**	**115'**			**24 bars**	**144'**		**1341 Lbs**	**62**	**54**	**116**	**120**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	10	27

TABLE FOR CRC PAVEMENT REPAIR ON 029S-271 - PCN I48U SB

MRM	DISP	DMI	SB PASSING LANE L Ft	SB PASSING LANE W Ft	SB DRIVING LANE L Ft	SB DRIVING LANE W Ft	CRCP REPAIR SqYds
71.00	0.549	71.549	6	12	6	14	17.3
70.00	0.369	70.369	8	4			3.6
70.00	0.335	70.335	10	4			4.4
69.00	0.095	69.095			23	4	10.2
68.00	0.620	68.620			8	4	3.6
68.00	0.617	68.617			12	4	5.3
68.00	0.601	68.601			11	6	7.3
68.00	0.294	68.294			6	14	9.3
67.00	0.878	67.878			13	4	5.8
66.00	0.537	66.537			8	14	12.4
65.00	0.447	65.447			6	4	2.7
64.00	0.728	64.728			6	4	2.7
64.00	0.668	64.668			4	4	1.8
TOTALS:							**86.4**
ADDITIONAL QUANTITIES:							**20.0**
GRAND TOTALS:							**106.4**

TABLE FOR CRC PAVEMENT REPAIR ON 029S-271 - PCN I48U SB

REINFORCING STEEL (CRCP) FOR SB PASSING LANE
(STEEL FOR CRCP IS NOT A BID ITEM - ACTUAL STEEL QUANTITIES WILL VARY DUE TO LOCATION AND SIZE OF INDIVIDUAL REPAIR AREAS)

MRM	DISP	DMI	No. 6 Longitudinal Bars to be lap spliced with existing bars # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 6 Longitudinal Bars to be spliced together between every other existing longitudinal bar # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 6 Longitudinal Bars to be spliced together between every other existing longitudinal bar # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 4 Transverse Bars to be lap spliced with No. 5 x 24" bars # bars @ length	Length	New Trans Bar Spacing	Reinforcing Steel Lbs
71.00	0.549	71.549	22 bars @ 62" =	113.67'	19"	-	11 bars @ 55" =	50.42'	19"	-	11 bars @ 55" =	50.42'	19"	-	3 bars @ 138" =	34.50'	2'	345.240
70.00	0.369	70.369	7 bars @ 84" =	49.00'	26"	-									3 bars @ 42" =	10.50'	2'	80.612
70.00	0.335	70.335	7 bars @ 106" =	61.83'	30"	6"									4 bars @ 42" =	14.00'	2'	102.221
TOTALS:			**36 bars**	**225'**			**11 bars**	**50'**			**11 bars**	**50'**			**10 bars**	**59'**		**528 Lbs**
ADDITIONAL QUANTITIES:			**10 bars**	**40'**			**-**	**10'**			**-**	**10'**			**-**	**10'**		**110 Lbs**
GRAND TOTALS:			**46 bars**	**265'**			**11 bars**	**60'**			**11 bars**	**60'**			**10 bars**	**69'**		**638 Lbs**

INSERT STEEL BAR IN PCC PAVEMENT (CRCP) SB PASSING LANE

MRM	DISP	DMI	INSERT No. 6 LONG. BARS Each	INSERT No. 5 x 24" TIE BARS Each	INSERT BAR TOTAL Each
71.00	0.549	71.549	22	3	25
70.00	0.369	70.369		6	6
70.00	0.335	70.335		8	8
TOTALS:			**22**	**17**	**39**
ADDITIONAL QUANTITIES:			**5**	**5**	**10**
GRAND TOTALS:			**27**	**22**	**49**

TABLE FOR CRC PAVEMENT REPAIR ON 029S-271 - PCN I48U SB

REINFORCING STEEL (CRCP) FOR SB DRIVING LANE
(STEEL FOR CRCP IS NOT A BID ITEM - ACTUAL STEEL QUANTITIES WILL VARY DUE TO LOCATION AND SIZE OF INDIVIDUAL REPAIR AREAS)

MRM	DISP	DMI	No. 6 Longitudinal Bars to be lap spliced with existing bars # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 6 Longitudinal Bars to be spliced together between every other existing longitudinal bar # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 6 Longitudinal Bars to be spliced together between every other existing longitudinal bar # bars @ length	Length	Lap Splice Length	Lap Stagger & Cutoff	No. 4 Transverse Bars to be lap spliced with No. 5 x 24" bars # bars @ length	Length	New Trans Bar Spacing	Reinforcing Steel Lbs
71.00	0.549	71.549	26 bars @ 62" =	134.33'	19"	-	13 bars @ 55" =	59.58'	19"	-	13 bars @ 55" =	59.58'	19"	-	3 bars @ 162" =	40.50'	2'	407.796
70.00	0.369	70.369																
70.00	0.335	70.335																
69.00	0.095	69.095	7 bars @ 254" =	148.17'	30"	14"									10 bars @ 42" =	35.00'	2'	245.931
68.00	0.620	68.620	7 bars @ 84" =	49.00'	26"	-									3 bars @ 42" =	10.50'	2'	80.612
68.00	0.617	68.617	7 bars @ 122" =	71.17'	30"	14"									4 bars @ 42" =	14.00'	2'	116.249
68.00	0.601	68.601	11 bars @ 114" =	104.50'	30"	10"									4 bars @ 66" =	22.00'	2'	171.655
68.00	0.294	68.294	26 bars @ 62" =	134.33'	19"	-	13 bars @ 55" =	59.58'	19"	-	13 bars @ 55" =	59.58'	19"	-	3 bars @ 162" =	40.50'	2'	407.796
67.00	0.878	67.878	7 bars @ 134" =	78.17'	30"	14"									5 bars @ 42" =	17.50'	2'	129.101
66.00	0.537	66.537	26 bars @ 84" =	182.00'	26"	-	13 bars @ 70" =	75.83'	26"	-	13 bars @ 70" =	75.83'	26"	-	3 bars @ 162" =	40.50'	2'	528.211
65.00	0.447	65.447	7 bars @ 62" =	36.17'	19"	-									3 bars @ 42" =	10.50'	2'	61.341
64.00	0.728	64.728	7 bars @ 62" =	36.17'	19"	-									3 bars @ 42" =	10.50'	2'	61.341
64.00	0.668	64.668	7 bars @ 40" =	23.33'	14"	-									2 bars @ 42" =	7.00'	2'	39.718
TOTALS:			**138 bars**	**997'**			**39 bars**	**195'**			**39 bars**	**195'**			**43 bars**	**249'**		**2250 Lbs**
ADDITIONAL QUANTITIES:			**30 bars**	**200'**			**10 bars**	**40'**			**10 bars**	**40'**			**10 bars**	**50'**		**450 Lbs**
GRAND TOTALS:			**168 bars**	**1197'**			**49 bars**	**235'**			**49 bars**	**235'**			**53 bars**	**299'**		**2700 Lbs**

INSERT STEEL BAR IN PCC PAVEMENT (CRCP) SB DRIVING LANE

MRM	DISP	DMI	INSERT No. 6 LONG. BARS Each	INSERT No. 5 x 24" TIE BARS Each	INSERT BAR TOTAL Each	INSERT STEEL BAR IN CRCP TOTAL Each
71.00	0.549	71.549	26	3	29	54
70.00	0.369	70.369				6
70.00	0.335	70.335				8
69.00	0.095	69.095		20	20	20
68.00	0.620	68.620		6	6	6
68.00	0.617	68.617		8	8	8
68.00	0.601	68.601		8	8	8
68.00	0.294	68.294	26	3	29	29
67.00	0.878	67.878		10	10	10
66.00	0.537	66.537	26	6	32	32
65.00	0.447	65.447		3	3	3
64.00	0.728	64.728		3	3	3
64.00	0.668	64.668		2	2	2
TOTALS:			**78**	**72**	**150**	**189**
ADDITIONAL QUANTITIES:			**20**	**10**	**30**	**40**
GRAND TOTALS:			**98**	**82**	**180**	**229**

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48Q

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
W3-5	SPEED REDUCTION AHEAD (__ MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W13-4P	ON RAMP (plaque)	2	36" x 36"	9.0	18.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
E5-1	EXIT GORE	2	60" x 48"	20.0	40.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			354.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	9 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48T

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
W3-5	SPEED REDUCTION AHEAD (__ MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W13-4P	ON RAMP (plaque)	2	36" x 36"	9.0	18.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
E5-1	EXIT GORE	2	60" x 48"	20.0	40.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			354.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	12 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48R

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
W3-5	SPEED REDUCTION AHEAD (__ MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W13-4P	ON RAMP (plaque)	2	36" x 36"	9.0	18.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
E5-1	EXIT GORE	2	60" x 48"	20.0	40.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			354.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	10 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48U

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
W3-5	SPEED REDUCTION AHEAD (__ MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W13-4P	ON RAMP (plaque)	2	36" x 36"	9.0	18.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
E5-1	EXIT GORE	2	60" x 48"	20.0	40.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			354.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	12 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48V

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W5-4	RAMP NARROWS	1	48" x 48"	16.0	16.0
W13-4P	ON RAMP (plaque)	1	36" x 36"	9.0	9.0
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
G20-2	END ROAD WORK	3	36" x 18"	4.5	13.5
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			86.5

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48W

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK 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
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			104.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48X

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK 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
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			104.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I48Y

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK 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
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			104.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I49A

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK 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
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			104.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I49C

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK 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
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			104.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I49D

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK 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
G20-2	END ROAD WORK	1	36" x 18"	4.5	4.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			100.5

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I4CH

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	1	36" x 18"	4.5	4.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			36.5

