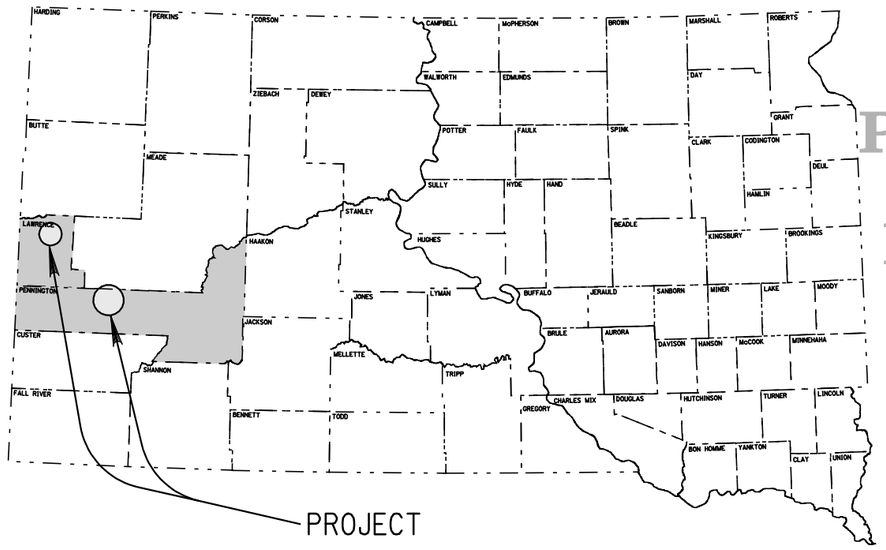
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	1	23

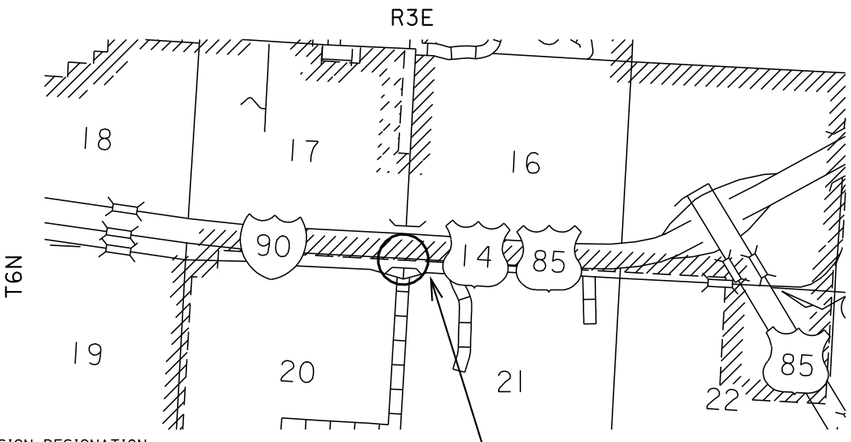
Plotting Date: 30-SEP-2008

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECTS 090 E-451, 090 E-452 & 090W-452
INTERSTATE HIGHWAY 90
LAWRENCE & PENNINGTON COUNTY

PCC PAVEMENT REPAIR, SIDEWALK REPAIR & CURB & GUTTER REPAIR
PCN ilav, ilaw & ilax





LAWRENCE COUNTY

DESIGN DESIGNATION
I90 Eastbound MRM 16.67

ADT (2007)	7025
ADT (2027)	12290
DHV	1330
D	100%
T DHV	5.6%
T ADT	12.3%
V	75

DESIGN DESIGNATION
I90 Westbound MRM 57.69

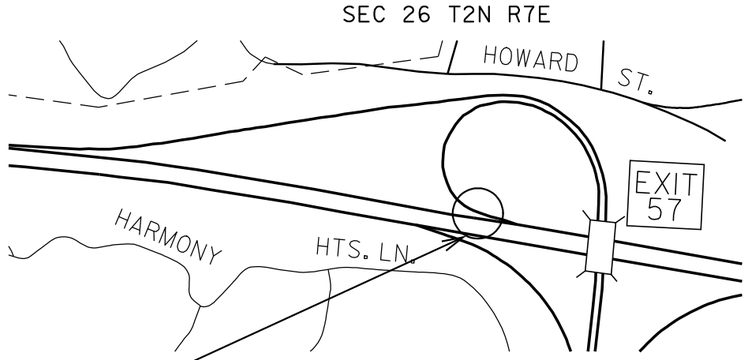
ADT (2007)	13985
ADT (2027)	25125
DHV	2715
D	100%
T DHV	4.9%
T ADT	10.7%
V	65

DESIGN DESIGNATION
I90 Exit 60 Eastbound Off Ramp

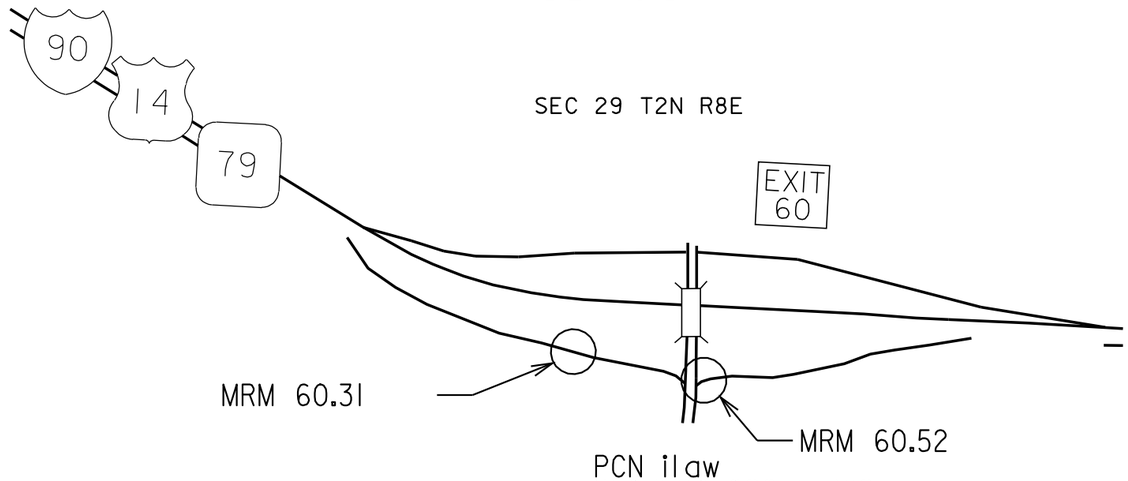
ADT (2007)	2990
ADT (2027)	5465
DHV	590
D	100%
T DHV	6.6%
T ADT	14.6%
V	

DESIGN DESIGNATION
I90 Exit 60 Eastbound On Ramp

ADT (2007)	2310
ADT (2027)	4220
DHV	455
D	100%
T DHV	6.6%
T ADT	14.6%
V	



RAPID CITY



PENNINGTON COUNTY

INDEX OF SHEETS

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Sheet 6:	Typical Sections
Sheet 7 - 15:	Traffic Control
Sheet 16 - 17:	Plan Sheets
Sheet 18:	PCC Pavement Repair Detail
Sheet 19 - 23:	Standard Plates

PROJECT 090 E-451 (MRM 16.67)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E0100	Unclassified Excavation, Digouts	8	CuYd
320E1200	Asphalt Concrete Composite	18.5	Ton
380E5030	Nonreinforced PCC Pavement Repair	112.0	SqYd
380E6000	Dowel Bar	48	Each
380E6110	Insert Steel Bar in PCC Pavement	16	Each
633E0010	Cold Applied Plastic Pavement Marking, 4"	108	Ft
633E5000	Groove Pavement for Pavement Marking, 4"	108	Ft
634E0010	Flagging	40	Hour
634E0100	Traffic Control	1,056	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

PROJECT 090 W-452 (MRM 57.69)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5020	Fast Track Concrete for PCC Pavement Repair	71.1	SqYd
380E5020	Fast Track Concrete for PCC Pavement Repair	106.7	SqYd
380E6000	Dowel Bar	24	Each
380E6110	Insert Steel Bar in PCC Pavement	80	Each
633E0010	Cold Applied Plastic Pavement Marking, 4"	60	Ft
633E5000	Groove Pavement for Pavement Marking, 4"	60	Ft
634E0010	Flagging	40	Hour
634E0100	Traffic Control	673	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	1	Each

* 8" Fast Track PCC Pavement Repair
** 11.5" Fast Track PCC Pavement Repair

PROJECT 090 E-452 (Exit 60 Off Ramp)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	27.8	SqYd
380E6110	Insert Steel Bar in PCC Pavement	24	Each
633E0010	Cold Applied Plastic Pavement Marking, 4"	20	Ft
633E5000	Groove Pavement for Pavement Marking, 4"	20	Ft
634E0010	Flagging	20	Hour
634E0100	Traffic Control	211	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

PROJECT 090 E-452 (Exit 60 On Ramp)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	32	Ft
110E1140	Remove Concrete Sidewalk	25.0	SqYd
380E6110	Insert Steel Bar in PCC Pavement	8	Each
634E0010	Flagging	20	Hour
634E0100	Traffic Control	151	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
650E0100	Type B610 Concrete Curb and Gutter	32	Ft
651E0540	4" Colored Concrete Sidewalk	225	SqFt

SCOPE OF WORK

This project consists of:

1. Project 090 E-451 at MRM 16.67 Eastbound full depth replacement of concrete pavement and install asphalt growth joint.
2. Project 090 W-452 at MRM 57.69 Westbound full depth replacement of concrete pavement.
3. Project 090 E-452 Eastbound off ramp Exit 60 replacement of concrete pavement.
4. Project 090 E-452 Eastbound on ramp Exit 60 replacement of concrete curb and gutter and replacement of colored concrete sidewalk.

UTILITIES

The Contractor shall be responsible for having the existing underground utilities located in the construction area. Underground utilities damaged by the Contractor due to negligence shall be repaired at the Contractor's expense.

SURFACING THICKNESS DIMENSIONS

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

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

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

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

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the 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/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/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

WASTE DISPOSAL SITE (Cont.)

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

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

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

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

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain SHPO clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. The Contractor shall arrange and pay for this survey. In lieu of a cultural resources survey, the Contractor could request a literature search on the site and provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. Jim Donohue, State Archaeological Research Center at 605-394-1937 shall be contacted for a literature search.

If borrow material is furnished from within the current geographical reservation boundaries or historic boundaries of the Lake Traverse, Yankton, or Flandreau-Santee reservations, the Contractor shall obtain THPO (Tribal Historical Preservation Office) clearance from the Tribal Cultural Resources Officer. This requirement is in addition to the SHPO clearance. If no Tribal contact exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO and THPO responses, the Contractor should submit a cultural resources survey report or the results of the literature search along with a legal description of the site, a topographical map with the site clearly marked, and evidence of prior site disturbance to Dave Graves, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-5727). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO approval. The Contractor is responsible for obtaining all required permits and clearances for the borrow and/or waste disposal site(s) prior to commencing construction activities at the borrow and/or waste disposal site(s). The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

PERMIT FOR THE PENNINGTON COUNTY AIR QUALITY CONTROL DISTRICT

Administrative Rule of South Dakota (ARSD) 74:36:18:03 states that "no state facility or state contractor may engage in any construction activity or continuous operation activity within the Rapid City air quality control zone which may cause fugitive emissions of particulate to be released into the ambient air without first obtaining a permit issued by the board or the secretary."

In order to be considered eligible for authorization to conduct a construction activity under the terms and conditions of this permit, the owner operator must submit a Notice of Intent (NOI) form. The form must be submitted to the address below at least seven business days prior to the anticipated date of beginning the construction activity.

South Dakota Department of Environment and Natural Resources
Air Quality Program
523 East Capitol, Joe Foss Building
Pierre, South Dakota 57501-3181
605-773-3151

Construction activity is defined as any temporary activity at a state facility, which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. One acre of surface area is based on a cumulative area of disturbance to be completed for the entire project. Construction activity shall include, but not be limited to, stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. Construction activity is generally completed within one year. It also includes stockpiles, access roads, and disposal areas. An off-site disposal area of excess material will require an additional permit.