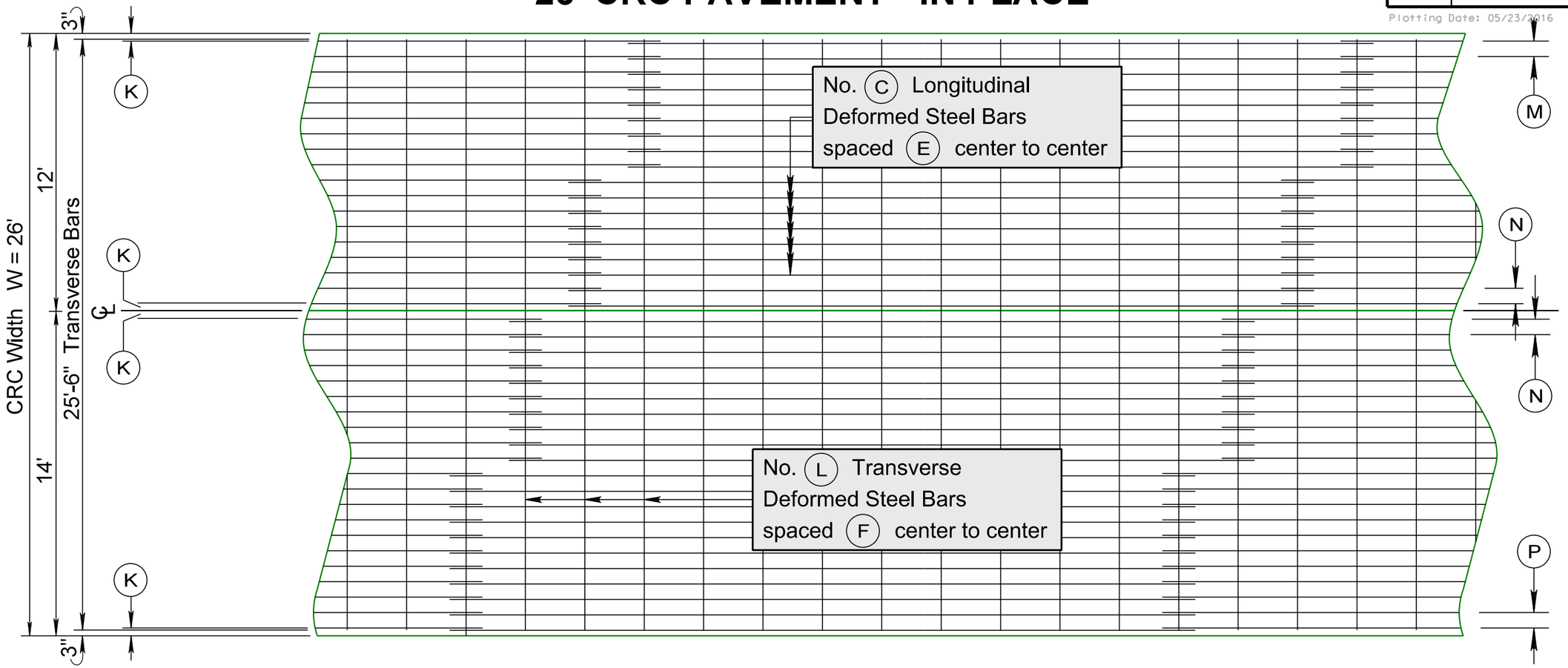
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS FOR PCN I4CJ

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R9-9	SIDEWALK CLOSED	1	24" x 12"	2.0	2.0
R9-10	SIDEWALK CLOSED with ARROW (L or R) USE OTHER SIDE	1	24" x 12"	2.0	2.0
R9-11	SIDEWALK CLOSED AHEAD with ARROW (L or R) CROSS HERE	1	24" x 18"	3.0	3.0
R9-11a	SIDEWALK CLOSED with ARROW (L or R) CROSS HERE	1	24" x 12"	2.0	2.0
W11-2	PEDESTRIAN (symbol)	1	36" x 36"	9.0	9.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	1	36" x 18"	4.5	4.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			54.5

26' CRC PAVEMENT - IN PLACE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	14	27

Plotting Date: 05/23/2016

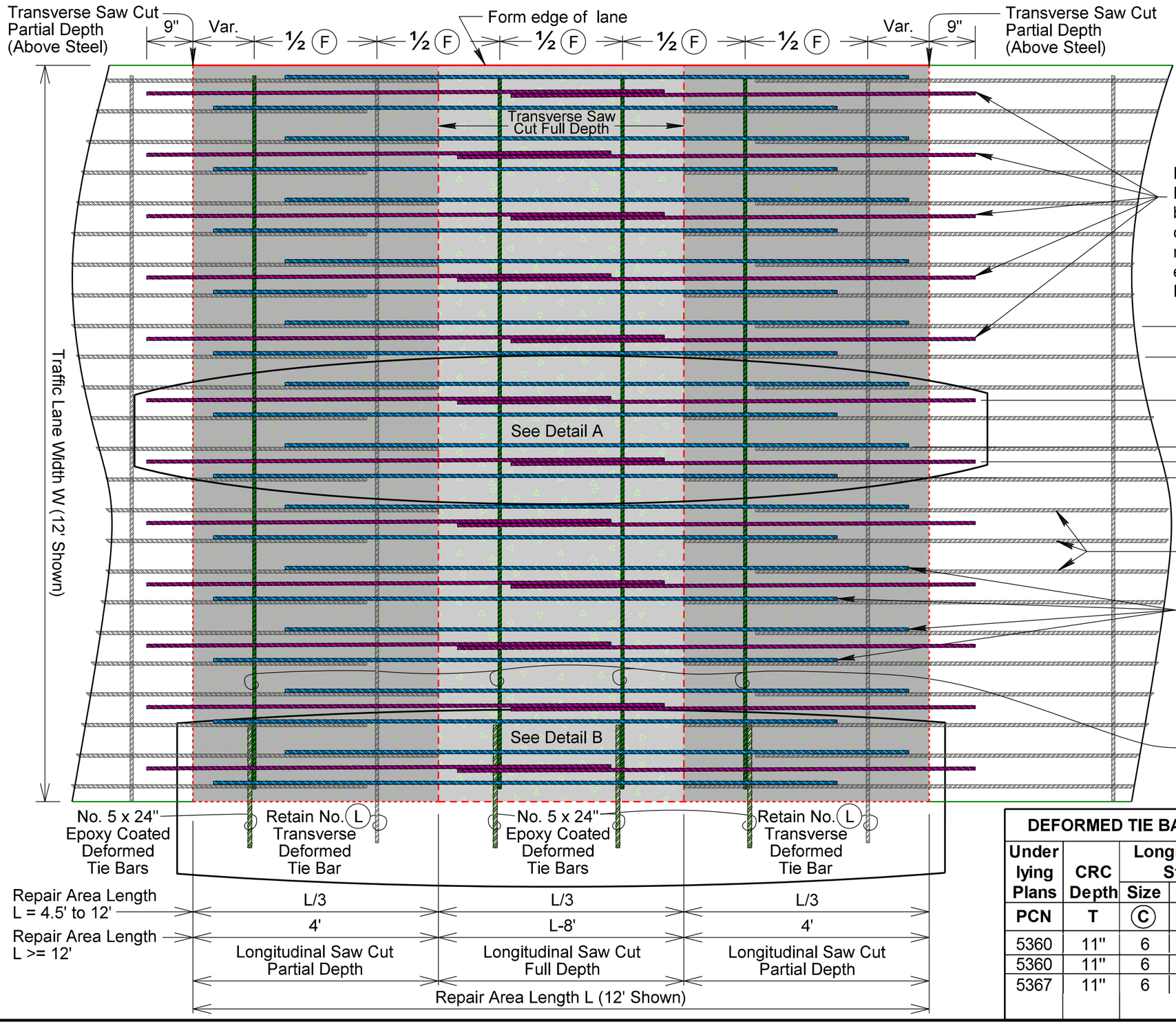


MITCHELL REGION INTERSTATE CRC PAVEMENT KEY & DIMENSIONS	Underlying Plans	CRC Depth	CRC Width	Longitudinal Steel Size	Longitudinal Steel Spacing	Transverse Steel Size	Transverse Steel Spacing	Perimeter Bar Spacing			
Location	PCN	T	W	C	E	L	F	K	M	N	P
I29N MRM 61.00 +0.888 to 72.00 +0.866 & I29S MRM 61.00 +0.888 to 62.00 +0.443	5360	11"	26'	6	6"	4	48"	4"	5"	5"	5"
I29S MRM 62.00 +0.443 to MRM 72.00 +0.875	5367	11"	26'	6	6½"	4	48"	3¾"	6½"	6½"	4½"

CRC PAVEMENT REPAIR (FULL LANE WIDTH) - TYPICAL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	15	27

Plotting Date: 05/23/2016



DEFORMED TIE BAR DIMENSIONS KEY

Underlying Plans	CRC Depth	Longitudinal Steel		Transverse Steel	
		Size	Spacing	Size	Spacing
PCN	T	C	E	L	F
5360	11"	6	6"	4	48"
5360	11"	6	6"	4	48"
5367	11"	6	6 1/2"	4	48"

CRC REPAIR AREA KEY

- Remove Concrete Retain Reinforcing Steel
- Remove Concrete Remove Reinforcing Steel

PLOT SCALE - 1:1.7

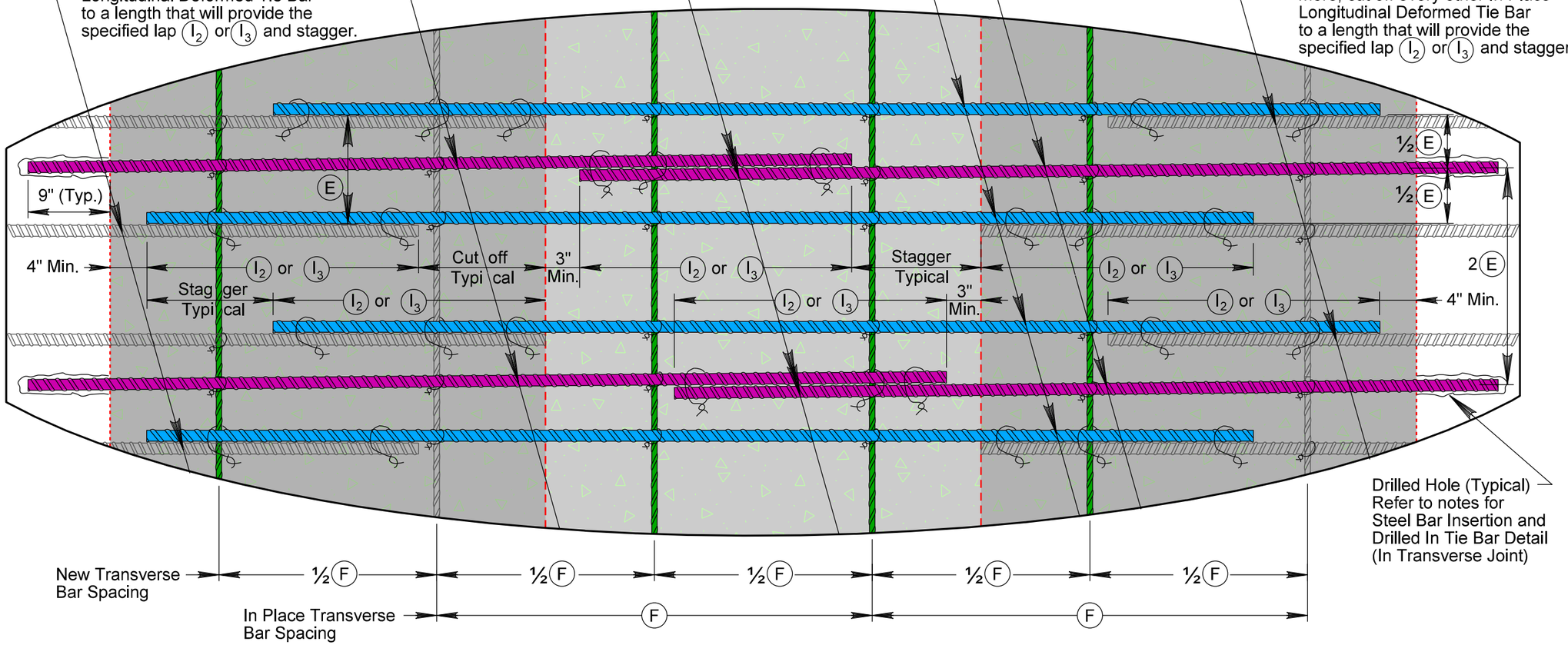
PLOTTED FROM - TRM11NT15

PLOT NAME - 2

FILE - ...\CRC FULL WIDTH REPAIR.DGN

CRC PAVEMENT REPAIR (FULL LANE WIDTH)

Detail A



DEFORMED TIE BAR KEY

- No. (C) Longitudinal Deformed Tie Bar In Place (Retain)
- Place No. (C) Longitudinal Deformed Tie Bar (Tie to In Place No. (C) Longitudinal Bars)
- Place No. (C) Longitudinal Deformed Tie Bar (Place bars into drilled holes in existing concrete on both sides of the repair area and tie the bars to each other and to No. (L) Transverse Bars)
- No. (L) Transverse Deformed Tie Bar In Place (Retain)
- Place No. (L) Transverse Deformed Tie Bar (Tie to No. (C) Longitudinal Bars)

DEFORMED TIE BAR DIMENSIONS KEY

Underlying Plans	CRC Depth	Longitudinal Steel		Transverse Steel	
		Size	Spacing	Size	Spacing
PCN	T	(C)	(E)	(L)	(F)
5360	11"	6	6"	4	48"
5360	11"	6	6"	4	48"
5367	11"	6	6 1/2"	4	48"

Note: All lapped bars shall have a minimum of two ties per lap.

LAP SPLICE LENGTH KEY

- (I1) Lap Splice length for Repair Area Length L < 4.5' (Not Available).
- (I2) Lap Splice length for Repair Area Length L = 4.5' to 8'.
- (I3) Lap Splice length for Repair Area Length L > 8'.

See CRC Pavement Repair - Reinforcing Steel Details for Longitudinal Bar Counts: (G), (H1) & (H2)

CRC REPAIR AREA KEY

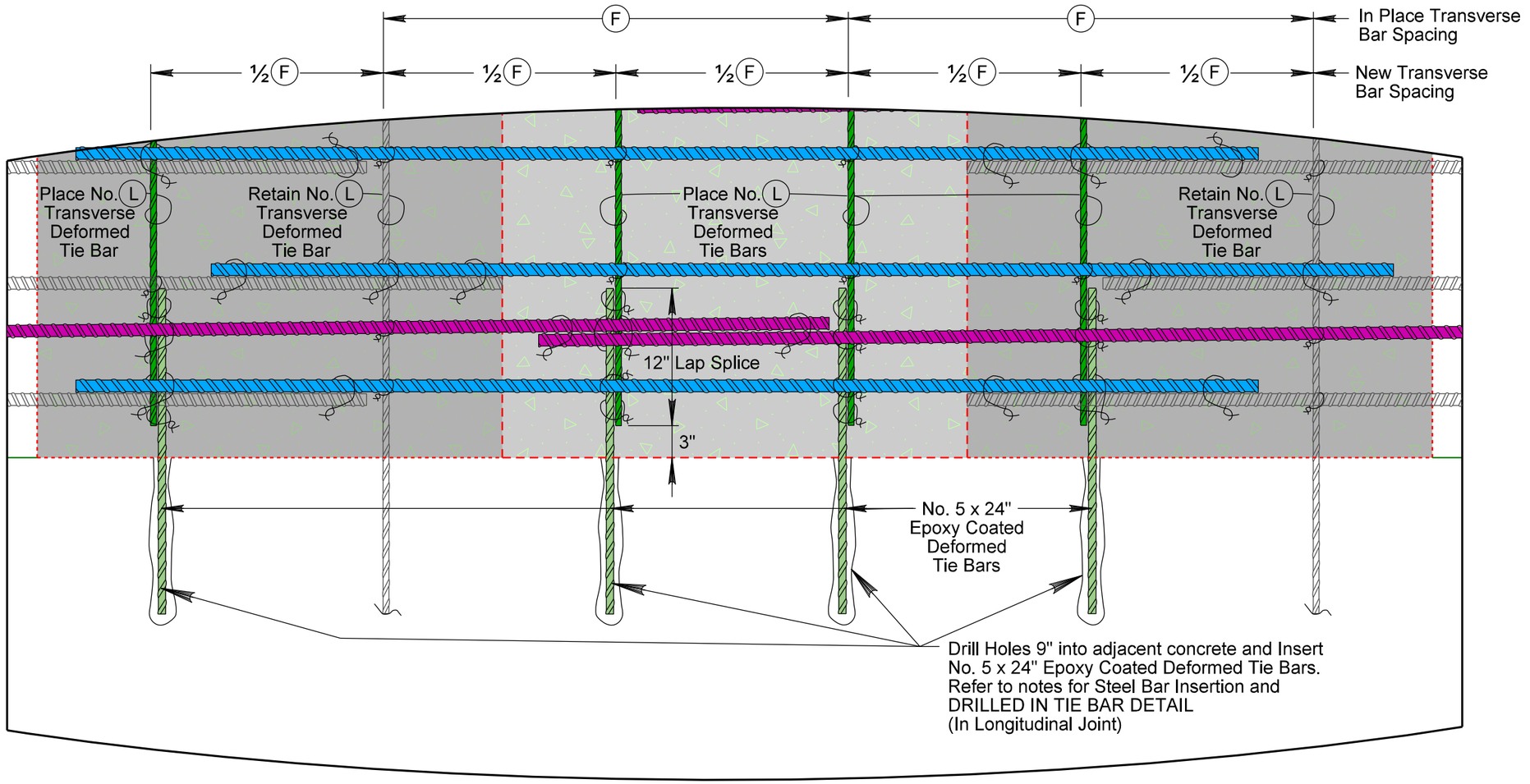
- Remove Concrete Retain Reinforcing Steel
- Remove Concrete Remove Reinforcing Steel

CRC PAVEMENT REPAIR (FULL LANE WIDTH)

Detail B

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	17	27

Plotting Date: 05/23/2016



DEFORMED TIE BAR KEY

- No. (C) Longitudinal Deformed Tie Bar In Place (Retain)
- Place No. (C) Longitudinal Deformed Tie Bar (Tie to In Place No. (C) Longitudinal Bars)
- Place No. (C) Longitudinal Deformed Tie Bar (Place bars into drilled holes in existing concrete on both sides of the repair area and tie the bars to each other and to No. (L) Transverse Bars)
- No. (L) Transverse Deformed Tie Bar In Place (Retain)
- Place No. (L) Transverse Deformed Tie Bar (Tie to No. (C) Longitudinal Bars)

DEFORMED TIE BAR DIMENSIONS KEY

Underlying Plans	CRC Depth	Longitudinal Steel		Transverse Steel	
		Size	Spacing	Size	Spacing
PCN	T	(C)	(E)	(L)	(F)
5360	11"	6	6"	4	48"
5360	11"	6	6"	4	48"
5367	11"	6	6 1/2"	4	48"

Note: All lapped bars shall have a minimum of two ties per lap.

CRC REPAIR AREA KEY

- Remove Concrete Retain Reinforcing Steel
- Remove Concrete Remove Reinforcing Steel