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for trackout, paved areas, unpaved roads, unpaved parking lots, disturbed areas, and for material handling and storage. The control measures that the Contractor is required to use are listed in the permit.

TABLE OF CONCRETE CURB AND GUTTER REMOVAL

Location	L/R	Quantity (Ft)
Exit 60 Eastbound On Ramp	L	32
	Total:	32.

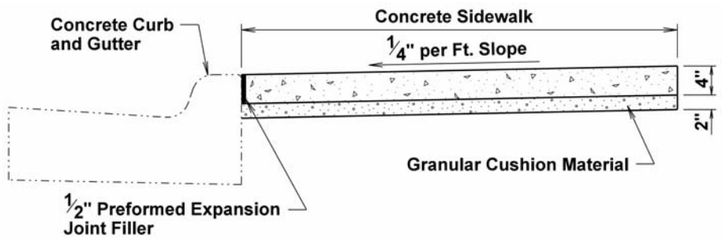
TABLE OF SIDEWALK REMOVAL

Location	L/R	Quantity (SqYd)
Exit 60 Eastbound On Ramp	L	25
	Total:	25.

TABLE OF TYPE B610 CONCRETE CURB AND GUTTER

Location	L/R	Quantity (Ft)
Exit 60 Eastbound On Ramp	L	32
	Totals:	32.

CONCRETE SIDEWALK



The concrete sidewalk shall be constructed in accordance with Section 651 of the Standard Specifications. The sidewalk details shown above are typical of this project; however, the sidewalk widths and other special details are shown on the Curb and Gutter Layout sheets.

TABLE OF 4" COLORED CONCRETE SIDEWALK

Location	L/R	Quantity (SqFt)
Exit 60 Eastbound On Ramp	L	225
	Total:	225.

4" COLORED CONCRETE SIDEWALK

The color for the 4" colored sidewalk shall be the color listed below:

ColorFlo Liquid Color Card
Color #775 Sedona
Solomon Colors
1-800-624-0261
www.solomoncolors.com

The 4" colored concrete sidewalk around the perimeter of the islands shall be sloped at .01 ft/ft to ensure positive drainage away from the plantings.

Two coats of a non-yellowing acrylic curing and sealing compound or approved equal shall be applied to the surface of the colored concrete.

DECRA-SEAL
W.R. Meadows, Inc.
1-800-342-5976
www.wrmeadows.com

All costs for furnishing, handling, and applying the curing and sealing compound and including the materials, equipment, labor, and incidentals necessary shall be incidental to the contract unit price per square foot for "4" Colored Concrete Sidewalk."

EXISTING CONCRETE PAVEMENT MRM 16.67

The existing 8 inch P.C.C. Pavement at MRM 16.67 Eastbound is typically 24 feet wide and is reinforced with welded wire fabric. The welded wire fabric weighs not less than 61 pounds per 100 square feet. The longitudinal wires are No. 1 gauge and are spaced 6 inches center to center and the transverse wires are No. 4 gauge and are spaced 12 inches center to center.

TABLE OF CONCRETE PAVEMENT REMOVAL

(For Information Only)

Location	Description	Quantity (SqYd)
MRM 16.67	8" Reinforced PCC Pavement (44'x24')	117.3
MRM 57.69	11.5" & 8" Nonreinforced PCC Pavement (40'x40')	177.8
Exit 60 Eastbound Off Ramp	8" Nonreinforced PCC Pavement (20'x12.5')	27.8

TRANSVERSE CONTRACTION JOINTS MRM 16.67

The transverse contraction joints in the pavement for MRM 16.67 shall be spaced 14 feet apart.

GROWTH JOINTS MRM 16.67

The existing Polymer Modified Asphalt Growth Joint at the approach slab shall be removed. One-half inch expansion joint filler shall be placed transversely between the approach slab and the 8" PCC Pavement Repair. All costs for labor, materials and incidentals necessary to remove the existing growth joint and place the new expansion joint filler shall be incidental to the contract unit price per square yard for "Nonreinforced PCC Pavement Repair".

A 2 foot growth joint will be cut in the paving as shown on Sheet No. 14. The edges will be full depth to prevent spalling. The growth joint shall be placed on top of the concrete base of the original terminal anchor. The growth joint shall be filled with Asphalt Concrete Composite to the elevation of the adjacent PCC pavement. The asphalt concrete shall be placed in three lifts. Settlement of growth joints shall be repaired prior to final completion of the project. All costs associated with this work shall be incidental to the contract unit price bid for "Asphalt Concrete Composite".

NONREINFORCED CONCRETE SHOULDERS MRM 57.69

A metal-tine finish will not be required on the shoulders poured separately. A metal-tine finish may be applied to the shoulders poured monolithic with the mainline.

If the shoulders are poured monolithic with the mainline pavement a sawed joint with tie bars will be constructed between the mainline pavement and the shoulders.

SAWING IN EXISTING SURFACING

Where new Portland Cement Concrete Pavement (PCCP) or new asphalt concrete is placed adjacent to existing asphalt concrete or PCCP, the existing pavement shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

RESTORATION OF GRAVEL CUSHION

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

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

NONREINFORCED PCC PAVEMENT REPAIR

New pavement thickness shall be as indicated in the table of nonreinforced pavement repair.

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. Coarse aggregate shall be crushed ledge rock, Size No. 1. 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. In lieu of submitting a mix design the Contractor may use one of the following dependent upon type of cement to be used:

	LB./CU.YD.	LB./CU.YD.
CEMENT	800 (TYPE I or II)	710 (TYPE III)
WATER	282	300
FINE AGGREGATE	1039	1114
COARSE AGGREGATE	1726	1668

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

Concrete shall be cured with Curing Compound (AASHTO M148 Type 2) A.S.A.P. @ 125 ft^2/gal. Concrete shall be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60 degrees Fahrenheit or higher throughout the cure period. If the concrete temperature falls below 60 degrees Fahrenheit, the cure time shall be extended or other measures shall be taken, at no additional cost to the State. In addition to the curing requirements a strength of 4,000 psi must be 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'.

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

FAST TRACK CONCRETE FOR PCC PAVEMENT REPAIR

Fast Track Concrete shall be used for MRM 57.67 repair.

The slump requirement prior to use of a set accelerator or super-plasticizer will be limited to 2" maximum and the concrete shall contain 4.5% to 7.0% entrained air after the water reducer is added. Coarse aggregate shall be crushed ledge rock, Size No. 1. 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. In lieu of submitting a mix design the Contractor may use the following:

	LB./CU.YD.
CEMENT (TYPE II or III)	784
FINE AGGREGATE	1162
COARSE AGGREGATE	1650

The use of a set accelerator and super-plasticizer at manufacturer's recommended dosage will be required. Both admixtures shall be added at the project site.

The special mix shall be designed to achieve an ultimate compressive strength of at least 4,500 psi and may be opened to traffic when it has reached a compressive strength of 3,800 psi. Once fast track concrete is placed, if the concrete does not achieve the required 3,800 psi in 8 hours, the Contractor shall provide all proper additional traffic control needed (at no cost to the state) until the engineer determines the 3,800 psi has been obtained. This includes any overnight traffic control.

Fast Track 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. In addition, the concrete shall be immediately covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. The insulation blanket shall have an R value of at least 0.5, as rated by the manufacturer. The insulation blanket shall be left in place, except for joint sawing operations, until the 3,800 psi strength is attained.

The contraction joint sawing shall be performed as soon as possible after placement of concrete to avoid random cracking. Contraction joints shall be initially sawed to the plans detailed depth and to a width of 1/8".

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing Fast Track Concrete, sawing and sealing joints, labor, tools and equipment shall be included in the contract unit price per square yard for "Fast Track Concrete for PCC Pavement Repair".

STEEL BAR INSERTION

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

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

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

Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (equivalent to AASHTO M235, Type IV, Grade 3).

Steel bars shall be inserted in the transverse joint on 18" centers. The first steel bar in the transverse joint shall be placed 9" from the outside edge of the slab. Steel bars shall be inserted in the longitudinal joint on 30" centers and shall be a minimum of 15" from either transverse joint. A typical one-lane patch 12' wide and 6' long will require 18 steel bars (8 in each transverse joint and 2 in the longitudinal joint).

The diameter of the drilled holes in the existing concrete pavement for the steel bars shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. Holes drilled into the existing concrete pavement shall be located at mid-depth of the slab and true and normal. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

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

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturer's designated rate and be equipped with an automatic shut-off. The pump shall shut off when any of the components are not being metered at the designated rate.

Fill the drilled holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Care shall be taken to prevent epoxy from running out of the horizontal holes prior to steel bar insertion. Rotate the steel bar during insertion to eliminate voids and ensure complete bonding of the bar. Insertion by the dipping method will not be allowed.

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".

TABLE OF NONREINFORCED PAVEMENT REPAIR

Size	Location	No. 5 Deformed Tie Bar (Each)	1 1/4" Plain Round Dowel Bar (Each)	Dowel Bar Assembly Dowel Bar (Each)	8" Nonreinforced PCC Pavement Repair (SqYd)	10" Nonreinforced PCC Pavement Repair (SqYd)	11.5" Nonreinforced PCC Pavement Repair (SqYd)
42x24	MRM 16.67 Eastbound	16	0	4	112.0	0	0
40x40	MRM 57.69 Westbound	48	32	2	* 71.1	0	* 106.7
20x12.5	Exit 60 Eastbound Off Ramp	8	16	0	0	27.8	0
C&G	Exit 60 Eastbound On Ramp	8					
	Totals:	80	48	6	183.1	27.8	106.7

* Fast Track Concrete for PCC Pavement Repair

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E

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

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

The estimate quantities are approximate and there will be no increase in the contract unit price per ton for Asphalt Concrete Composite for any increases or decreases in either the haul or quantity.

SAW AND SEAL JOINTS

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

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

Joints shall be sealed with Hot Poured Elastic Joint Sealer.

Acceptance of the Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

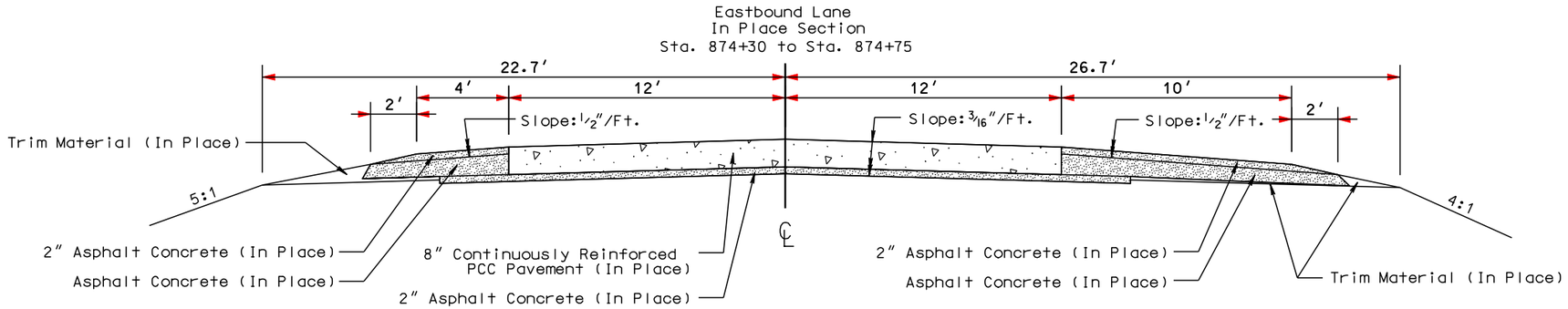
Cost for sawing and sealing of the joints shall be incidental to the contract unit price per square yard for "Nonreinforced PCC Pavement Repair".

REPAIR OF ASPHALT CONCRETE SHOULDERS

Included in the Estimate of Quantities are 8 cubic yards of Unclassified Excavation-Digouts and 16 tons of Asphalt Concrete Composite for repairing the asphalt concrete shoulders due to damage caused by Interstate traffic during lane closures. Damaged areas that are four feet or greater in width may be blade laid in lieu of using a paver.

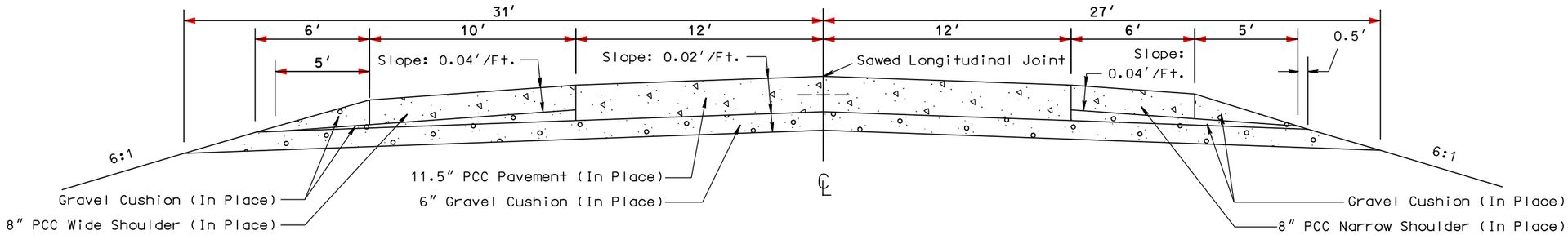
Cost for asphalt concrete required on the shoulder adjacent to full depth pavement replacement sections that are not in areas where traffic has damaged the shoulder shall be incidental to the contract unit prices per square yard for "Nonreinforced PCC Pavement Repair".

I90 Eastbound MRM 16.67



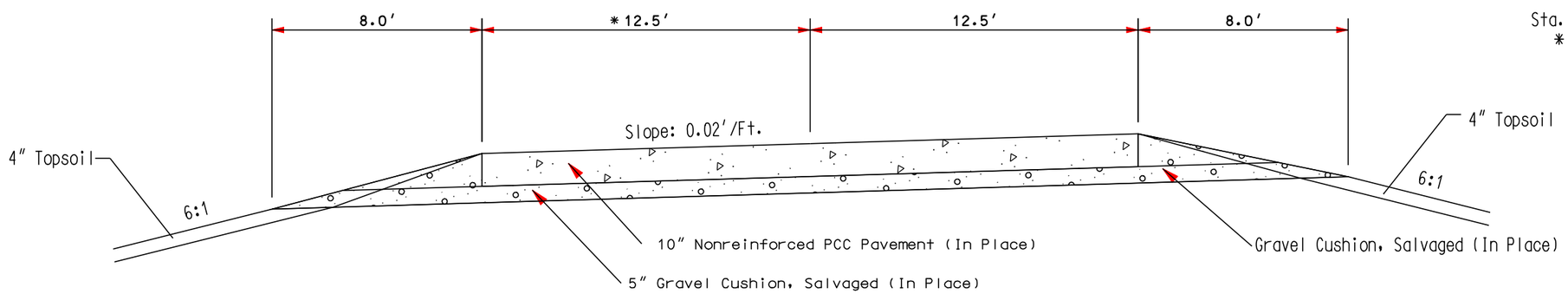
I90 Westbound at Off Ramp Exit 57

In Place Section
Sta. 44+54 to Sta. 44+94



I90 Eastbound Off Ramp Exit 60

Sta. 5+23 to 12+00



Sta. 12+00 to 16+00
* 12.5′ to 36′

GENERAL MAINTENANCE OF TRAFFIC

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

Storage of vehicles and equipment shall be outside the clear zone (30' from the traveled way) and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

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

All vehicles entering and exiting closed lanes of traffic shall display a flashing amber light visible from all directions at a minimum distance of ¼ mile.

No work during hours of darkness.

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

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR

A Type III Barricade shall be installed at the end of a lane closure taper as detailed in these plans. Each mainline concrete repair location from which the in place concrete has been removed shall be marked with a minimum of two reflectorized drums.

Signs may be mounted on portable supports meeting minimum heights in MUTCD.

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC Pavement repair areas shall be filled with cold asphalt mix during the cure of concrete placed in a repair area, and until the lane open to traffic is closed. Cost for furnishing asphalt concrete, hauling and placing asphalt shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

Holes in the asphalt shoulders created during removal and replacement of PCC Pavement repair areas shall be filled with hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Hot-mix asphalt concrete shall be furnished by the Contractor. Cost for furnishing asphalt concrete, hauling and placing asphalt shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair

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

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR(CONT.)

Extra care shall be taken to protect the in place asphalt shoulders at MRM 16.67. In the work zones in these area, 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.

If the Contractor elects not to work in an area for more than 3 days, for reasons within the control of the Contractor, the Contractor shall remove applicable traffic control devices and replace them when work resumes. There will be no payment for this work.

The use of interstate maintenance crossovers will not be permitted.

TRAFFIC CONTROL DEVICES MRM 16.67

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
M4-8A	24" x 18"	END DETOUR	1	7	7
R2-1	30" x 36"	SPEED LIMIT ##	4	23	92
W3-5	48" x 48"	SPEED REDUCTION	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	1	34	34
SPECIAL	30" x 24"	FINES DOUBLED	2	18	36
SPECIAL	102" x 84"	WIDTH RESTRICTION I-90 EB XX MILES AHEAD USE EXIT 14	1	91	91
SPECIAL	102" x 84"	WIDTH RESTRICTION I-90 EB XX MILES AHEAD	2	91	182
SPECIAL	60" x 48"	OVERWIDTH VEHICLES	6	38	228
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
				TOTAL UNITS	1056

TRAFFIC CONTROL DEVICES MRM 57.69

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	1	17	17
R2-1	30" x 36"	SPEED LIMIT ##	4	23	92
W1-4	48" x 48"	REVERSE CURVE SIGN (LEFT OR RIGHT)	1	34	34
W3-5	48" x 48"	SPEED REDUCTION	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	4	34	136
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	1	34	34
SPECIAL	30" x 24"	FINES DOUBLED	2	18	36
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	3	40	120
				TOTAL UNITS	673

TRAFFIC CONTROL DEVICES EXIT 60 Off Ramp

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	1	17	17
W5-1	48" x 48"	RAMP NARROWS	1	34	34
W13-1	24" x 24"	ADVISORY SPEED PLATE	1	16	16
W13-4	24" x 24"	ON RAMP	1	16	16
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	1	34	34
W20-7a	48" x 48"	FLAGGER	1	34	34
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
				TOTAL UNITS	231

TRAFFIC CONTROL DEVICES EXIT 60 On Ramp

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	1	17	17
W5-1	48" x 48"	RAMP NARROWS	1	34	34
W13-1	24" x 24"	ADVISORY SPEED PLATE	1	16	16
W13-4	24" x 24"	ON RAMP	1	16	16
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	1	34	34
W20-7a	48" x 48"	FLAGGER	1	34	34
				TOTAL UNITS	151

PERMANENT PAVEMENT MARKINGS

Permanent pavement markings of completed sections of roadway shall be completed prior to the opening to traffic.

COLD PLASTIC PAVEMENT MARKING

Cold plastic pavement marking shall be used for all markings.

New cold plastic pavement markings provided shall be type A pavement marking and applied by the Contractor utilizing the following procedures:

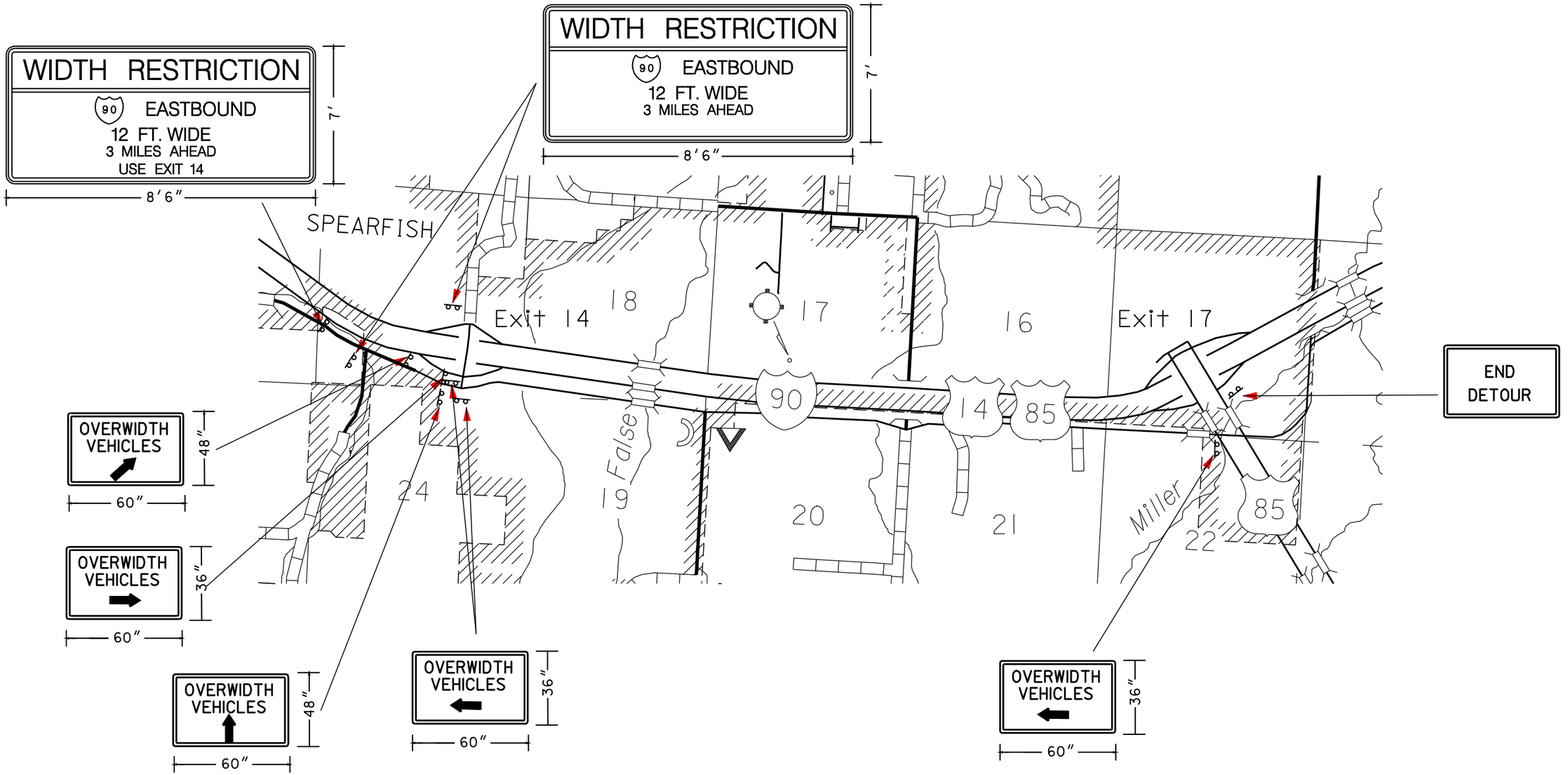
1. The Contractor shall apply the cold plastic pavement marking material as per manufacturer's instructions.
2. Cold plastic pavement markings shall be grooved into the surface.
3. Grooving depth shall be as per the manufacturer's recommendations.