PLOT SCALE - 1:1.07

PLOTTED FROM - TRMIINT15

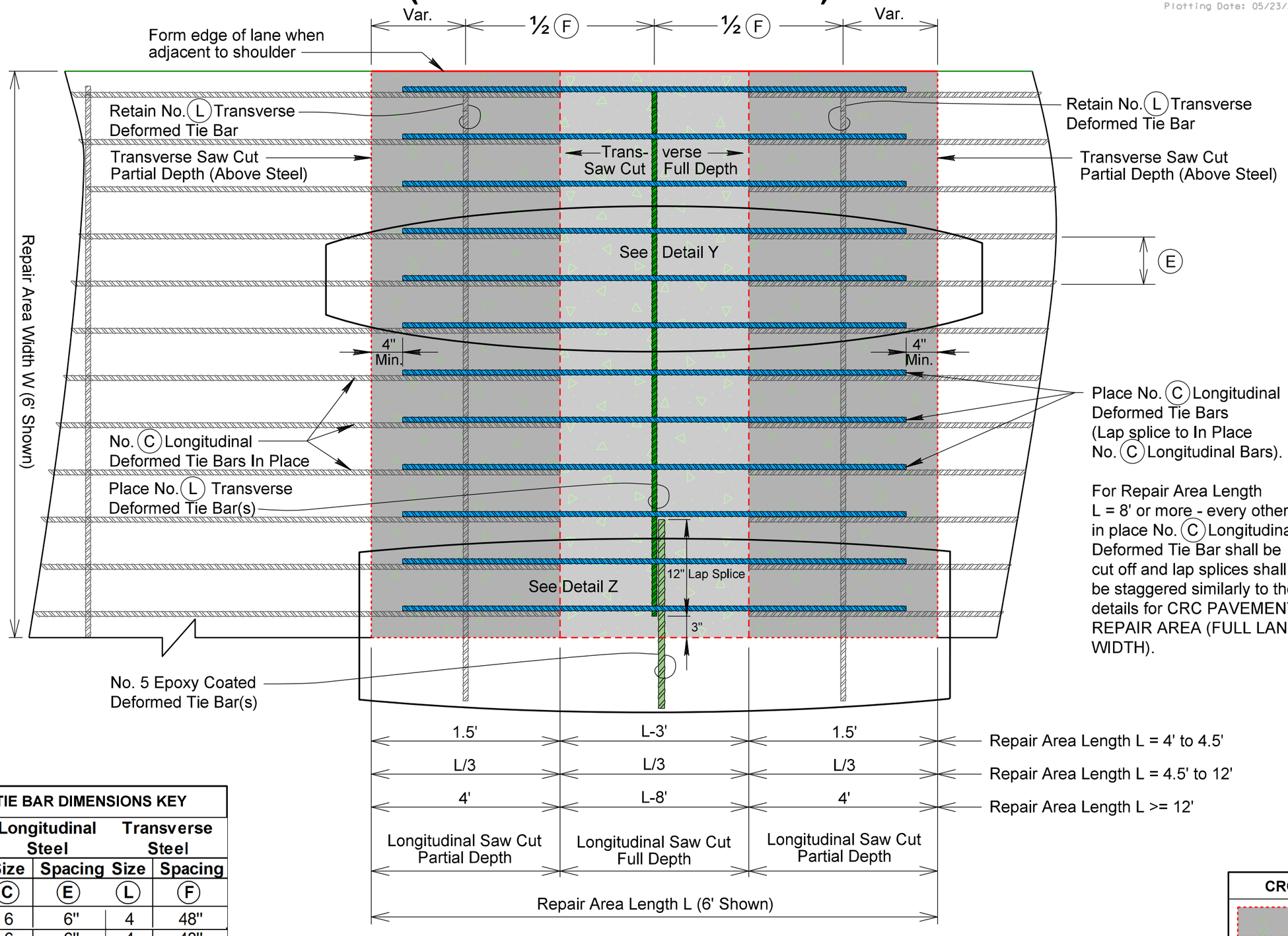
PLOT NAME - 4

FILE - ...\CRC FULL WIDTH REPAIR.DGN

CRC PAVEMENT REPAIR (PARTIAL LANE WIDTH) - TYPICAL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	18	27

Plotting Date: 05/23/2016



DEFORMED TIE BAR DIMENSIONS KEY

Underlying Plans	CRC Depth	Longitudinal Steel		Transverse Steel	
		Size	Spacing	Size	Spacing
PCN	T	(C)	(E)	(L)	(F)
5360	11"	6	6"	4	48"
5360	11"	6	6"	4	48"
5367	11"	6	6 1/2"	4	48"

CRC REPAIR AREA KEY

- Remove Concrete Retain Reinforcing Steel
- Remove Concrete Remove Reinforcing Steel

PLOT SCALE - 1:1.06

PLOTTED FROM - TRMI1NT15

PLOT NAME - 5

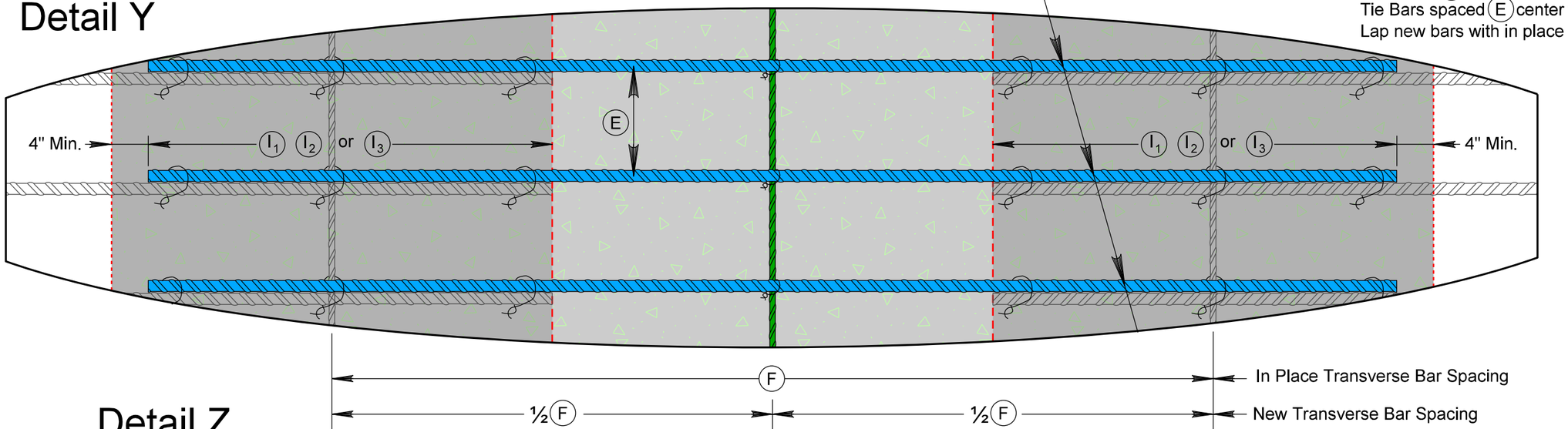
FILE - ...\CRC PARTIAL WIDTH REPAIR.DGN

CRC PAVEMENT REPAIR (PARTIAL LANE WIDTH)

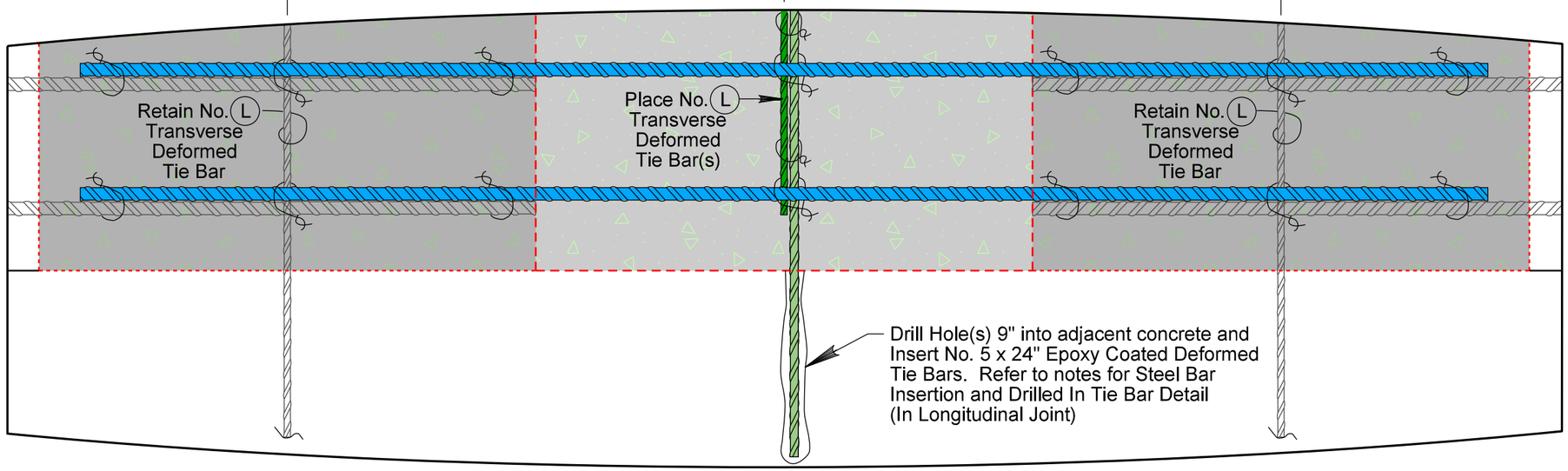
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	19	27

Plotting Date: 05/23/2016

Detail Y



Detail Z



For Repair Area Length L = 8' or more - every other in place No. C Longitudinal Deformed Tie Bar shall be cut off and lap splices shall be staggered similarly to the details for CRC PAVEMENT REPAIR AREA (FULL LANE WIDTH).

DEFORMED TIE BAR & DIMENSIONS KEY

- No. L Transverse Deformed Tie Bar In Place (Retain)
- Place No. L Transverse Deformed Tie Bar (Tie to No. C Longitudinal Bars)
- No. C Longitudinal Deformed Tie Bar In Place (Retain)
- Place No. C Longitudinal Deformed Tie Bar (Tie to In Place No. C Longitudinal Bars)

Underlying Plans	CRC Depth	Longitudinal Steel		Transverse Steel	
		Size	Spacing	Size	Spacing
PCN	T	C	E	L	F
5360	11"	6	6"	4	48"
5360	11"	6	6"	4	48"
5367	11"	6	6 1/2"	4	48"

LAP SPLICE LENGTH KEY

- l_1 Lap Splice length for Repair Area Length L = 4' to 4.5'.
- l_2 Lap Splice length for Repair Area Length L = 4.5' to 8'.
- l_3 Lap Splice length for Repair Area Length L > 8'.

Note: All lapped bars shall have a minimum of two ties per lap.