PLOT SCALE - 200.000000:1.000000

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	8	23

Plotting Date: 29-SEP-2008

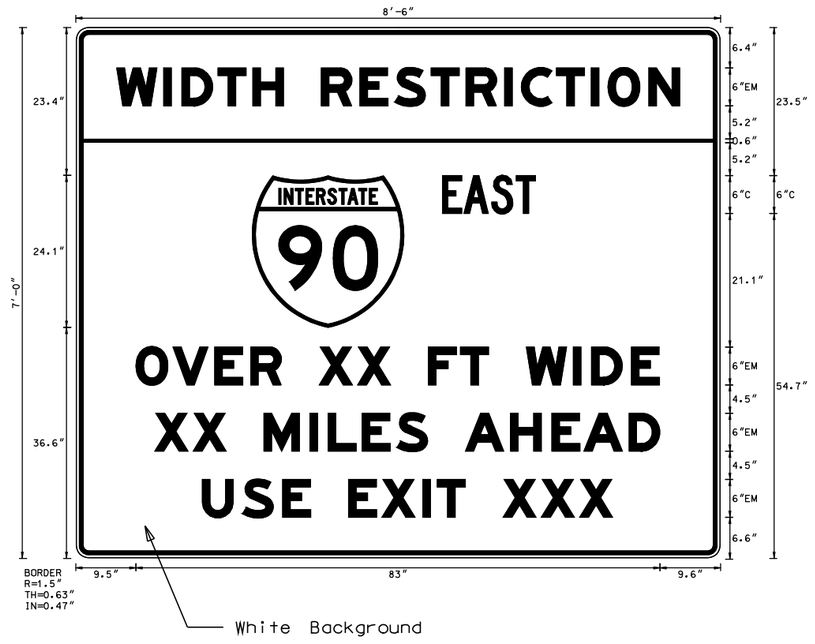
OVERWIDTH DETOUR SIGNING



PLOTTED FROM - TRRC11610

FILE - U:\REGIONRC\PRJ\2009RCREGMAINT\PLANS\I90 CONCRETE REPAIR\TRAFFIC.DGNLOT NAME - 8

OVERWIDTH DETOUR SIGNING



SIGN

TOP PORTION - WIDTH RESTRICTION
Fluorescent orange, diamond grade background
Black vinyl legend and border

BOTTOM PORTION
White, diamond grade background
Black vinyl legend and border

ALTERNATE WORDING

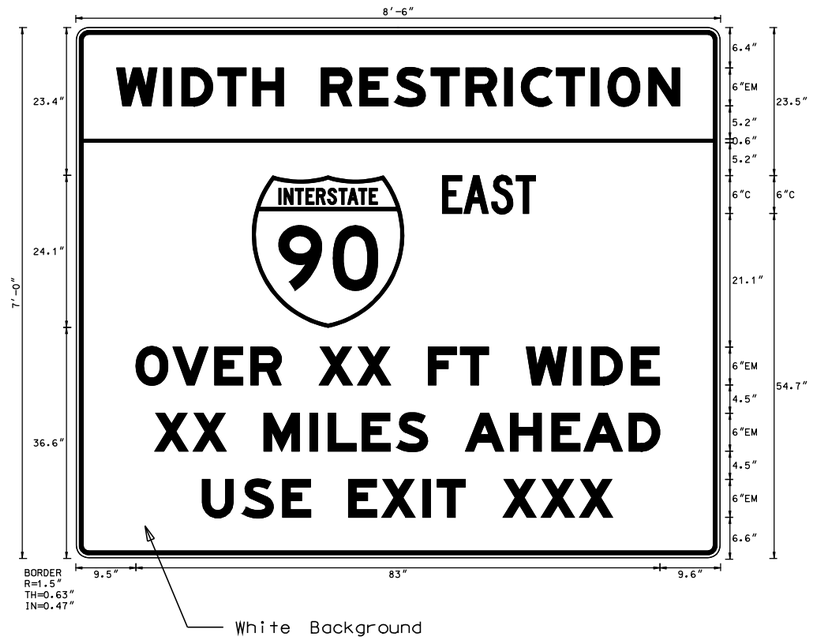
Exact legend shall be as shown in these plans.

SIGN

White, diamond grade background
Black vinyl legend and border

ARROW shall be removable copy

OVERWIDTH DETOUR SIGNING



SIGN

TOP PORTION - WIDTH RESTRICTION
Fluorescent orange, diamond grade background
Black vinyl legend and border

BOTTOM PORTION
White, diamond grade background
Black vinyl legend and border

ALTERNATE WORDING

Exact legend shall be as shown in these plans.

SIGN

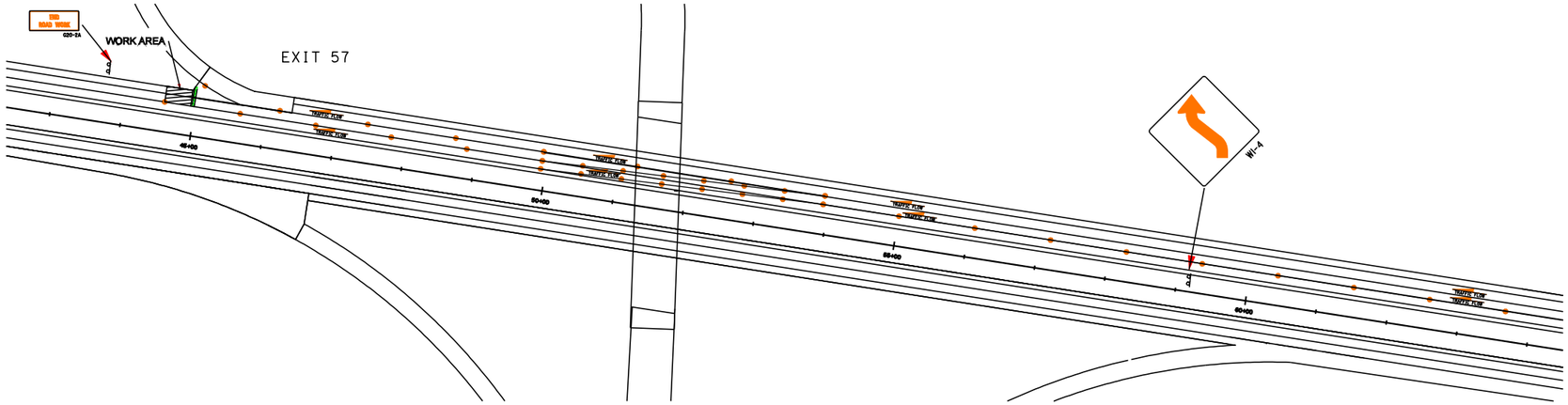
White, diamond grade background
Black vinyl legend and border

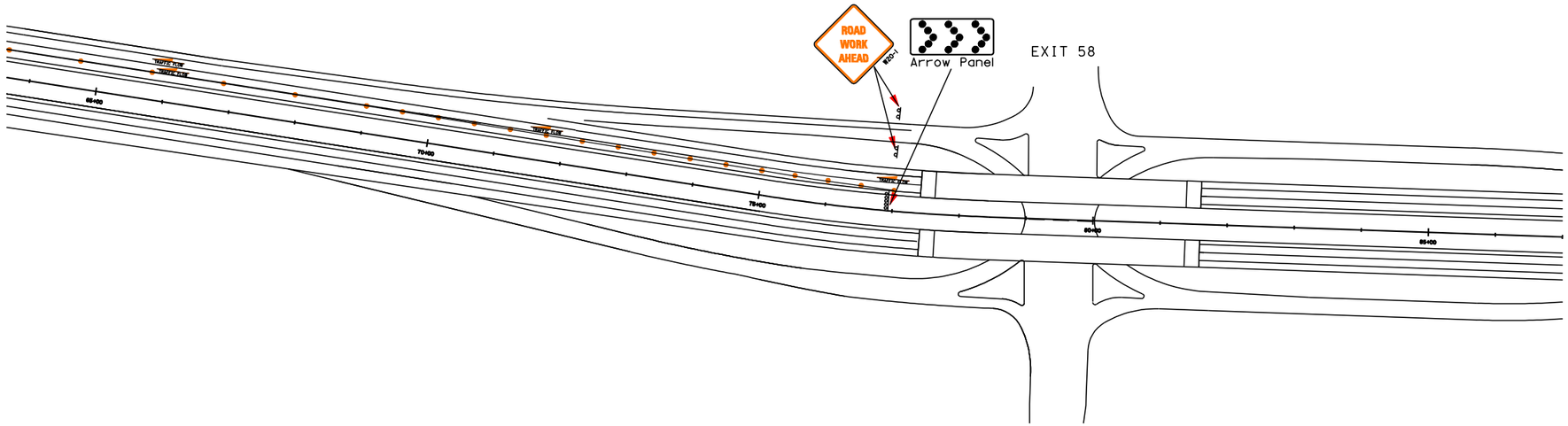
ARROW shall be removable copy

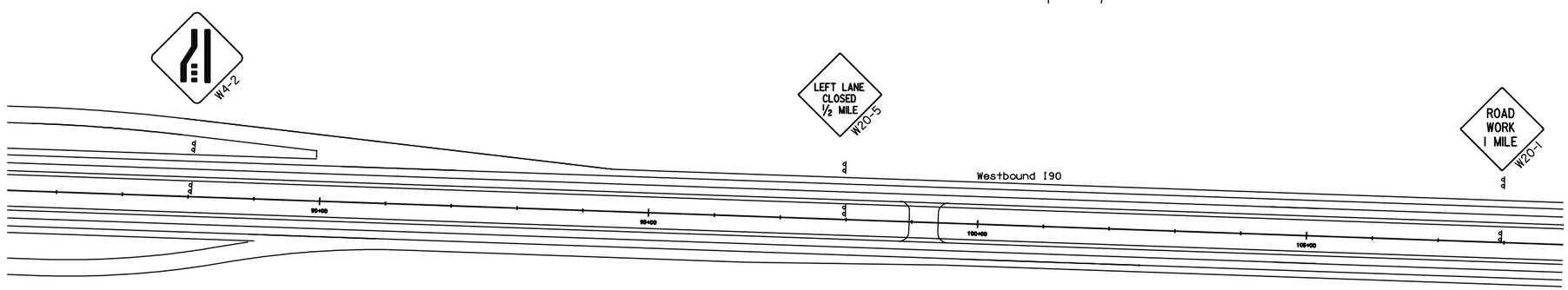
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	11	23

Plotting Date: 29-SEP-2008

PHASE 1 MRM 57.69



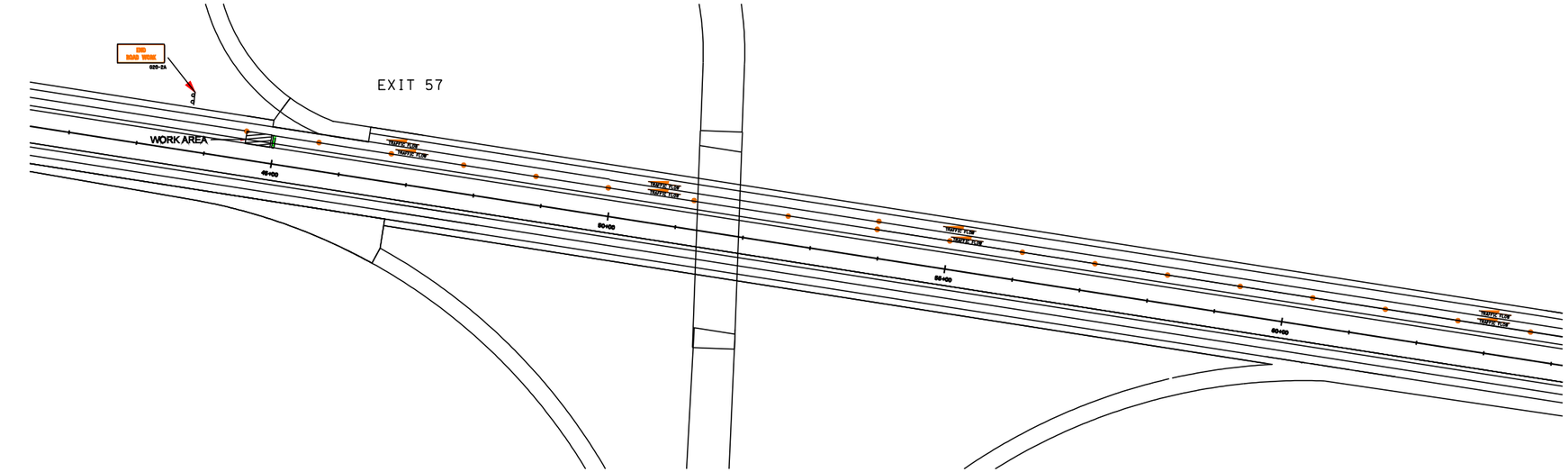




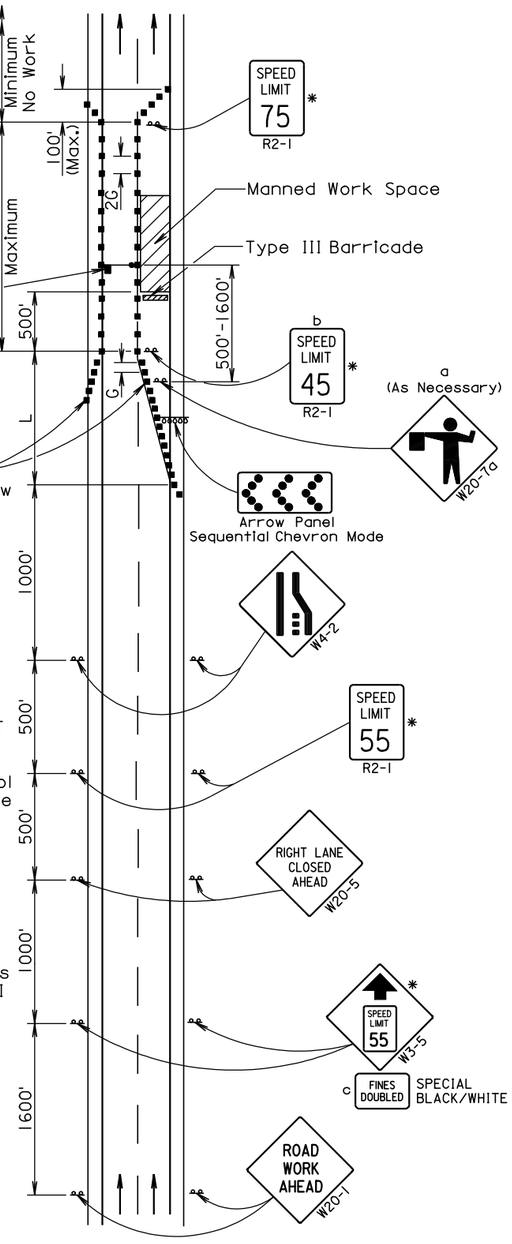
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	12	23

Plotting Date: 29-SEP-2008

PHASE 2 MRM 57.69



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 - 75	50	900



■ Channelizing Device

* Speed appropriate for location.

Signs a, b, and c shall be removed or covered when workers are not present.

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

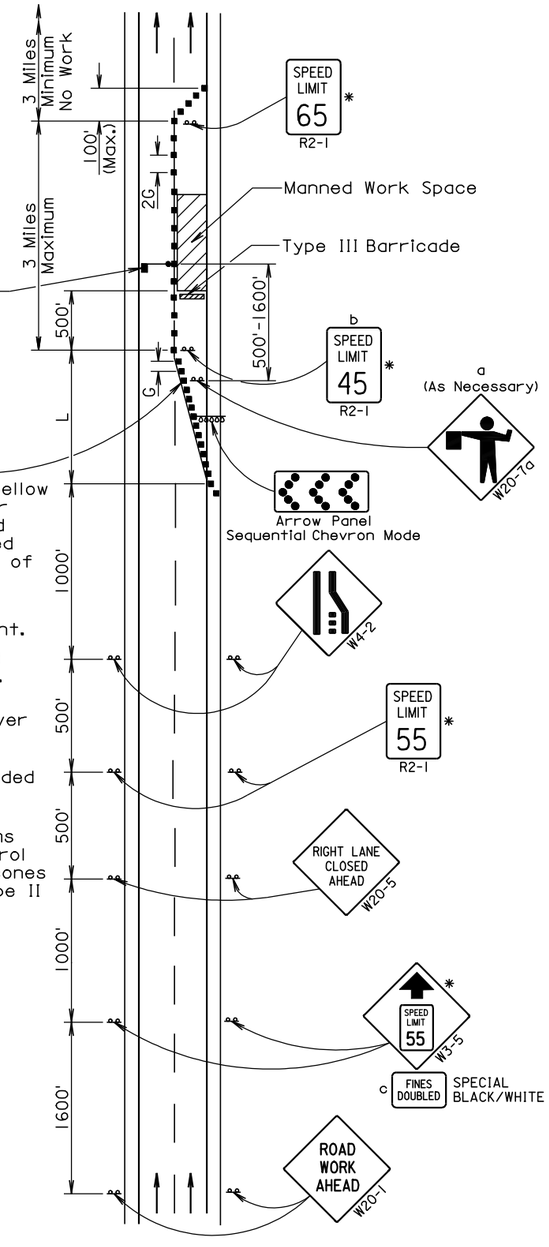
If the spacing between manned work spaces is 1 mile or greater, a SPEED LIMIT 65(*) sign shall be posted at the end of the first manned work space. Additional SPEED LIMIT 45(*) sign(s) and FLAGGER symbol sign(s) shall be installed in advance of the next manned work space(s). The FLAGGER sign shall be used whenever there is a Flagger present.

Left mounted advance signs on undivided highways are not required.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. 42" cones may be used in lieu of drums or type II barricades only along the centerline.

MANNED WORK SPACE SIGNING FOR MRM 16.67

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 - 75	50	900



■ Channelizing Device

* Speed appropriate for location.

Signs a, b, and c shall be removed or covered when workers are not present.

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

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

Left mounted advance signs on undivided highways are not required.

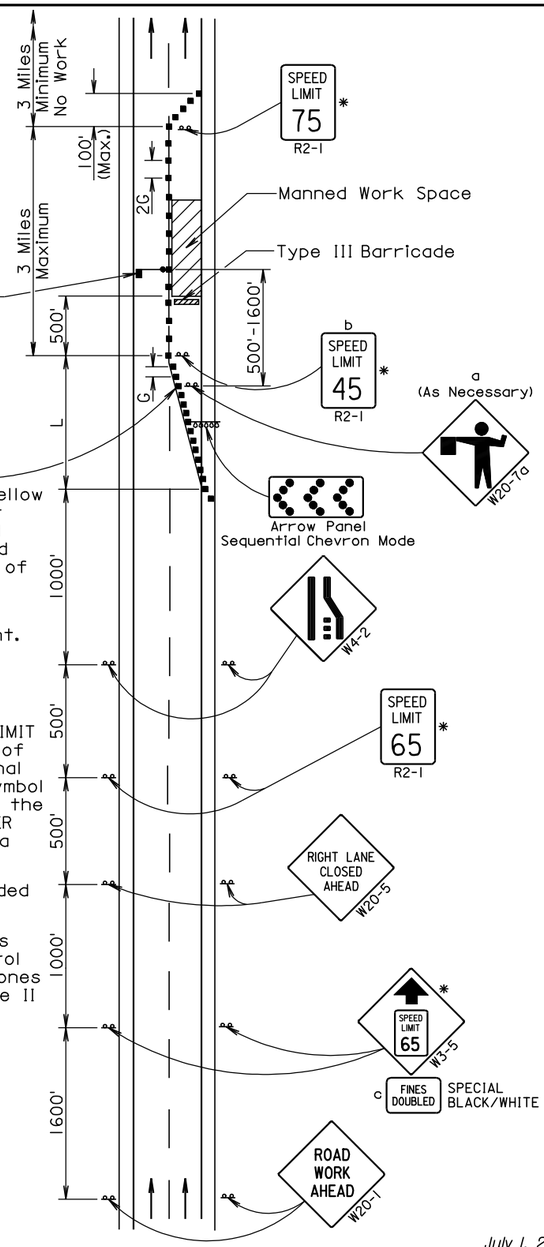
The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. 42" cones may be used in lieu of drums or type II barricades only along the centerline.

MANNED WORK SPACE SIGNING FOR MRM 57.69

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	14	23

Plotting Date: 29-SEP-2008

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 - 75	50	900



▪ Channelizing Device

* Speed appropriate for location.

4" white temporary pavement marking tape for right lane closures and 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 for a period of 24 hours or more.

Signs a, b, and c shall be removed or covered when workers are not present.

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

If the spacing between manned work spaces is 1 mile or greater, a SPEED LIMIT 65(*) sign shall be posted at the end of the first manned work space. Additional SPEED LIMIT 45(*) sign(s) and FLAGGER symbol sign(s) shall be installed in advance of the next manned work space(s). The FLAGGER sign shall be used whenever there is a Flagger present.

Left mounted advance signs on undivided highways are not required.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. 42" cones may be used in lieu of drums or type II barricades only along the centerline.

July 1, 2005

Published Date: 3rd Qtr. 2008

SDDOT

MANNED WORK SPACE SIGNING FOR DIVIDED AND UNDIVIDED HIGHWAYS

PLATE NUMBER 634.63

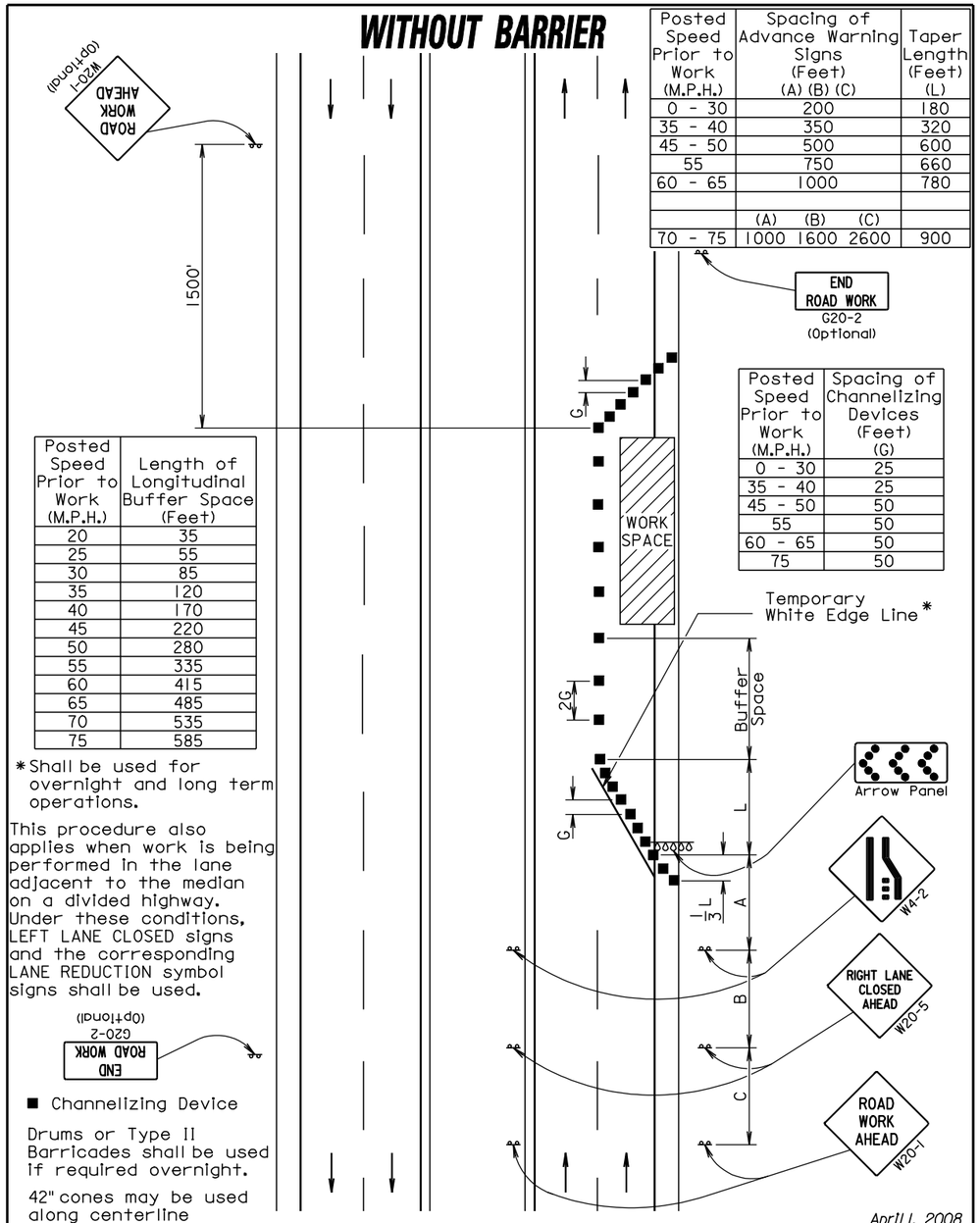
Sheet 1 of 1

WITHOUT BARRIER

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 75	1000 1600 2600	900

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485
70	535
75	585

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50
55	50
60 - 65	50
75	50



* Shall be used for overnight and long term operations.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.