CRC REPAIR AREA KEY

- Remove Concrete Retain Reinforcing Steel
- Remove Concrete Remove Reinforcing Steel

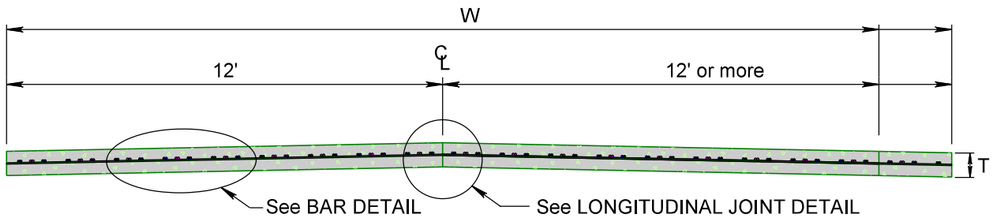
PLOT SCALE - 1:1.06
PLOTTED FROM - TRMIINT15
PLOT NAME - 6
FILE - ...\CRC PARTIAL WIDTH REPAIR.DGN

CRC PAVEMENT REPAIR - REINFORCING STEEL DETAILS

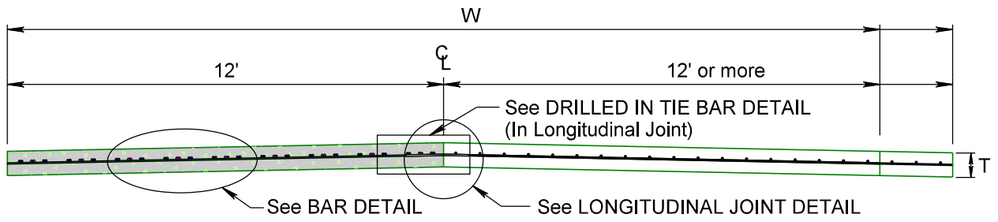
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	20	27

Plotting Date: 05/23/2016

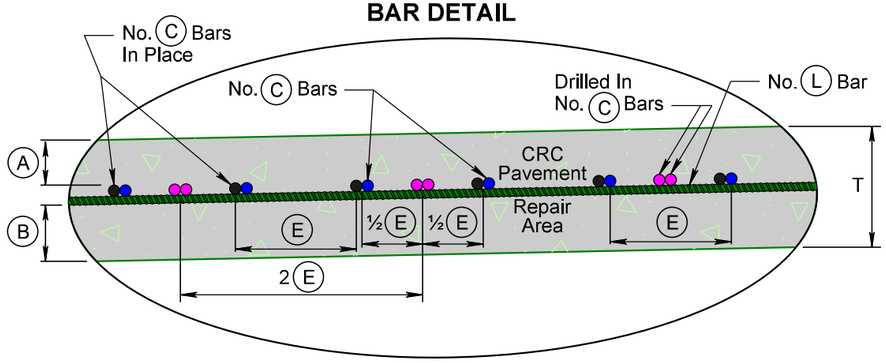
TRANSVERSE SECTION SHOWING STEEL PLACEMENT



TRANSVERSE SECTION SHOWING STEEL PLACEMENT



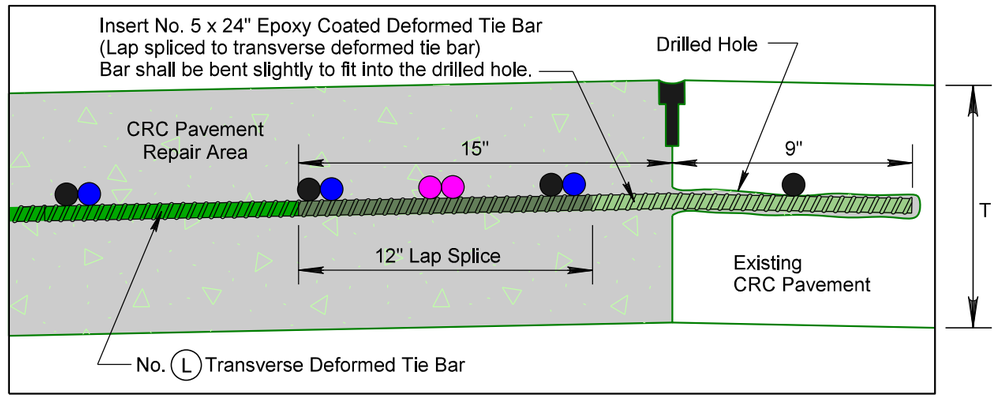
BAR DETAIL



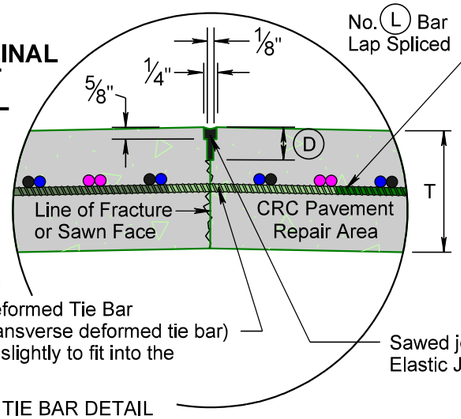
Placement of longitudinal steel bars may vary from +1/2" to -1/2" vertically and 3/4" horizontally.
Placement of transverse steel bars may vary from +1/2" to -1/2" vertically and 2" horizontally.

The transverse deformed steel bars will be positioned on acceptable chairs.

DRILLED IN TIE BAR DETAIL
(In Longitudinal Joint)



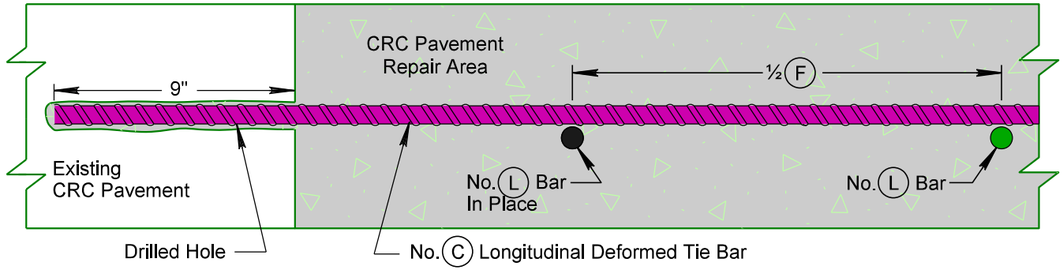
LONGITUDINAL JOINT DETAIL



NOTE:

Steel bars for concrete reinforcement shall conform to the requirements of Specification M31 (Grade 60) of the AASHTO Standard Specifications for Deformed Billet Steel Bars for Concrete Reinforcement.

LONGITUDINAL SECTION SHOWING STEEL PLACEMENT
DRILLED IN TIE BAR DETAIL
(In Transverse Joint)



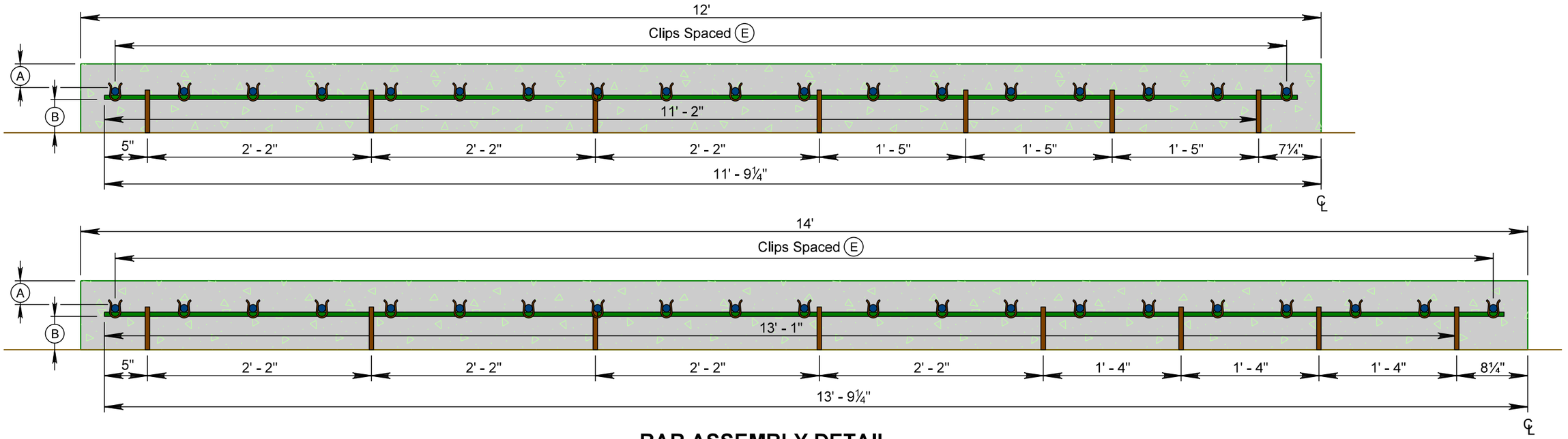
CRC PAVEMENT IN PLACE & CRC PAVEMENT REPAIR KEY & DIMENSIONS

Location	Underlying Plans PCN	CRC Depth T	CRC Width W	Clearance Top (A)	Clearance Bottom (B)	Longitudinal Steel Size (C)	Longitudinal Steel Spacing (E)	Saw Cut Depth (D)	Transverse Steel Size (L)	Transverse Steel Spacing (F)	Longitudinal Bar Count (full lane width repair) 12' Wide Slab G	12' Wide Slab H_1	12' Wide Slab H_2	14' Wide Slab G	14' Wide Slab H_1	14' Wide Slab H_2	Lap Splice Length (for Repair Length L) L<4.5' (l_1)	L= 4.5' to 8'/9' (l_2)	L>=8'/9' (l_3)	Not Assigned	Perimeter Bar Spacing (K)	(M)	(N)	(P)	Chair Width (R)
I29S MRM 61.00 +0.888 to MRM 62.00 +0.443	5360	11"	26'	4"	5 3/4"	6	6"	2 3/4"	4	48"	24	12	12	28	14	14	14"	14" to 30"	30"	-	4"	5"	5"	5"	5"
I29N MRM 61.00 +0.888 to MRM 72.00 +0.866	5360	11"	26'	4"	5 3/4"	6	6"	2 3/4"	4	48"	24	12	12	28	14	14	14"	14" to 30"	30"	-	4"	5"	5"	5"	5"
I29S MRM 62.00 +0.443 to MRM 72.00 +0.875	5367	11"	26'	4"	5 3/4"	6	6 1/2"	2 3/4"	4	48"	22	11	11	26	13	13	14"	14" to 30"	30"	-	3 3/4"	6 1/2"	6 1/2"	4 1/2"	5"