END ROAD WORK G20-2 (Optional)

■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.

42" cones may be used along centerline

April 1, 2008

Published Date: 3rd Qtr. 2008

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER

PLATE NUMBER 634.64

Sheet 1 of 1

Username - trrcil610

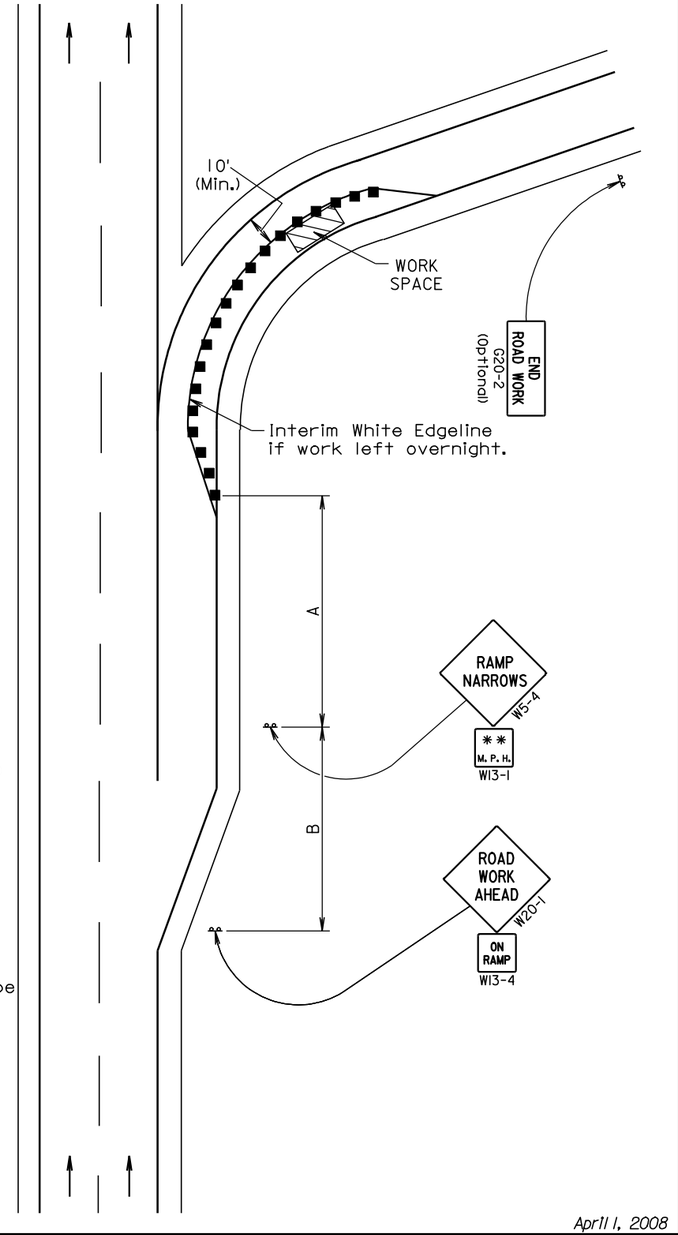
■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B)
45 - 50	500
55	750
60 - 65	1000
	(A) (B)
70 - 75	1000 1600

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

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



April 1, 2008

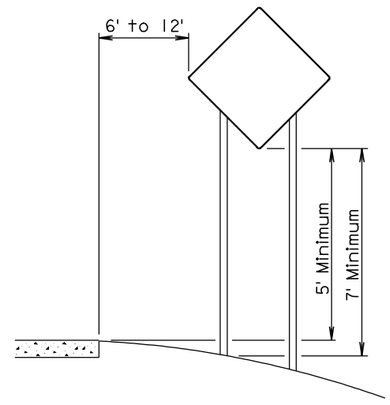
Published Date: 3rd Qtr. 2008

SDDOT

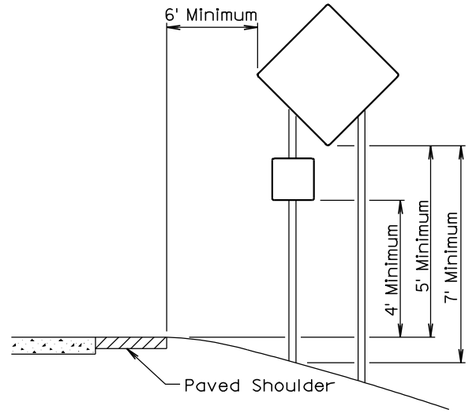
GUIDES FOR TRAFFIC CONTROL DEVICES
PARTIAL EXIT RAMP CLOSURE

PLATE NUMBER 634.69

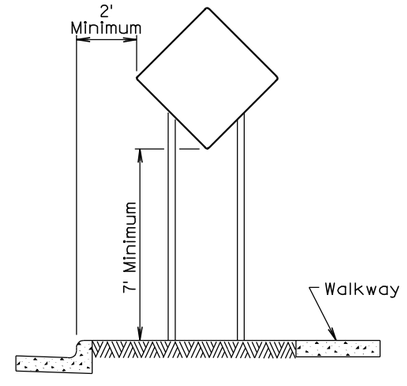
Sheet 1 of 1



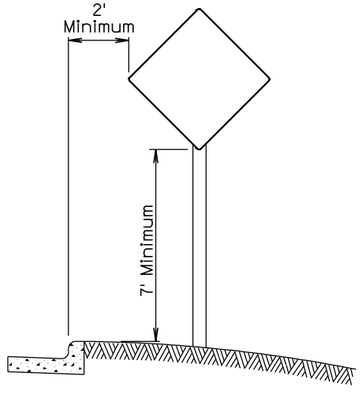
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