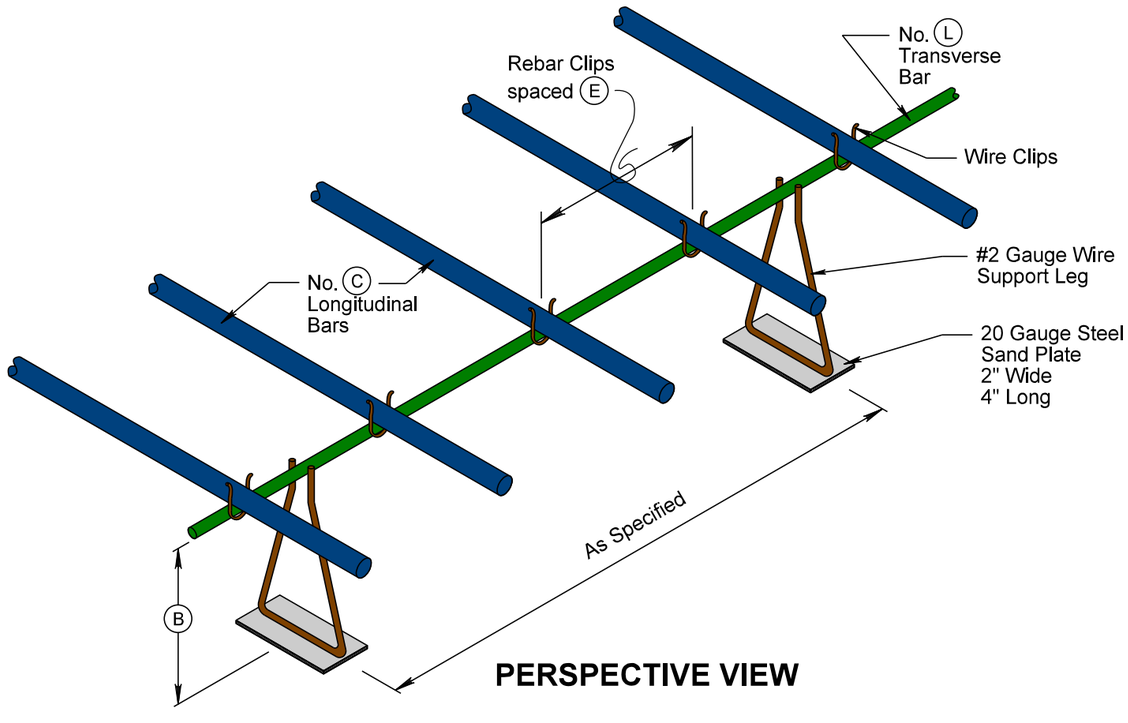
CRC PAVEMENT CHAIR DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	21	27

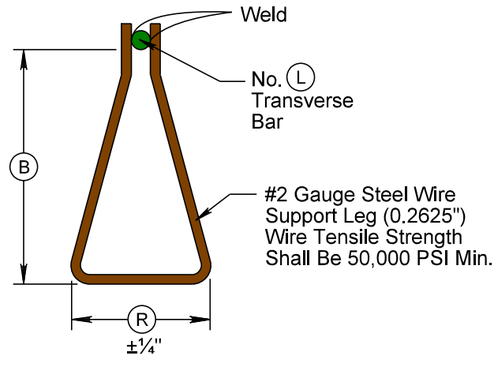
Plotting Date: 05/23/2016



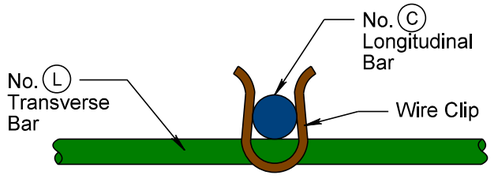
BAR ASSEMBLY DETAIL



PERSPECTIVE VIEW



CHAIR DETAIL



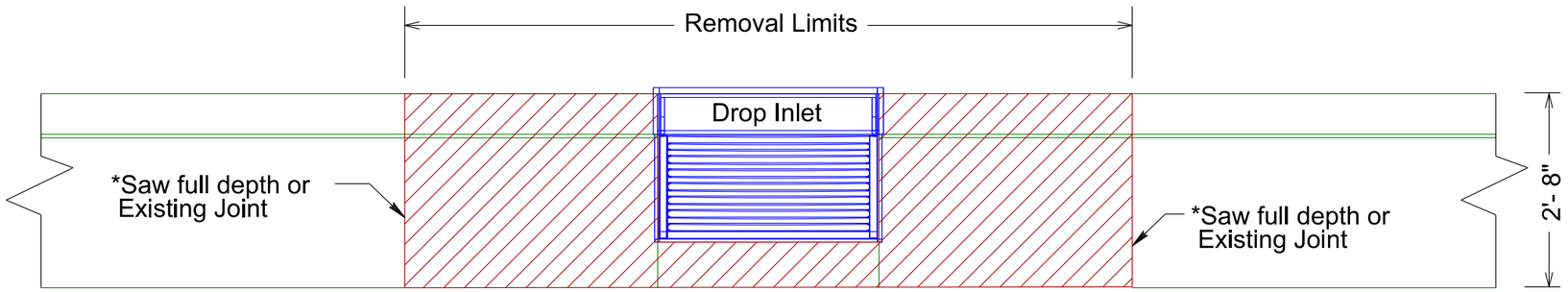
CLIP DETAIL

DEFORMED TIE BAR DIMENSIONS KEY

Underlying Plans	CRC Depth	CRC Width	Clearance		Longitudinal Steel		Transverse Steel		Chair Width
			Top	Bottom	Size	Spacing	Size	Spacing	
PCN	T	W	(A)	(B)	(C)	(E)	(L)	(F)	(R)
5360	11"	26'	4"	5 3/4"	6	6"	4	48"	5"
5360	11"	26'	4"	5 3/4"	6	6"	4	48"	5"
5367	11"	26'	4"	5 3/4"	6	6 1/2"	4	48"	5"

LAYOUT FOR REPLACING CONCRETE CURB & GUTTER ADJACENT TO DROP INLET

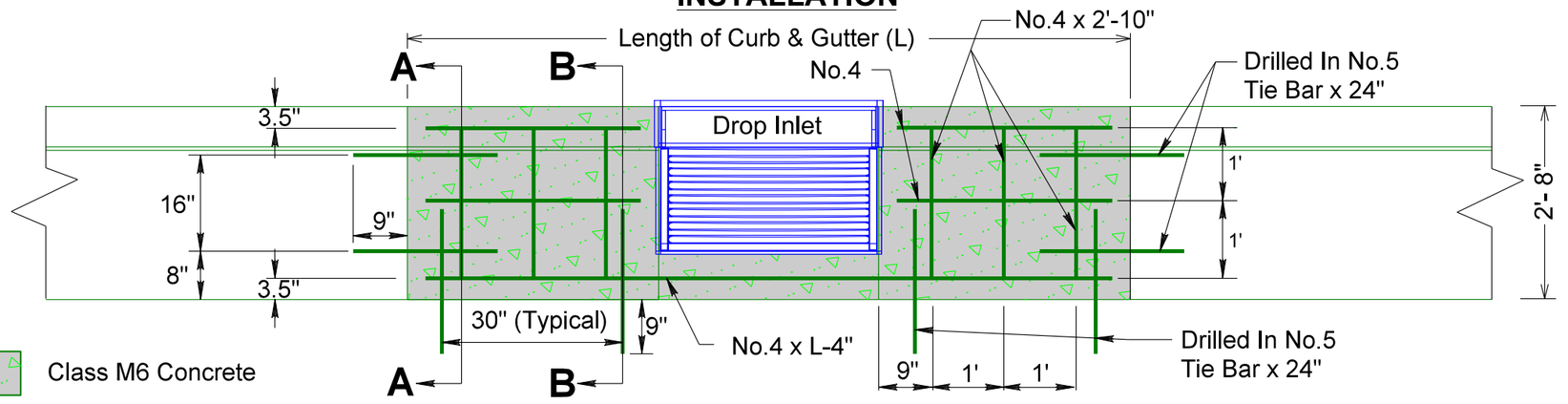
REMOVAL



Remove Concrete Curb and/or Gutter

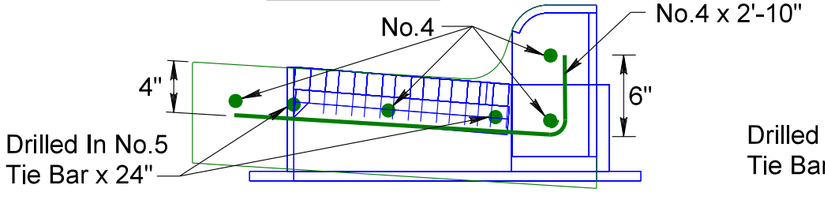
* If sawing is required, the cost shall be incidental to the contract unit price per foot for Remove Concrete Curb and/or Gutter.

INSTALLATION

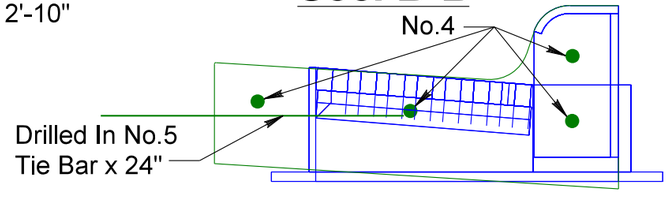


Class M6 Concrete

Sec. A-A



Sec. B-B

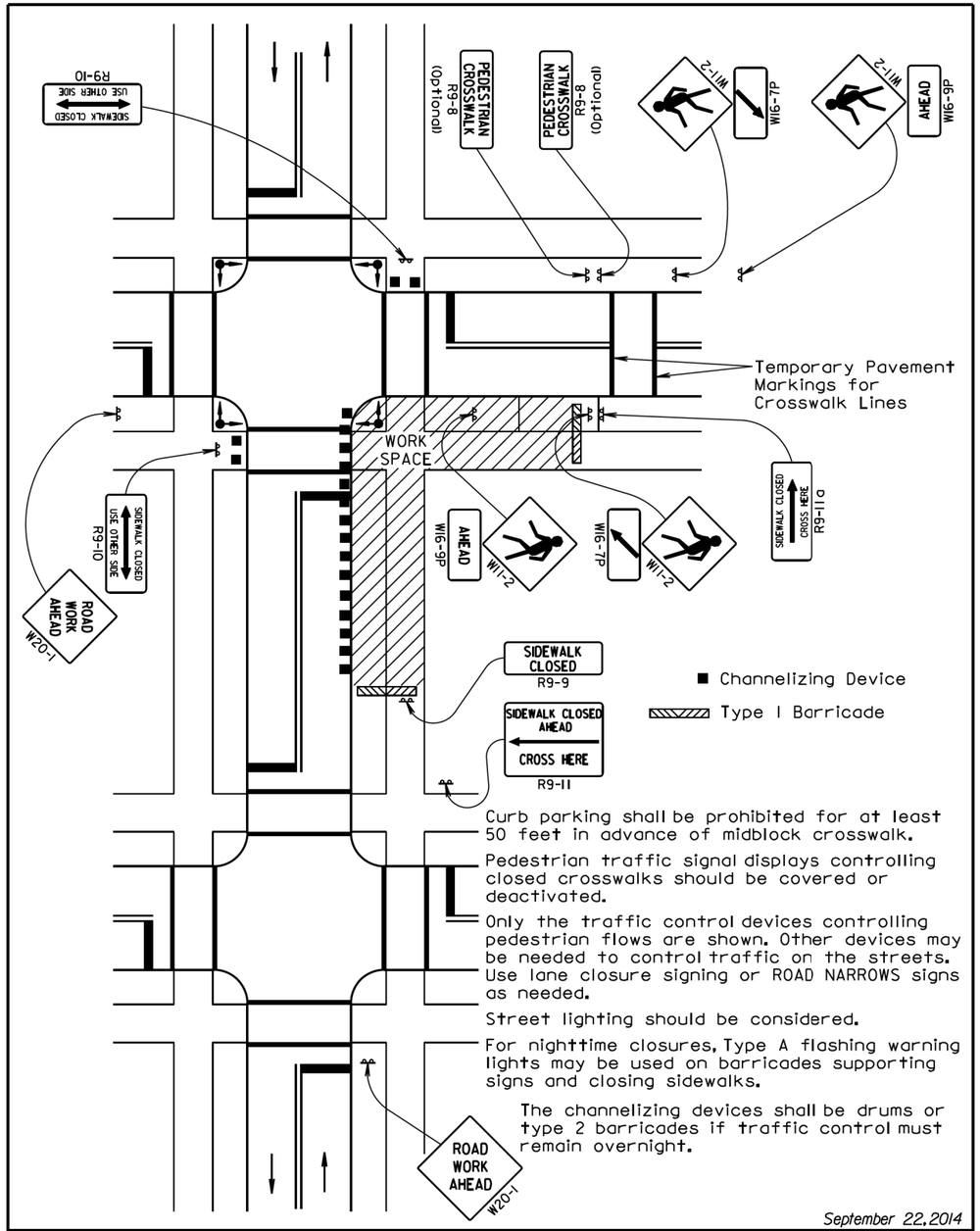


Maintain 2" clear cover on all rebar.

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016 SF CRCP & NRCP Repair	23	27

Plotting Date: 05/23/2016



Curb parking shall be prohibited for at least 50 feet in advance of midblock crosswalk.

Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.

Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs as needed.

Street lighting should be considered.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks.

The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight.

September 22, 2014

Published Date: 2nd Qtr. 2016	SDDOT	*GUIDES FOR TRAFFIC CONTROL DEVICES SIDEWALK CLOSURES AND PEDESTRIAN DETOURS*	*PLATE NUMBER* 634.33
			Sheet 1 of 1

PLOT SCALE - 1:200

PLOT NAME - 1

FILE - ...\2016 SF REPAIR\STD PLATES.DGN

PLOTTED FROM - TRM11NT15

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

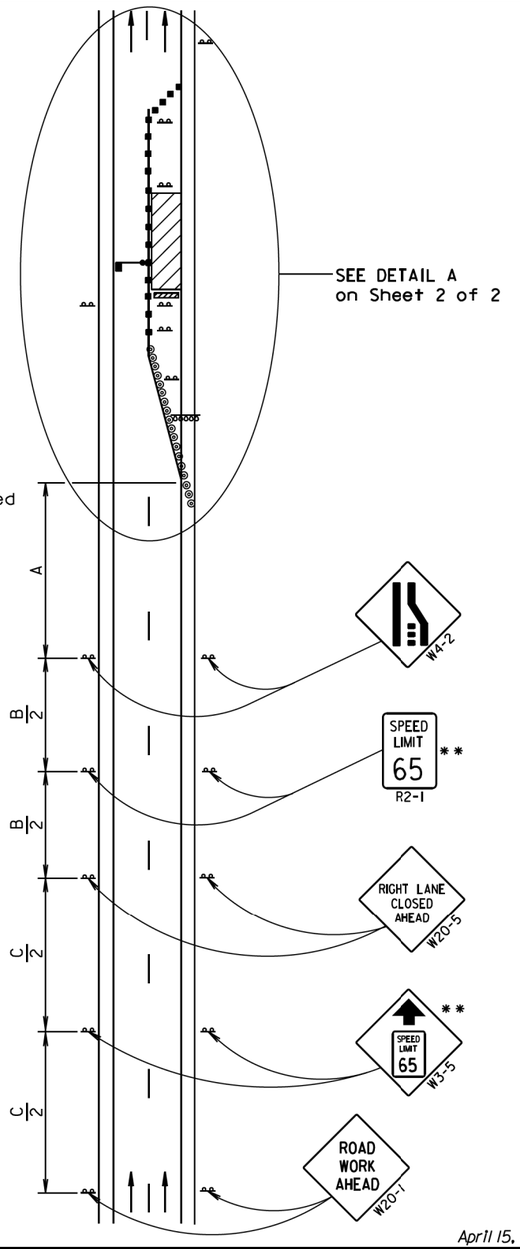
** Speed appropriate for location.

◎ 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.



April 15, 2015

Published Date: 2nd Qtr. 2016	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63 Sheet 1 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45 - 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 shall be covered or removed when workers are not present.

■— Flagger (As Necessary)

◎ Reflectorized Drum

■ Channelizing Device

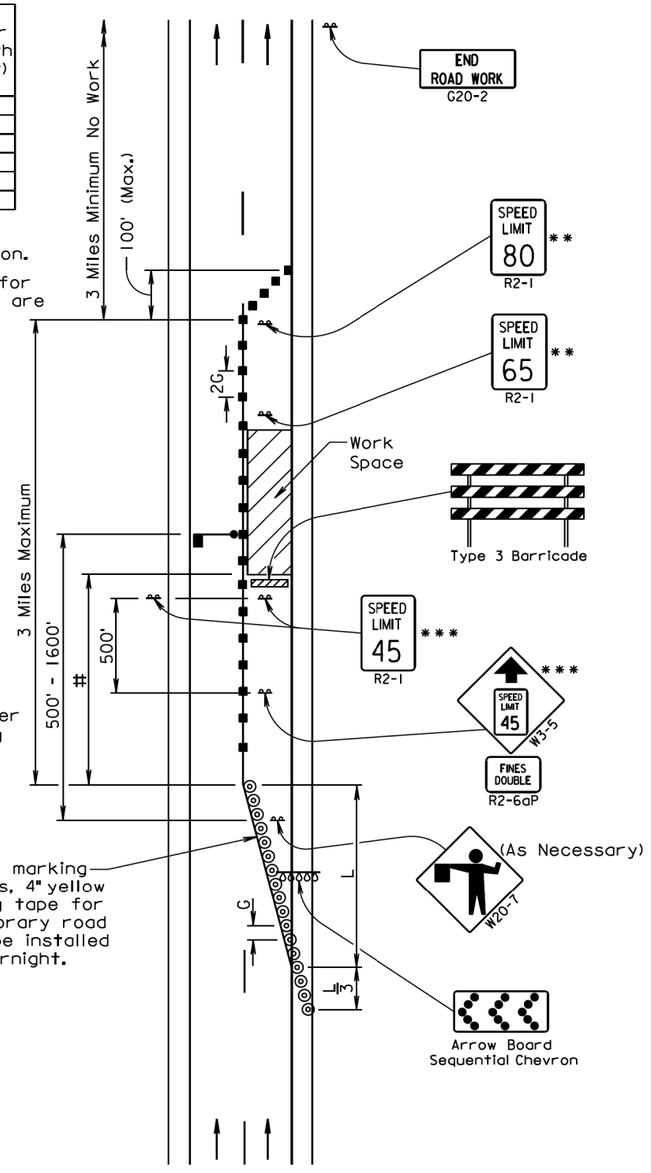
The Work Space shall be a minimum of 500' from the end of the taper.

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

The channelizing devices shall be 42" cones or drums.

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

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



DETAIL A

April 15, 2015

Published Date: 2nd Qtr. 2016	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63 Sheet 2 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (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 - 40	25
45 - 50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

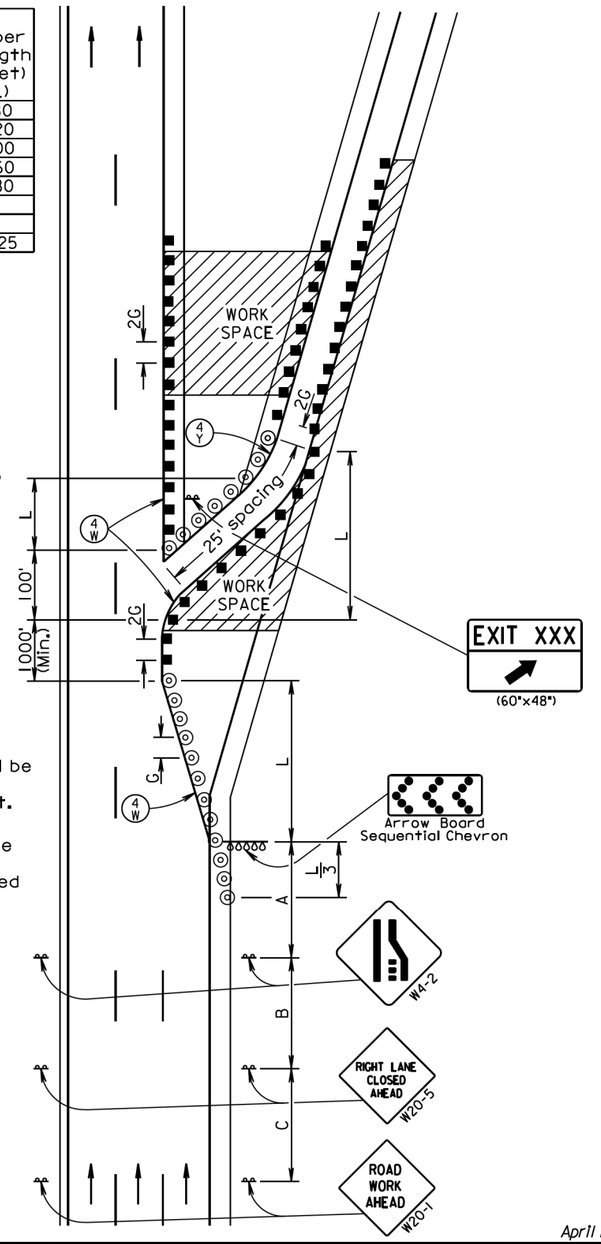
■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

(4Y) 4" Yellow Temporary Pavement Marking

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.