URBAN DISTRICT

December 23, 2003

Published Date: 3rd Qtr. 2008

SDDOT

BREAKAWAY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER 634.85

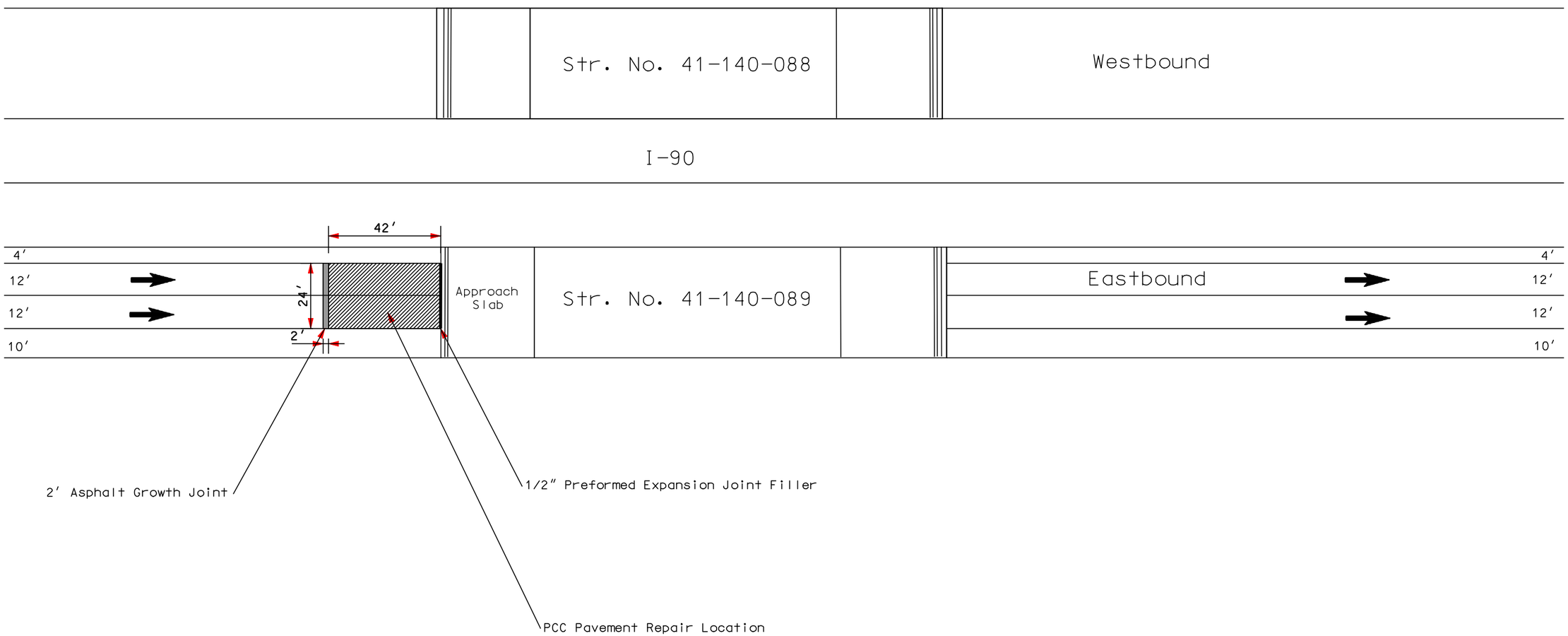
Sheet 1 of 1

PLOT SCALE - 40.000000:1.000000

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	16	23

Plotting Date: 29-SEP-2008

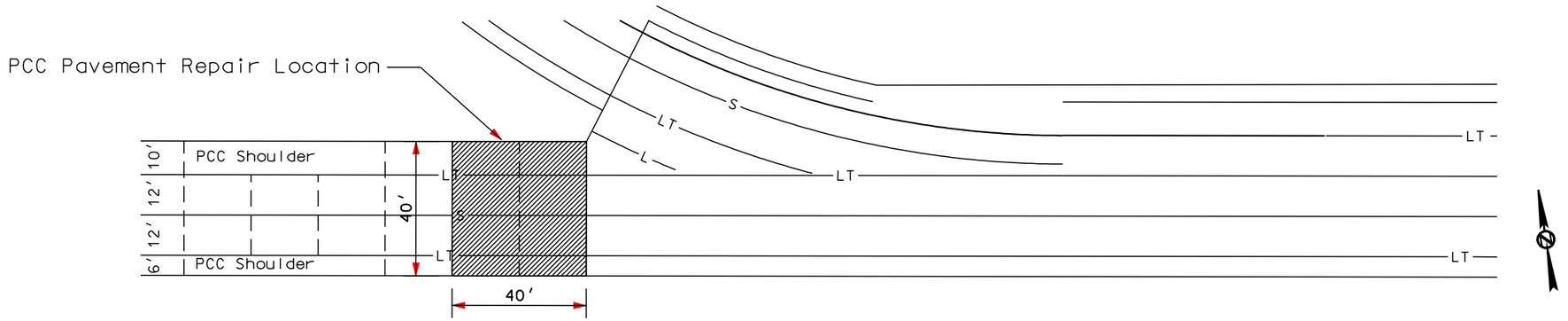
MRM 16.67 Eastbound



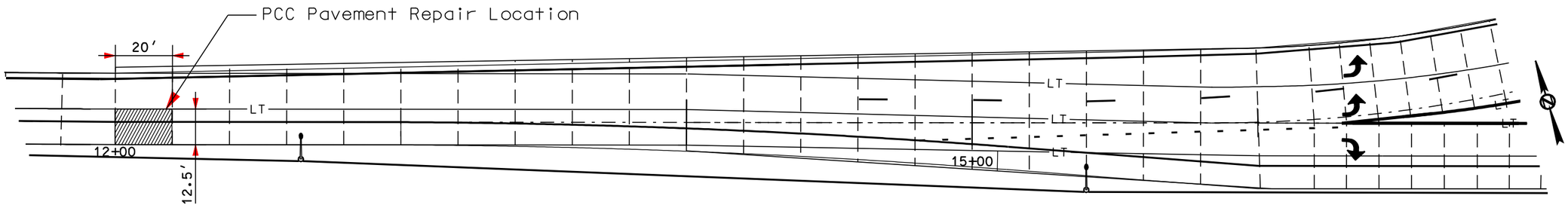
PLOTTED FROM - TRRC11610

FILE - U:\REGIONRC\PRJ\2009RCREGMAINT\PLANS\I90 CONCRETE REPAIR\I90 MRM16.67.DGNNAME - 16

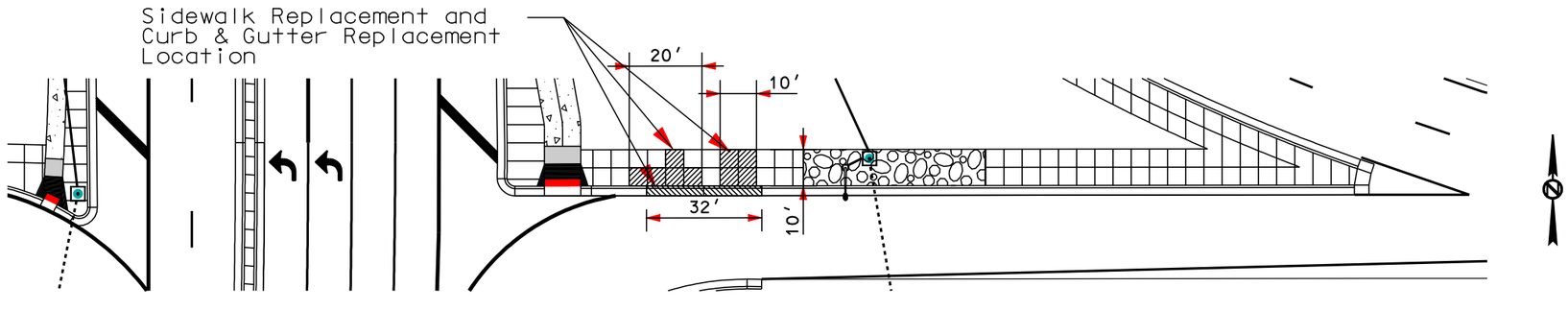
MRM 57.69 Westbound I90



Exit 60 Eastbound Off Ramp



Exit 60 Eastbound On Ramp



PLOT SCALE - 200.0000000:1.0000000

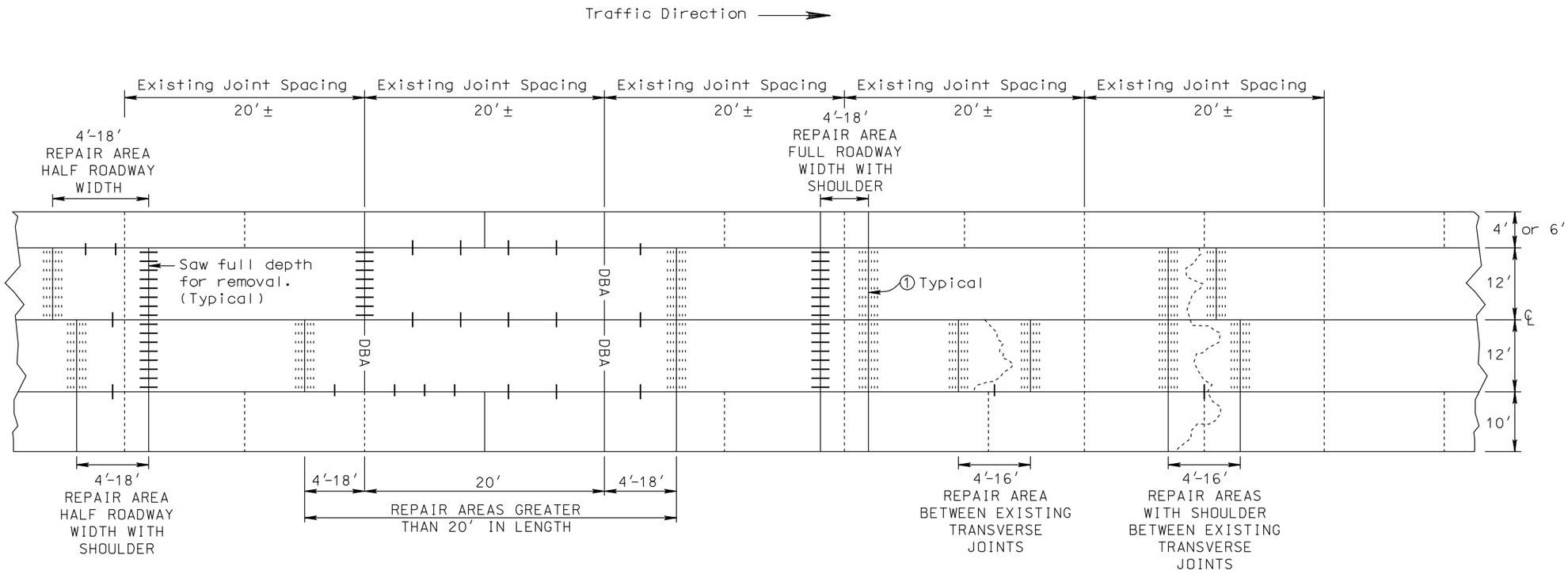
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	18	23

Plotting Date: 29-SEP-2008

NONREINFORCED PCC PAVEMENT REPAIR

FOUR LANE DIVIDED WITH PCC SHOULDERS IN RURAL SECTION

TYPICAL REPAIR AREAS



NOTE:

① Where possible, transverse joints shall be constructed full roadway width.

KEY:

Steel Bars for Longitudinal Joints (for repair areas greater than 4 feet in length)

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

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

Steel Bars for Transverse Joints

— Drilled in 1¼″ x 18″ epoxy coated plain round dowel bars spaced 18″ center to center.

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

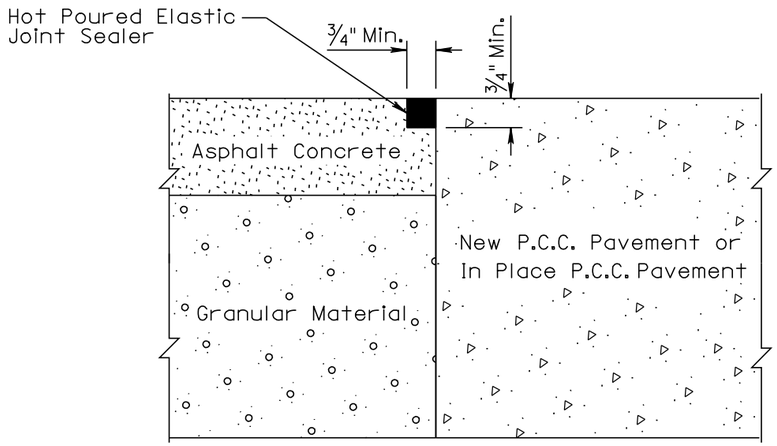
DBA Dowel Bar Assembly (for repair areas greater than 20′ in length)

PLOTTED FROM - TRRC11610

FILE - U:\REGIONRC\PRJ\2009RCREGMAINT\PLANS\190 CONCRETE REPAIR\PCCPREPAIRPLOT.DGN NAME - 18

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	19	23

Plotting Date: 29-SEP-2008



March 31, 2000

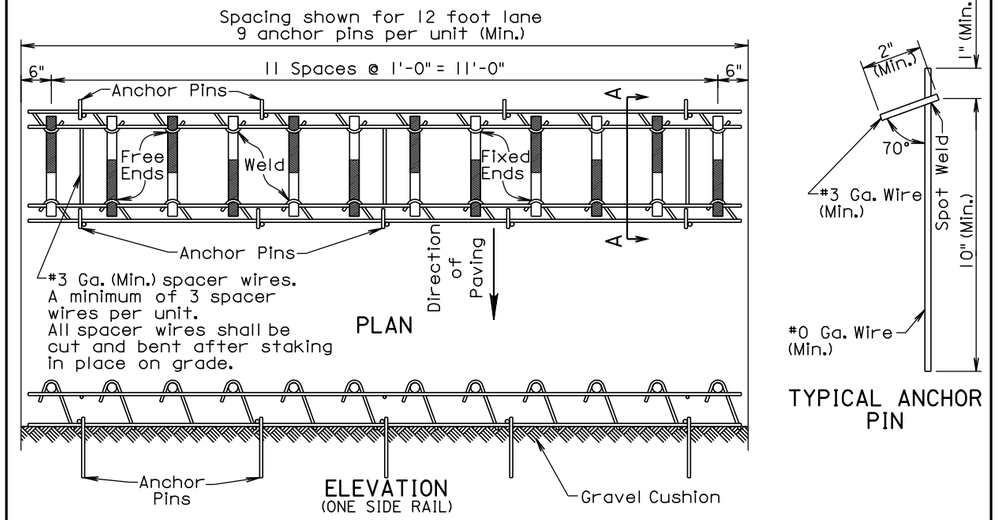
Published Date: 3rd Qtr. 2008

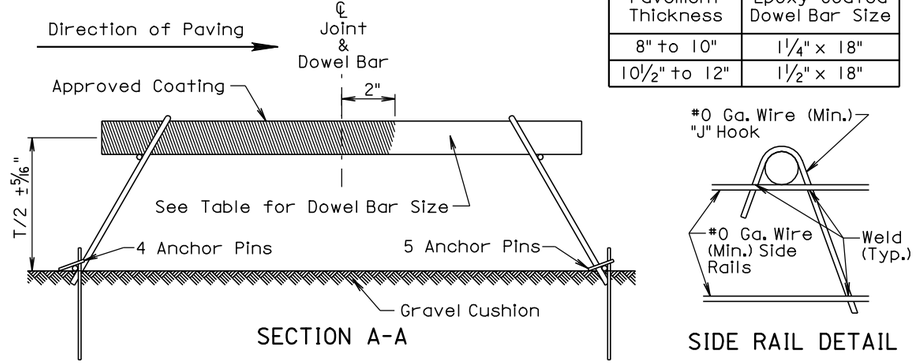
SDDOT

ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT

PLATE NUMBER 320.15

Sheet 1 of 1





Pavement Thickness	Epoxy Coated Dowel Bar Size
8" to 10"	1¼" x 18"
10½" to 12"	1½" x 18"

GENERAL NOTES:

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

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

Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

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

December 23, 2007

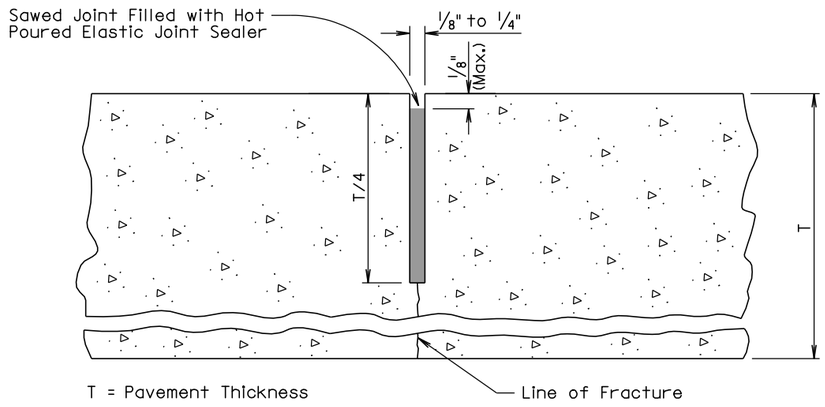
Published Date: 3rd Qtr. 2008

SDDOT

PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS

PLATE NUMBER 380.01

Sheet 1 of 1



GENERAL NOTES:

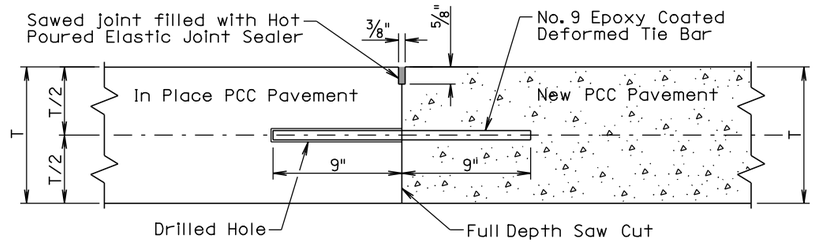
The saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

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

December 23, 2007

Published Date: 3rd Qtr. 2008	SDDOT	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.03 Sheet 1 of 1

TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

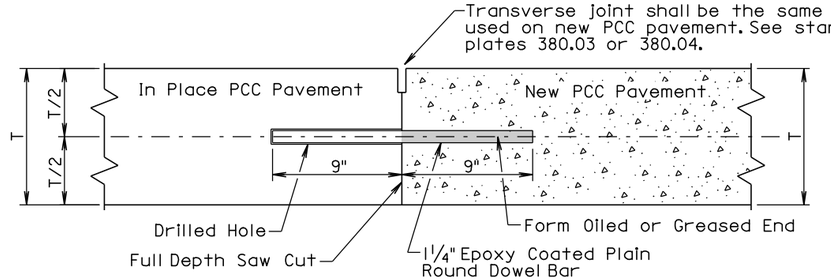
This detail shall be used when the transverse joint is less than 15 feet from the existing transverse contraction joint.

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No. 9 epoxy coated deformed tie bars shall be spaced 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

This detail shall be used when the transverse joint is 15 feet or greater from the existing transverse contraction joint.

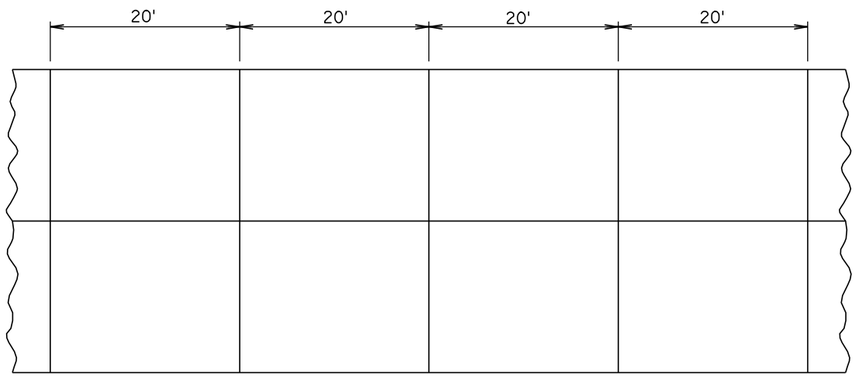
The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

The 1 1/4" epoxy coated plain round dowel bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

September 6, 2006

Published Date: 3rd Qtr. 2008	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.06 Sheet 1 of 1



September 14, 2001

Published Date: 3rd Qtr. 2008

SDDOT

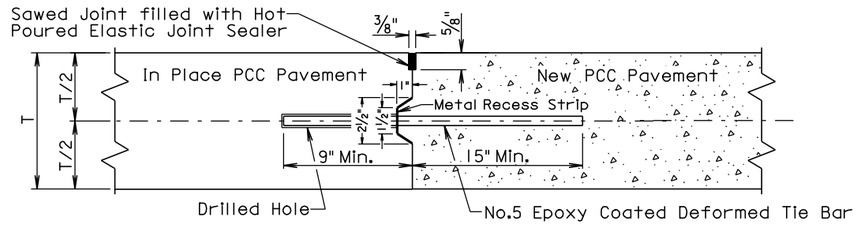
PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING

PLATE NUMBER 380.08

Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(DRILLED IN BARS)



T = Pavement Thickness

GENERAL NOTES:

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

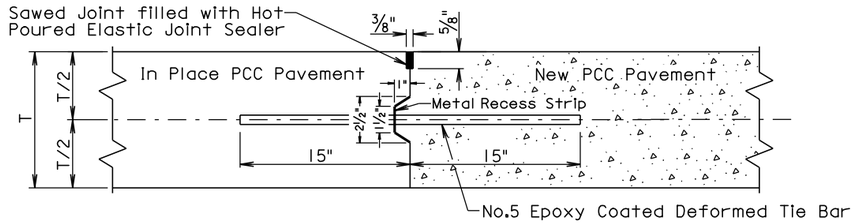
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(INSERTED OR FORMED IN BARS)



T = Pavement Thickness

GENERAL NOTES:

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

September 14, 2001

Published Date: 3rd Qtr. 2008

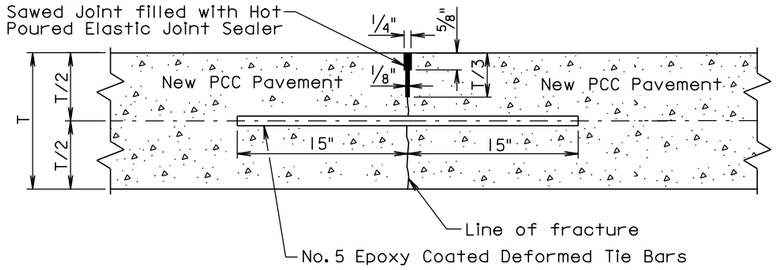
SDDOT

PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS

PLATE NUMBER 380.10

Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS
(POURED MONOLITHICALLY)



T = Pavement Thickness

GENERAL NOTES:

No. 5 epoxy coated deformed tie bars shall be spaced 48 inches center to center.

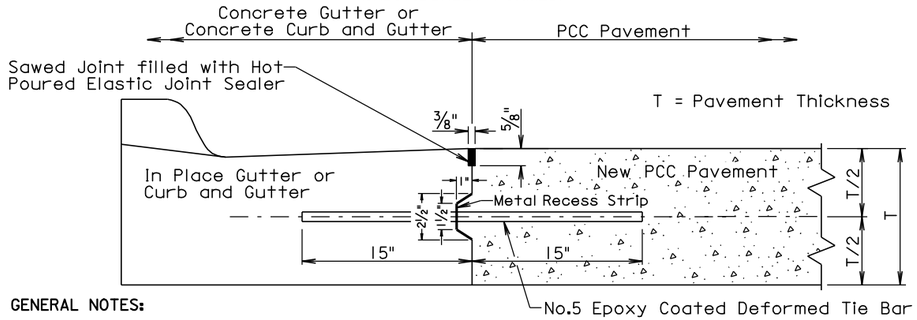
The tie bars shall be placed a minimum of 15 inches from the existing transverse contraction joints.

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

Published Date: 3rd Qtr. 2008	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
			Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(INDIVIDUALLY FORMED)



GENERAL NOTES:

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center. The keyway shown above is a female keyway.

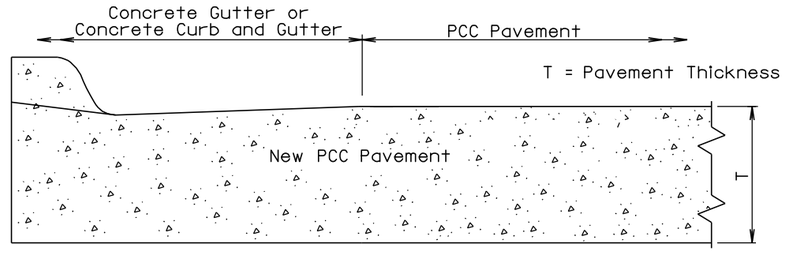
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter shall be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter shall be 1 1/2" deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY



GENERAL NOTES:

The mainline curb and gutter may be placed monolithically with the PCC pavement. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement shall be eliminated.

The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

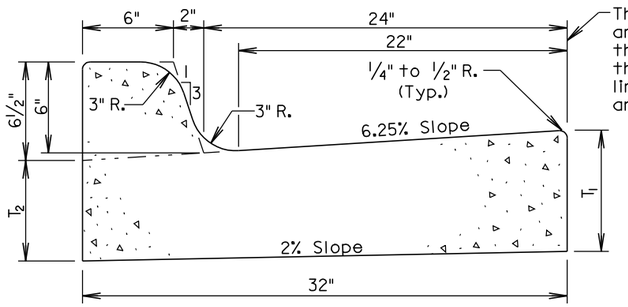
The slope of the gutter shall be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter shall be constructed at the same slope as the mainline concrete pavement.

September 14, 2005

Published Date: 3rd Qtr. 2008	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-451 090 W-452 090 E-452	23	23

Plotting Date: 29-SEP-2008



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

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	4 5/8	0.055	18.2
B67	7	5 5/8	0.063	15.9
B68	8	6 5/8	0.071	14.1
B68.5	8.5	7 1/8	0.075	13.3
B69	9	7 5/8	0.079	12.7
B69.5	9.5	8 1/8	0.084	11.9
B610	10	8 5/8	0.088	11.4
B610.5	10.5	9 1/8	0.092	10.9
B611	11	9 5/8	0.096	10.4
B611.5	11.5	10 1/8	0.100	10.0
B612	12	10 5/8	0.104	9.6

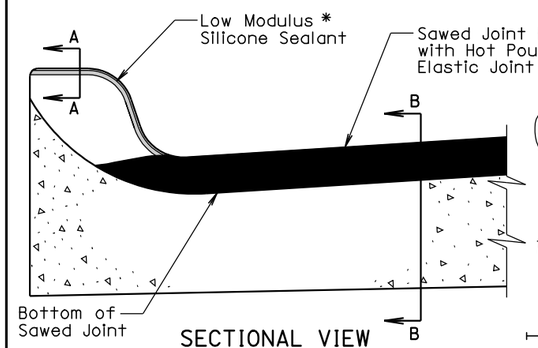
GENERAL NOTES:

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

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

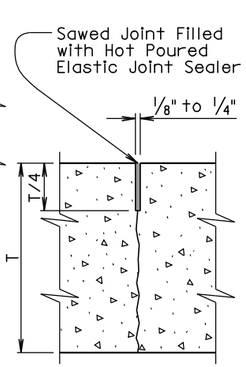
September 6, 2006

Published Date: 3rd Qtr. 2008	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1

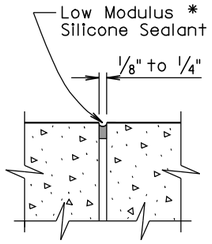


SECTIONAL VIEW

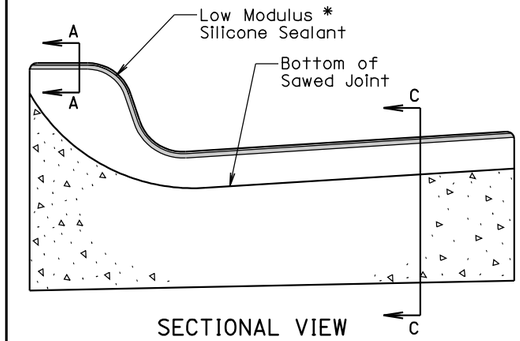
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)



SECTION B-B

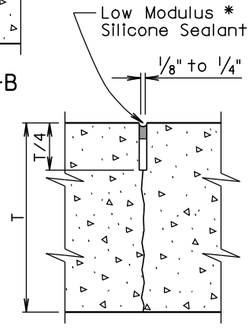


SECTION A-A



SECTIONAL VIEW

(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)



SECTION C-C

* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

A 1/2" preformed expansion joint filler shall be placed transversely in the curb and gutter at the following locations:

1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
2. At each junction between new curb and gutter and existing curb and gutter.

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

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

September 6, 2006

Published Date: 3rd Qtr. 2008	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 1

Username - trrcl1610