April 15, 2015

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SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES WORK IN VICINITY OF EXIT RAMP

PLATE NUMBER 634.68

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B)	L (Feet)
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B)	
70 - 80	1000 1500	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

■ Channelizing Device

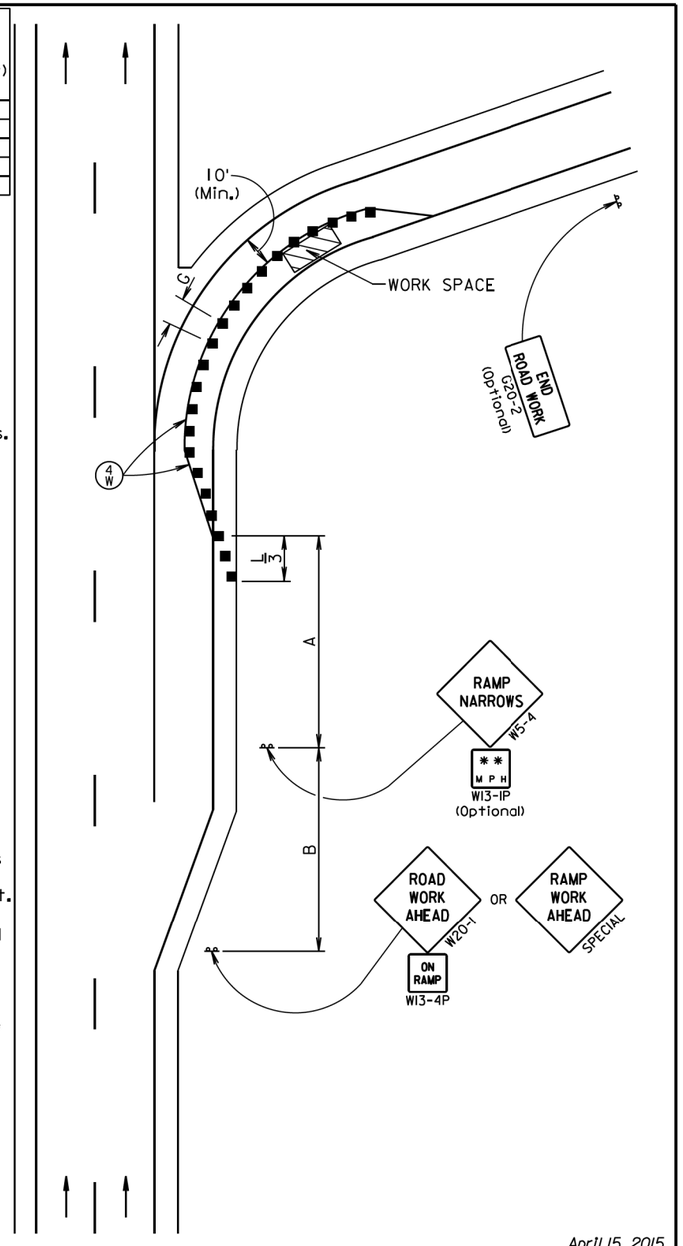
(4W) 4" White Temporary Pavement Marking

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

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

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

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



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SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
PARTIAL EXIT RAMP CLOSURE

PLATE NUMBER 634.69

Sheet 1 of 1

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

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

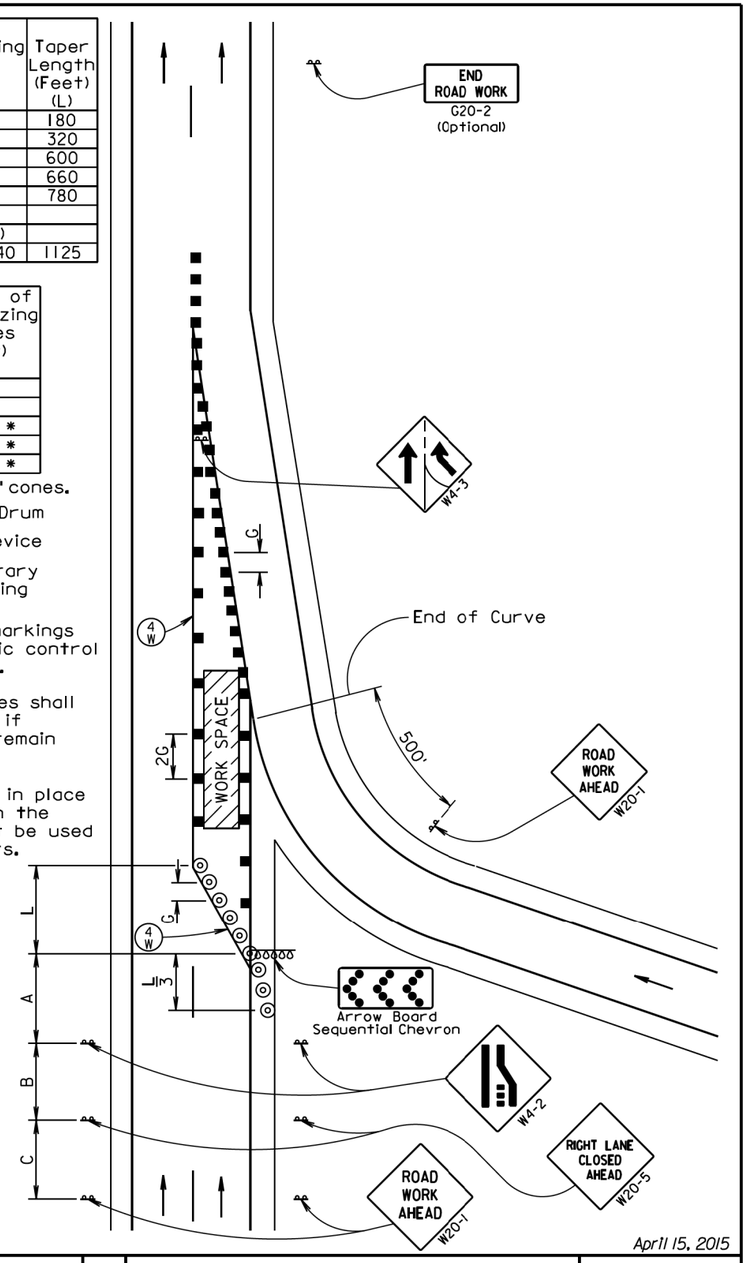
■ Channelizing Device

(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.



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SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK IN VICINITY OF ENTRANCE RAMP

PLATE NUMBER 634.70

Sheet 1 of 1

PLOT SCALE - 1:200

PLOT NAME - 4

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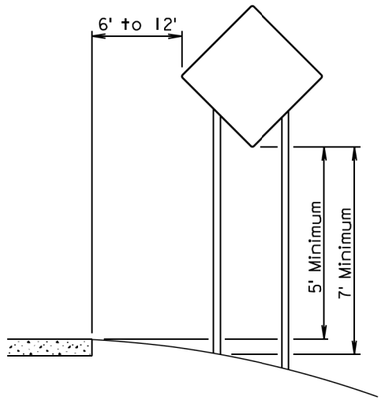
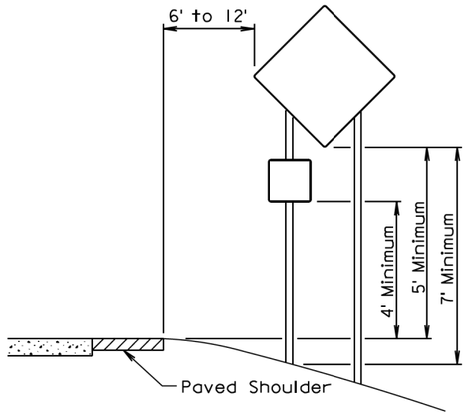


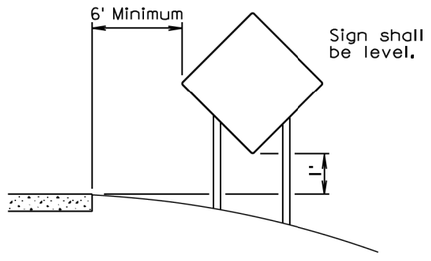
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE

URBAN DISTRICT

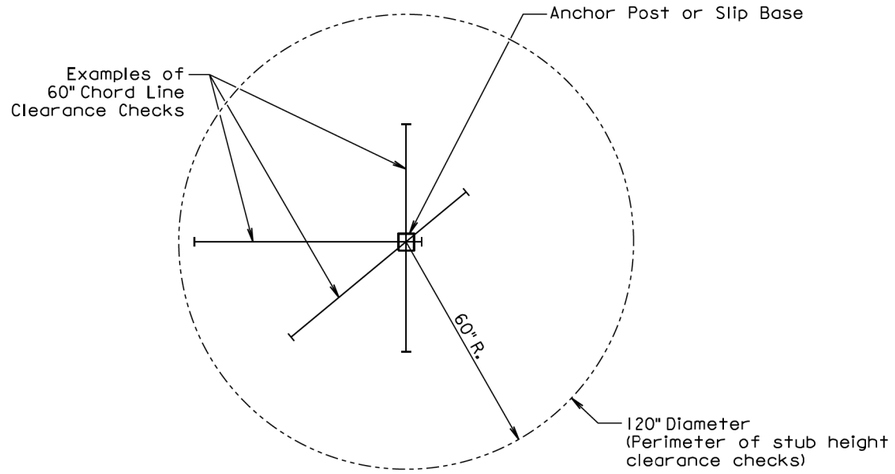
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



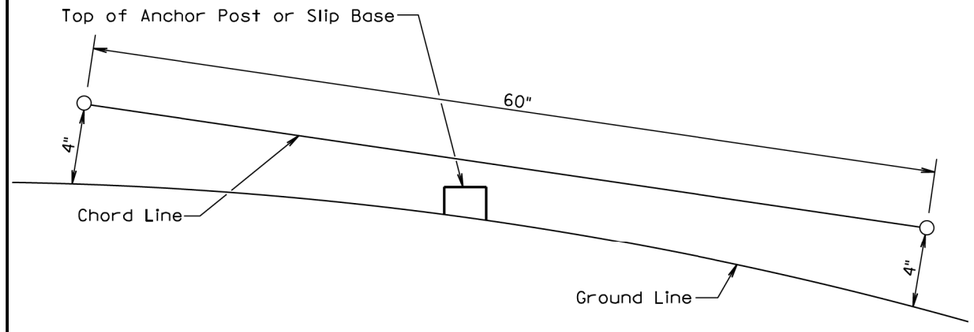
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 2nd Qtr. 2016	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

July 1, 2005

Published Date: 2nd Qtr. 2016	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

PLOT SCALE - 1:200

PLOT NAME - 5

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